

SUBJECT: CCL 24/05/16 - COUNCIL SUBMISSION ON NEWCASTLE LIGHT RAIL REVIEW OF ENVIRONMENTAL FACTORS

REPORT BY: PLANNING AND REGULATORY
CONTACT: DIRECTOR PLANNING AND REGULATORY / MANAGER STRATEGIC PLANNING

PURPOSE

Transport for NSW has released the Newcastle Light Rail Review of Environmental Factors (REF) for public comment. A Council Notice of Motion, 26 April 2016, requested officers to prepare a submission on the Newcastle Light Rail for consideration at the 24 May 2016 Council Meeting.

RECOMMENDATION

- 1 That Council endorses the Newcastle Light Rail REF submission, **Attachment A**.

KEY ISSUES

- 2 The Newcastle City Council submission on the Light Rail REF 2016 covers the issues highlighted in the Notice of Motion resolved on 26 April 2016 and is consistent with the Connecting Newcastle document endorsed by Council on 22 March 2016.

FINANCIAL IMPACT

- 3 There is no financial impact by making a submission on the Newcastle Light Rail REF.

COMMUNITY STRATEGIC PLAN ALIGNMENT

- 4 Our submission is based on previously endorsed Council documents, The Hunter Street Revitalisation Strategic Framework 2010 and Connecting Newcastle 2016. Both of these documents are delivering on the Newcastle Strategic Plan 2030.

IMPLEMENTATION PLAN/IMPLICATIONS

- 5 Nil

RISK ASSESSMENT AND MITIGATION

- 6 The submission addresses the issues raised in the Council Notice of Motion, 26 April 2016.

RELATED PREVIOUS DECISIONS

- 7 Council Notice of Motion, 26 April 2016, requested officers to prepare a submission on the Newcastle Light Rail for consideration at the 24 May 2016 Council Meeting.

CONSULTATION

8 The Newcastle Light Rail REF is currently on public exhibition.

OPTIONS

Option 1

9 The recommendation as at Paragraph 1. This is the recommended option.

Option 2

10 Council does not endorse the submission and no commentary is provided from Council on the REF. This is not the recommended option.

BACKGROUND

11 Not applicable.

ATTACHMENTS

Attachment A: Newcastle Light Rail REF submission.

Submission to Transport for NSW

Newcastle Light Rail Review of Environmental Factors (REF) 2016 Newcastle City Council

27 May 2016



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1. Executive Summary

Newcastle City Council (Council) has considered the Transport for NSW (TfNSW) Review of Environmental Factors (REF), placed on public exhibition between 5 April and 27 May and provide this submission in response to the REF.

Council supports light rail as a public transport option for Newcastle but rejects the light rail proposal as contained in this TfNSW REF. There are serious concerns with the proposal, and we fear the preferred option presented in the REF will severely undermine Council's vision for the Newcastle city centre, and ultimately fail those who choose to live, work and invest in Newcastle. Our submission will outline the numerous issues in the REF light rail proposal and provide positive alternatives for light rail implementation.

The Newcastle Urban Renewal Framework, presented in many documents and plans, clearly articulates our vision for the city centre and the connected city.

Council recognises we need a light rail network that makes sense and that delivers our urban revitalisation goals to create a vibrant and more liveable city centre. Council seeks to ensure such projects showcase our heritage, contribute to inspiring public spaces and activates our streets and shopfronts. The REF does not deliver on the Council and community endorsed vision for the city centre.

This submission documents the numerous concerns Council has identified in the REF, particularly the:

- Lack of urban renewal focus
- Safety and amenity for pedestrians
- Lack of parking solutions
- Lack of a separated cycleway option
- Unsatisfactory impacts on other city streets
- Reintroduction of barriers to the city centre
- Location of light rail stabling facility
- Reliance on post REF approval planning for urban design
- Lack of future proofing
- Lack of network expansion planning
- Poor impact assessments of different options - mixed and corridor options
- Project not considered state significant
- Governance processes not adequate and lack of transparency

The majority of issues and concerns stem from the separated running of light rail in Hunter Street.

Council has proposed their preferred option, known as the Mixed Running Option, which involves changing to a mixed running light rail system for the Hunter Street (1300m) section instead of the separated running proposed by the REF. With motor cars and light rail vehicles sharing the centre travel lanes the remainder of Hunter Street can be used for expanded footpaths, trees, landscaping, separated cycleways and parking. This mixed running option for Hunter Street allows Council and the community to achieve urban renewal in the city centre.

If TfNSW are opposed to Council's preferred option of mixed running in Hunter Street, Council would consider implementation of a secondary option. The secondary option shows that light rail could remain in the rail corridor until it moves onto Scott Street (at Crown Street). This reduces the length of street running allowing urban renewal objectives for Hunter Street to be realised with a considerably lower level of negative impacts across the city. In addition, this option would result in a further saving in the order of \$100 million that could be invested in urban renewal initiatives (for Council and Urban Growth NSW) or for extension of light rail to Broadmeadow.

Our submission also includes other measures requiring funding to fully achieve the urban renewal of Newcastle and the city centre. These measures include:

- General public domain improvements (including pedestrian friendly treatments, streetscape improvements, paving upgrade, street trees, furniture, signage, bins) at key sites across the city centre.
- A separated cycleway through the city centre connecting to other cycling networks in the north, west and south of the city centre.
- Light rail network expansion including funding for Stage 2 Light Rail to Hunter Stadium precinct.
- Ferry terminal at Wickham.
- Improvements to King Street and Steel Street.
- Funding for parking stations in the East End, Civic and the Wickham Interchange.
- Park and Ride facilities at key locations across Newcastle.

The governance associated with the design process and stakeholder consultation has been inadequate. There has been a lack of transparency relating to background information throughout which has restricted Council's ability to remain engaged in this process. It has also reduced our ability to represent constituents.

Council is disappointed the REF defers consideration of many 'amenity' issues and impacts to later in the process. Council remains concerned decisions on the route and operation of the light rail may remove future options and opportunities for our community.

2. Introduction

Newcastle City Council (Council) has considered the Transport for NSW (TfNSW) Newcastle Light Rail Review of Environmental Factors (REF), placed on public exhibition between 5 April and 27 May 2016 and provide this submission in response to the REF.

Council raises serious concern with the proposal, and fears the preferred option presented in the REF will severely undermine Council's vision for the Newcastle city centre, developed from extensive consultation processes with the community, and ultimately fail those who choose to live, work and invest in Newcastle. Instead, the REF seeks to justify a predetermined running model on the grounds of safety, network and operator efficiency alone.

As TfNSW is well aware, Council has, over a significant period of time, developed, advocated and endorsed strategies and initiatives which will contribute towards the creation of an attractive, vibrant and people centred city. Council's vision was indeed ratified by the State Government with the development of the Newcastle Urban Renewal Strategy (2012, 2014) and the creation of the Newcastle Urban Transformation and Transport Program, headed by Urban Growth NSW. Council has consistently expressed concern to TfNSW that the option developed over the last two years and tabled in the REF is in conflict with adopted strategic planning frameworks for urban renewal.

Throughout the design development phase, Council has consistently articulated its endorsed revitalisation priorities to TfNSW, which are:

1. Pedestrians – access, space and comfort – to make a **walkable city**.
2. Cyclists – **safe, separated cycleways** through the city.
3. Public Transport options – currently **light rail and buses**.
4. Vehicle Access – **maintaining the minimum number of vehicle lanes** to facilitate traffic flow with reduced speed zones in the city.
5. Special vehicle parking – disabled, motorbike and delivery vehicle parking options for a **more accessible and efficient city centre**.
6. General on – street parking – **maintaining parking options** in the city.

These priorities are drawn from both the Hunter Street Revitalisation Strategic Framework (HRSF) 2010, the Draft Newcastle Urban Renewal Strategy (NURS) 2014, and must remain fundamental in the design, consideration and delivery of light rail and integrated transport solutions in Newcastle.

In this submission, Council expresses its strong objection to the light rail proposal as contained in the TfNSW REF. Our key concerns are as follows:

1. Compromises the safety of pedestrians and the desired streetscape amenity of Hunter Street through introducing additional vehicular traffic into the kerb side lane.

