

CBD AND SOUTH EAST LIGHT RAIL PROJECT  
ENVIRONMENTAL IMPACT STATEMENT

# VOLUME 1A

## PART A: INTRODUCTION AND NEED





# 1. Introduction

The Central Business District (CBD) and South East Light Rail Project ('the CSELR proposal' or 'the CSELR') comprises the construction and operation of a new light rail service in Sydney, including approximately 12 kilometres of new light rail track from Circular Quay to Central, Kingsford and Randwick via Surry Hills and Moore Park (a total of 13 kilometres of track including track required for the maintenance and stabling facilities). The proposal also includes transformation of George Street in the Sydney CBD through development of a pedestrian zone between Hunter and Bathurst streets.

This document comprises the Environment Impact Statement (EIS) for the CSELR proposal, which has been prepared as per the requirements of Parts 5 and 5.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The EIS documents a description of the proposal and its justification, identifies the existing environment, assesses the likely environmental impacts and outlines the proposed mitigation measures to minimise the likely impacts of the proposal.

## 1.1 Background to the proposal

In December 2012, the NSW Government released two key strategic plans that set the framework for improving the central Sydney transport system:

- the *NSW Long Term Transport Master Plan* (2012a) — which is a 20 year plan to improve the NSW transport system
- *Sydney's Light Rail Future — Expanding public transport, revitalising our city* (2012b) — which details an integrated modal delivery plan for light rail, as one component of the NSW Long Term Master Plan.

In 2013, the NSW Government also released the draft *Metropolitan Strategy for Sydney 2031* that provides a comprehensive plan to manage the growth of Sydney up to 2031; and the (draft) *Sydney City Centre Access Strategy* (SCCAS) that outlines a suite of initiatives to improve the way the Sydney CBD transport system operates.

The structure and content of the *NSW Long Term Transport Master Plan* and the SCCAS are illustrated in Figure 1.1.

Together, these strategic planning documents identify a number of transport, economic and other challenges facing Sydney — including catering for a growing city, the need to generate urban renewal and global competitiveness, and unlocking capacity on Sydney's transport network.

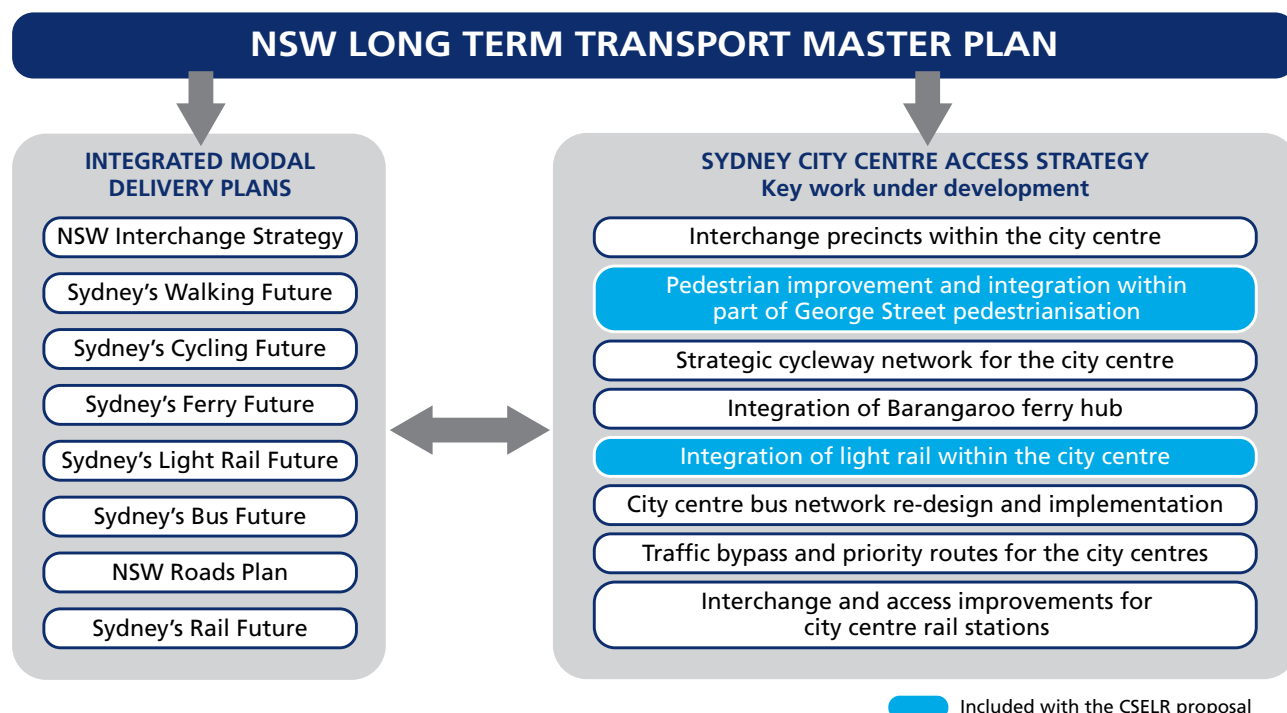
The documents also delineate a range of strategies and projects to address these challenges. These include easing transport congestion in the Sydney CBD and improving public travel between key destinations in South East Sydney and the CBD by:

- expanding the current light rail services in inner Sydney, from Circular Quay to Randwick and Kingsford
- creating a pedestrian zone along approximately 40 per cent of George Street
- redesigning and better coordinating the Sydney CBD transport network (including buses, light rail, ferries, pedestrians and cyclists) to create an integrated public transport solution for the Sydney CBD.

The first two items in this bulleted list comprise the CSELR proposal that is the subject of this EIS. The third item is being delivered via the SCCAS, of which light rail in the CBD is one component.

The CSELR proposal is further explained below and in Chapters 5 and 6 of this EIS.

Figure 1.1 Structure and content of NSW Long Term Transport Master Plan and SCCAS



## 1.2 Proposal overview

Figure 1.2 identifies the proposed route, and the stop and stabling/maintenance facility locations for the CSELR. It also shows the extent of existing light rail in Sydney, including the Inner West Light Rail Extension (which is currently under construction).

### 1.2.1 Proposal key features

The key features of the CSELR proposal include:

- high frequency, 'turn up and go' services every two to three minutes during peak periods within the CBD and out to Moore Park, with services operating every five to six minutes between Moore Park and the Randwick and Kingsford branches
- a pedestrian zone in George Street from Bathurst Street to Hunter Street, with light rail vehicles (LRVs) operating wire-free in this zone (except for overhead wires at stops used for charging LRVs)
- 20 light rail stops along the route, including interchange with heavy rail at major rail stations (Circular Quay, Wynyard, Town Hall and Central), ferry interchange at Circular Quay, and bus interchanges at the Town Hall, Queen Victoria Building, Rawson Place, Central Station, Randwick and Kingsford stops
- facilities in Randwick and at Rozelle for LRV stabling and maintenance (including washdown)
- a fleet of approximately 30 electric-powered LRVs (including spare LRVs), approximately 45 metres long, featuring air conditioning and accessible low-floor design
- a highly reliable service with the capability to carry up to 9,000 passengers per hour in each direction
- capacity for approximately 80 seated and 220 standing passengers in each LRV
- public domain improvements including concepts for paving, street trees, lighting and furniture.

Other features of the CSELR proposal are described in Chapter 5 of this EIS.

It is anticipated that it would take approximately five to six years to build the CSELR, with work beginning at multiple sites from mid-2014 (subject to planning approval). Further details on the likely construction of the CSELR are provided in Chapter 6.

Figure 1.2 Overview of the CSELR proposal





## 1.3 Proposal objectives

The CSELR proposal objectives are to:

1. Improve reliability and efficiency of travel to, from and within the CBD and suburbs to the South East.
2. Improve access to major destinations in the South East, including Moore Park, UNSW, Royal Randwick racecourse and the Randwick health precinct.
3. Satisfy long-term travel demand between the CBD and suburbs to the South East.
4. Increase the use of sustainable transport modes in the CBD and suburbs to the South East.
5. Improve the overall amenity of public spaces in the CBD and suburbs to the South East.
6. Facilitate the continued, orderly and efficient growth of urban development and economic activity within the CBD and suburbs to the South East.

These objectives are described further in section 3.3.

## 1.4 Proponent and method of delivery

Transport for NSW is the proponent for the CSELR, and will deliver the planning and concept design phases of the proposal, and the early works. The detailed design, construction, maintenance and operation of the proposal would most likely be delivered through a public private partnership (PPP) arrangement.

## 1.5 The planning, design and decision-making process

The planning, design and decision-making process for the CSELR proposal is summarised in Figure 1.3, and further explained in Chapters 2 to 4 of this EIS.

The development of the CSELR proposal has been an iterative process that has taken into account issues arising from community and stakeholder involvement and the environmental investigations undertaken as part of the preparation of the EIS. The planning and design process is ongoing and the proposal may be subject to further refinement as a result of submissions received in response to the public exhibition of this EIS and during detailed design (should project approval be granted).

## 1.6 Associated projects (not part of the CSELR proposal)

As shown in Figure 1.1, a number of additional initiatives and projects are planned to be implemented in the Sydney CBD under the NSW Government's *NSW Long Term Transport Master Plan* (NSW Government 2012a) and the SCCAS. These initiatives and projects are aimed at improving public transport and traffic management in the city. NSW Roads and Maritime Services (RMS) is also proposing to construct new bus infrastructure facilities in the CBD as part of its Sydney City Bus Infrastructure Project as a component of the redesign of the city centre bus network outlined in the SCCAS.

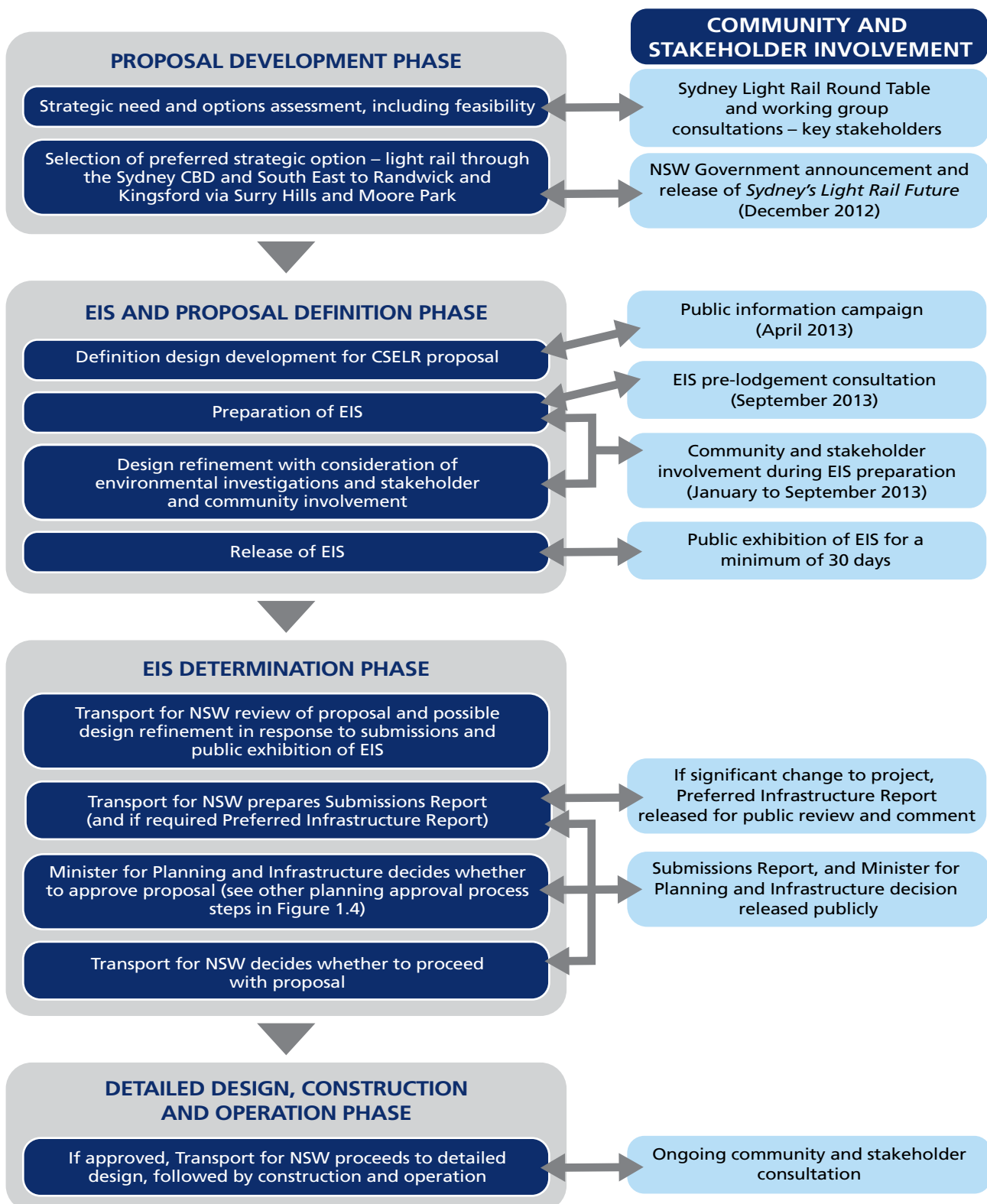
The above projects and plans would be integrated with the CSELR proposal, but do not form part of it.

In particular, any transport network modifications outside the CSELR corridor would be implemented as part of the SCCAS and not included within the CSELR EIS. These include:

- bus network modifications including bus re-routing and stop relocations
- traffic network and intersection modifications outside the CSELR corridor, including altered turning movements and lane configurations
- transport operations and monitoring (such as a control centre) including an ongoing plan for monitoring and control
- signage modifications
- road or bus network performance measures including bus/customer travel times, selected intersection performance, traffic diversion
- improvements to CBD rail stations
- improvements to wharves
- cycleways.



Figure 1.3 CSELR planning, design and delivery process



## 1.7 Planning and statutory requirements

A detailed description of the planning and statutory requirements and the planning approvals process for the CSELR proposal is provided in Appendix D to this EIS. This section provides a summary of that assessment.

### 1.7.1 Planning approvals process

The applicable planning approvals process for the CSELR proposal is summarised in Figure 1.4.

The CSELR proposal was declared a critical ‘State significant infrastructure’ project by the NSW Minister for Planning and Infrastructure on 20 May 2013. Part 5.1 of the EP&A Act establishes an assessment and approval regime for ‘State significant infrastructure’ (SSI).

An SSI application and supporting document was submitted to the Director-General of the NSW Department of Planning and Infrastructure (DP&I) on 25 June 2013. The Director-General of DP&I issued the Director-General’s requirements for the CSELR proposal on 5 August 2013 (refer to Appendix A). This EIS has been prepared to address the DGRs and the requirements of Schedule 2, Part 3 of the *Environmental Planning and Assessment Regulation 2000*. A checklist reflecting where each of the DGRs is addressed in this EIS is provided at Appendix B.

Approval from the Minister for Planning and Infrastructure is required before Transport for NSW can proceed with the CSELR proposal.

Figure 1.4 Planning and assessment process

Figure 1.4 Planning and assessment process





## 1.7.2 Additional approvals

As detailed in Appendix D, Section 115ZG of the EP&A Act provides that a number of additional approvals, permits and licences that would otherwise be triggered for development under NSW legislation are either not required for SSI projects, or cannot be refused and must be substantially consistent with the Part 5.1 approval (refer section D.1.4).

Other potential approvals that might be required for the CSELR proposal under other relevant NSW legislation are listed in Table 1.1.

Table 1.1 Other approvals potentially required

LEGISLATION	RELEVANT PROVISIONS	APPROVAL REQUIRED
NSW legislation		
<i>City of Sydney Amendment (Central Sydney Traffic and Transport Committee) Act 2012</i>	The Central Sydney Traffic and Transport Committee (CSTTC) is required to consider the potential impact of traffic and development of Sydney and the State and the efficient functioning of businesses, the maintenance of access for freight, the efficiency and traffic safety of the public transport network and the needs of commuters, residents, pedestrians and visitors to the CBD.	Details of the CSELR proposal would need to be forwarded to the CSTTC at least 28 days before commencement of any works within the CBD.
<i>Roads Act 1993</i>	Section 138 of the Roads Act requires consent from the relevant roads authority for the erection of a structure, or the carrying out of work in, on or over a public road, or the digging up or disturbance of the surface of a road. The CSELR proposal would require full and partial road closures for construction and operation of the proposal. However, under clause 5(1) in Schedule 2 of the Act, public authorities do not require consent for works on unclassified roads.  Section 144C of the Act also requires consent or approval from RMS for works relating to a light rail system prior to the undertaking of any works	Consent required from the relevant roads authority for works impacting classified roads, such as Anzac Parade, Alison Road, South Dowling Street and the Eastern Distributor.  Consent or approval from RMS required for works relating to a light rail system prior to the undertaking of any works.
<i>Protection of the Environment Operations Act 1997</i>	Under Schedule 1 of the PoEO Act, scheduled activities requiring a licence include: <ul style="list-style-type: none"> <li>land based extractive activities that involve the extraction, processing or storage of more than 30,000 tonnes of material per year.</li> </ul>	Construction of the CSELR proposal may require the excavation of more than 30,000 tonnes of material per year (particularly during the construction of the Moore Park tunnel) and, therefore, may require an Environmental Protection Licence to be obtained for this activity prior to the commencement of construction.

The CSELR proposal does not trigger the need for referral or approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). Although the permanent CSELR alignment near Circular Quay at Alfred Street is located within the vicinity of the Sydney Opera House (which is a World Heritage Site), the CSELR proposal is not expected to impact on the curtilage of the site. The proposed worksite at the southern end of First Fleet Park at Circular Quay may, however, have a minor and temporary impact on the visual curtilage of the Sydney Opera House. This issue is discussed further in Chapter 12 — *Local impacts: City Centre Precinct* and Technical Paper 5 — *Heritage Impact Assessment*. Beyond the Sydney Opera House, there are no other likely impacts on matters of national environmental significance under the EPBC Act.



## 1.8 Purpose and structure of this EIS

### 1.8.1 Purpose of the EIS

This EIS has been prepared to assess and document the potential environmental impacts of the construction and operation of the CSELR proposal, as per the requirements under section 115Y of the EP&A Act. It has been prepared in accordance with the environmental assessment requirements specified in the DGRs for the proposal (refer Appendix A). A checklist of these DGRs is provided in Appendix B. Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* prescribes the broader form and content that an EIS must contain.

The EIS documents the range of engagement activities that Transport for NSW has used to inform the community and stakeholders about the proposal during (and prior to) preparation of this EIS. This process, and the consideration of public submissions as part of the EIS public exhibition, provide the basis for stakeholders to convey their views on the CSELR proposal to the NSW Government.

Should the CSELR proposal be approved by the Minister for Planning and Infrastructure, the EIS (and any associated submissions report, preferred infrastructure report and conditions of approval) would be used to guide the subsequent development stages of the proposal. The CSELR proposal would be constructed and operated in accordance with the mitigation measures proposed in this EIS and any submissions report or preferred infrastructure report, and the Minister's conditions of approval.