2. Provides no solution to the removal of on street parking, accessible parking and loading zones necessary in commercial areas;
3. Fails to recognise the needs of cyclists and the role that cycleways play in Council's vision for a connected city and integrated transport network;
4. Fails to properly quantify the REF running option against other options in terms of safety and efficiency;
5. Relies on a suite of post approval management plans and strategies in an attempt to resolve fundamental issues including:
 - a. Car parking, loading zones;
 - b. Cycleways
 - c. Urban design;
 - d. Socio economic impacts;
 - e. Track design; and
 - f. Noise
6. Does not allow for future proofing of the network to ensure the appropriate use of road space in Hunter Street;
7. Does not adequately consider network expansion;
8. Relies on a Review of Environmental Factors which fails to properly account for impacts associated with the proposal which are significant;
9. The suitability and appropriateness of an REF to consider the likely impacts of the project is questionable. It is Council's view that the project should be assessed and determined as **State Significant Infrastructure**, in the same way that light rail projects have been dealt with in Sydney. It has been expressed by TfNSW representatives on several occasions that the REF represents a technical assessment of the proposal, however, given that the intent of the NUTTP is to deliver urban renewal, stimulate economic growth and change the social fabric of Newcastle, this would be better examined in an Environmental Impact Statement. Furthermore, the document fails to adequately take into account all matters affecting or likely to affect the environment, as required under Section 111 of the Environmental Planning and Assessment Act, 1979;
10. The governance process associated with the design process and associated stakeholder consultation has been inadequate. There has been a lack of transparency relating to background information throughout, which has restricted Council's ability to remain engaged in this process and its ability to represent its constituents. It should be noted that Council requested background information from TfNSW for a period of 18 months with limited success. The majority of these background reports were provided to Council at 3pm on Friday 6 May 2016, when the REF exhibition period had already commenced.

The late receipt of these reports has not allowed adequate time for a review. Council does note that there is evidence within these reports indicating that TfNSW had committed to separated running along Hunter Street well before it commissioned key technical studies necessary to test the suitability and likely impacts. Based on the information available it is apparent that TfNSW has adopted a 'one size fits all' approach to light rail in NSW. What has been proposed and accepted as the optimum solution in Sydney will not necessarily work in Newcastle.

Should TfNSW resolve to proceed with the project without addressing these matters, it will undoubtedly result in the delivery of light rail infrastructure which will only act as a barrier to further urban transformation and ultimately fail the people of Newcastle.

Council supports light rail as part of an integrated transport system, and recognises the value that an appropriate light rail network can bring to urban renewal in our city. In the event that a mixed running option cannot be supported by TfNSW, Council's secondary option is that light rail should remain in the rail corridor until it moves onto Scott Street (near Crown Street), so that urban renewal objectives in Hunter Street can be realised.

Council's submission is supported by a safety and efficiency assessment of the Newcastle light rail proposal which:

- Considers and assesses the findings of the REF with regard to safety and efficiency; and
- Provides commentary as to the alternatives to the TfNSW option, and identify the risks and associated mitigation measures that could be implemented in such an environment.

3. Newcastle Urban Renewal Framework

Hunter Street is the spine of the city and has historically been the city's main street. It ties the major components of the city's activity together, from the east end, through the civic precinct, to the west end. It is also close to other major hubs of the city such as Honeysuckle. It functions as a main transport corridor and supports key retail and main street shopping. Re-establishing Hunter Street as the city's spine will provide focus for the overall growth and development of the city centre ... (NURS, 2012)

Newcastle City Council has led the development of the urban renewal vision for the city centre of Newcastle. In 2010, Council adopted the *Hunter Street Revitalisation Strategic Framework (HSRF) 2010*.

Council then worked closely with the State Government in the development of the Newcastle Urban Renewal Strategy (NURS, 2012, 2014).

These documents have provided the framework for the Newcastle Urban Transformation and Transport Program (NUTTP) 2015 headed by Urban Growth NSW.

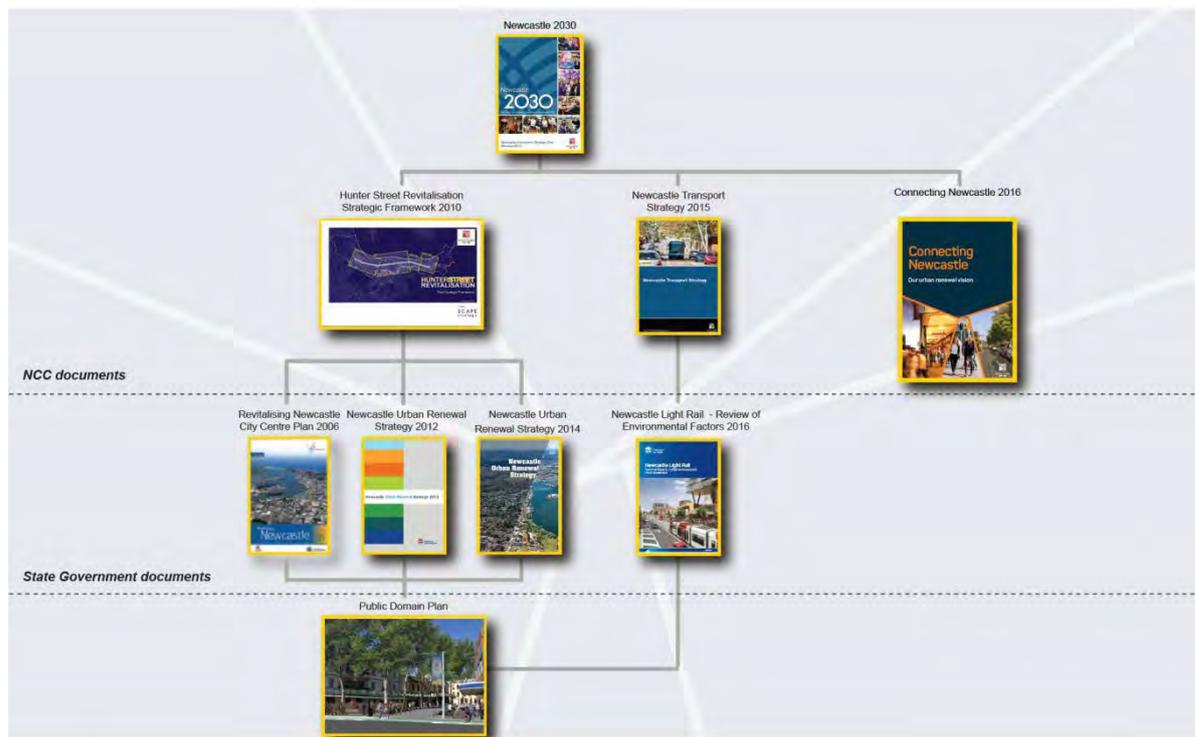


Figure 1 - Flowchart of key strategic documents

Council strongly recognises we need a light rail network that delivers our urban revitalisation goals to create a vibrant and more liveable city centre. Council also seeks to ensure such projects showcase our heritage, contribute to inspiring public spaces and activates our streets and shopfronts.

At the local level in 2012 and 2013, Council developed the Trial Change to Hunter Street Plan (TCHS) which demonstrated a balance between public transport, travel lanes, parking and active transport could be accommodated within the existing Hunter Street road reserve. The proposal was well received in the community.

To further develop the TCHS and integrate the urban renewal vision with the opportunities presented by light rail, Council created and endorsed the *Connecting Newcastle* document in 2016. A copy of the document is attached to this submission and further expands on our vision and priorities for urban renewal.

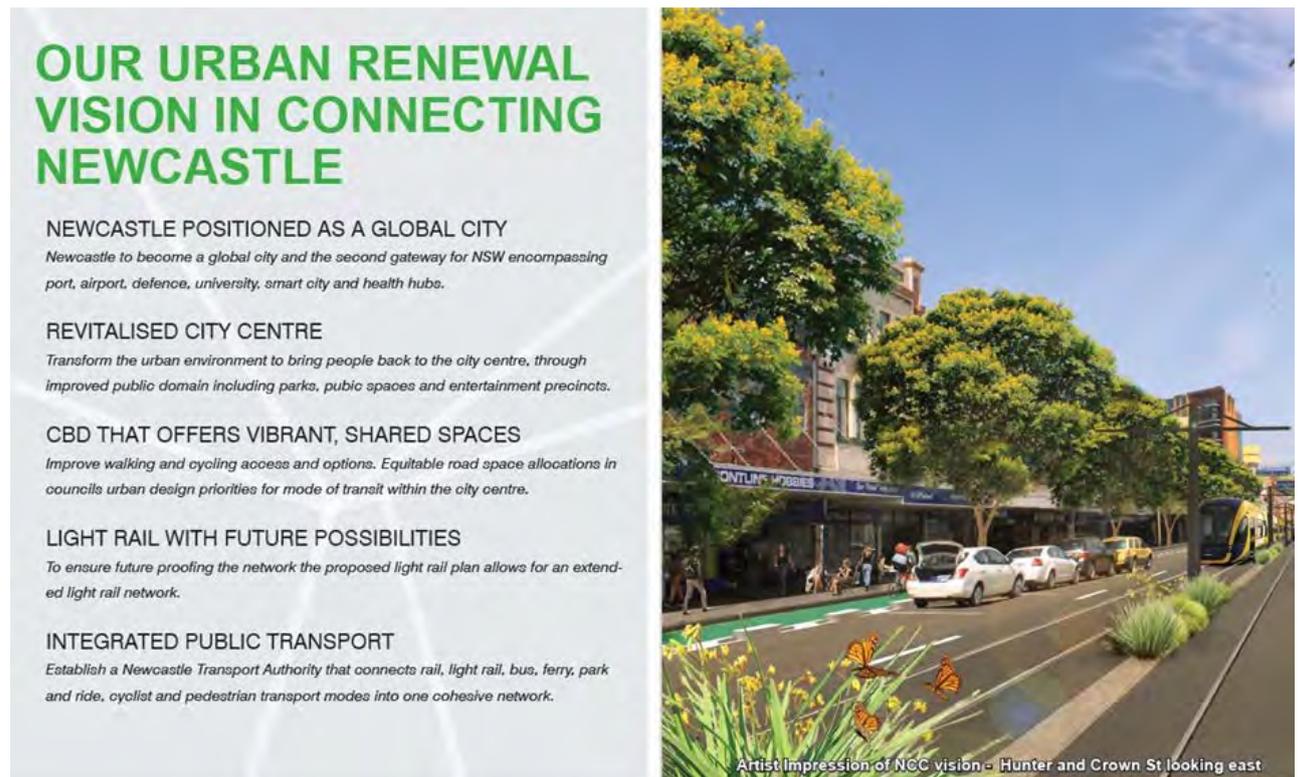


Figure 2 - Connecting Newcastle Vision

Newcastle Urban Transformation and Transport Program

In May, 2015, Council signed a Memorandum of Understanding (MOU) with UrbanGrowth NSW that acknowledged Council's role in the urban renewal process and defined how the two parties would work together to implement and deliver the NSW Government's NUTTP.

Importantly, the MOU articulates the program objectives:

- Reconnecting the city to the waterfront
- Deliver a light rail system connecting the main activity precincts in the renewal area;
- Facilitate urban transformation;
- Deliver a substantial increase in urban amenity through the activation of Government and other public lands;
- Facilitate activation, vibrancy, amenity and importantly jobs and economic development and diversity in Newcastle.

In the spirit of the MOU, Council worked with UrbanGrowth NSW to undertake the landmark *Revitalising Newcastle* community engagement program in August-September 2015 to understand community sentiment towards urban transformation of Newcastle's city centre. In terms of the communities' aspirations, **improved public transport** (75%) and **better walking and cycling connections** (67%) are the city centre enhancements respondents would most like to see occur in the future.

It is without doubt that the TfNSW light rail proposal, as presented in the REF, has significant shortcomings and **fails to meet Council's vision, the NUTTP objectives and the communities' aspirations.**

Council is extremely disappointed that significant issues for our community remain unresolved at the REF stage and following a two year design process. Council's issues include:

- fundamental urban design and public domain considerations including the introduction of traffic to the kerb side lane, cycleway location and pedestrian amenity are deferred to a later point in the process;
- the process and basis for justifying separated running within Hunter Street over mixed running is not documented;
- the wider social and economic impacts of the proposal on Newcastle city centre are not quantified nor appropriate solutions identified;
- longer term opportunities for future proofing the proposed light rail route and the road reserve are eliminated;
- proposed route and future network expansion is not addressed.

4. Council Review of the Light Rail REF

Council supports light rail as a public transport option for our city but rejects the preferred option of separated running for light rail in Hunter Street. This section of our submission provides the detailed reasons why Council has rejected separated running in our main street and highlights other concerns with the REF.

4.1. Urban Renewal and Amenity

The NURS (2014) describes the Newcastle city centre as being highly urban, featuring a built form which is typically low to medium rise, and has evolved with a fine grain pattern. In the case of Hunter Street, built form meets the public domain at the property boundary with active frontages, often with awnings for weather protection.

The width of Hunter Street combined with minimal setbacks and active street frontages, places the pedestrian footpath at a premium and as an element which should not be compromised.

In response to this, the NURS sets down a key place based objective of

- *reshaping Hunter Street as the main street and a key destination by:*
 - *widening footpaths, encouraging outdoor dining and activity opportunities, introducing new landscaping and cycle ways*
 - *reinforcing growth in existing activity nodes and revitalising Hunter Street Mall as a catalyst for the east end's renewal*

Newcastle Light Rail as proposed in the REF does not deliver improved urban amenity. The reshaping of Hunter Street, as outlined in the REF, delivers a light rail solution only not an integrated transport, or integrated urban renewal outcome.

The separated running model described in the TfNSW REF will compromise the fabric and function of Hunter Street while removing any opportunity to provide cycle ways or accommodate pedestrian footpath widening along Hunter Street. This is illustrated in Figure 3 below:

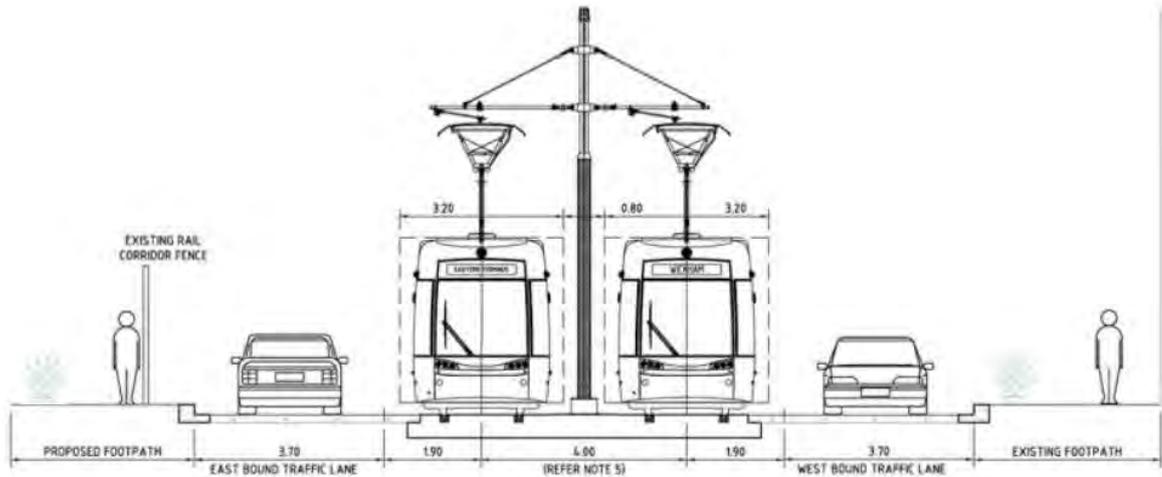


Figure 3 – Segregated Running along Hunter Street (TfNSW REF, 2016)

It is evident in figure 3 above that no consideration is given to urban amenity and city operational issues such as pedestrian friendly design, footpath widening, cycleways, landscaping and parking. For the REF to identify that these critical issues will be addressed at a later date is an inappropriate response and is unacceptable to Council and the people of Newcastle.

Council has participated in the design process for two years highlighting these concerns with both TfNSW and RMS and requesting that these issues be dealt with in the REF. These concerns have been ignored completely.