The information contained in this EIS also provides a baseline for use in future monitoring of the environmental performance of the proposal.

### 1.8.2 EIS structure and approach

This EIS takes a regional and local (or precinct-based) approach to assessment of potential environmental impacts, rather than the conventional issues-based approach. This approach was taken because:

- The route of the CSELR proposal passes through a series of five local areas (or precincts), each of which has a distinctive character.
- Presenting all of the potential local environmental impacts for a precinct in one chapter in this EIS makes it easier and clearer for the local community to determine how they might be affected by the proposal.
- Due to its nature and size, the proposal also has the potential for regional level impacts on the environment, including regional planning and land use, traffic and transport and cumulative impacts. There are also some other environmental impacts (such as water and biodiversity impacts) that are best described on a regional or whole-of-project basis, rather than specific to individual precincts.

Figure 1.5 shows the extent of the six local precincts assessed in Chapters 12 to 17 (in Part D of this EIS, Chapters 12 to 16). As shown in Figures 1.2 and 1.5, the proposal also includes maintenance of the LRVs at a site in Rozelle; hence potential impacts on this locality are also discussed in an individual chapter of the EIS (Chapter 17).

Figure 1.6 details the overall structure of this EIS. The EIS main report (Volumes 1a, 1b and 1c) analyses and documents the key issues associated with the CSELR proposal using the guidance provided by the Director-General, the outcomes of the community consultation process, and the results of detailed studies.

The assessment described in Volumes 1a to 1c is supported by 11 Technical Papers in EIS Volumes 2 to 6. These provide detailed information on background data, assessment methodologies and the results of specialist studies. The Technical Papers are available from the Transport for NSW website: (<http://www.transport.nsw.gov.au/lightrail-program/cbd-and-south-east-light-rail>). Hard copies of the Technical Papers will also be available at the display locations during the exhibition period. Where inconsistencies between this EIS and the Technical Papers exist, the main EIS is considered to take precedence.



Figure 1.5 Precincts for local impact assessment

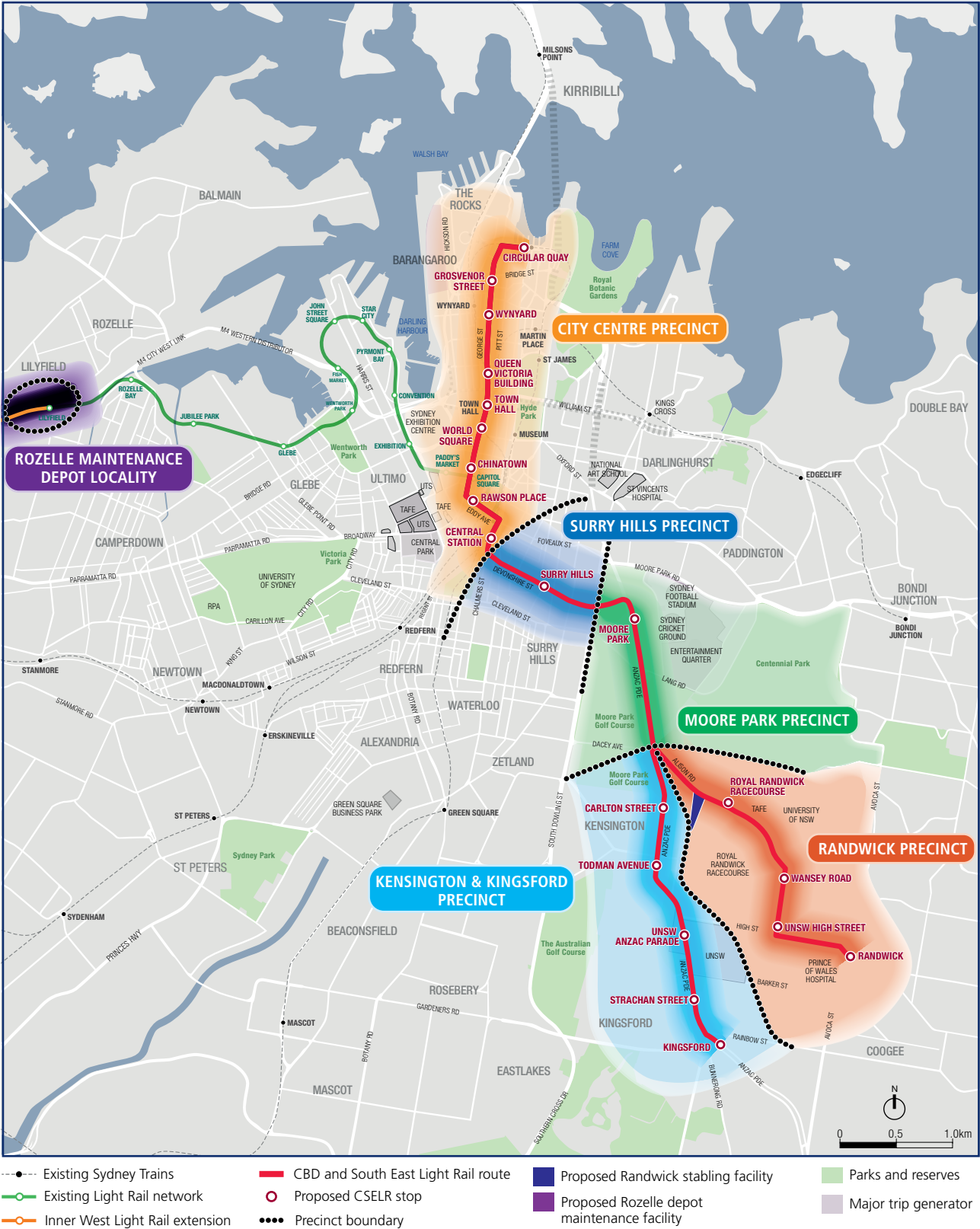
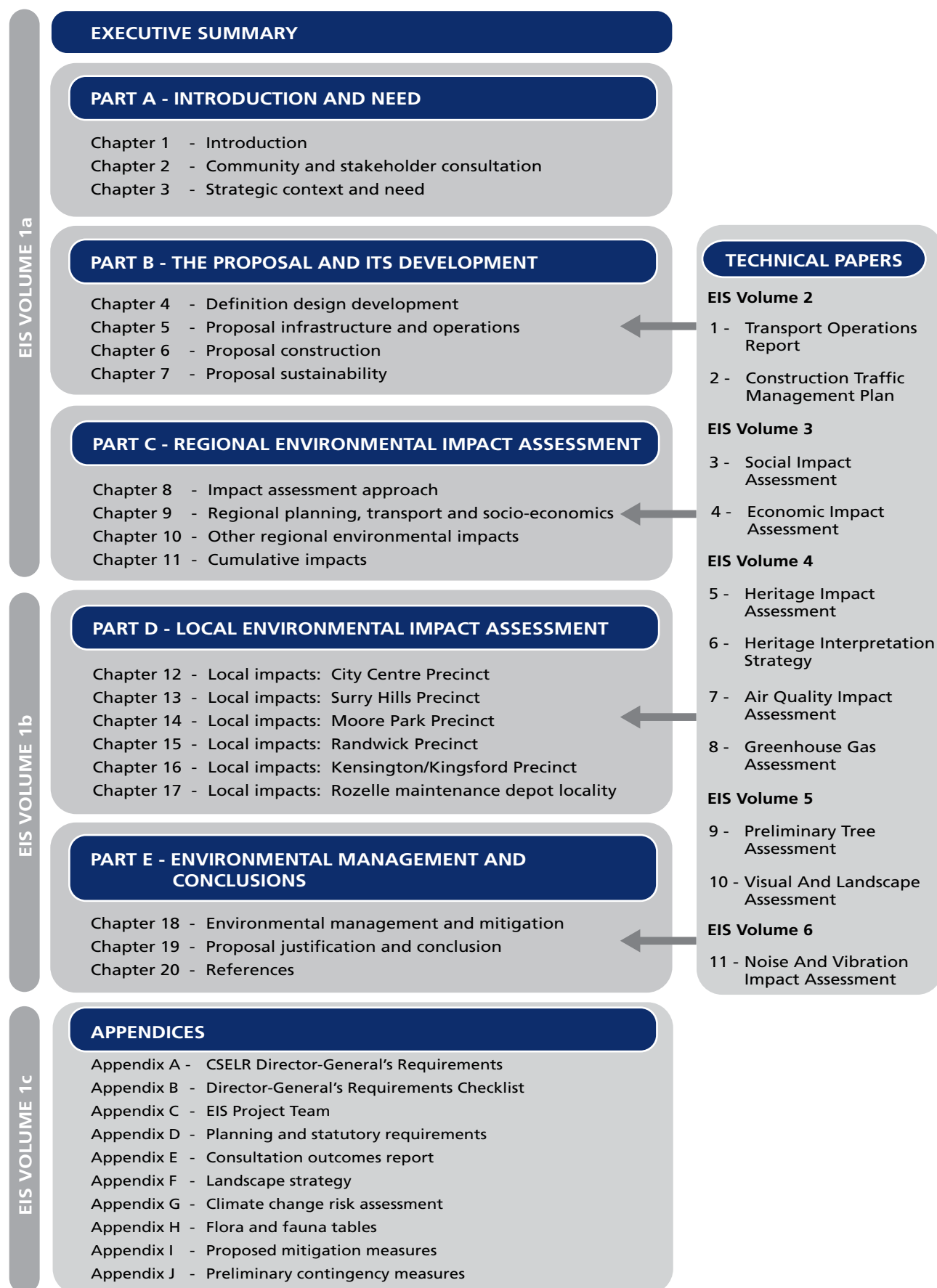


Figure 1.6 Structure of the EIS





## 2. Community and stakeholder consultation

This chapter summarises the stakeholder and community consultation before and during the preparation of this Environmental Impact Statement (EIS) for the Sydney CBD and South East Light Rail Project ('the CSELR proposal' or 'the CSELR'). It includes details of consultation methods and a list of the stakeholders and government agencies consulted.

The chapter also provides an overview of the key issues raised by stakeholders and the community and where relevant, how these concerns have been addressed through the design of the CSELR proposal and/or through the EIS process. Further details of community and stakeholder consultation, issues raised and supporting documents are provided in Appendix E – *Consultation Outcomes Report*.

### 2.1 Consultation strategy and objectives

A Stakeholder and Community Engagement Strategy was developed to guide the consultation process. The strategy is linked to key planning, design and construction milestones to ensure timely and proactive communication of important information to stakeholders, the community and the media. The strategy also identifies opportunities for further community consultation to help develop the CSELR proposal. The strategy will be supported by separate community and stakeholder engagement plans prepared for each phase of project delivery.

The objectives of the stakeholder and community engagement strategy are:

- Provide timely, quality information about the CSELR proposal (as part of the Sydney Light Rail Program), the project timeframes and development process, and likely impacts during early works, construction and operations.
- Consult those who will be directly or indirectly impacted by the proposed CSELR.
- Meet and exceed the obligations described in the Director-General's requirements.
- Provide opportunities for the community and stakeholders to raise issues and suggestions.
- Review and respond to issues and suggestions raised during the preparation of the EIS.

These objectives are consistent with Transport for NSW's Community Engagement Policy and are supported by the following communications principles:

- Consult early and often.
- Encourage community and other stakeholder participation.
- Listen to feedback, investigate suggestions and report back.
- Be transparent.
- Keep the general and local community and other key stakeholders informed of proposal progress.
- Engage in a manner that is collaborative, innovative, adaptive and sustainable.

### 2.2 Overview of consultation undertaken to date

#### 2.2.1 Consultation approach

Comprehensive consultation with stakeholders and the community has been undertaken progressively through the development of the CSELR proposal and has been supported by a public information campaign. The consultation approach has been designed to inform the community and key stakeholders about the proposal and encourage participation to allow the development of the CSELR to benefit from stakeholder knowledge and understanding of specific needs. Place Managers have been appointed to act as the key point of contact for the proposal in the communities along the proposed route. Consultation activities will continue as the CSELR progresses to detail design and construction.

## 2.2.2 Stakeholders

Consultation occurred throughout the strategic planning phase of the CSELR with a number of senior stakeholders from organisations located in, or associated with the study area, including councils, health and education providers, event and recreation precincts, peak bodies and associations, as well as government agencies.

A Sydney Light Rail Round Table group was formed in 2011 comprising senior executive representatives from key stakeholders. The members were provided with regular updates on the CSELR proposal, and also provided local expertise and feedback at key milestones. This process was supported by several technical working groups to provide more detail on specific issues related to the CSELR proposal. A total of eight Round Table meetings have been held and will continue throughout the delivery of the CSELR. Further detail including a list of the Round Table members is included in section 2.3.2 of this report.

## 2.2.3 Community

Following the announcement of the CSELR proposal by the NSW Minister for Transport in December 2012 the communications team was expanded to include consultation specialists from the EIS team, as well as the appointment of Place Managers.

Community consultation and information activities began in February 2013. In April 2013 a public information campaign was launched which included 50,000 CSELR community update brochures delivered to residents along the route, door knocking of residents and businesses, information sessions and website updates. In May 2013, Place Managers started a rolling program of door knocking residents and businesses along the route and organising meetings with key stakeholders. A CSELR information line (1800 684 490) and email address ([projects@transport.nsw.gov.au](mailto:projects@transport.nsw.gov.au)) was also established to enable stakeholders and community members to provide feedback on the proposal and ask questions of the project team.

Further consultation during the EIS preparation phase was undertaken via community information sessions along the route in early September 2013. At these sessions, members of the public could view details of the proposal and offer their feedback to be considered as part of the EIS development. Feedback forms were provided at the information sessions and an online version was available (at <http://engage.haveyoursay.nsw.gov.au/cselr>).

Community consultation will continue to be undertaken during the public exhibition of the EIS, including further door knocking, briefings and community information sessions. During this time the community and stakeholders will be encouraged to make formal submissions on the proposal.

## 2.2.4 Overview of stakeholder and community groups

Community groups and stakeholders who are potentially impacted by, or have an interest in the CSELR were identified. These include members of the community, special interest groups and organisations, businesses, government agencies and other authorities. Stakeholders have been categorised under the following headings:

- key project partners
- Round Table representatives
- elected representatives
- government agencies and departments
- property owners and tenants
- peak bodies and associations
- community bodies and associations
- utility companies and service providers
- educational facilities
- medical facilities
- buildings used for religious purposes
- media
- transport operators
- other.





A full list of identified stakeholders for the CSELR is outlined in Appendix E — *Consultation Outcomes Report*.

Prior to consultations for the CSELR EIS phase, a desktop assessment was completed to further understand the demographics of the community. Following this assessment, it was determined that the phone number and symbol for the Translating and Interpreting Service (TIS National) would be provided on communication materials to ensure all members of the community had access to information and could provide feedback on the proposal.

Further to this, a translated advertisement was also placed in the *Australian Chinese Daily* newspaper with details of the upcoming community information sessions. *The Australian Chinese Daily* newspaper was chosen to advertise information as Chinese is the second most spoken language in Sydney's CBD and South East suburbs. Further details of advertising can be found in Appendix E — *Consultation Outcomes Report*.

## 2.3 Consultation pre-December 2012

### 2.3.1 NSW Long Term Transport Master Plan

In December 2012 the NSW Government (2012a) released the *NSW Long Term Transport Master Plan* (the Master Plan). The Master Plan sets a clear direction for transport in NSW over the next 20 years, bringing together all modes of transport, across all regions of the State into a world class, integrated network that puts the customers first.

The NSW Government undertook a year-long consultation process to develop a comprehensive transport plan for all of NSW. The consultation approach was broad, inviting and encouraged a diverse and large number of community members and stakeholders to express their opinion on what the transport system should be like. This approach to consultation included the following activities:

- general comments received through email and website
- advisory groups covering the full range of customers (local government, industry, transport specialists and customers and the community)
- a total of 14 regional forums across the State between February and May 2012, involving over 1,000 participants
- ongoing stakeholder meetings
- over 1,700 submissions on the discussion paper and the draft plan
- over 130,000 hits on the dedicated website.

Delivering the CSELR is identified as a key action of the Master Plan.

Accompanying the Master Plan are seven modal delivery plans including *Sydney's Light Rail Future* (NSW Government 2012b). The development of *Sydney's Light Rail Future* has drawn on extensive research and stakeholder consultation which has been carefully considered. A number of stakeholder channels were developed to enable key government and institutional stakeholders to provide input to, and be informed, by the development of the plan. These included the Sydney Light Rail Round Table, Light Rail Working Groups and Stakeholder Meetings.

The stakeholder engagement program included alternating Round Table and Working Group meetings, enabling input from stakeholders at both the executive and technical level. Meetings were timed so as to provide input at critical stages of the CSELR proposal development. At each stage there was an opportunity for stakeholder engagement and open discussion to assist in shaping the CSELR proposal outcomes.

### 2.3.2 Sydney Light Rail Round Table – feasibility phase

The NSW Minister for Transport convened the first Sydney Light Rail Round Table (Round Table) in September 2011. Round Table meetings enabled stakeholders and elected state and council representatives to have input into the development of the *Sydney's Light Rail Future* and develop an understanding of the benefits, challenges and opportunities of addressing transport needs. A total of six Round Table meetings were held in the feasibility phase.

Table 2.1 lists the members of the Sydney Light Rail Round Table during the feasibility phase.

Table 2.1 Sydney Light Rail Round Table members feasibility phase

SECTOR	ORGANISATION
NSW Government	Department of Planning and Infrastructure Infrastructure NSW Member for Coogee NSW Treasury Transport for NSW TAFE NSW
Local government	City of Sydney Randwick City Council
Educational institutions	Sydney Institute, TAFE NSW University of NSW University of Sydney University of Technology Sydney
Health	Northern Hospital Network of the South East Sydney Local Health District (Prince of Wales Hospital, Royal Hospital for Women, Sydney Children's Hospital) Sydney Local Health District (Royal Prince Alfred Hospital)
Sport/cultural	Centennial Park and Moore Park Trust Sydney Cricket and Sports Ground Trust Australian Turf Club National Institute of Dramatic Art (NIDA)
Business	Sydney Business Chamber Property Council (NSW)

In addition to the members listed in Table 2.1 the Barangaroo Development Authority was invited to attend two Round Table meetings and the Federal Member for Wentworth was invited to attend one Round Table meeting.

### 2.3.3 Light Rail Working Groups

To support the Sydney Light Rail Round Table, several Light Rail Working Groups (Working Groups) were formed to provide more detail on specific issues related to the CSELR proposal. The Working Groups provided a forum for technical and expert level representatives of key government and institutional stakeholders to investigate specific issues in a more comprehensive manner. Around 20 participants attended each working group. A total of four Working Group sessions were held from October 2011 to June 2012.

The Working Groups enabled information to be provided directly to the CSELR project team and the outcomes were fed into the feasibility study.

### 2.3.4 Stakeholder meetings

Where required, stakeholder meetings (including with government agencies) were held to support the Round Table and Working Group process and to facilitate information exchange.