4.2. Kerbside Lane and Travel Lane Treatment

“Widening footpaths and introducing more landscaping, activity zones and street furniture will improve the amenity for pedestrians and stimulate activity and renewal in buildings fronting the street. (NURS, 2012)”

The TfNSW REF proposes approximately 1300m of separated running along Hunter Street. For this length of Hunter Street, light rail will exclusively occupy up to 7.8 metres of roadway. This will not only displace an estimated 284 city centre parking spaces and 29 loading zones, it will introduce traffic traveling in a kerb side lane at up to 40 km/hr. In addition to diminished levels of safety for pedestrians, the introduction of traffic within kerb side lane will severely undermine the ability for renewal to occur for the full extent of segregated running within Hunter Street. This does not meet universal urban design principles that are adopted in many cities worldwide.

Figure 4 below illustrates the streetscape of a length of Hunter Street at Newcastle West, which has been subjected to kerb side traffic for an extended period and, as a result, has effectively deactivated the streetscape.



Figure 4 – Traffic in Kerb – Side Lane, Hunter Street, Newcastle West

As a result of pushing moving vehicular traffic to the kerb, and based on the documentation available in the REF, there is:

- no scope for footpath widening;
- significantly reduced opportunities for kerb side dining;
- a reduced likelihood of active street frontages;
- minimal opportunity for street tree planting, and
- no scope to introduce any sort of separated cycleway along Hunter Street.

Council's preference for a mixed running design is future proof by allowing parking lanes to be used as travel lanes either in peak periods or permanently if required by patronage or traffic congestion. TfNSW design does not allow for any adjustment to lane configurations in the future. In addition the design containing a 100mm step up to the light rail corridor precludes this flexibility. Council believes this constraint is unacceptable.

Council has grave concerns that the implementation of a light rail system which does not make such allowances, will drive away those wishing to frequent Hunter Street, either by foot, bicycle or road, through the loss of convenience and reduction in

amenity. This will, in turn, discourage private investment and business activity along Hunter Street.

4.3. City Wide Loss of Parking Spaces

The REF estimates loss of around 267 on road parking spaces will be lost in Hunter and Scott Streets between Worth Place and Telford Street and a further 19 spaces on Market Street. There will be no parking of any kind for over 1km from east of Darby Street to Telford Street.

In addition, 17 of the 32 available motorcycle parking spaces will be lost, along with 29 loading zones (of which 20 are situated on Hunter Street).

The *GHD Traffic Transport and Access Assessment* seeks to resolve such losses through stating:

“Investigation of options to mitigate the removal of these on street parking spaces and loading zones are currently being undertaken. Specific sites being considered include the former heavy rail corridor between Merewether Street and Argyle Street and between Worth Place and west of Wheeler Place. The investigation also requires consideration of the strategic transport policy of Council and others who control and manage roads in the Newcastle CBD. Therefore, consultation with a range of stakeholders including affected businesses, Roads and Maritime and Council would be undertaken before a preferred location is identified”

Council has already stated that parking issues should be resolved in the REF not deferred for future negotiation or a post approval mitigation strategy. .

Another issue not considered is that any work (streetlights, roadworks, water, sewer, electricity, cranes, major deliveries) needing to be carried out in the street, will completely block the travel lane. There is no solution provided in the REF to resolve what happens to the diverted traffic once it enters side streets, causing major traffic delays.

4.4. Provision of Cycleways

*“Improvements to the active transport network, in particular enhanced pedestrian and cycle connectivity between the city centre and the Hunter River waterfront, should be focused on Hunter Street with cross connections in appropriate locations. Recommended projects for improvement to the active transport network include the establishment of a **designated cycle lane along the length of Hunter Street, ...**”*
(NURS, 2012)

The TfNSW REF does not propose any cycling infrastructure within Hunter Street and fails to offer an acceptable alternative. TfNSW’s position on cycleways represents a complete departure from the position adopted by both Council and Urban Growth, and completely opposes recommendations contained in the NURS, TCHS, HSRF and the outcomes of consultation undertaken as part of the NUTTP. The REF also disregards the State Government NSW Bike Plan which clearly states is a whole-of-government initiative. The NSW Bike Plan is about promoting cycling as a means of transport for everyday use and encouraging people to ride more often and more safely.

King Street is suggested in the REF as a possible east west route, however, due to proposed 'no stopping' zones during peak periods, this route will not offer a safe alternative. It is understood that King Street would be widened in sections to increase road capacity to accommodate future traffic, thus the lack of road space may limit King Street to an on-road cycleway, placing cyclists unsafely between parked cars and moving vehicles. King Street is forecast to cater for 3,000 vehicles per hour in the year 2018 (with light rail in place). There is no mention in the REF about how the proposed cycleway in King Street would connect to the broader cycling network.

Honeysuckle Drive and Wharf Road is a suggested alternative, however, the route is too far removed from the city centre to effectively contribute to urban renewal and allow for effective engagement between cyclists and businesses operating on Hunter Street.

Connecting Newcastle proposes dedicated cycleways along both sides of Hunter Street, placed between the footpath and the parking lane. Providing for dedicated cycleways will accommodate cyclists of various riding skills and is likely to increase bike ridership and consequently improve the function and capacity of Hunter Street as part of an east – west transit route, capable of supporting multiple modes of transport. Section 5 further identifies how, under mixed running, Hunter Street would function and support multiple transport modes.

4.5. Stabling Facility

In the context of the broader urban renewal objectives contained in the NURS, the location and scale of the stabling facility is considered inappropriate and unnecessary. The REF fails to explore any alternate locations for this facility or justify the proposed location or scale of the facility.

Council is concerned that the introduction of an industrial scale building at a visually prominent gateway site will compromise the objectives of the NURS and act as a barrier to the development of Newcastle West as the new CBD.

Consideration should be given to moving the facility to an appropriate location west of Stewart Avenue.

4.6. King Street Impacts

The REF is proposing the near complete reconstruction of King Street from Stewart Avenue to Darby Street, including new traffic lights, slip lanes, road widening, intersection widening and an on road cycle way. This may not only cost a significant amount to achieve (purported in the media to be between \$40-70 million) it further reduces the urban renewal, legibility and amenity outcomes the State Government has set in NUTTP.

Connecting Newcastle 2016 has outlined that roads are a lower priority when compared to pedestrian, cyclist and public transport improvements for the Newcastle city centre. However, the REF proposes to spend significant funds to upgrade a road while reducing footpath widths, pedestrian safety, removing trees and providing a poor cycle way option. This further emphasises that this is a light rail and road project only, and not an urban renewal project.

The treatment between Auckland and Darby Streets is of particular concern. Council sees this section as a critical north south pedestrian and cyclist link for the existing cultural precinct, with the new law courts and soon to be university precinct. The REF proposes to construct of a dual lane carriageway through this pedestrian area to Darby Street. This will encourage higher vehicle speeds in an area we are trying to reduce safety concerns for pedestrians and cyclists. The REF also proposes the reduction of Civic Park green spaces for the installation of the additional vehicle travel lanes, a slip lane in Darby Street and a bi-directional shared pathway inside the park. This not only removes valuable parkland but will also require the removal of all trees along the northern park edge. Council believes this is an unacceptable urban renewal outcome.

There is also the introduction of a slip lane near the corner of Steel Street which will remove the existing row of trees outside McDonald's and make the footpath even smaller, which further reduces the safety, amenity and comfort of pedestrians in a busy area of the city.

4.7. Steel Street Impacts

The REF proposes a stronger traffic role for Steel Street at the expense of pedestrians and cyclists. Steel Street is becoming a highly utilised pedestrian and cyclist access from Honeysuckle to Marketown, as intended by the closure of the heavy rail line. However, the REF layout creates another major north south car movement corridor that will decrease the urban amenity for pedestrians, cyclists and opportunities for street trees and outdoor dining. The corner of Steel and Hunter Street shows that a

slip lane will be introduced requiring the reduction in footpath width and the removal of existing street trees.

The REF layout for Steel Street contradicts the Council position of making this street pedestrian friendly, with a separated cycle way, to improve the link between the Harbour, Marketown and National Park. Council has proposed this design to TfNSW during the two year design process to date, only to be ignored in favour of a vehicle orientated outcome for Steel Street that will result in a 'rat run' for vehicles in the west end.