## 2.4 EIS preparation phase stakeholder consultation

EIS preparation phase stakeholder consultation was undertaken between December 2012 and September 2013. The consultation was designed to facilitate stakeholder input into the EIS process. It provided stakeholders and the community an early opportunity to review and provide feedback on the CSELR, which was then fed into the EIS and design development process. All feedback received was logged in the CSELR consultation database to enable the identification of issues that were raised most frequently. The EIS preparation phase consultation activities for stakeholders and the community are outlined below.



### 2.4.1 Sydney Light Rail Delivery Phase Round Table

The Sydney Light Rail Delivery Phase Round Table (Round Table) was formed in June 2013. The delivery phase of the CSELR includes further design work, preparing the CSELR program and delivery strategy and undertaking environmental assessment work.

The Sydney Light Rail Delivery Phase Round Table is the main vehicle through which key government and institutional stakeholders can provide input to and be informed about the progress of the delivery of the CSELR. The meetings provide members with CSELR project development and design updates and are planned to continue on a quarterly basis throughout the delivery phase.

All previous members of the Sydney Light Rail Round Table plus additional members were invited to participate in this Delivery Stage Round Table.

Table 2.2 lists the members of the Sydney Light Rail Delivery Phase Round Table.

Table 2.2 Sydney Light Rail Delivery Phase Round Table members

SECTOR	ORGANISATION
NSW Government	Department of Planning and Infrastructure (DP&I) Destination NSW Infrastructure NSW Member for Coogee Member for Sydney NSW Trade and Investment NSW Treasury Roads and Maritime Services Transport for NSW TAFE NSW
Local Government	City of Sydney Randwick City Council
Educational Institutions	Sydney Institute, TAFE NSW National Institute of Dramatic Art (NIDA) University of NSW University of Technology Sydney
Health	Northern Hospital Network of the South East Sydney Local Health District (Prince of Wales Hospital, Royal Hospital for Women, Sydney Children's Hospital) Sydney Local Health District (Royal Prince Alfred Hospital)
Sport/cultural	Centennial Park and Moore Park Trust Sydney Cricket and Sports Ground Trust Australian Turf Club
Business	Sydney Business Chamber Property Council (NSW)
Peak Bodies	NRMA

## 2.4.2 Government agencies consultation

Government agencies and authorities were consulted before and throughout the EIS preparation. Many of these agencies were consulted through the Round Table process, with a number also consulted on a one-on-one basis.

The NSW Department of Planning and Infrastructure (DP&I) is the approval authority for the CSELR proposal. In this role DP&I has and will coordinate input on issues of concern from government agencies and authorities that have an interest in the CSELR. This input has been provided through a planning focus meeting held on 10 July 2013 and the preparation of Director-General's Requirements for the EIS, which were developed considering letters from specific government agencies.

Table 2.3 lists the government authority and agencies consulted since December 2012.

Table 2.3 Summary of government authority and agency consultation

SECTOR	ORGANISATION
NSW Government	DP&I Department of Premier and Cabinet Environment Protection Authority Roads and Maritime Services Sydney Trains Infrastructure NSW NSW Health (Health Infrastructure) Office for Veterans Affairs Office of Environment and Heritage – Heritage Division TAFE NSW Department of Primary Industries NSW Office of Water NSW Fisheries Crown Lands
Local government	City of Sydney Randwick City Council Leichhardt Municipal Council
Cultural	Anzac Advisory Council Centennial and Moore Park Trust

## 2.4.3 Industry briefing session

An industry briefing session was held on 9 April 2013, which included presentations by the NSW Minister for Transport and the Deputy Director-General Transport Projects. The session attracted over 350 attendees from a wide audience including industry groups, government agencies and private businesses. A general overview of the CSELR proposal was given including the proposed delivery strategy, challenges associated with reducing CBD congestion, and the potential benefits associated with improved connectivity, service quality and urban renewal opportunities.

## 2.4.4 Moore Park briefing

A briefing was held on 5 August 2013 to bring together the key Moore Park facility representatives and major users of these facilities, to jointly discuss and provide input to the design process. A general overview of the CSELR proposal was given, as well as details of the Moore Park stop. The meetings included an opportunity to workshop issues raised. Attendees at this briefing included representatives of both major and minor facilities, users of the facilities (ranging from sporting teams to entertainment agents), community groups, schools and Ministerial officers, as follows:

- AFL NSW/ACT
- Australian Film and Television School (AFTRS)



- Centennial Park Community Consultative Committee
- City of Sydney
- Colonial First State
- Centennial Park and Moore Park Trust
- Cricket NSW
- Jattca Property Solutions
- The National Rugby League (NRL)
- PlayBill
- Randwick City Council
- Sydney Roosters
- Sydney Swans
- Sydney Boys High School
- Sydney Cricket and Sports Ground Trust
- Sydney Girls High School
- NSW Department of Education and Communities
- Sydney Football Club
- NSW Waratahs
- Ministry for the Environment and Heritage
- Ministry for Sport and Recreation
- Transport for NSW.

#### 2.4.5 Utility providers

Utility relocations would form a critical and complex part of the CSELR construction process. In May 2013 the NSW Minister for Transport wrote to utility providers requesting support and cooperation for the CSELR development. A high level briefing of senior utility representatives was held on 16 May 2013. Attendees at this meeting represented the following organisations:

- AAPT
- AARnet
- Ausgrid
- Foxtel
- Jemena
- National Broadband Network (NBN) Australia
- NSW Roads and Maritime Services (RMS)
- Telstra
- Transgrid
- Visionstream
- Uecomm.

Representatives from Botany Council and City of Sydney were also present.

An interface agreement with utility providers is being developed. Once finalised, this agreement will be incorporated in the design and delivery of the CSELR proposal. Securing active cooperation from all affected utility providers will help ensure relocation and/or protection of utilities can be designed, agreed and constructed in an efficient manner.

#### 2.4.6 Stakeholder briefings

Comprehensive stakeholder briefings and presentations have been held since December 2012 regarding the CSELR proposal. Briefings included executive representatives of the CSELR project team and were intended to allow stakeholders the time to discuss and ask detailed questions, and to understand views about the CSELR proposal. All comments were considered as part of the EIS.

Table 2.4 provides a list of the stakeholder briefed since December 2012.



Table 2.4 Summary of stakeholders consulted

SECTOR	STAKEHOLDER
Educational institutions	University of New South Wales University of Technology Sydney Institute of Engineering and Technology Sydney Boys High School Sydney Girls High School Bourke Street Public School Randwick TAFE
Sport/Cultural	Australian Turf Club AFL NSW/ACT Sydney Swans Sydney Cricket Ground Trust Centennial Parklands and Community Consultative Committee Sydney Opera House Museum of Contemporary Art Australia Centenary of Anzac Advisory Council
Peak bodies	Tourism and Transport Forum NSW Property Council NRMA
Business	Randwick Combined Chambers of Commerce Kingsford Chamber of Commerce Committee for Sydney Wilson Car Parking Lend Lease Fortius Funds Management Pty Ltd Jones Lang La Salle Mid City Centre Hilton Hotel and Resorts Westin Hotel Westpac Group St George Bank (182 and 172 George Street) Dymocks Group Westfield Group Panma Development Four Seasons Hotel Swissotel Sydney Hunter Connection Tower Apartments Merivale Fife Capital Apple Mirvac Dexus Property Group Amalgamated Holdings Transurban Bourke Street Bakery JC Decaux Investa Property Group
Clubs	Randwick Rotary Club Maroubra Rotary Club South Sydney Junior Leagues Club Irish National Association/Gaelic Club



Table 2.4 cont.

SECTOR	STAKEHOLDER
Churches	St Peter's Church, Devonshire Street
Transport	Accessible Transport Advisory Committee Taxi Council
Community and Resident Groups	Surry Hills Residents Tenant Association Surry Hills Neighbourhood Advisory Board Northcott Housing Association Inner Sydney Regional Council for Social Development

## 2.5 EIS preparation phase community consultation

### 2.5.1 CSELR contact mechanisms

A CSELR information line (1800 684 490) and email address ([projects@transport.nsw.gov.au](mailto:projects@transport.nsw.gov.au)) were established to enable all stakeholders to provide feedback on the proposal and ask questions of the project team. These details were included in all written communications distributed to the community or made available online. Feedback received has been considered during the preparation of the EIS.

The translating and interpreting service phone number (131 450) and symbol were also provided on CSELR communications to assist community members who do not speak English.

### 2.5.2 Proposal website

Information about CSELR has been available on the Transport projects pages of the Transport for NSW website <<http://www.transport.nsw.gov.au/lightrail-program/cbd-and-south-east-light-rail>> since December 2012. The website was used to house a variety of CSELR information, including information about community information sessions held in September 2013 and copies of the community update brochures.

A 'Have Your Say' website <<http://engage.haveyoursay.nsw.gov.au/cselr>> was launched on September 2 2013 to coincide with a series of community information and feedback sessions (refer section 2.5.6). The website hosted an online version of a feedback form and linked back to the Transport for NSW CSELR website.

### 2.5.3 Place Managers

Place Managers were established to act as the direct point of contact for the community, businesses and other stakeholders and commenced working on the CSELR proposal in May 2013. Separate dedicated Place Managers were assigned for the CBD and the South East sections of the light rail route. Place Managers have conducted 'on the ground' assessments, built relationships and provided consistent information to the community and stakeholders along the route. They will continue to act as a point of contact throughout the planning and delivery phases of the CSELR.

### 2.5.4 Community update brochures

A community update brochure was distributed in April 2013 to all residents and businesses within 500 metres of the proposed CSELR alignment. Over 50,000 brochures were delivered. The purpose of the community update brochure was to create awareness of the proposal, outline the next steps and give the community an opportunity to contact the proposal team through the mechanisms discussed in section 2.5.1.

A second letterbox drop of over 50,000 community updates was completed to the same catchment in August 2013. In addition, all property owners along the alignment were sent the brochure to ensure both owners and tenants were informed of the CSELR proposal. This community update provided a project and planning update, project contact details and invited community members to EIS preparation phase community information sessions.

Copies of the community update brochures are provided in Appendix E — *Consultation Outcomes Report*.

### 2.5.5 Lilyfield letterbox drop and doorknock

As part of the CSELR, a maintenance depot is proposed at the Rozelle Rail Yards in the suburb of Lilyfield. This would be located within the former goods railway corridor, adjacent to the Lilyfield stop for the Inner West Light Rail. A letter and the August community update were sent to local residents and businesses near the proposed facility to inform them of the CSELR proposal and invite them to the EIS preparation phase community information sessions.

Members of the project team also completed a door knock in the Lilyfield area as a follow up activity to the letterbox drop. The door knock was undertaken to confirm residents had received the communications materials and encourage them to attend the September community information sessions (see section 2.5.9).

### 2.5.6 Community information stands

In April 2013, five community information stands were established at locations near the proposed CSELR alignment to receive local input on the proposal at an early stage. The information stands were attended by members of the project team, so that attendees' questions could be answered and feedback obtained. Details of the community information stands are provided in Table 2.5.

Table 2.5 Community information stands

LOCATION	DATE
Surry Hills Market, Crown Street, Surry Hills	Saturday 6 April 2013
Entertainment Quarter Village Markets, Lang Road, Moore Park	Saturday 13 April 2013
Royal Randwick Shopping Centre, Randwick	Saturday 20 April 2013
Kingsford Markets, Kingsford	Sunday 21 April 2013
The Rocks Market Sydney	Friday 31 May

### 2.5.7 Door knocking

Door knocking of businesses and residential properties along the proposed CSELR alignment commenced in June 2013. Door knocking was undertaken by Place Managers and members of the CSELR communications team and was undertaken to make direct contact with potentially impacted residential and commercial properties. Priority was given where access or other special needs may be an issue. Door knocking was also used to build the CSELR contact database for future communications.

### 2.5.8 Business survey

A business survey was conducted by Hill PDA as part of the Economic Impact Assessment for the EIS (refer Technical Paper 4 in Volume 3) in June 2013. The business survey was conducted to better understand the operational needs of businesses and the potential impacts on them from CSELR during construction and operation.

A total of 100 businesses were surveyed, including commercial and retail premises located along the proposed CSELR alignment. The business survey within the Surry Hills, Moore Park, Randwick and Kensington/Kingsford precincts was conducted on 14 and 28 June 2013 and the team collected a total of 50 surveys. The business survey in the City Centre Precinct was conducted on 26th June 2013 and the team collected the remaining 50 surveys.



Of the 100 businesses surveyed for the Economic Impact Assessment along the CSELR alignment:

- 83 per cent said they had been made aware of the CSELR proposal.
- 69 per cent were either supportive or neutral about the CSELR, versus 19 per cent who were not supportive and 12 per cent who were undecided.
- 45 per cent thought the CSELR would have either a positive or very positive impact on Sydney, versus only 9 per cent who thought it would be negative. 40 per cent were neutral and 6 per cent were undecided.
- 55 per cent thought light rail would bring positive environmental benefits for Sydney.

The surveys encompassed a range of questions relating to the respondent's level of knowledge regarding the CSELR proposal, existing access requirements and perceptions regarding impacts. For further information on the business survey and Economic Impact Assessment refer to Chapter 9 and Technical Paper 4.

### 2.5.9 EIS preparation phase community information and feedback sessions

A series of five community information and feedback sessions were held in local venues along the preferred route during the EIS preparation phase consultation period. These were widely advertised through a letterbox drop along the alignment, direct mail to owners and advertisements in suburban and metropolitan newspapers, which are listed in Appendix E – *Consultation Outcomes Report*.

The information sessions provided information and graphic displays and were supported by members of the project team to answer questions. Attendees were encouraged to complete a feedback form at the sessions or complete it online at <<http://engage.haveyoursay.nsw.gov.au/cselr>>.

Details of the community information sessions are provided in Table 2.6.

Table 2.6 Community information and feedback session locations

LOCATION	DATE	TIME
State Library, Macquarie Street, Sydney	Monday 2 September	4pm – 8pm
Randwick Town Hall, Corner Avoca and Frances Streets, Randwick	Tuesday 3 September	4pm – 8pm
Eastern Suburbs Masonic Centre, 199 Anzac Parade, Kensington	Wednesday 4 September	4pm – 8pm
Prince Alfred Park, Coronation Hall, Chalmers Street, Surry Hills	Sunday 8 September	11am – 4pm
Adina Apartment Hotel, 359 Crown Street, Surry Hills	Monday 9 September	4pm – 8pm

A briefing for key stakeholders was also held on 2 August 2013 at the State Library to provide these stakeholders with an early opportunity to view the communication materials prior to public consultation.

### 2.5.10 Community consultation and design development

Transport for NSW has consulted with stakeholders and the community throughout the CSELR design development process and this consultation will continue during development of the detailed design. Feedback received during consultation has been used to inform design development of the CSELR proposal. Project partners and key stakeholders are actively engaged in the design development process through regular meetings and forums such as the Sydney Light Rail Round Table (refer Section 2.3.2).

The broader community has been engaged during the EIS preparation phase as outlined in Section 2.5. Key design issues and consultation outcomes are outlined below.

#### Moore Park stop design

Consultation with the Moore Park and Centennial Park stakeholders, including key facility representatives and major users of these facilities, was undertaken to seek input into the design process and workshop issues and opportunities related to the Moore Park stop. Refer to Section 2.4.4 for details.

#### Vertical alignment through Moore Park

During community consultation two options for crossing Moore Park were presented to the community – a cut-and-cover tunnel and a viaduct. The community showed strong support for the cut and cover tunnel and this is the preferred option addressed in the EIS. The cut-and-cover tunnel would avoid the visual impacts on Surry Hills and Moore Park associated with a viaduct and would also reinstate the playing fields as one continuous open green space. Refer to Section 4.3.1 for details.

#### Foveaux Street alternative alignment

A Surry Hills resident action group – People Unite Surry Hills (PUSH) – presented an alternative subsurface alignment through Foveaux Street, Surry Hills (Foveaux Street alternate alignment). This proposal has been assessed by Transport for NSW. Due to cost, construction impacts and conflicts with other major infrastructure services, it is not considered to result in the same benefits as the proposal. Refer to Section 3.4.5 for details.

#### Alignment between Bourke Street and Moore Park

During consultation significant community feedback was received on the proposed CSELR route alignment between Bourke Street and Moore Park. Transport for NSW has taken this into consideration is progressing with Option 1B, which is the preferred alignment addressed in the EIS. Refer to Section 4.3.2 for details.





## 2.6 Summary of issues raised and responses

Community and stakeholder consultation has resulted in the identification of key issues across a broad range of communities and stakeholders.

The key issues raised by government agencies and authorities are listed in Table 2.7 with a cross-reference to where they are addressed in the EIS. These issues are in addition to the formal requirements set out in the Director-General's Requirements (refer Appendix A and Appendix B).

The key issues raised by stakeholders and the community are listed in Table 2.8 with a cross-reference to where they are addressed in the EIS. Further details of community issues raised during consultation are provided in Appendix E – *Consultation Outcomes Report*.