4.8. Barriers along the light rail route

The REF suggests that there will be some form of barrier to deter vehicles from entering the separated running light rail tracks. Currently, this is in the form of a 100mm high kerb. This will not only create a physical barrier for vehicles but also an amenity 'barrier' virtually replicating the previous heavy rail corridor.

It is stated in the REF that ballast in the existing corridor will remain and that fencing will be used to limit access in some areas of the corridor. Council believes that this perpetuates the barrier to permeability, which was the very reason for removing the heavy rail in the first place.

The current location and type of light rail station proposed at the Civic stop will also be a barrier and impact the operation of the Civic Theatre. Large shows and events use semi-trailer trucks when 'bumping in' to the Civic Theatre. These semi-trailer trucks turn left out of Wheeler Place into Hunter Street and need a wide turning circle to exit. The REF shows the location of the light rail station at Civic outside of Wheeler Place in a split platform format. The platform is in a location that will block the safest exit route for semi-trailers turning from Wheeler Place into Hunter Street.

4.9. Social impacts

The Newcastle Light Rail Project will have significant short and long term social impacts (both positive and negative) on the community, economy and physical environment of the Newcastle city centre. Key social impacts that need to be addressed in the REF include:

- A commitment to undertaking a specific Disability Access and Mobility Audit, prepared by a suitably qualified access auditor in the detailed design stage of the project. This will implement and achieve the actions of the TfNSW Disability Action Plan 2012-2017.
- Engagement of key representatives of the Newcastle and Lower Hunter disability communities at the commencement of the detailed design process. An advisory group or reference panel needs to be convened to provide input to project design, construction and implementation phases.

- An acknowledgement of Aboriginal Custodians statement in Section 1.5 of Technical Paper 4 in line with the guidelines in Council's Reconciliation Action Plan 2013 (RAP).
- Re-wording Section 3.5 of Technical Paper 4 to more accurately reflect the known and ongoing nature of Aboriginal occupation of the city centre.

4.10. Economic impacts

Planning for managing impacts to business in the short term and long term are not evident in the REF. Light rail implementation is acknowledged as having potentially significant impacts on local businesses during both the construction and operational phases of the project. The significant loss of parking spaces within the proposal area will critically impact on businesses along and adjacent to Hunter Street. The mitigation measure identified in Technical Paper 6 does not reduce the significance to a minor negative.

The REF does not adequately deal with the emerging changes in the Newcastle city centre night time economy. The ceasing of the light rail services at 1 am will not adequately support the current night time economy and may indeed have a negative impact on public transport access for patrons in leaving the city centre after 1am. The REF should provide greater flexibility in service operating hours to accommodate visitor and resident movements associated with the night time economy.

5. Council Preferred Option for Light Rail

Council holds the strong view that

An integrated transport network is the cornerstone of a thriving global city. Newcastle deserves a network where buses, trains, cars and light rail co-exist happily with pedestrians, cyclists, skateboarders and scooters.

Council's preferred option, known as the Mixed Running Option, supports the REF option for light rail until Worth Place (provision of 600 metres of segregated running within the heavy rail corridor), followed by approximately 1300m of mixed running along Hunter Street, before a final 500 metres of mixed running within Scott Street, to Pacific Park or the loop option as outlined in *Connecting Newcastle 2016*.

Connecting Newcastle 2016 shows how this can be achieved through a simple change to a mixed running light rail system for Hunter Street section.

Figure 5 shows a cross section of how mixed running could work in Hunter Street.

Diagram showing mixed-running concept

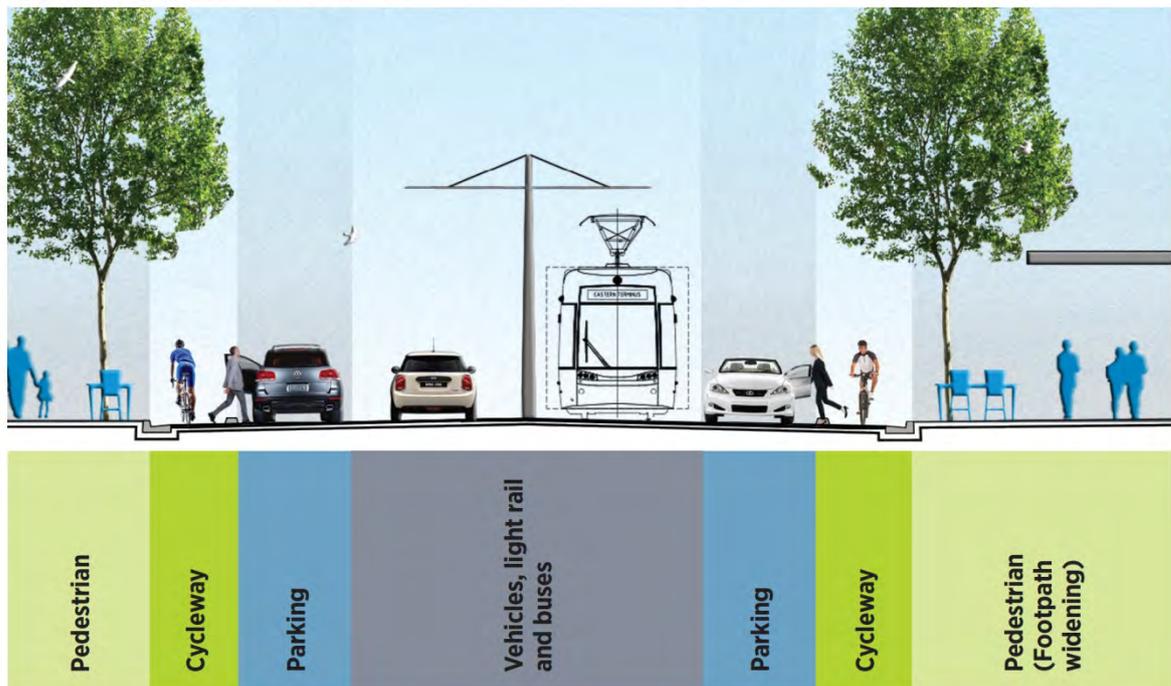


Figure 5– Mixed Running (*Connecting Newcastle, 2016*)

The operational model described in the TfNSW REF will involve 600 metres of segregated running within the heavy rail corridor from Wickham, followed by 1300 metres of separated running along Hunter Street, before a final 500 metres of mixed running within Scott Street. A comparison of the operational models is provided in Figure 6 below:

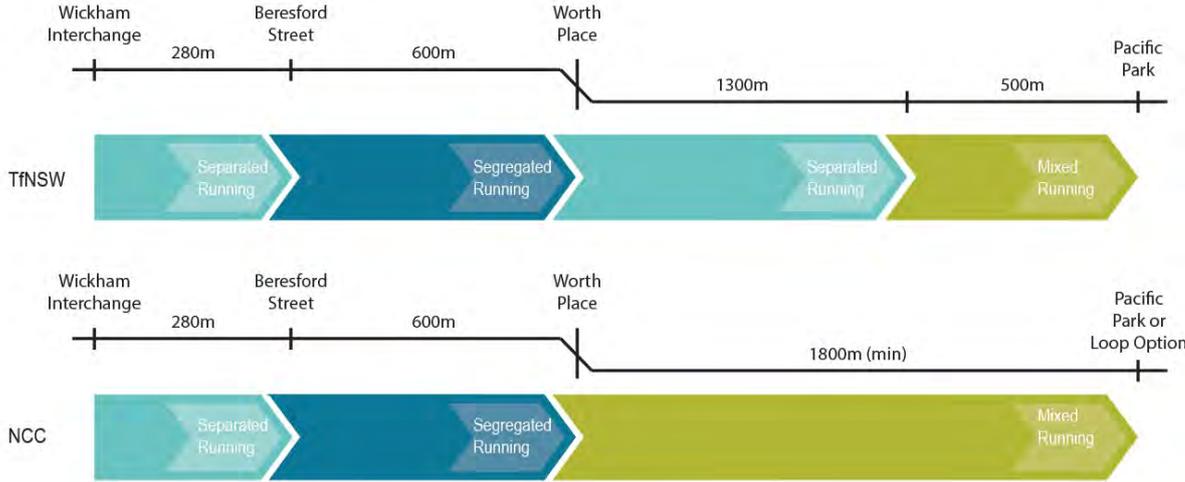


Figure 6 – TfNSW versus NCC Preferred Operational Model for Light Rail

While the REF accepts mixed running for 500 m along Scott Street, its reasoning for discounting an additional section of mixed running along Hunter Street is unclear, lacks justification and has not been supported by a quantitative risk assessment. Section 5.5.2 of the TfNSW REF makes a comparison between mixed and separated running in an attempt to justify the 1300m of separated running along Hunter Street.

Abandoning mixed running in Hunter Street on the basis outlined in Section 5.5.2 of the REF is premature. A comprehensive analysis to compare the pros and cons of each option (separated vs mixed running), should be undertaken to support the REF preference for adopting separated running over mixed running along Hunter Street.

The forecast traffic flows for Hunter and Scott Street do not support separated running of light rail in Hunter Street. As shown in the REF the forecast traffic flows on Hunter Street, between Merewether and Darby Street are up to 12,000 a day in year 2018 and 2028. The forecast traffic volumes on Scott Street, between Bolton and Watt Street, are up to 10,500 a day in year 2018 and 2028. With the future traffic volumes on Scott Street (mixed light rail operation) similar to the future traffic volumes on Hunter Street (separated light rail), **there is little justification for separated running based on traffic volumes.** Council's mixed running option allows for the parking lane to be used as a peak hour travel lane if traffic congestion does become an issue in the future. This helps to future proof light rail and vehicle access in our city.

Newcastle light rail is proposed to operate at 10 minutes intervals as compared with 7.5 minutes in Melbourne which means a lower crash exposure between light rail and

other vehicles in in a mixed running environment. Justifying a separated running system in Hunter Street based on different operating intervals is not a fair comparison.

The multi-criteria analysis in Section 4.3 of *Newcastle Light Rail Technical Advisory Services (PSC-2967) Definition Design - Separated vs Mixed Running Along Hunter Street (Aurecon/ PB 2014)* was the basis for adopting separated running as outlined in the REF. However, Council contends that the analysis was not undertaken correctly. The configurations of the separated running and mixed running as shown in the respective Figure 2.2 and Figure 2.3 do not reflect the current designs. TfNSW assumed a mixed running light rail would use kerbside lanes and not centre lanes as Council has proposed. The TfNSW document assessed both alignment options by 12 criteria in a multi-criteria analysis and awarded 5 ticks to separated running and 3 ticks to mixed running.

Council has revised the multi-criteria analysis in Table 1 and the technical analysis indicates mixed running better meets the operational criteria.

Table 1 Multi-Criteria Analysis

Criteria	Separated Running	Mixed Running	Justification for Revising the Original Analysis
LRT Operation Transit Time	✓		<p>Unchanged. However, the trip time in mixed running is not significantly higher than separated running because:</p> <ul style="list-style-type: none"> • Signal priority would be provided at intersections to minimise the dwell time at signals. • The road configuration would not allow road vehicles to overtake nor undertake a light rail along the route and at the stops. As such there would be virtually no road vehicles (other than occasional parked vehicles having just left a parking space) running in front of the light rail vehicle, and hence the light rail is often at the start of the queue at the traffic lights. • Council has assessed the possible trip times under various options in separated running vs mixed running and found similar trip time (with difference less than 1 minute) in both alignment options. The calculation also indicates the introduction of signal priority at intersections significantly reduced trip times in either alignment option due to the travel time saving with minimal dwelling time at the Steel Street, Worth Place, Auckland Street, Merewether Street, Watt Street intersections.
LRT Operation Reliability	✓		<p>Unchanged. As above. Newcastle light rail is a localised service running at slow speeds in mixed traffic. The reliability of mixed running is not significantly worse than separated running given priority treatments are provided at intersections.</p>
Safety		✓	<p>The safety comparison of separated and mixed running undertaken by Council revealed that separated running presents more intolerable safety risks than mixed running, particularly risking the life of pedestrians/cyclists in an intolerable level as these</p>

Criteria	Separated Running	Mixed Running	Justification for Revising the Original Analysis
			<p>vulnerable road user groups are not well separated from the moving traffic as compared with the full separation that can provide in mixed running.</p> <p>Mixed running may create other safety risks but are mostly in a lower level, except for three intolerable risks involving rear-ending a road vehicle, oncoming light rail vehicle/ general vehicle and hitting a passenger getting into/out of a parked vehicle. Mitigation measures can be developed for these crash potentials with further research/ investigation.</p> <p>The lesser risks of the two would be mixed running and if the light rail project was to proceed, mixed running has greater acceptability in a safety perspective.</p>
Road Traffic Operations	-	-	Unchanged.
Road Footprint		✓	Unchanged.
Visual Impact		✓	Unchanged.
Public Amenity		✓	The mixed running option enhances urban renewal involving the provision of dedicated cycle lane, streetscape improvement, planting trees to create boulevard effects, but up until now the “integrated design development process” has not been included in the REF for the provision of any of these enhancement features in contributing in the urban renewal strategy that can benefit Newcastle city centre.
Stop Typology	-	-	Unchanged.
Pedestrian Access		✓	As discussed earlier, Council's proposed side platforms (kerb extension) allow pedestrians to stay on the footpath when boarding and alighting the light rail vehicle minimising the likelihood of being hit by moving traffic. Pedestrian access to stops is much safer in the mixed running option than island platforms in the separated running option where passengers are exposed to moving traffic when accessing the Crown Street and Market Street stops.
Environmental Impacts	-	-	Unchanged.
Future Proofing		✓	<p>Track, overhead wiring and rail systems maintenance can be scheduled to occur outside operational hours during night time, in conjunction with appropriate traffic management control measures in place.</p> <p>Sidings, turnbacks or crossovers presented in the REF and associated concept design have not been designed to occur in the Hunter Street section in the REF, and future extensions are connected with the western side of the proposed light rail route (i.e. the segregated section at the Wickham terminus). As such these are not relevant to the mid-section of the</p>

Criteria	Separated Running	Mixed Running	Justification for Revising the Original Analysis
			route where mixed use is being considered. The Council's preferred mixed running is future proofing in road capacity – Further details are provided in Section 5 of this submission.
Cost	-	-	The REF contends that mixed running in the kerbside is more expensive due to the vast bulk of the utility services in Hunter Street are located in the footpath and in the roadway close to the kerbside. This is not a true reflection of Council's proposed mixed running configurations that run in the middle of the street. In addition, mixed running does not require light rail vehicles to be in a larger fleet size that the report has falsely presumed. A reliable service can be achieved in mixed running with the provision of signal priority and turning lanes (in lieu of parking lane).
Final Outcome		✓	

The above tabulation shows six 'ticks' for mixed running and two 'ticks' for separated running, casting sufficient doubt on the suitability of separated running. Mixed running is merited for further investigation in Hunter Street. Furthermore, the original multiple-criteria analysis, undertaken by TfNSW, has not been weighted to best judge the performance of the two alignment options. Based on the discussion given in the REF and other background reports, it is understood that the REF has given light rail the highest priority, followed by road vehicle and then pedestrians. Conversely, the highest priority in Council's vision is given to pedestrians/ cyclists, followed by light rail then road vehicles. Many cities in the world have successful light rail/ streetcar systems with mixed running, but none in NSW. The "one size fits all" approach due to the lack of current NSW practice and regulations is not likely to satisfactorily achieve the goal of revitalising Newcastle city centre to attract people, business and future developments.

Connecting Newcastle adopts a mixed running light rail system with separated cycleways, wider footpaths and kerb side parking in a manner consistent with the vision contained in the NURS, TCHS and HSRF. With the proposed light rail service running on 10 minute intervals the nearly 8m in the centre of Hunter Street dedicated to separated running will be inactive for significant periods of time. This creates a void in the centre of the street. Mixed running in Hunter Street will provide the space for more pedestrians, cyclists, vehicles and parking options to ensure a vibrant and active streetscape.