Table 2.7 Key issues raised by government agencies and authorities during preparation of the EIS

AGENCY	ISSUE CATEGORY	DESCRIPTION	EIS/COMMENT
Centennial Park and Moore Park Trust	Design	<ul style="list-style-type: none"> <li>Current location of Moore Park stop and associated impacts to surrounding facilities.</li> <li>Integration of Moore Park Master Plan.</li> </ul>	Section 5.2.8 Section 14.4.1
	Construction impacts	<ul style="list-style-type: none"> <li>Construction impacts to trees on Anzac Parade.</li> <li>Construction compounds located in parklands.</li> </ul>	Sections 14.6.2 and 16.6.2 Sections 6.7.2 and Table 6.4
City of Sydney	Access	<ul style="list-style-type: none"> <li>Objection to taxi access in the pedestrianised zone.</li> </ul>	Section 12.3.2
	Planning	<ul style="list-style-type: none"> <li>Integration with <i>Sydney City Centre Access Strategy</i> and redesign of the City Centre bus network.</li> </ul>	Section 3.2.3
Department of Education	Pedestrians	<ul style="list-style-type: none"> <li>Pedestrian safety on Anzac Parade.</li> </ul>	Sections 14.3.2 and 14.3.3
	Construction impacts	<ul style="list-style-type: none"> <li>Construction impacts on local schools.</li> </ul>	Sections 13.4.3, and 14.4.3
Department of Planning and Infrastructure (DP&I)	Noise	<ul style="list-style-type: none"> <li>Noise and vibration impacts and mitigation measures.</li> </ul>	Sections 12.5, 13.5, 14.5, 15.5, 16.5 and 17.5
Department of Premier and Cabinet	Construction impacts	<ul style="list-style-type: none"> <li>Staging of construction and impacts to major events on George Street.</li> </ul>	Sections 6.1 and 12.3
Environment Protection Authority	Noise	<ul style="list-style-type: none"> <li>Noise impacts during construction and operation.</li> <li>Night construction works.</li> <li>Licensing.</li> </ul>	Sections 6.6, 12.5, 13.5, 14.5, 15.5, 16.5 and 17.5
Office of Environment and Heritage – Heritage Division	Non Indigenous heritage	<ul style="list-style-type: none"> <li>Process for dealing with unexpected finds (archaeology).</li> </ul>	Section 12.8.4 and Technical Paper 5
NSW Office of Water	Groundwater	Further consultation on groundwater management with regard to the Moore Park tunnel construction methodology	Transport for NSW is proposing to meet with the NSW Office of Water during exhibition of the EIS to consult on tunnel construction scenarios
Ministry of Health (Health Infrastructure)	Access	<ul style="list-style-type: none"> <li>Access to Randwick health precinct form Randwick terminus stop.</li> </ul>	Section 5.2.8
	Business Impacts	<ul style="list-style-type: none"> <li>Impacts to The Langton Centre car park, Surry Hills.</li> </ul>	Section 6.7

Table 2.7 cont

AGENCY	ISSUE CATEGORY	DESCRIPTION	EIS/COMMENT
Office of Communities - Veterans Affairs	Social	<ul style="list-style-type: none"> <li>Protection of war memorials along the route.</li> </ul>	Sections 6.7.2.2 and 15.9
Randwick City Council	Amenity	<ul style="list-style-type: none"> <li>Impacts to Wansey Road residents.</li> </ul>	Sections 15.5.2, 15.6.2, 15.7.5, 15.7.6, 15.9.2 and 15.9.3
	Buses	<ul style="list-style-type: none"> <li>General interest in impacts on, and potential changes to, bus operations in the south east, in particular the interchanges at Randwick and Kingsford.</li> </ul>	Sections 15.3 and 16.3 Changes to bus operations in the South East are proposed as part of a separate but integrated project (refer section 1.6).
	Design	<ul style="list-style-type: none"> <li>Location of construction compounds.</li> <li>Bus lay-over locations.</li> <li>Stabling requirements and locations.</li> <li>Design of Randwick stop and interchange at High Cross Park to minimise impacts and optimise accessibility.</li> </ul>	Section 6.7.2 and Table 6.4 Section 5.2.10 Section 5.2.3 Changes to bus operations in the South East are proposed as part of a separate but integrated project (refer section 1.6).
	Parking	<ul style="list-style-type: none"> <li>Parking impacts as a result of changes to bus services.</li> <li>Loss of parking on Anzac Parade.</li> </ul>	Section 16.3.2 Changes to bus operations in the South East are proposed as part of a separate but integrated project (refer section 1.6).
	Planning	<ul style="list-style-type: none"> <li>Incorporation of the Randwick Hospital Master Plan and Sydney Cricket Ground Master Plan.</li> </ul>	Sections 14.4.1 and 15.4.1
Leichhardt Municipal Council	Employment	<ul style="list-style-type: none"> <li>Local employment generation from the CSELR proposal during construction and operation.</li> </ul>	The project is expected to generate wider economic benefits including employment generation (refer Section 3.5.2). During construction up to 700 full time equivalent construction personnel would be employed (refer Section 6.5).
	Environment	<ul style="list-style-type: none"> <li>Environmental impacts associated with the proposed Rozelle Maintenance Facility.</li> </ul>	Chapter 17
	Consultation	<ul style="list-style-type: none"> <li>Request to be consulted during design and construction stage.</li> </ul>	Ongoing consultation with Leichhardt Municipal Council will occur during design development.
State Member for Sydney	Design	<ul style="list-style-type: none"> <li>Lack of consultation during route selection through Devonshire Street, as well as interest in the alternatives considered at this location.</li> </ul>	Section 4.3.2



Table 2.7 cont

AGENCY	ISSUE CATEGORY	DESCRIPTION	EIS/COMMENT
Sydney Harbour Foreshore Authority	Design	<ul style="list-style-type: none"> <li>Alternative Circular Quay light rail stop location.</li> </ul>	Section 4.4 identifies the current stop location. Ongoing consultation with SHFA will occur during design development.
	Planning	<ul style="list-style-type: none"> <li>Sydney Harbour Foreshore Authority Master Plan.</li> <li>Traffic diversions - two tonne axle load limit in the Sydney Harbour Foreshore.</li> </ul>	Technical Paper 10 Section 6.8.2 and Section 12.3
Utilities <ul style="list-style-type: none"> <li>Telstra</li> <li>Sydney Water</li> <li>Ausgrid</li> </ul>	Construction	<ul style="list-style-type: none"> <li>Access to utility infrastructure during construction and operations.</li> <li>Treatment of affected utilities (e.g. protect, relocate).</li> </ul>	Sections 5.2.16 and 10.8.3 Section 10.8.4
	Operations	<ul style="list-style-type: none"> <li>Access to utility infrastructure during operations.</li> <li>Coordination with maintenance programs.</li> </ul>	Section 10.8.4
	Planning	<ul style="list-style-type: none"> <li>System interdependencies (i.e. broader network planning).</li> </ul>	Section 10.8.2
	Finance	<ul style="list-style-type: none"> <li>Funding utilities works where the need is prompted, or complicated, by construction or operation of the CSELR.</li> </ul>	Section 10.8.2

Table 2.8 Key issues raised by the stakeholders (non-government) and the community during preparation of the EIS

ISSUE CATEGORY	DESCRIPTION	EIS/COMMENT
Pedestrians/cyclists	<ul style="list-style-type: none"> <li>Changes to footpaths.</li> <li>Provision of cycle paths along the alignment.</li> <li>Pedestrian movements on Devonshire Street during operation, including loss of pedestrian crossing.</li> <li>Pedestrian movements on Anzac Parade during operation, including a pedestrian bridge.</li> <li>Light rail interactions with pedestrians in the George Street pedestrian zone.</li> <li>Pedestrian movements at the Moore Park stop.</li> </ul>	Sections 5.2.2, 12.3, 13.3, 14.3, 15.3, 16.3 and 17.3
Safety	<ul style="list-style-type: none"> <li>Safety of public during construction.</li> <li>Light rail interactions with other vehicles – buses and cars.</li> <li>Pedestrian safety when accessing medical facilities on High Street.</li> <li>Pedestrian safety for centre running light rail configuration.</li> <li>Safety for school students at Sydney Boys and Sydney Girls High School accessing Moore Park Stop.</li> <li>Safety for Bourke Street Public School students during construction and operation.</li> </ul>	Chapter 6, and Sections 10.10, 12.3, 13.3, 14.3, 15.3, 16.3 and 17.3
Noise	<ul style="list-style-type: none"> <li>Noise impacts from the light rail operations.</li> <li>Noise from ringing bells on vehicles.</li> <li>Noise from construction and night works.</li> <li>Noise impacts on sensitive receivers.</li> </ul>	Sections 12.5, 13.5, 14.5, 15.5, 16.5, 17.5

Table 2.8 cont.

ISSUE CATEGORY	DESCRIPTION	EIS/COMMENT
Access	<ul style="list-style-type: none"> <li>• Customer access to businesses during construction.</li> <li>• Customer access to businesses during operation.</li> <li>• Patient access to medical facilities.</li> <li>• Taxi access to tourist/entertainment and cultural venues in the CBD.</li> <li>• Vehicle and disabled access to Devonshire Street properties and venues.</li> <li>• Service access (e.g. deliveries, rubbish and grease collection, taxis) for businesses on Devonshire Street.</li> <li>• Access to laneways and streets off Devonshire Street.</li> <li>• Access to Royal Randwick racecourse gates used by horse trainers and managers.</li> <li>• Vehicle access to George Street pedestrian zone.</li> <li>• Access to driveways on Wansey Road.</li> </ul>	<p>Chapter 9</p> <p>Sections 12.3, 13.3, 14.3, 15.3, 16.3 and 17.3</p> <p>Sections 12.9, 13.9, 14.9, 15.9, 16.9 and 17.9</p>
Consultation	<ul style="list-style-type: none"> <li>• Adequacy of consultation process with local residents.</li> <li>• Language barrier – English second language residents and business owners.</li> <li>• Consultation behind route selection.</li> </ul>	Chapter 2, Section 3.4
Urban design	<ul style="list-style-type: none"> <li>• Devonshire Street streetscape.</li> <li>• George Street pedestrian zone.</li> <li>• Proposed park at Olivia Gardens.</li> <li>• Integration with Urban Activation Precincts.</li> </ul>	Sections 5.2.2, 5.2.4, 5.2.5, 13.7, 15.4
Design	<ul style="list-style-type: none"> <li>• Method of crossing of South Dowling Street and the Eastern Distributor.</li> <li>• Proximity to business and residential properties on Devonshire Street.</li> <li>• Distance between stop locations.</li> <li>• Location of Rozelle maintenance facility.</li> </ul>	Sections 5.2.1, 5.2.5, 5.2.10
Route selection	<ul style="list-style-type: none"> <li>• Selection of Devonshire Street through Surry Hills.</li> <li>• Alignment across Bourke Street and through Olivia Gardens.</li> <li>• Alternatives routes preferred through Surry Hills – Oxford Street, Foveaux Street, Albion Street and Bourke Street.</li> <li>• Alternatives routes preferred through the CBD – Elizabeth Street and Pitt Street.</li> <li>• Selection of Wansey Street through Randwick.</li> </ul>	Chapter 4 and section 3.4.3
Operations	<ul style="list-style-type: none"> <li>• Cost of tickets.</li> <li>• Location and number of stops.</li> <li>• Light rail vehicles – colour and number of doors.</li> <li>• Bus and car diversions during operation.</li> <li>• Interchanges with other transport modes.</li> <li>• Management system for access to George Street pedestrian zone – e.g. permits.</li> <li>• Ability to meet travel demand in peak hours.</li> <li>• Special event services.</li> <li>• Capacity of light rail vehicles and CSELR system in comparison to bus network.</li> <li>• Reliability of wire free technology.</li> <li>• Vehicle breakdown management.</li> </ul>	Sections 5.1, 5.2, 5.4, 9.2, 12.3, 13.3, 14.3, 15.3, 16.3 and 17.3
Parking impacts	<ul style="list-style-type: none"> <li>• Loss of parking on Devonshire Street.</li> <li>• Loss of parking on Anzac Parade.</li> <li>• Loss of parking on High Street.</li> <li>• Loss of parking in Moore Park Precinct.</li> <li>• Loss of parking at the Kingsford terminus.</li> <li>• Loss of parking on Wansey Road.</li> <li>• Impacts to loading zones.</li> </ul>	Sections 12.3, 13.3, 14.3, 15.3, 16.3, 17.3



Table 2.8 cont.

ISSUE CATEGORY	DESCRIPTION	EIS/COMMENT
Business impacts	<ul style="list-style-type: none"> <li>• Loss of business during construction.</li> <li>• Loss of trade due to loss of parking.</li> <li>• Loss of trade due to reduced foot traffic.</li> <li>• Impacts to outdoor dining areas on Devonshire Street.</li> <li>• Reduced attendees at sporting matches during construction.</li> <li>• Impacts to AFL and NRL playing and practice fields.</li> <li>• Impacts to business in the CBD.</li> <li>• Impacts to business on Devonshire Street.</li> <li>• Impacts to business on Anzac Parade.</li> </ul>	Sections 9.3, 12.9, 13.9, 14.3, 14.9, 15.3, 15.9, 16.9, 17.9
Traffic	<ul style="list-style-type: none"> <li>• Traffic congestion during construction along alignment.</li> <li>• Increased congestion at the corner of Bourke and Devonshire streets.</li> <li>• Increased congestion on South Dowling Street.</li> <li>• Increased congestion on Alison Road.</li> <li>• Traffic congestion on Wansey Road.</li> <li>• Traffic congestion at High Cross Park stop (Randwick stop).</li> <li>• Changes to traffic arrangements in the CBD - pedestrianisation of George Street change of direction/access into/out of other CBD streets.</li> <li>• Impact of bus changes to traffic on CBD streets.</li> <li>• Traffic impacts from Rozelle maintenance facility.</li> </ul>	Sections 1.6, 3.2, 9.2, 12.3, 13.3, 14.3, 15.3, 16.3 and 17.3
Timing	<ul style="list-style-type: none"> <li>• Construction timeframe and completion date.</li> </ul>	Section 6.1
Property	<ul style="list-style-type: none"> <li>• Property acquisition on Devonshire Street.</li> <li>• Property acquisition on South Dowling Street.</li> <li>• Impacts to property values on Wansey Road.</li> </ul>	Sections 5.3 and 15.9
Construction works	<ul style="list-style-type: none"> <li>• Dust, noise and vibration impacts during construction.</li> <li>• Noise and vibration during construction for sensitive receivers (medical facilities, other therapies, printing press, public housing and places of worship).</li> <li>• Construction vehicles blocking limited parking and loading zones.</li> <li>• Disruption to utilities and services.</li> <li>• Noise impacts during night works.</li> <li>• Locations of construction compound on sensitive sites.</li> <li>• Construction hours.</li> </ul>	Sections 6.6, 6.7, 6.8, 10.7, 10.8, 12.5, 13.5, 14.5, 15.5, 16.5, 17.5
Amenity	<ul style="list-style-type: none"> <li>• Change to street character on Devonshire Street.</li> <li>• Change to street character on Wansey Street.</li> <li>• Impacts to parks and parkland during construction for local students and general public.</li> <li>• Impacts to parks and parkland during operation.</li> <li>• Visual and social amenity impacts during construction along the alignment.</li> <li>• Kingsford terminus is isolated and not connected to local shopping area.</li> <li>• Access and attractiveness of George Street and Moore Park sports and entertainment complex during construction.</li> </ul>	Sections 12.7, 13.7, 14.7, 15.7, 16.7 and 17.6
Environment	<ul style="list-style-type: none"> <li>• Tree impacts on Wansey Roads, Alison Road and High Cross Park.</li> <li>• Impacts to parklands - Moore Park, High Cross Park, Ward Park and Wimbo Park.</li> <li>• Impacts to Grey Headed Flying Fox.</li> <li>• Reduction in green space.</li> </ul>	Sections 10.6, 14.6, 14.7, 15.6, and 16.6, Appendix H
Environmental assessment	<ul style="list-style-type: none"> <li>• Parking demand study.</li> <li>• Traffic impacts study.</li> </ul>	Sections 12.3, 13.3, 14.3, 15.3, 16.3 and Technical Papers 1 and 2



Table 2.8 cont.

ISSUE CATEGORY	DESCRIPTION	EIS/COMMENT
Project justification	<ul style="list-style-type: none"> <li>• Benefits of light rail not clear.</li> <li>• Extension of the service in the South East to Coogee and Maroubra.</li> <li>• Data behind route selection.</li> <li>• Data behind bus reduction numbers in the CBD.</li> <li>• Need for the CSELR when current bus system delivers fast travel times.</li> </ul>	Chapters 3, 4 and 19
Buses	<ul style="list-style-type: none"> <li>• Removal of buses in the CBD.</li> <li>• Bus interchanges in the South East.</li> <li>• Travel time compared to current bus routes from the South East.</li> <li>• Interactions with buses on Eddy Avenue.</li> <li>• Changes to bus routes e.g. re-routing into and through the CBD.</li> </ul>	Sections 1.6, 3.2 , 9.2.1.4, 12.3, 13.3, 14.3, 15.3 and 16.3

## 2.7 Consultation: The next steps

### 2.7.1 Public exhibition of the EIS

The EIS will be exhibited from 14 November to 16 December 2013. During the exhibition period, government agencies, interest groups and organisations, stakeholders and the community will be invited to make written submissions. A summary of the engagement activities and tools that will be used to encourage community and stakeholder participation during the public exhibition period is outlined below.

### 2.7.2 EIS display locations

The EIS will be placed on public exhibition at a number of locations including:

- Department of Planning & Infrastructure, Information Centre, 23-33 Bridge Street, Sydney
- City of Sydney Council, One Stop Shop, Town Hall House, Level 3, 456 Kent Street, Sydney
- Randwick City Council, Administration Building & Customer Service Centre, 30 Frances Street, Randwick
- Leichhardt Municipal Council Citizen Service Centre, 7-15 Wetherill Street, Leichhardt
- Customs House Library, Level 2, 31 Alfred Street, Circular Quay, Sydney
- Haymarket Library, Ground Floor, 744 George Street, Sydney
- Surry Hills Library and Neighbourhood Centre, 405 Crown Street, Surry Hills
- Margaret Martin Library, Level 1, Royal Randwick Shopping Centre, Randwick
- Bowen Library & Community Centre, 669-673 Anzac Parade, Maroubra
- Malabar Community Library, 1203 Anzac Parade, Matraville
- Transport for NSW Transport Projects, Level 5, Tower A Zenith Centre, 821 Pacific Highway, Chatswood
- University of NSW, Library Building, Mid Upper Campus, Anzac Parade, Kensington
- Randwick TAFE Customer Service Centre, Building A, Lower Ground Floor, Corner Darley Road and King Street, Randwick
- Prince of Wales Hospital, Barker Street, Randwick
- Sydney Children's Hospital, High Street, Randwick
- Nature Conservation Council, Level 2, 5 Wilson Street, Newtown.

During this time display material and hard copies of the EIS will be made available to the public in order to provide the community, stakeholders and agencies an outline of expected environmental and social impacts and proposed management and mitigation measures.



### 2.7.3 EIS public exhibition promotion

To promote the EIS public exhibition period, a community update will be distributed to residential and commercial properties along the alignment as well as government agencies and key stakeholders. Advertisements will also be placed in key suburban and metropolitan newspapers to announce the EIS display. The advertisements will provide details of the exhibition and community information sessions, including dates, locations and opening hours and will invite community members to write submissions in response to the EIS. The relevant contact details for lodging a submission will be included in the letters and the advertisements.

### 2.7.4 'Have your say' guide

A 'have your say' guide will be produced and made available to the public at the community information sessions and via the CSELR website. The 'have your say' guide will outline the process of how to make a formal submission on the EIS to DP&I. The guide will be explicit in stating that submissions must be made to DP&I and not via Transport for NSW feedback forms.

### 2.7.5 Key stakeholder briefings

Meetings will be held with key stakeholders directly and indirectly impacted by the CSELR proposal, including government agencies. The objective of the meetings will be to provide an update on the CSELR and identify any issues, concerns or suggestions for improvement. These meetings will be ongoing throughout the project.

### 2.7.6 Community information sessions

A series of community information sessions are proposed to be held during the public exhibition period. These sessions will provide opportunities for members of the community and stakeholders to discuss the EIS with the project team and ask questions about the CSELR proposal. The sessions will also provide the community with an opportunity to learn more about the submissions process.

### 2.7.7 Submissions report

Written submissions received by DP&I during the exhibition period will be forwarded to Transport for NSW for consideration. After reviewing the submissions a submissions report will be prepared by Transport for NSW that documents all the submissions received and Transport for NSW's response to them. The submissions report will be publicly available on the Transport for NSW website and the DP&I website.

If there are changes to the CSELR proposal described in this EIS, a Preferred Infrastructure Report may be prepared. If these changes are significant, this report may be released for public review and comment prior to determination of the CSELR proposal.

Transport for NSW proposes to send a letter to all stakeholders who made a submission to advise them of their submission number and where to refer in the submissions report to responses to issues raised. Submissions will not be responded to individually.

The community and stakeholders will be notified about the completion and availability of the submissions report through advertisements in suburban and metropolitan press, the CSELR website and a community newsletter. Key stakeholders will also receive notification of the submissions report via a letter.

### 2.7.8 CSELR contact points

The CSELR contact points (information line 1800 684 490) and email address (projects@transport.nsw.gov.au) will continue to operate throughout the EIS public exhibition period and beyond. Community and stakeholders will be encouraged to contact the project team to discuss the EIS and submissions process. These details will continue to be included in all written communications distributed to the community or made available online.

## 2.8 Ongoing consultation

Transport for NSW is committed to community and stakeholder engagement beyond the planning phase through detailed design, construction and commission of the CSELR. A construction communications plan would be prepared to ensure:

- the community and stakeholders have a high level of awareness of all processes and activities associated with the project
- 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.

Transport for NSW's project information line and email address would continue to be available during the construction phase and targeted communication activities, such as letters, brochures, emails and website updates would continue as the CSELR progresses. Stakeholders will continue to be proactively engaged through Round Table meetings, business forums and other stakeholder meetings.

Complaints during construction will be managed in accordance with Transport for NSW's *Community Engagement Policy*. A construction response line (1800 775 465) is available for all Transport for NSW projects and is a 24 hour contact point for complaints regarding construction works.



## 3. Strategic context and need

This chapter considers the challenges that led to the development of the Sydney CBD and South East Light Rail Project ('the CSELR proposal' or 'the CSELR'). It presents the strategic options that were considered to address these challenges, leading to the selection of the CSELR proposal. It also discusses the need for and benefits of the proposal.

The CSELR proposal is also assessed in the context of key government strategies and policies such as the (draft) *Sydney City Centre Access Strategy* (NSW Government 2013c), *NSW 2021* (NSW Government 2011), *The NSW Long Term Transport Master Plan* (NSW Government 2012a) and the draft *Metropolitan Strategy for Sydney 2031* (NSW Government 2013a).

### 3.1 The challenges

The CSELR proposal addresses a number of Sydney's important transport challenges and would make a major contribution to delivery of an integrated and modern transport system. The current situation with regard to travel demand and the associated challenges is described below.

#### 3.1.1 Current situation

The CBD is the major employment hub in Sydney, accounting for approximately 16 per cent of all Sydney's jobs (equating to around 450,000 employees). The CBD also supports a significant residential population of around 193,000 (Bureau of Transport Statistics 2012a and 2012b).

The CBD is therefore a major focal point for the city's significant travel demand. This pattern of demand has helped shape the development of Sydney's transport system into a radial network with many major transport corridors (and services) providing access into the CBD, which has led to high levels of demand concentrating in inner Sydney and the CBD. More than 630,000 passenger trips are made into the city centre each weekday, including 180,000 during the morning peak hour (8.00 to 9.00 am) (NSW Government 2013c). Heavy rail and buses are the primary public transport modes used to access the CBD, accommodating around 44 per cent and 24 per cent of peak demand respectively. Walking plays an important role with a mode share of five per cent, and the bulk of intra-CBD journeys. Ferries and cycling have mode shares of four per cent and one per cent, respectively. A number of freeways and tollways service the CBD and inner Sydney supporting both private vehicles and buses. Private vehicle mode share for the CBD bound morning peak is around 21 per cent.

Outside of the CBD, the inner South East suburbs incorporate a number of key destinations, which also generate high levels of demand, including:

- the University of New South Wales (UNSW) which currently caters for around 37,000 students and is expected to grow to about 50,000 students
- the Randwick Education and Health Specialised Centre
- the Moore Park sports and entertainment complex, including the Sydney Football Stadium, Sydney Cricket Ground, the Entertainment Quarter, and Centennial and Moore Parks
- the Royal Randwick racecourse
- the Randwick Urban Activation Precinct which is proposed to provide for future population growth within the Randwick, Kensington and Kingsford suburbs.

The CBD and inner South East transport system is, however, experiencing several problems:

- Congestion is reducing Sydney's productivity and urban amenity.
- Customer travel experience is being degraded by unreliable journey times and a confusing bus network.
- The transport system does not have the capacity to support growth.

These issues are discussed in more detail below.

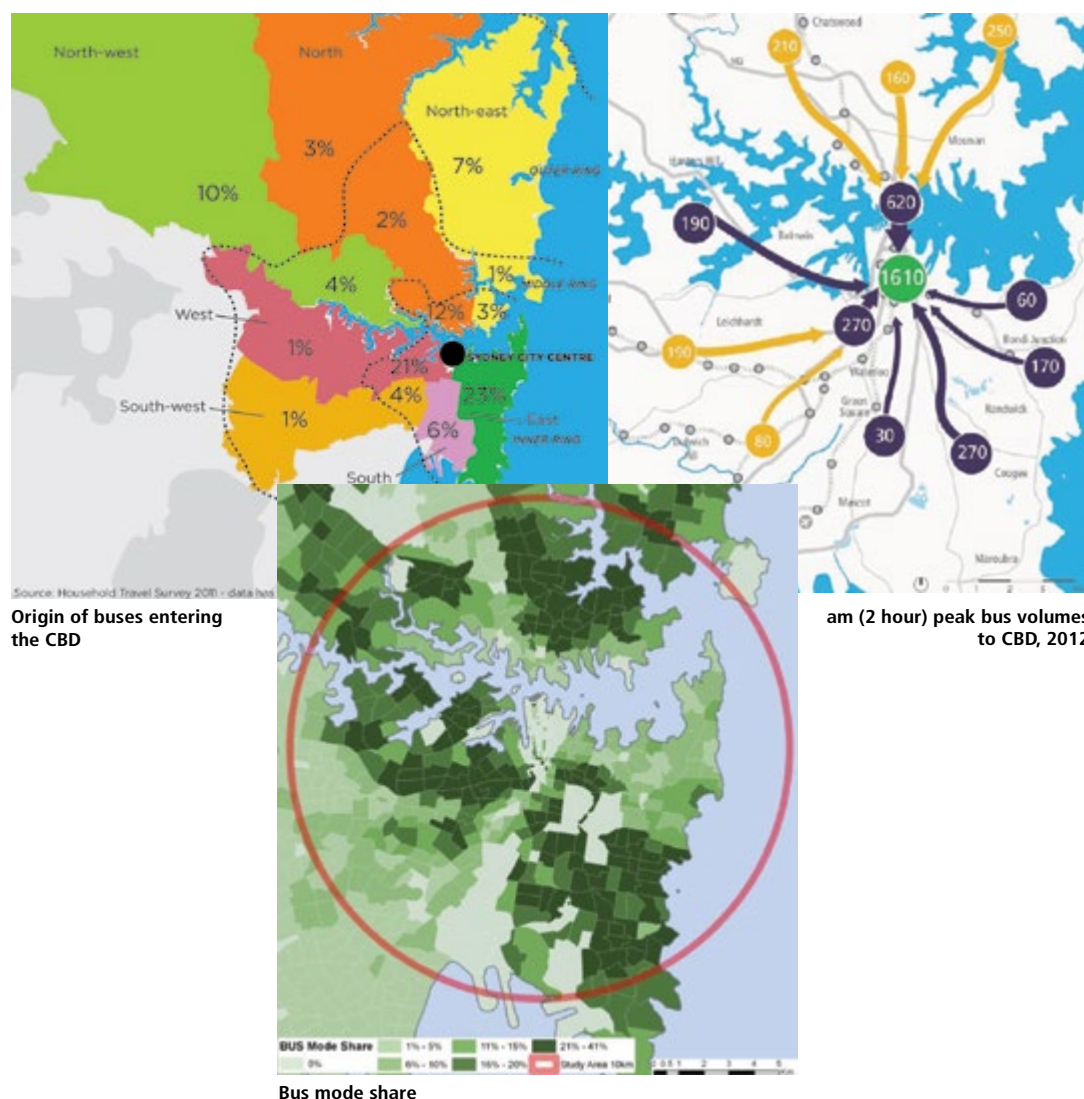
### 3.1.2 CBD congestion

The inadequate capacity and complexity of Sydney CBD's transport system is constraining Sydney's ability to function as a productive and attractive place to work and visit.

Access and mobility within, and between, major centres of employment and commerce is typically an important driver of economic activity and productivity (Eddington 2006). Poor accessibility and congestion within Sydney's CBD (particularly for business-related travel) is constraining productivity and potential productivity growth. Congestion across metropolitan Sydney is estimated to cost up to \$5 billion per annum and is forecast to increase to around \$8 billion per annum by 2020. Over 630,000 trips are made to the city centre each day and a further 1.27 million trips occur within the city centre for work, education, shopping, tourism and residents, generating demand for a mix of high capacity transport services (NSW Government 2013a). At least half of all weekday trips to the city centre are from adjacent inner-city areas, with about 30 per cent from middle ring suburbs and less than 20 per cent from the outer metropolitan regions.

The morning and afternoon peak periods are the critical times when people are travelling into and out of the city centre to work and study, provide services and make deliveries. Around 180,000 trips are made into the CBD during the morning peak period. Buses currently accommodate around 24 per cent of this demand or around 50,000 trips, resulting in around 1,610 buses entering the CBD during the 2-hour morning peak. Buses are the predominant public transport mode for those corridors not serviced by heavy rail. Accordingly the lower North Shore and Northern Beaches, South East Sydney and Inner West Sydney corridors contribute significantly to the large number of buses entering the CBD, as illustrated in Figure 3.1.

Figure 3.1 CBD morning bus mode share and volumes







The large number of buses, combined with general traffic (i.e. private vehicles, commercial and service vehicles) contributes to congestion along major streets within the CBD resulting in slow and unreliable travel times for private and public transport vehicles. It can take up to 30 minutes to travel between Circular Quay and Central – a distance of only 2.5 kilometres. Travel time reliability is also poor.

As illustrated in Figure 3.2, the variability in travel time for buses running along key corridors within the CBD during the morning peak is typically up to seven minutes (or 25 per cent of the up to 30 minute trip from the northern CBD to Randwick) (Bureau of Transport Statistics 2012c).

Figure 3.2 CBD Buses – Morning peak timetable variance (both directions)





There are approximately 200 bus routes operating along several streets in the CBD, resulting in poor network legibility and making the system difficult to navigate. The complexity of the existing network is such that even experienced commuters have difficulty navigating the system — particularly when there are service disruptions.

Walking is the dominant mode of travel within the city centre with 1.15 million walking trips each day representing 92 per cent of all trips within the city centre. Pedestrian journeys are currently impacted by the high traffic volumes within the CBD. The noise and poor air quality associated with queuing buses, and the high levels of congestion, affect impacts the amenity of the CBD resulting in a poor travel experience for pedestrians that make the approximate one million walking trips in the CBD each day. Traffic signals are timed for optimal flow of vehicles, not pedestrians, which results in lengthy delays for pedestrians waiting to cross streets. This can increase walking times by up to 60 per cent, reducing average walk speeds from around 6.5 kilometres per hour to just 4.0 kilometres per hour, further degrading the pedestrian travel experience (NSW Government 2012a).

Pedestrian safety is critical. Between 2007 and 2011, there were 904 casualties involving a pedestrian in the city centre.

### 3.1.3 Inefficient access for the inner South East

In South East Sydney, the public transport network no longer efficiently and effectively supports major travel destinations. This results in lengthy delays for students, staff and patrons of the Moore Park Sports and Entertainment Precinct, Royal Randwick racecourse, UNSW and the Randwick Education and Health Specialised Centre. Bus services often operate at capacity with only 34 per cent of services operating within two minutes of the scheduled time (NSW Government 2012a).

UNSW is a major trip generator in the inner South East, and requires a significant number of buses to transport students and staff — primarily between Central Station and the Kensington campus. Around 60 per cent of students and staff accessing UNSW use public transport of which about two-thirds use the dedicated UNSW express bus services between the UNSW campus and Central Railway Station (UNSW 2013). Currently over 350 bus trips per day operate this route in both directions. Even with this volume of buses (a service every 75 seconds in the peak hour) there is insufficient capacity to effectively accommodate peak demand, resulting in significant queuing at Central Railway Station, crowded services and lengthy delays.

The presence of multiple major event venues in the South East also places pressure on the public transport system to provide sufficient capacity to serve the peak loadings at the beginning and conclusion of these major events. Major events hosted at the Sydney Cricket Ground and Sydney Football Stadium achieve a five to 20 per cent mode share to public transport compared to an average of 55 per cent at Sydney Olympic Park which is served by a much higher capacity heavy rail link (NSW Government 2012a). The high dependence on private vehicles results in heavy congestion during major events and could ultimately impact Sydney's ability to attract hallmark events in the future.

### 3.1.4 Inability to support growth

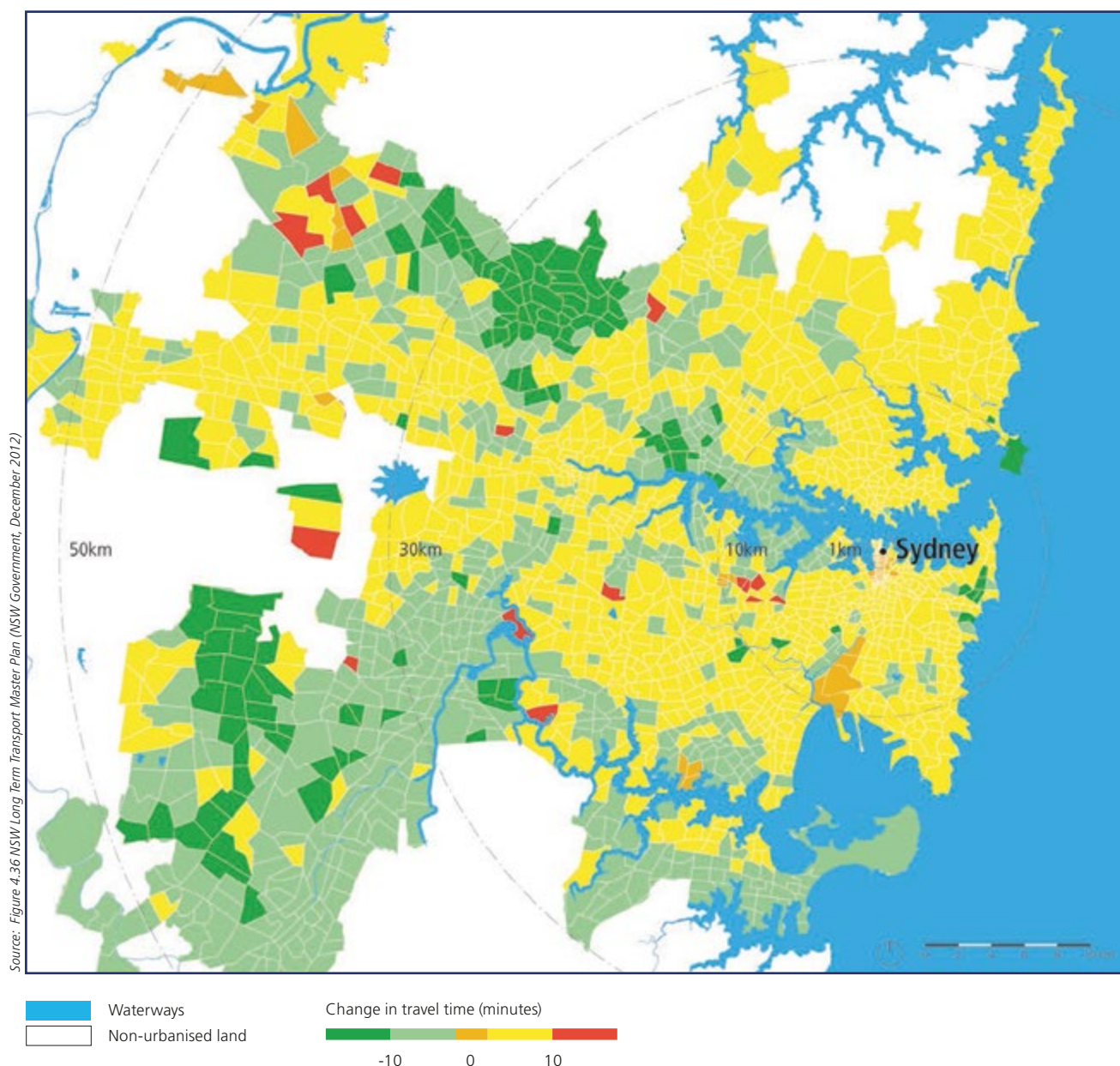
By 2031 an additional 86,000 residents and approximately 147,000 workers are expected within the CBD, as well as 37,000 new residents and 17,000 new workers in inner South East Sydney (Bureau of Transport Statistics 2012a and 2012b). If not addressed, this significant growth forecast for the CBD and inner South East Sydney would exacerbate existing issues resulting in a further decline in productivity and amenity, which would ultimately have a negative impact on the international competitiveness of Sydney.

Transport modelling shows that based on a 'do nothing' scenario, the increased demand for travel cannot be accommodated on existing networks without generating more congestion, overcrowding and longer travel times along key corridors (NSW Government 2012a).

As illustrated in Figure 3.3, travel times into the CBD during the morning peak along the Randwick/Kingsford corridor are expected to increase by between one and ten minutes by 2031 under a 'do-nothing' scenario.



Figure 3.3 Forecast change in morning peak travel time by public transport to Sydney CBD  
(2011-2031 'do nothing')



A continuation of the existing approach allowing on-road vehicles to increase in response to this future demand is unsustainable. By 2031, a 30 per cent increase in bus numbers would be required to meet the additional bus demand for travel to the CBD from all destinations (Transport for NSW 2012d). The existing CBD road network cannot accommodate this level of bus growth without significant degradation in performance and amenity.

A step change in the capability and capacity of inner South East Sydney and the CBD transport system is required to address the problems outlined above and to ensure the system has the capacity to effectively meet existing and forecast growth in demand.

## 3.2 The Government response

This section details the NSW and local government policies that are relevant to the CSELR proposal. These policies include *NSW 2021*, the *NSW Long Term Master Plan*, the draft *Sydney City Centre Access Strategy*, *Sydney's Light Rail Future*, *Draft Metropolitan Strategy for Sydney to 2031*, *State Infrastructure Strategy 2012–2032* and various local government planning policies.

### 3.2.1 NSW 2021

*NSW 2021: A plan to make NSW number one* (NSW Government 2011), is a 10 year plan by the NSW Government to rebuild the economy, return quality services, renovate infrastructure, restore accountability to government, and strengthen the local environment and communities. The plan sets immediate priorities for action and guides NSW Government resource allocation in conjunction with the NSW Budget. It replaces the former *NSW State Plan* (NSW Government 2010a) as the NSW Government's strategic business plan. NSW 2021 includes 32 goals and 180 targets to frame the achievements of its commitments.

The expected contribution of the CSELR proposal to the *NSW 2021* strategy is outlined in Table 3.1.