Figure 7 illustrates the potential form, amenity and function of Hunter Street where mixed running has been adopted:



Figure 7 – Mixed Running along Hunter Street (Connecting Newcastle, 2016)

Connecting Newcastle also proposes dedicated cycleways along both sides of Hunter Street, placed between the footpath and the parking lane. Providing for dedicated cycleways will accommodate cyclists of various riding skills and is likely to increase bike ridership and consequently improve the function and capacity of Hunter Street as part of an east – west transit, capable of supporting multiple modes of transport. Figure 8 below illustrates how, under mixed running, Hunter Street would function and support multiple transport modes:



Figure 8 – Mixed Running – Hunter Street

6. Council Secondary Option for Light Rail alignment

If TfNSW are opposed to Council's preferred option of mixed running in Hunter Street, Council would consider implementation of this secondary option. The secondary option shows that light rail could remain in the rail corridor until it moves onto Scott Street (at Crown Street). This reduces the length of street running allowing urban renewal objectives for Hunter Street to be realised with a considerably lower level of negative impacts across the city. This option can be considered with or without the Hunter Street loop outlined in *Connecting Newcastle 2016*.



Figure 9 - Connecting Newcastle image of the loop

The key features include:

- Retain existing TfNSW light rail alignment on disused railway corridor to Worth Place then continuing the light rail on the disused railway corridor to 200m east of Darby Street (at Crown Street).
- From Crown Street the east and westbound tracks on Scott Street can be separate and run in a loop back through Hunter Street or can be mixed running to Pacific Park.
- The ability to implement the Hunter Street Revitalisation Strategic Framework (HSRF) in full between Stewart Avenue and Darby Street. The HSRF can be implemented with modification east of Darby Street in a way that still achieves the goals of the strategy.

In addition, this option would result in a further saving in the order of \$100 million (based on figures in the press) that could be invested in other Newcastle urban renewal initiatives.

7. Other measures for Urban Renewal

To achieve Council's urban renewal vision outlined in *Connecting Newcastle 2016*, a number of initiatives need to be implemented across the city centre and broader city. These key initiatives requiring funding are summarised below:

Pedestrian Improvements - Making a walkable city

General Public Domain Improvements (including streetscape)

- Crown Street Public Domain Plan Funding (As per council Crown Street Public Domain Plan)
- Market Street Public Domain Plan Funding (As per council East End Public Domain Plan)
- Pacific Park Public Domain Plan Funding
- Civic Public Domain Plan Funding for improvements adjoining Hunter Street and King Street
- Cottage Creek Pedestrian connection infrastructure
- Funding of streetscape improvements along Hunter Street and Scott Street between Union Street and Pacific Park, including protection infrastructure for outdoor diners, paving upgrade, street trees, furniture, signage, bins and smart technology (see below) in accordance with the City Centre Public Domain Technical Manual
- Funding for Hunter Street west improvements in conjunction with cycleway (see comments below).

Pedestrian Improvements (raised crossings)

- Fund pedestrian raised crossing at Civic Park (Cycleway on King Street Option November 2013)
- Fund pedestrian raised crossing (shared space) at Hunter Street opposite Wheeler Place and Market Street - see pedestrian friendly zones.

Pedestrian Friendly Zones

- Civic Precinct - Flat surface shopfront to shopfront including station platforms; in ground guttering.
- Market Street - Flat surface shopfront to shopfront including station platforms; in ground guttering.

Trees

- Avenue of large trees to be funded for Hunter Street, King Street and connecting north/south streets

Other pedestrian considerations

- Footpath dining - Development of a solution for how will diners be protected from traffic movements (normally provided by parked vehicles, unsightly barriers will not be welcomed.)

Cyclists - Safe, Separated and connected cycleways

With the preferred cycleway option in Hunter Street no longer viable with the proposed separated running for light rail, the alternative option to be funded is:

- A physically separated (one way both sides of the street) cycleway on King Street. This will connect to the proposed East End Public Domain Plan cycleway option and the greater Newcastle Cycleway on-road network through to Hamilton. (see Cycleway on King Street Option Nov. 2013 and *Connecting Newcastle*).
- Off street North South cycleway connection from The Junction and Merewether to Civic Light Rail Stop.

Public Transport Option

Council has already outlined the preferred options for public transport in this REF submission and *Connecting Newcastle 2016*. The additional key initiatives being:

- Fully designed, with community consultation, potential light rail extensions to Hunter Stadium, John Hunter Hospital, Merewether, Newcastle Airport, University and Lake Macquarie Council area sites as per *Connecting Newcastle 2016*.
- Commitment to funding Stage 2 Light Rail to Hunter Stadium precinct (see *Connecting Newcastle*). These services to be every 10mins with park and ride at the precinct (see Park and Ride below).
- Ferry terminal at Wickham connecting to the Interchange including landscaped connection between sites.
- Light Rail stabling and maintenance facility to be relocated west of Stewart Avenue.

Vehicle access

King Street and Steel Street improvements

- Funding the streetscape improvements along King Street between Selma Street and Perkins Street to align with the cycleway design. Streetscape improvements

include street trees, furniture, signage, bins, smart technology (see below) in accordance with the City Centre Public Domain Technical Manual.

- Steel Street to be designed to Council's standard with separated cycleways on each side connecting to the R6 cycleway and parking on eastern side.

Parking

Parking Stations

- Funding for a multi-level carpark within the Civic Precinct to offset on street car park losses in Hunter and King Street.
- Funding for a multi-level (possibly underground in Pacific Park) carpark in the East End Precinct to offset on-street car park losses in Scott Street.
- Funding for a multi-level carpark near the Wickham Interchange (unless otherwise funded by Urban Growth NSW). Ongoing subsidies to transition to higher parking fees in stations. Provision of at least 200 public spaces in Store redevelopment area

Park and Ride

- Funding for park and ride facilities in the following locations across Newcastle:
 - Hunter Stadium - multi-level parking station, 500 space provision, with 10 minute peak bus service connection to Wickham Interchange
 - Mayfield West at Industrial Drive 200 space provision with 10 minute peak bus service connection to Wickham Interchange
 - Jesmond at roundabout (as part of the new bypass construction) - 200 space provision with 10 minute peak bus service connection to Wickham Interchange
 - University, Callaghan Campus - multi-level parking station with cyclist facility, 400 space provision, with 10 minute peak bus service connection to Wickham Interchange
 - Adamstown Station - expanded at grade or parking station with cyclist facility - 200 space provision with 10 minute peak bus service connection to Wickham Interchange
 - Stockton Ferry - 100 spaces at Stockton Ferry wharf and guaranteed 15 min ferry service peak hours.
- Development of park and ride technology (App or other digital tool) to manage and inform customers of the park and ride facilities.

- Free trips on Park and Ride / Light Rail for an extended period to allow for adjustment to this new parking behaviour (or made permanent as is the case in the CBD of Melbourne and Adelaide).

Other important initiatives

Services

- Under / within the existing rail corridor the installation of a services trench to allow future proofing of the CBD for all services including water, sewerage, telecommunications and power.

Council sees these initiatives as a key element in achieving urban renewal and revitalising our city centre. However, these key initiatives will require significant funding.

8. Process and Governance

The governance associated with the design process and stakeholder consultation has been inadequate. There has been a lack of transparency relating to background information throughout, which has restricted Council's ability to remain engaged in this process. It has also reduced our ability to represent constituents. It should be noted that Council requested background information from TfNSW for a period of 18 months with very limited success. A series of background reports were provided to Council at 3pm on Friday 6 May 2016, when the REF exhibition period had already commenced.

Of particular concern, is that the decision to only consider separated running in Hunter Street appears to have been made in 2013 prior to public consultation on the light rail route in early 2014. GHD, 2014 Newcastle Light Rail – Options Identification and Initial Feasibility Assessment Study, Transport for NSW (dated 03 January 2014) contains a section entitled "On-street running requires dedicated lanes for high reliability". There is no evidence that the unique requirements in Newcastle were considered or the serious negative consequences of that decision. We find it a serious breach of governance for this decision and consequences thereof not to be made public during the 2014 Light Rail Route consultation. Council would not have supported the Hunter Street option if this information had been made known at the time.

Claims made in the REF that Council was "consulted" are misleading. NCC has been attending meetings and workshops with TfNSW and RMS on light rail since early 2014. Council's input on issues was often disregarded. Issues such as cycleways, pedestrian friendly zones in Hunter and Scott Streets, widening of footpaths and the introduction of trees and landscaping were not adequately considered at these meetings.

Council also questions why the project was not assessed and determined as State Significant Infrastructure, in the same way that light rail projects have been dealt with in Sydney and an Environmental Impact Assessment prepared.