Table 3.1 CSELR contribution to meeting NSW 2021

NSW 2021 TARGET	EXPECTED ACHIEVEMENT OF THE CSELR PROPOSAL
<b>Goal 1: Improve the performance of the NSW economy</b>	
Grow gross state product (GSP) per capita by an average 1.5 per cent per year to 2020	<ul style="list-style-type: none"> <li>The CSELR would improve journey times and public transport reliability, supporting a more efficient and productive workforce in central Sydney, including agglomeration effects.</li> <li>It would also provide improved connections to Moore Park, UNSW and the Randwick Health and Education Precinct, which house significant growth in education and health employment.</li> <li>CSELR construction would also support jobs over the life of the proposal.</li> </ul>
<b>Goal 2: Rebuild State finances</b>	
Improve efficiency and effectiveness of expenditure	<ul style="list-style-type: none"> <li>Economic analysis has been used in refining the proposal and optimising the value for money while maintaining a focus on the customer and recognising the wider objectives for the CSELR.</li> <li>The main economic benefits would come from public transport, pedestrian and road user benefits, in the form of reliability and travel time savings.</li> <li>Over time, expected benefits are expected to far outweigh costs (based on a 7 per cent discount rate).</li> </ul>
<b>Goal 7: Reduce travel times</b>	
<p>Improve the efficiency of the road network during peak times on Sydney's road corridors</p> <p>Minimise public transport waiting times for customers</p>	<p>The CSELR would:</p> <ul style="list-style-type: none"> <li>address congestion on the road network in the CBD and Sydney's South East, which would improve travel times and increase travel speeds</li> <li>minimise public transport wait times, as the light rail would run on a 'turn-up and go' timetable, introduce more capacity and would be less vulnerable to delays</li> <li>enhance coordination and integration of public transport services. Bus services, in particular, would be coordinated with the new CSELR services at a series of new bus/light rail interchanges.</li> </ul>
<b>Goal 8: Grow patronage on public transport by making it a more attractive choice</b>	
Consistently meet public transport reliability targets	<p>The CSELR would:</p> <ul style="list-style-type: none"> <li>Provide a new high quality element of the public transport network with reliability that would significantly exceed current levels and service.</li> <li>Improve legibility of the transport system by providing fixed networks and infrastructure.</li> <li>Improve the reliability of travel generally by introducing high capacity, reliable 'turn up and go' light rail services in a segregated corridor and reduce bus services in the central area, thereby reducing bus congestion and increasing bus on-time running.</li> </ul>



Table 3.1 cont.

NSW 2021 TARGET	EXPECTED ACHIEVEMENT OF THE CSELR PROPOSAL
Increase the share of commuter trips made by public transport	<p>The CSELR would:</p> <ul style="list-style-type: none"> <li>• Provide a new high quality element of the public transport network serving the CBD and South East region.</li> <li>• Provide additional public transport capacity between key locations in Sydney's South East and the CBD.</li> <li>• Support an expected increase in public transport mode share for access to the Sydney CBD by 2021 (AM peak).</li> </ul>
Increase walking and cycling	<p>The CSELR would:</p> <ul style="list-style-type: none"> <li>• Provide the opportunity for additional light rail passengers to access services by walking and cycling. Increased urban consolidation would enhance this opportunity.</li> <li>• The George Street pedestrian zone would provide a more attractive environment for pedestrians and would increase the walking mode share within central Sydney.</li> </ul>
<b>Goal 9: Improve customer experience with transport services</b>	
<p>Improve customer satisfaction with transport services</p> <p>Increase real-time travel information to customers</p>	<ul style="list-style-type: none"> <li>• With customer experience central to the planning for the CSELR, and a customer-focused product requirement driving the design process, the vehicles, stations and surrounding areas would provide a positive door-to-door customer experience.</li> <li>• CSELR customers, other transport users and the wider community are expected to benefit from decongestion, reduced travel times and increased travel time reliability, as well as wider social and environmental benefits.</li> <li>• Real time information would be provided across the CSELR network.</li> </ul>
<b>Goal 19: Invest in critical infrastructure</b>	
Increase expenditure on critical NSW infrastructure	<ul style="list-style-type: none"> <li>• The NSW Government is committed to the CSELR as critical infrastructure, being a key component of the <i>NSW Long Term Transport Master Plan</i> and Stage 3 of <i>Sydney's Light Rail Future</i>.</li> <li>• The CSELR would deliver two pivotal aspects of the draft <i>Sydney City Centre Access Strategy</i> (SCCAS) (refer to Figure 3.5).</li> <li>• Supporting the Global Economic Corridor and CBD is critical to the State's economy.</li> </ul>
<b>Goal 20: Build liveable centres</b>	
Planning policy to encourage job growth in centres close to where people live and to provide access by public transport	<ul style="list-style-type: none"> <li>• The CSELR is expected to stimulate urban consolidation in the corridor surrounding the light rail. This consolidation would increase the total number and proportion of the population living within close proximity to a high-quality and reliable public transport service.</li> </ul>
<b>Goal 27: Enhance cultural, creative, sporting and recreation opportunities</b>	
Increase participation in sport, recreational, arts and cultural activities in Sydney from 2010 to 2016 by 10 per cent	<ul style="list-style-type: none"> <li>• The CSELR would provide enhanced and reliable access to several key sporting and cultural destinations, including Sydney Cricket Ground, Sydney Football Stadium, Royal Randwick racecourse, Moore Park Golf Course, Centennial Park, the Moore Park Entertainment Quarter, the National Institute of Dramatic Art (NIDA) and UNSW.</li> </ul>

The CSELR proposal would contribute to achieving these goals by providing a high quality public transport service between Sydney's CBD and South East. It would also ensure a positive, whole of journey experience including access to real-time information, streamlined interchanges, comfortable and timely travel, well designed stops, comfortable vehicles and clear signage. This focus on reliability and customer experience would ensure the CSELR proposal provides an attractive public transport choice.



### 3.2.2 NSW Long Term Transport Master Plan

The *NSW Long Term Transport Master Plan* (NSW Government 2012a; ‘the Master Plan’) is a 20 year plan to improve the NSW transport system. It provides the basis upon which further detailed transport planning, including the CSELR proposal, can be undertaken.

The Master Plan considers the future population growth and employment precincts within the State (including Sydney) and outlines the capabilities and limitations of the transport network for all transport modes (including buses, heavy rail, light rail, ferry and private vehicles) to provide clear direction for future transport investigations.

A key element of the Master Plan is the need to address congestion in the Sydney CBD. The Master Plan notes that over the next 20 years, trips into the Sydney CBD are forecast to grow by 31 per cent. This represents an additional 56,500 trips, the equivalent of 942 standard buses (NSW Government 2012b). This growth cannot be accommodated on the existing CBD road network, which would compound congestion and affect economic growth. An integrated public transport solution is therefore needed to ease congestion in the CBD.

The Master Plan identifies five steps to manage CBD congestion, which comprise:

1. Diverting 60 buses from the northern suburbs onto the Cahill Expressway.
2. Redesigning the bus network to be simpler, faster and better, removing up to 220 buses from the CBD in the peak hour.
3. Light rail in the CBD and South East to move up to 9,000 passengers per hour.
4. The North West Rail Link to provide faster single deck trains every five minutes.
5. A second harbour rail crossing with capacity to carry up to 100,000 more people an hour.

The CSELR proposal would achieve the third step in this list and provide the catalyst for the second step. It would also provide the ability for south-western buses to terminate near Central Railway Station. The Master Plan includes 220 actions that focus on providing an integrated transport system in NSW over the next 20 years. The CSELR proposal is a key action in the *NSW Long Term Master Plan* as it would introduce light rail into the high demand corridor from Circular Quay to Kingsford and Randwick and create a pedestrian zone along a section of George Street between Bathurst and Hunter Streets. Accompanying the Master Plan are seven modal delivery plans. *Sydney’s Light Rail Future* is the modal plan for light rail and is discussed further in section 3.2.4.

The *Sydney City Centre Access Strategy* (SCCAS) integrates the various transport initiatives proposed for the city centre, including the CSELR proposal, and is outlined below.



### 3.2.3 Sydney City Centre Access Strategy (SCCAS)

The SCCAS has been developed in response to the *NSW Long Term Transport Master Plan* (NSW Government 2012a; refer to section 3.2.2) commitments that relate to improving access within and to Sydney's city centre (refer to Figure 3.4). The SCCAS represents a 20 year program of initiatives designed to deliver a fully integrated transport network for the future of Sydney's city centre.

The SCCAS considers all transport modes and their key networks. This strategy is a multi-modal approach to unlock additional capacity within the Sydney CBD and includes a number of separate components across different modes (bus, heavy rail, light rail, ferry, cycling, walking, taxis etc.).

Key features of the integrated network include:

- light rail on George Street between Central and Circular Quay as part of the CSELR proposal
- pedestrianisation of George Street between Bathurst Street and Hunter Streets as part of the CSELR proposal
- improved pedestrian connections throughout the city centre including Wynyard Walk
- redesigned bus services with priority routes on Elizabeth/Castlereagh, Park Street/Druitt Street and Clarence/York Street
- new interchange precincts at Town Hall, Wynyard, Central and Circular Quay Railway Stations, and also at Martin Place and Museum
- an integrated cycleway network
- a new ferry hub at Barangaroo
- a new rapid transit railway line and train stations for the city centre
- new designated traffic routes through and around the city centre.

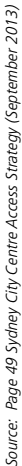
Figure 3.4 shows how the network of the city centre would look in 2031 following implementation of the SCCAS.

The CSELR proposal contributes two components of the SCCAS — light rail and the pedestrianisation of a section of George Street (refer to Figure 1.1). Other components of the SCCAS are anticipated to be implemented over the 20 year timeframe.

The redesign of the inner city bus network is being prepared in parallel with development of the CSELR proposal and the two are interdependent but separate projects.

Any changes to bus services and infrastructure in the CBD and South East, as well as traffic management changes and other impacts associated with these changes, would be part of the SCCAS. These do not, therefore, form part of this EIS for the CSELR proposal, with the exception of cumulative impact considerations (refer to Chapter 11).

Figure 3.4 2031 City Centre transport network from Sydney City Centre Access Strategy







### 3.2.4 Sydney's Light Rail Future

*Sydney's Light Rail Future* (NSW Government 2012b) is the NSW Government's plan to expand light rail services for the CBD and inner Sydney. The document outlines the following four stages for the development of an effective light rail system in Sydney:

1. *Service integration and improvements* — The first part of this stage has been completed through integration of Sydney's existing light rail system into the existing MyZone ticketing system. The second part is the introduction of the Opal electronic ticketing system.
2. *Modernise and extend the existing network* — This includes construction of the Inner West Light Rail Extension (under construction and due to be completed in 2014), introduction of a modern light rail fleet and real-time information and timetable updates.
3. *Deliver a new CBD and South East service* — This includes delivery of a new light rail service connecting Circular Quay, the CBD and Sydney's South East, including Moore Park, the Randwick health precinct and UNSW; and pedestrianisation of approximately 40 per cent of George Street in the Sydney CBD.
4. *Longer-term investigations* — This includes feasibility investigations for light rail or other high capacity public transport along additional corridors, including Victoria Road, Parramatta Road, Anzac Parade to Maroubra and potentially Western Sydney. Future investigations are also proposed for potential extensions to locations such as Malabar, Walsh Bay and Barangaroo North.

The actions outlined in *Sydney's Light Rail Future* would grow public transport capacity, enhance commuter experience and reduce congestion within the CBD, leaving more space for vital commercial traffic and pedestrians. The CSELR proposal comprises Stage 3 of the steps outlined above.

### 3.2.5 Draft Metropolitan Strategy for Sydney to 2031

The draft *Metropolitan Strategy for Sydney 2031* (NSW Government 2013a; the draft Strategy) lays the strategic foundation for the city to respond to a growing population with changing needs. The draft Strategy supports the key goals, targets and actions contained in NSW 2021 and have been prepared in conjunction with the *NSW Long Term Transport Master Plan* and the *State Infrastructure Strategy* to fully integrate land use and infrastructure outcomes.

The draft Strategy provides a comprehensive plan to manage the growth of Sydney. Sydney's population is expected to grow by 1.3 million by 2031 with an additional 625,000 jobs created. Within the draft Strategy, nine 'city shapers' will play an important role in shaping future growth across greater Sydney.

Those which are relevant to the CSELR proposal include:

- *Global Sydney* — The area encompassed by Sydney's CBD and North Sydney is predicted to have an increase of more than 114,000 new jobs. Transport connections with other areas of Sydney will be improved.
- *Global Economic Corridor* — This extends from Port Botany and Sydney Airport through to the CBD, North Sydney, St Leonards, Chatswood and Macquarie Park. It is estimated that approximately 213,000 additional jobs will be provided in this area by 2031.
- *Anzac Parade Corridor* — This connects UNSW and the Randwick health precinct to Malabar and La Perouse. Additional houses and jobs will be focused around centres along Anzac Parade, including the Randwick Urban Activation Precinct (refer below). Additional opportunities to improve transport in these areas, including extending the light rail corridor, will be considered.

The draft Strategy complements the delivery of key projects and actions identified in the *NSW Long Term Transport Master Plan* (refer to section 3.2.2), including light rail and the CSELR proposal, through improving transport access to and within the Sydney CBD and along Anzac Parade. The CSELR is expected to stimulate urban consolidation in the corridor surrounding the light rail which would increase the total number and proportion of the population living close to a high-quality and reliable public transport service. The CSELR proposal would further support the Anzac Parade corridor by enhancing connection between the key employment, education, cultural and recreational precincts in the South East.

### 3.2.6 Randwick Urban Activation Precinct

The Urban Activation Precincts (UAP) program was announced by the NSW Premier in March 2013. The UAP process, which is being led by the Department of Planning and Infrastructure (DP&I) (in consultation with relevant councils, agencies and the community), aims to deliver additional housing in areas with access to infrastructure, transport, services and employment through land use rezoning and changes to permissible building density and height. Eight precincts have been announced, one of which, the Randwick UAP (refer to Figure 9.15), would be traversed by the CSELR proposal. An additional UAP has also been identified, the Anzac Parade South UAP, which is located outside of the proposal area to the south of the proposed Kingsford stop.

Detailed investigations for the Randwick UAP are currently underway and are likely to focus on the proposed light rail stops in Randwick (including the Royal Randwick racecourse, UNSW High Street and Randwick stops). Transport for NSW would continue to consult with DP&I and Randwick City Council throughout the design development process for the CSELR proposal to integrate the CSELR with plans for the Randwick UAP.

### 3.2.7 State Infrastructure Strategy 2012–2032

The NSW Government *State Infrastructure Strategy 2012–2032* (Infrastructure NSW 2012) sets out and commits to the State's infrastructure delivery and reform priorities over the next five years. The strategy is designed to complement the *NSW Long Term Transport Master Plan*.

A core element of the *State Infrastructure Strategy* is the development of a pipeline of projects that prioritises investment in the right projects, and provides opportunities for private sector involvement in delivery and operations. The strategy seeks to prioritise projects that maximise economic benefits for the state, remaining aware of the capacity of the Government to provide funds for new projects.

The *State Infrastructure Strategy* supports the construction of light rail from Central Station to Moore Park and UNSW via Anzac Parade, which is consistent with the CSELR proposal. It identifies the CSELR as a project that aligns with Infrastructure NSW's framework for prioritising infrastructure investment. The alignment of the CSELR proposal with this framework is shown in Figure 3.5.



Figure 3.5 CSELR alignment with Infrastructure NSW investment framework

Supports economic activity and improves amenity	Enables the movement of people, goods and information	Services the needs of households	Supports the quality of life of the individuals and resilience of communities	Connects individuals, businesses and communities with each other and the world
<ul style="list-style-type: none"> <li>The main CSELR economic benefits would come from public transport, pedestrian and road user benefits, in the form of reliability and travel time savings.</li> <li>Over time, expected benefits would exceed costs (at a 7% real discount rate).</li> <li>The pedestrianisation of George Street would also substantially improve the amenity of Sydney's key CBD spine, reducing diesel exhaust and noise emissions from the significant volumes of buses currently using this corridor.</li> <li>The CSELR construction would create jobs over the life of the project.</li> </ul>	<ul style="list-style-type: none"> <li>The proposal would decrease congestion on the road network in the CBD and Sydney's South-East, which would improve travel times and increase travel speeds.</li> <li>There would be enhanced coordination and integration of public transport services. Bus services, in particular, would be coordinated with the new CSELR services at a series of new bus/light rail interchanges.</li> <li>The CSELR allows the removal of at least 220 bus services per hour from the City Centre, offsetting some of the growing congestion from additional economic activity.</li> </ul>	<ul style="list-style-type: none"> <li>The CSELR would be a new high quality element of the public transport network with standards of reliability that significantly exceed current levels.</li> <li>CSELR users, other transport users and the wider community are expected to benefit from de-congestion, reduced travel times and increased travel time reliability, as well as wider social and environmental benefits.</li> <li>Real time information is expected to be provided across the CSELR network.</li> </ul>	<ul style="list-style-type: none"> <li>The CSELR is expected stimulate urban consolidation in the corridor surrounding the light rail. This consolidation would increase the total number and proportion of the population living within close proximity to a high-quality and reliable public transport service.</li> <li>The CSELR would provide enhanced and reliable access to several key sporting and cultural destinations, including Royal Randwick racecourse, Moore Park Golf Course, Centennial Park and the Moore Park Entertainment Quarter.</li> </ul>	<ul style="list-style-type: none"> <li>The CSELR would form a part of the key transport links in the global economic corridor, providing good connection to employment and community facilities in the CBD, Moore Park, Randwick and Surry Hills.</li> <li>In conjunction with the Anzac Parade South and Randwick, Urban Activation Precincts, the CSELR would facilitate a greater concentration of businesses and employment within easy access of Sydney's international gateways at Port Botany and Sydney Airport, as well as yielding agglomeration benefits.</li> </ul>

### 3.2.8 Local government planning strategies

The CSELR proposal would also support key objectives set out in local government planning strategies. A discussion of these is provided below.

#### Sustainable Sydney 2030: The Vision

*Sustainable Sydney 2030: The Vision* (City of Sydney 2008) is the City of Sydney's response to the community's ideas for creating a better Sydney. The overarching vision of the Plan is a green, global, connected city. The Plan contains ten targets of particular relevance is Target 6 which identifies that by 2030, trips to work using public transport will increase to 80 per cent, for both residents of the City and those travelling to the City from elsewhere.

The Plan also outlines five 'big moves', ten strategic directions and ten project ideas that City of Sydney has adopted to transform Sydney into a connected and sustainable city over the next 20 years. Of particular relevance to the CSELR proposal, is strategic direction number 3 — 'Integrated Transport for a Connected City' and Action 3.1.3 — 'Support and plan for the integration of cross-regional public transport services, including light rail and metropolitan rail systems and the quality of modal interchanges'.

The CSELR proposal would also support the Plan's suggestion for developing a north-south central spine in the City Centre connecting three squares at Circular Quay, Town Hall, and Central, with priority for public transport, cycling, and pedestrians (identified in 'project idea 3').

### George Street concept design

City of Sydney supports the CSELR proposal to transform part of George Street into a pedestrianised zone, accommodating lively spaces for businesses, street dining, street furniture and public art. This transformation of George Street would form part of the City of Sydney's 'Three City Squares' project identified in *Sustainable Sydney 2030* (2008) (described above), and would provide a sustainable transport link between planned areas of redevelopment at Circular Quay, Town Hall Square and Central Railway Station.

The concept design for the George Street transformation was developed by the City of Sydney, in consultation with Transport for NSW. The *George Street Concept Design* (City of Sydney, August 2013) provides details on eight elements, including light rail stops, paving, street trees and furniture, lighting and public art. The *George Street Concept Design* advocates for the pedestrianisation of George Street between Bridge Street and Liverpool Street. Following consideration of the *George Street Concept Design*, Transport for NSW decided that a pedestrian zone between Hunter Street and Bathurst Street is most appropriate for the CSELR proposal.

Transport for NSW will continue to work with the City of Sydney to ensure that the design principles outlined in the George Street concept design are considered during the detailed design phase of the CSELR proposal.

### Randwick City Plan

The *Randwick City Plan* (Randwick City Council 2006) outlines the directions and key actions that Randwick City Council will take to guide development within the Randwick local government area (LGA) over the next 20 years. Of relevance to the CSELR proposal is Direction 9c, 'advocate and/or plan for integrated local and regional transport improvements, including high capacity transport such as light/standard rail'. A key action listed under Direction 9c is to 'lobby the State Government in partnership with surrounding councils for improved public transport, including light/standard rail'.

The CSELR proposal would assist with achieving Direction 9c of the Randwick City Plan through delivering a new light rail service to key areas of the Randwick LGA. The CSELR proposal would provide high-frequency light rail services for commuters travelling from the south-eastern suburbs of Sydney (including those within Randwick LGA) to the CBD; students travelling to UNSW and Moore Park; and customers and staff, patients and visitors travelling to the Randwick health precinct.

### Kingsford Town Centre Strategy

Randwick City Council commissioned the *Kingsford Town Centre Strategy* in 2013 (Randwick City Council 2013a) to gain a better understanding of how the Kingsford Town Centre operates and the issues that affect its economic viability. The strategy also sets out a series of strategies and actions for improving the centre. The strategy mentions the potential for light rail to contribute to the vision of Kingsford as an important community and retail hub within the City of Randwick.

The strategy sets out a series of actions. Of particular importance to the CSELR proposal is Action 4.3 'Liaise with relevant government agencies regarding timing and ramifications of light rail through Kingsford, including likely infrastructure requirements and impact on existing parking'.

Transport for NSW will work with the Randwick City Council to ensure that the design of the CSELR proposal through the Kingsford Town Centre is considered as part of the overall development of the strategy.



### Applicable environmental planning instruments

As identified in section 1.7, the proposal has been declared to be a critical State significant infrastructure proposal under Part 5.1 of the EP&A. Through the provisions of Part 5.1 of the EP&A Act, and the critical State Significant Infrastructure declaration on 20 May 2013, the proposal may be approved notwithstanding any prohibition contained within an existing environmental planning instrument, including a State environmental planning policy.

Notwithstanding the above, the following environmental planning instruments have been considered as relevant to the project and further detail is provided in Appendix D of this EIS:

- *State Environmental Planning Policy (State and Regional Development) 2011*
- *State Environmental Planning Policy No. 55 – Remediation of Land*
- *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*
- *Sydney Regional Environmental Plan No 26 – City West*

The proposal's compliance with the relevant State environmental planning instruments shown above is discussed in Appendix D. Apart from the *State Environmental Planning Policy (State and Regional Development) 2011*, these environmental planning instruments do not apply to the CSELR by reason of section 115ZF(2) of the EP&A Act.

In addition to the above State environmental planning instruments, the CSELR proposal is located within the City of Sydney, Randwick and Leichhardt local government areas, on land which is subject to the *Sydney Local Environmental Plan 2012*, the *Randwick Local Environmental Plan 2012*, and the *Leichhardt Local Environmental Plan 2000* respectively. Notwithstanding the local environmental planning instrument provisions of the relevant local environmental plans, permissibility for the CSELR proposal is provided for under the provisions of *State Environmental Planning Policy (State and Regional Development) 2011*.

## 3.3 Objectives of the CSELR proposal

Following identification of the preferred corridor for the light rail, and based on the challenges outlined in section 3.1, a number of project-specific objectives were formulated to help guide the development of the potential transport system solutions. The project objectives for the CSELR are outlined below:

1. Improve reliability and efficiency of travel to, from and within the CBD and suburbs to the South East.
2. Improve access to major destinations in the South East, including Moore Park, UNSW, Royal Randwick racecourse and the Randwick health precinct.
3. Satisfy long-term travel demand between the CBD and suburbs to the South East.
4. Increase the use of sustainable transport modes in the CBD and suburbs to the South East.
5. Improve the overall amenity of public spaces in the CBD and suburbs to the South East.
6. Facilitate the continued, orderly and efficient growth of urban development and economic activity within the CBD and suburbs to the South East.

These objectives are consistent with the aims and objectives of the *NSW Long Term Transport Master Plan* (NSW Government 2012a) as described in section 3.2.2 and summarised in Table 3.2.

Table 3.2 NSW Long Term Master Plan relationship with the CSELR proposal

NSW LONG TERM MASTER PLAN	RELATIONSHIP WITH CSELR PROPOSAL
Improve quality of service: <ul style="list-style-type: none"> <li>customer experience</li> <li>more travel choice</li> <li>integrated services.</li> </ul>	Overarching objective of the CSELR with related CSELR outcomes comprising: <ul style="list-style-type: none"> <li>improved reliability</li> <li>more travel choice</li> <li>integration with other services.</li> </ul>
Improve liveability: <ul style="list-style-type: none"> <li>shaping cities and major centres</li> <li>improving connectivity</li> <li>support jobs</li> <li>access to major activities.</li> </ul>	Key outcome for the CSELR including: <ul style="list-style-type: none"> <li>significant improvement to the CBD environment</li> <li>connectivity to the CBD</li> <li>connectivity within the CBD</li> <li>accessibility to major activities in the South East.</li> </ul>
Support economic growth and productivity: <ul style="list-style-type: none"> <li>more efficient</li> <li>improve accessibility of people to other people, opportunities and services.</li> </ul>	The CSELR would: <ul style="list-style-type: none"> <li>improve the efficiency of the transport network</li> <li>improve access to the CBD</li> <li>improve access to major services and activities in the South East.</li> </ul>
Reduce social disadvantage: <ul style="list-style-type: none"> <li>access to goods and services</li> <li>access to employment</li> <li>access to education.</li> </ul>	Key social outcomes of the CSELR include: <ul style="list-style-type: none"> <li>improved access to CBD employment and services</li> <li>improved access to Randwick health precinct and the educational opportunities of UNSW.</li> </ul>
Improve sustainability: <ul style="list-style-type: none"> <li>optimise transport network</li> <li>ease congestion</li> <li>grow travel by sustainable modes.</li> </ul>	The CSELR is a sustainable transport option and would help to increase the mode shift from private cars to public transport.

## 3.4 Strategic options assessment

### 3.4.1 Overview

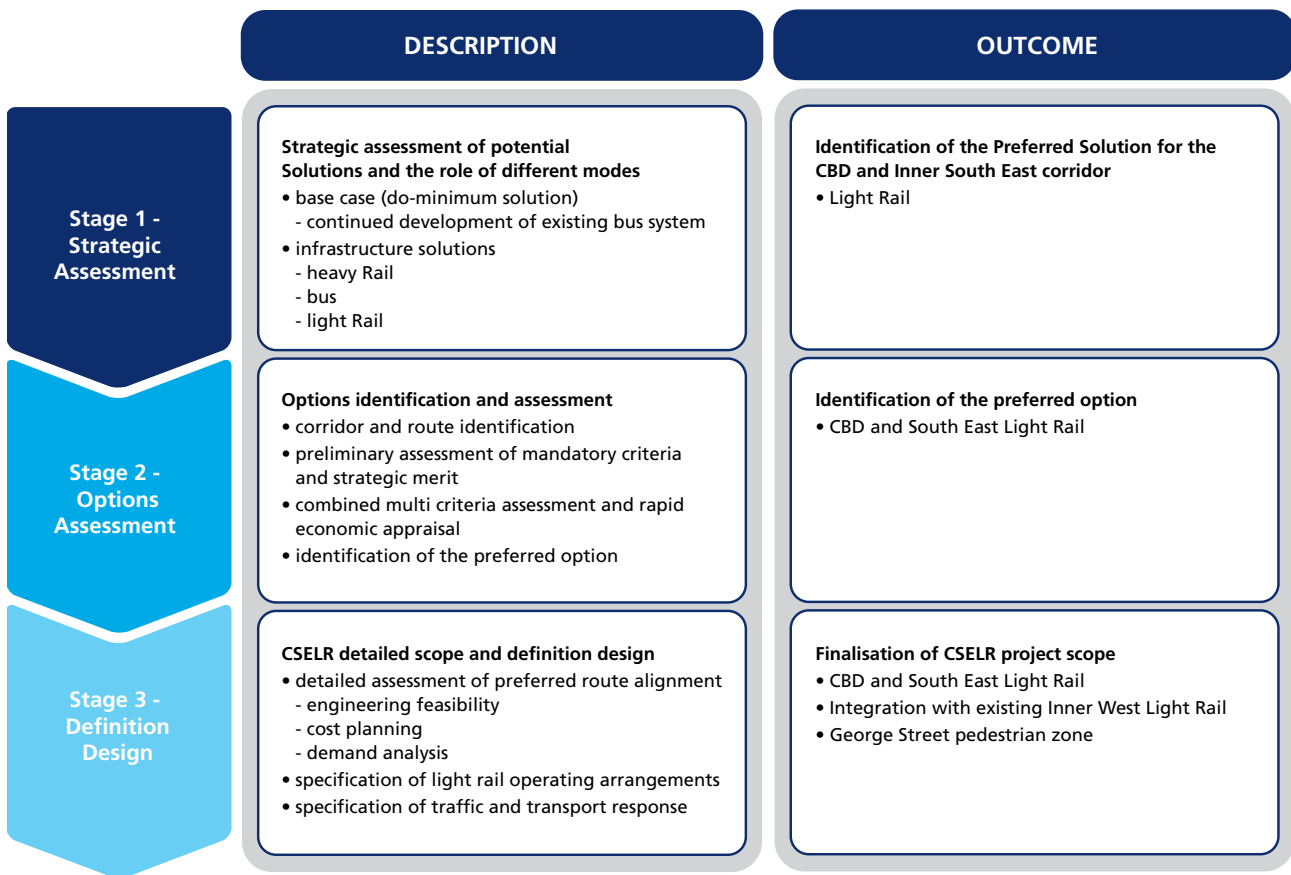
The CSELR proposal was developed as part of a comprehensive options identification and assessment process which was undertaken to assess the feasibility of alternative options to deliver the necessary transport system capacity within inner Sydney and the CBD. As illustrated in Figure 3.6 and explained in the following sections in more detail, the assessment consisted of three key stages:

- Stage 1: Strategic assessment of potential solutions
- Stage 2: Options identification and assessment
- Stage 3: Detailed scope and definition design.





Figure 3.6 Options assessment process



### 3.4.2 Strategic assessment

As outlined above, the *NSW Long Term Transport Master Plan* provides a strategic assessment of the transport challenges and preferred solutions for NSW, including travel to and within Sydney's CBD and South East corridor. This is supported by a suite of integrated modal delivery plans (including *Sydney's Light Rail Future*) which describe how the Master Plan will be implemented for each transport mode. As part of this process, light rail was identified as the preferred solution to increase the capacity and improve the reliability of the inner Sydney and CBD transport network.

Three priority corridors were assessed:

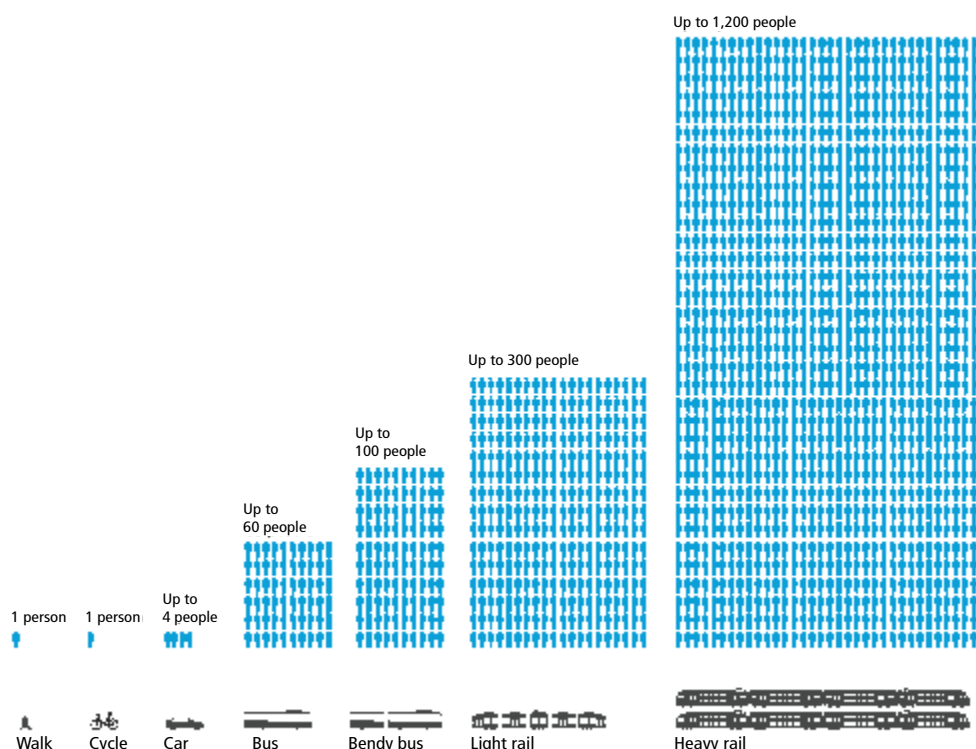
- *The CBD corridor* — This currently experiences high transport demand and has limited capacity to accommodate additional buses to meet future growth.
- *The UNSW corridor* — This serves several major key activity hubs, including sporting precincts at Sydney Football Stadium, Sydney Cricket Ground, Royal Randwick racecourse; recreation and entertainment facilities including Entertainment Quarter venues such as Fox Studios and the Hordern Pavilion at Centennial Parklands; the Randwick Education and Health Specialised Centre including the UNSW and hospitals in Randwick; and high density centres in Surry Hills, Randwick and Kensington. Major events at Moore Park and Royal Randwick racecourse, together with the UNSW campus, generate significant travel demand in this corridor during peak and off-peak times. This corridor currently relies on buses for public transport.
- *The University of Sydney corridor* — This also includes several major destinations such as the University of Technology Sydney, the TAFE NSW Sydney Institute, the Central Park urban renewal site as well as the University of Sydney and Royal Prince Alfred Hospital. It serves high density residential and retail areas in Ultimo, Chippendale and Camperdown.

The key findings of the strategic assessment stage are summarised below:

- A 'do nothing' base case, assuming no change to existing transport infrastructure and/or service patterns within the study area, was concluded as unrealistic as there would need to be some kind of intervention to improve the flow of buses through the CBD or to alleviate high bus loadings.
- A 'do minimum' base case was developed building upon the 'do nothing' assumptions. In the 'do minimum' case, additional bus services would be deployed to new and existing routes. However growth in buses and traffic would further compound existing congestion problems in the CBD and bus and traffic speeds would decline. To mitigate these impacts, it is possible that new bus services would need to terminate closer to their entry point to the CBD than the current routes. This would either result in long walk trips for customers to reach their destination, or interchange to other services which have limited capacity to cater for additional passengers.
- Introduction of light rail to the corridor could improve journey times and reliability for customers while increasing the capacity of the transport system. As illustrated in Figure 3.7, one light rail vehicle has the capacity to move up to 300 people — which provides up to five times greater capacity than a traditional bus, while taking only about twice as much road space. Light rail is expected to provide a more reliable service, with around 97 per cent of services forecast to run within two to three minutes of the timetable, which is significantly higher than current bus reliability (only 19 to 34 per cent of buses achieve this along Anzac Parade and within the CBD).
- An extension to the Eastern Suburbs rail line to Randwick and Maroubra was considered. However existing levels of demand do not support a heavy rail extension, which would require extensive tunnelling and/or land acquisition. As a result, this would be the most costly and disruptive option to construct. An Eastern Suburbs heavy rail extension would not provide access to key destinations such as Surry Hills, UNSW and Moore Park. It is important to note that a light rail solution does not preclude an extension of the Eastern Suburbs rail line in the long term.

Consideration was also given to a Bus Rapid Transit (BRT) option. Analysis showed that the BRT option provided a lower capacity than light rail in comparable traffic conditions. It is also likely to attract lower passenger demand. Furthermore, BRT option would not reduce traffic congestion to the same extent as light rail, nor would it improve urban amenity.

Figure 3.7 Indicative capacity by mode





### 3.4.3 Options identification and assessment

Following strategic assessment of the priority corridors, Transport for NSW identified and assessed a range of potential light rail route alignments to evaluate the role that light rail could play in providing an effective transport solution within inner Sydney and the CBD.

#### Route options: Long list

##### Review of previous studies

To identify potential route options, reports providing over 15 years of light rail planning were reviewed, including studies undertaken by the City of Sydney, Randwick City Council and Transport for NSW. These reports comprise a substantial body of work previously undertaken to investigate the potential role of light rail.

An initial list of route options was then developed based on the three priority corridors identified in the strategic assessment. These routes were then filtered against the following set of mandatory criteria to ensure that they had potential to meet the requirements for the proposed light rail network:

- Provide interchange opportunity with a key heavy rail station (such as Central, Circular Quay or Town Hall).
- Serve key identified transport destinations within the corridor (the Sydney CBD, Barangaroo, UNSW or University of Sydney, and associated hospital precincts).
- Do not contain street sections known to contain significant engineering constraints for light rail (e.g. steep street gradients or prohibitively narrow road widths).

After filtering the options which did not meet the mandatory criteria, a long list of 15 route options was defined for further assessment in the next phase.

The options that did not meet the mandatory criteria included Albion and Foveaux streets, which were discounted on the basis that they are too steep for light rail and therefore could not meet the last criterion.

##### Strategic merit test

The next phase involved further evaluation to short list the 15 route options, which involved a strategic merit test. A strategic merit test is a commonly used tool in the appraisal of options for transport infrastructure projects.