As stated elsewhere in this submission, Council is disappointed the REF defers consideration of many 'amenity' issues and impacts to later in the process. Council remains concerned, decisions on the route and operation of the light rail will remove future options and opportunities for our community.

9. Conclusion and Recommendations

Council supports light rail as a public transport option for our city but rejects the light rail proposal as contained in this TfNSW REF

In light of the vision and priorities outlined in *Connecting Newcastle*, Council expresses its strong concerns with the REF, particularly the:

- Lack of urban renewal focus
- Safety and amenity for pedestrians
- Lack of parking solutions
- Lack of a separated cycleway option
- Unsatisfactory impacts on other city streets
- Reintroduction of barriers to the city centre
- Location of light rail stabling facility
- Reliance on post REF approval planning for urban design
- Lack of future proofing
- Lack of network expansion planning
- Poor impact assessments of different options - mixed and corridor options
- Project not considered state significant
- Governance processes not adequate and lack of transparency

The majority of issues and concerns stem from the separated running of light rail in Hunter Street and lack of consideration of all impacts at the REF stage.

Council has proposed its preferred option as a solution to these issues, known as the Mixed Running option. This simply replaces the proposed separated running along Hunter Street with the mixed running option to allow for Council's urban renewal outcomes to be delivered.

If TfNSW cannot support our preferred option of mixed running in Hunter Street, Council would consider implementation of a secondary option. This secondary option shows that light rail could remain in the rail corridor until it moves onto Scott Street (at Crown Street). In addition, this option would result in a further saving in the order of \$100 million that could be invested in urban renewal initiatives (for Council and Urban Growth NSW) or extension of Light Rail to Broadmeadow.

A comparison of options is included as an appendix to help summarise the issues.

Appendix B: Option Comparison Summary

Objectives, Requirements and Aspirations	TfNSW Proposal	NCC Mixed Running Option	NCC Corridor Hybrid Option	Comment
General pedestrian amenity				Council option retains or widens footpaths with cycleway and parked cars separating pedestrians from travel lanes. TfNSW option has travel lanes adjacent to footpaths.
Reduction of footpath widths				TfNSW requires localised narrowing of footpaths.
Widening of footpaths				Some isolated footpath widenings may be possible with TfNSW. NCC option allows for uniform widening in most areas of Hunter Street.
Civic Pedestrian Friendly Zone/Mid-block crossing				Possible with both options (TfNSW 1B and 2)
Space for landscaping/trees				Unknown with TfNSW although continuous plantings unlikely. Ample space for landscaping and trees in Hunter Street and Scott Street
Cycleway in Hunter Street				Insufficient room for cycleways in Hunter St under TfNSW proposal
Light Rail System				NCC option has reduced street running and no mixed running improving travel times. Council proposal includes an additional stop,

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Objectives, Requirements and Aspirations	TfNSW Proposal	NCC Mixed Running Option	NCC Corridor Hybrid Option	Comment
	Yellow	Yellow	Yellow	loop system in the east and longer corridor running. Split stations at Queens Wharf and the Mall will be visible to each other down Market Street and only 70m apart
Light Rail design, cost and implementation	Yellow	Yellow	Green	Council option has lower construction costs as it is in the corridor for an additional 800m and much lower community impact during construction. One way loop system in the has additional cost but more than offset by other savings
Terminus Location	Yellow	Yellow	Green	NCC Option has LR stop closer to Newcastle Beach via upgraded public domain. Newcastle Beach terminus was a headline feature of the government's selected LR Route
Stop location	Yellow	Green	Green	NCC Proposal has superior stop spacing with 250m ped shed covering all areas of the CBD. Significant improvement in Westend.
Traffic mitigation costs and impacts	Red	Yellow	Green	TfNSW/RMS has identified extensive traffic mitigation on the broader network. NCC option only requires local traffic mitigation.
Traffic Flow	Yellow	Yellow	Green	NCC option does not impact on traffic in Civic precinct. Spilt tracks reduce impact in Eastend on NCC option.

Appendix B: Option Comparison Summary

Objectives, Requirements and Aspirations	TfNSW Proposal	NCC Mixed Running Option	NCC Corridor Hybrid Option	Comment
Transition into Hunter Street				Transition at Crown Street is more gradual than Worth Place. Worth Place is complex when combined with traffic movements.
Mixed running				TfNSW proposal requires Mixed Running in Scott Street, not required in NCC proposal.
Temporary bus layover				NCC option would require long term layover at Wickham, short term on street
Loading zones and disabled spaces				TfNSW options will allow very limited loading and disabled zones in less than ideal locations. Some critical areas will not have loading zones. Council option retains all zones with minor adjustments to locations
On-street parking – Civic to Crown				TfNSW option result in a loss of 160 out of 200 spaces in Hunter Street. Remaining spaces are in two isolated areas. Long lengths without any kerbside parking. NCC option results in the loss of 30 spaces around the Crown Street LR stop.
On-street parking – Scott Street				TfNSW removes all parking in Scott Street. NCC option maintains parking on the southern (business) side of Scott Street.
On-street parking – Hunter Street East				NCC option requires reconfiguration with loss of 50

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Objectives, Requirements and Aspirations	TfNSW Proposal	NCC Mixed Running Option	NCC Corridor Hybrid Option	Comment
	Green	Yellow	Yellow	spaces. Loss parking is spread, generally on southern side only, and does not result in zones without kerbside parking.
Business impacts	Red	Green	Green	Business likely to close in areas where nearby kerbside parking is removed. Kerbside traffic will discourage activation of footpath resulting in business loss. Kerbside dining high unlikely on TfNSW route due to traffic in kerb lane.
Impact on Urban Growth NSW Public Domain Plans	Green	Green	Green	NCC option does not affect and Public Domain proposals from Opportunities 3 and 4.
Impact on Urban Growth NSW Development Plans	Green	Green	Yellow	Council option reduces the available development space by 6000m ² at the western end. No effect of higher quality eastern opportunities
Hunter Street Mall Activation	Red	Yellow	Green	Single track running in the mall will activate and create a point of difference.
Gradients between Hunter and Scott Streets	Yellow	Yellow	Green	The maximum gradient of 3% is in Scott Street between Watt Street and Pacific Street and common to both alignments. The connection between Scott Street and Hunter Street along Telford Street has a grade less than 1%. TfNSW option requires difficult alignment shift on the steepest grade in Scott Street. NCC alignment does not

Appendix B: Option Comparison Summary

Objectives, Requirements and Aspirations	TfNSW Proposal	NCC Mixed Running Option	NCC Corridor Hybrid Option	Comment
				require shift as it follows the northern kerb.
Breakdown on single track loops				The loop is 1km each way. A single track refuge siding in Telford Street where the loop turns into Pacific Park will provide equivalent resilience to double track with crossovers at 1km spacing. Occurrence is unlikely and service can be replaced by a single bus at short notice.
Construction impact - Civic				TfNSW option will have significant disruption to busy section of Hunter Street with multiple turning movements. Numerous stages will result in a prolonged construction program. NCC option has no impact on traffic, business or pedestrians.
Construction impact - Eastend				Double track in Scott Street will shut Scott Street for 12 months. A single track can be built whilst keeping the streets partially opened and full pedestrian access.
Reduced speeds in Mall				Consideration can be given to removing the mall. If mall is retained, the 300m section would have a transit time of 108 sec at 10km/h. Scott Street would average 30km/h giving 36 seconds – ie, an extra travel time of 72 sec. There would be an offset by increased corridor running and removal of mixed running in

Appendix B: Option Comparison Summary

Objectives, Requirements and Aspirations	TfNSW Proposal	NCC Mixed Running Option	NCC Corridor Hybrid Option	Comment
				Scott Street. The totals transit time (Wickham to Telford St) would be largely unchanged.
Impact on completion date				TfNSW option still not finalised. Change in alignment requires minor change by moving tracks north by 3m. New alignment for single track in Hunter Street East. Extra design time would be offset by much decreased construction time.
Community acceptance				Removal of most kerbside parking in Hunter Street will generate considerable opposition with businesses. Expectations of cycleways and wider footpaths not realised. Significant community outrage expected when implications of TfNSW are known.
Political implications				Government will lose support for the NUTTP from tradition supporters. Risk to the project proceeding.