The strategic merit test investigated the key advantages and disadvantages of each route option in relation to four policy aims, which were developed from national, state and local government policy documents:

- *customer experience* — a system that grows public transport patronage by making it more attractive in terms of ease of use, safety, reliability, travel time, frequency and comfort
- *productivity* — supports economic development through growth in employment, tourism and attractiveness of tertiary education as well as meeting the transport needs generated by land use activity
- *sustainability* — Protects and sustains our natural environment, uses energy more sustainably, reduces greenhouse gas emissions, improves air quality and reduces dependence on private vehicles
- *liveability* — improves the quality of the urban environment by increasing liveability and amenity, improving access to high quality public transport services.

Those options with substantial advantages were taken forward to the next round of option evaluation. Those options that had substantial disadvantages did not proceed to the next round. Based on the strategic merit test, 11 route options were considered to meet the functional requirements for consideration as part of the shortlist assessment. These route segments are illustrated in Table 3.3 and Figure 3.8.

Within the CBD corridor, the George Street to Circular Quay ('Option A') alignment was considered the most feasible. Alternative routes to George Street, such as Pitt Street, Castlereagh Street and Sussex Street, were discounted early in the options identification process as they were unable to accommodate light rail due to their narrow widths and multiple vehicle access points, such as driveways and delivery points. Traffic activity associated with entering and exiting car parks and driveways has the potential to significantly impact on light rail operations and space to build platforms.

Other issues also included steep grades, which would make it difficult to achieve *Disability Discrimination Act 1992* (DDA) standards at the northern end of Castlereagh Street and Sussex Street. Other constraints identified included the need to maintain access to the Western Distributor and high pedestrian numbers in Pitt Street Mall.

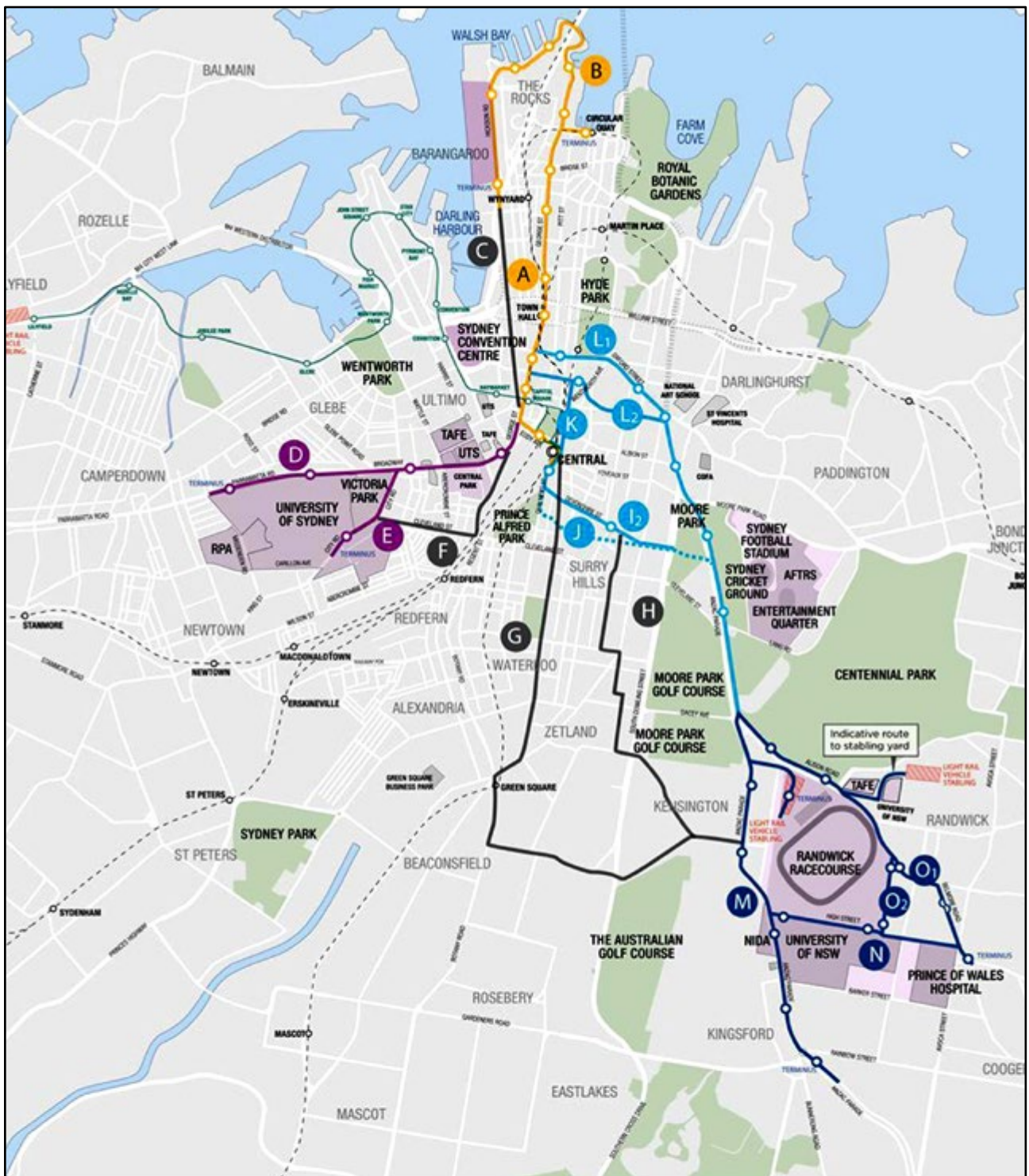
Within the University of Sydney (Inner West) corridor, an option which travelled via Cleveland Street (Option F) was eliminated as this is a key east-west traffic link with little potential to divert traffic to alternative routes. This would make it difficult to provide dedicated light rail lanes and platforms.

Within the UNSW (South East) corridor, options which travelled via Green Square (Option G) and Waterloo (Option H) were discounted as they would not efficiently serve UNSW students and staff, with travel times by light rail expected to be slower than taking the existing bus service.

In summary, the strategic merit test resulted in four options not proceeding for further analysis: Sussex Street (Route C), Cleveland Street (Route F), Green Square via Elizabeth Street (Option G) and Waterloo via Crown Street (Option H).



Figure 3.8 Initial light rail route options segments

**LEGEND**

---○--- SYDNEY TRANS

—○— EXISTING LIGHT RAIL

— MAJOR TRIP GENERATOR

**CBD CORRIDOR ROUTES**A: CENTRAL TO CIRCULAR QUAY (GEORGE ST)  
B: CIRCULAR QUAY TO BARANGAROO (HICKSON RD)**USYO CORRIDOR ROUTES**  
D: BROADWAY & PARRAMATTA RD  
E: BROADWAY & CITY ROAD

○ ○ ○ ○ PROPOSED STOP LOCATION

▨ POTENTIAL STABILING YARD

0 0.5 1.0  
SCALE: KILOMETRES**UNSW CORRIDOR ROUTES****NORTHERN SECTION**I2: SURRY HILLS & MOORE PARK  
J: SURRY HILLS (TUNNEL) & MOORE PARK  
K: CENTRAL, DARLINGHURST & MOORE PARK  
L1/L2: TOWN HALL, DARLINGHURST & MOORE PARK**SOUTHERN SECTION**M: KENSINGTON & KINGSFORD  
N: KENSINGTON & PRINCE OF WALES HOSPITAL  
O1/O2: RANDWICK & PRINCE OF WALES HOSPITAL



Table 3.3 Route option segments short list

CORRIDOR	DESCRIPTION OF ROUTE OPTION SEGMENTS
CBD corridor	A: Central Station to Circular Quay via George Street
	B: Circular Quay to Barangaroo via Hickson Road
University of Sydney corridor	D: Central Station to Royal Prince Alfred Hospital via Parramatta Road
	E: Central Station to Royal Prince Alfred Hospital via City Road
UNSW corridor	I: Central Station to Moore Park via Surry Hills
	J: Central Station to Moore Park via Surry Hills tunnel
	K: Central Station to Moore Park via Darlinghurst
	L: Town Hall Station to Moore Park via Darlinghurst
	M: Moore Park to Kingsford via Anzac Parade and University of NSW
	N: Moore Park to Randwick via High Street, University of NSW and Prince of Wales Hospital
	O: Moore Park to Randwick via Alison Road and Prince of Wales Hospital

### Route assessment – short-listed routes

Each of the short-listed corridor and route options that met both the functional requirements and the strategic merit test were further investigated in consultation with a Round Table of key stakeholders, including councils, universities, business groups, TAFE, hospitals, major sporting and entertainment precincts and other key groups. Each option was also subject to a multi-criteria analysis (MCA), which evaluated the performance of each option against key project objectives; modelling of expected demand; and a rapid economic appraisal (REA) to determine the best performing options.

A discussion of the key findings on a corridor by corridor basis is summarised below, including a discussion of the MCA and REA process. Results on a route by route basis are presented in the following subsections.

Note: While the preferred route has been selected for the CSELR proposal, the assessment does not preclude opportunities to extend the light rail network on these corridors in the future once the CSELR proposal has been established.

#### CBD corridor options

George Street ('Option A') is a centrally located route that provides good access to employment, retail and entertainment. There are a low number of existing driveways which simplifies the introduction of light rail and allows traffic to be diverted to other routes. As Sydney's 'main street', George Street also offers significant potential benefits for pedestrians through reductions in noise and traffic while enhancing the quality of public spaces.

A light rail link to Barangaroo via the Rocks and Walsh Bay ('Option B') was considered, however, even with significant future development at Barangaroo, forecast passenger numbers were very low. This is primarily because Wynyard Walk (under construction) will provide a shorter and more direct link between Barangaroo and other bus and rail services. However, Hickson Road does allow for a potential bus or light rail service in the future.





### UNSW corridor options

The UNSW corridor options were assessed in two sections:

- northern section route options between the CBD and Moore Park, including:
  - routes via Central Station and Surry Hills either by tunnel or Devonshire Street ('Option I2' and 'Option J')
  - routes via Town Hall and Darlinghurst via either Oxford Street or Campbell Street ('Option L')
- southern section route options from Moore Park to Kingsford and Randwick including:
  - Moore Park to Kingsford via Anzac Parade ('Option M')
  - Moore Park to Randwick via Anzac Parade and High Street ('Option N')
  - Moore Park to Randwick via Alison Road and Belmore Road ('Option O1') or Alison Road and Wansey Road ('Option O2').

Assessment of the northern section options showed that a direct link from Central Station via Surry Hills to UNSW and the Randwick health precinct (either 'Option I2' via Devonshire Street or 'Option J' via a Surry Hills tunnel) attracted high levels of demand as they would provide an efficient connection for passengers connecting to rail services at Central. The routes via Town Hall and Darlinghurst (including 'Option L1' via Oxford Street, 'Option L2' via Campbell Street and 'Option K' which connected indirectly with Central via Campbell Street) were forecast to attract only about 60 per cent of the demand expected for the Surry Hills routes.

For the southern section options, the alignment via Alison Road and Belmore Road ('Option O1') was discounted as it did not serve the key student market at UNSW. Closer to the University, an alignment via High Street ('Option N') would require significant engineering works and road widening to enable light rail to operate on this steep street — significantly increasing the cost and reducing the feasibility/performance of this option. The best performing options in this area were therefore along Anzac Parade ('Option M') and along Alison Road, Wansey Road and High Street ('Option O2').

### University of Sydney corridor options

Two key route options were assessed within the University of Sydney corridor:

- Parramatta Road and Missenden Road ('Option D')
- City Road and Carillon Avenue ('Option E').

The Parramatta Road and City Road options performed similarly in the evaluation, with both options attracting relatively low demand compared to UNSW because:

- The University of Sydney corridor extended only a short distance into the inner west, making it difficult to terminate bus services at the light rail terminus and in turn resulting in relatively low levels of demand as light rail would be directly competing with bus services.
- Both options would conflict with heavy traffic volumes along two of Sydney's busiest arterial roads, Parramatta Road and City Road.

### MCA and REA options evaluation process

Each of the 11 corridor and route segment options from the shortlist were combined to form 26 integrated light rail routes which were each assessed within an MCA and a comparative REA framework.

#### Multi-criteria analysis (MCA)

An MCA enables both quantitative and qualitative aspects of an option to be assessed in a holistic manner and by reference to multiple and project specific objectives. It is primarily used to screen a long list of options to select options for further assessment. MCAs are typically used to differentiate between different options in the early phases of transport projects. In order to assess the different network extensions, the route option segments were combined into whole route options comprising a CBD spine and an extension to Barangaroo, the University of Sydney or UNSW.

In order to measure the relative performance of each option against the project objectives, a number of metrics in the form of key performance indicators (KPIs) were subsequently established and assessed against each option. This allowed the options to be scored and ranked to establish the relative performance of each option.

### Rapid economic appraisal (REA)

An REA was undertaken consistent with relevant guidelines from the Australian Transport Council, Infrastructure Australia and NSW Treasury. The REA methodology focused on capturing the conventional transport costs and benefits, such as change in in-vehicle time, measures of generalised trip costs, journey time reliability, net incremental fare revenue, vehicle operating costs, congestion costs and external costs associated with changes in vehicle kilometres travelled. Similarly to the MCA, this allowed the performance of route options to be compared but with a focus on the economic costs and benefits.

### Aggregated MCA and REA results

The MCA and REA provide different but complementary methods of evaluating the relative merit of project options. The MCA presents a comparison of options against project specific objectives using different quantitative and qualitative criteria, whereas the REA focuses on quantifiable costs and benefits using a standard economic framework. In order to identify the best performing route options, the MCA and the REA findings were compared against each other.

Using this process, three options were identified for further, more detailed consideration:

- *a Devonshire Street option* — from Circular Quay to Kingsford and Randwick via Devonshire Street, Anzac Parade and Wansey Road (AI2MO2)
- *a Surry Hills tunnel option* — from Circular Quay to Kingsford and Randwick via Surry Hills tunnel, Anzac Parade and Wansey Road (AJMO2)
- *a bus comparator option* — this consisted of the introduction of a BRT system with dedicated lanes and high capacity 'bendy' buses between Circular Quay and UNSW.

The Surry Hills tunnel option did not proceed due to the substantially higher costs and impacts of building a 2.2 kilometre long tunnel which would need to be up to 30 metres deep to safely avoid the Eastern Distributor. The construction of the tunnel would be a lengthy process and at least one large construction site would be required for spoil removal as well as extensive associated truck movements. The tunnel portal at the western end would require a large land take and disruption in the vicinity of Chalmers Street and Central Station. Operating in such a long and deep tunnel would result in engineering challenges for passenger safety and would require fire and rescue accessibility as well as tunnel ventilation systems including the removal of smoke in case of an emergency. Additionally a tunnel option would have meant no CSELR stop in Surry Hills and therefore no access to light rail for customers wanting to travel to or from Surry Hills.

The BRT option did not cater for the same level of demand as light rail – offering just two-thirds of the capacity in comparable traffic conditions. Forecast demand levels were also lower, at around 50 per cent of that achieved for light rail. The BRT would also not reduce traffic congestion to the same extent as light rail nor would it offer the same opportunities for urban renewal. The BRT option would not be consistent with the SCCAS and would not allow for the same opportunities for revitalising George Street. As a result, the BRT option performed relatively poorly within the MCA and was not considered further.

The Devonshire Street route option was therefore preferred over the tunnel and BRT options. This option would be substantially less expensive than a tunnel option and would allow for a stop in Surry Hills. Compared to the tunnel and BRT options this option would result in improved public transport accessibility to and from key residential, entertainment and recreational destinations, in addition to stimulating potential urban renewal opportunities. The Devonshire Street route option also provides a level of capacity that caters for current and future demand in excess of what a BRT option is capable of providing.

The NSW Government, therefore, adopted the Devonshire Street route option as the preferred option which includes the introduction of light rail from:

- Circular Quay to Central via George Street
- Central Railway Station through Surry Hills to Anzac Parade via Rawson Place, Eddy Avenue, Chalmers Street and Devonshire Street
- along Anzac Parade to Kingsford and Randwick (via Alison Road, Wansey Road and High Street).



### 3.4.4 The preferred option

The preferred CSELR proposal includes the following three key elements:

- a 12 kilometre light rail service (13 kilometre of track including stabling and maintenance) from Circular Quay to Kingsford and Randwick via Central and Surry Hills
- the incorporation of the existing light rail system into a single network
- the creation of a pedestrian zone along George Street between Hunter Street and Bathurst Street.

The CSELR proposal presented in this EIS (refer to Chapters 5 and 6) has built upon and refined the preferred option to better define the project scope to allow a decision to proceed with the delivery stage. Significant transport planning, including detailed demand forecasting using Transport for NSW's Public Transport Project Model (PTPM), light rail operations modelling, and traffic modelling, as well as frequent design workshops and stakeholder consultation, have been applied in the refinement of the CSELR proposal.

The design for the preferred route was announced in December 2012. Since this announcement, the CSELR proposal has continued to be developed to refine elements of the design, including constructability and design issues for operational components of the proposal. Design refinement options for the preferred route option are described in more detail in Chapter 4.

A more detailed description of the scope of the CSELR proposal and its likely construction is provided in Chapters 5 and 6.

### 3.4.5 Foveaux Street alternative alignment

During the EIS preparation phase consultation undertaken in September 2013 (refer Chapter 2), an additional option for the CSELR alignment between Central Railway Station and Moore Park was proposed by local community representatives. The alternative alignment proposed a cut-and-cover tunnel along Foveaux Street, continuing to Moore Park via a tunnel underneath the junction of Anzac Parade and Foveaux Street. The Foveaux Street option was also proposed to include below-ground stops at Eddy Avenue and at the corner of Foveaux Street and Crown Street. This alignment was proposed by local community representatives as an alternative to the preferred alignment along Devonshire Street.

An assessment of the Foveaux Street alternative alignment undertaken by Transport for NSW concluded that it would be significantly more expensive and disruptive to build than the preferred alignment along Devonshire Street.

Significant constructability concerns were identified, including potential conflicts with existing tunnels and major utilities in the vicinity of Central Railway Station and the Eastern Distributor. Relative to the preferred option, the construction of a cut-and-cover tunnel along the length of Foveaux Street was also considered to have potential for considerably more impact on local residents, businesses, property access, traffic and the bus network, as well as significant negative impacts on pedestrian connectivity and urban amenity. The Foveaux Street alternative alignment was not considered to provide any advantages over the preferred alignment along Devonshire Street. Therefore this option was not considered further.

## 3.5 How the CSELR addresses identified needs

### 3.5.1 Overview of need for the CSELR

The CSELR would transform the transport system within inner Sydney and provide a step change in transport capability and capacity. It would address the current challenges including:

- Addressing CBD congestion through transfer from existing buses and private vehicles. The CSELR proposal would reduce buses in the CBD by approximately 180 in the morning's busiest hour. When combined with other bus network changes this would provide a reduction of approximately 220 buses.
- Improving access for the inner South East suburbs to the CBD through improved reliability of travel and efficient connection to major trip generators including the Moore Park Sports and Entertainment Precinct, Royal Randwick racecourse, UNSW, and the Prince of Wales and Sydney Children's Hospitals.

- Supporting continued population and employment growth in the region by providing up to 18,600 morning peak hour boardings in both directions in 2021, growing to around 23,400 by 2036.

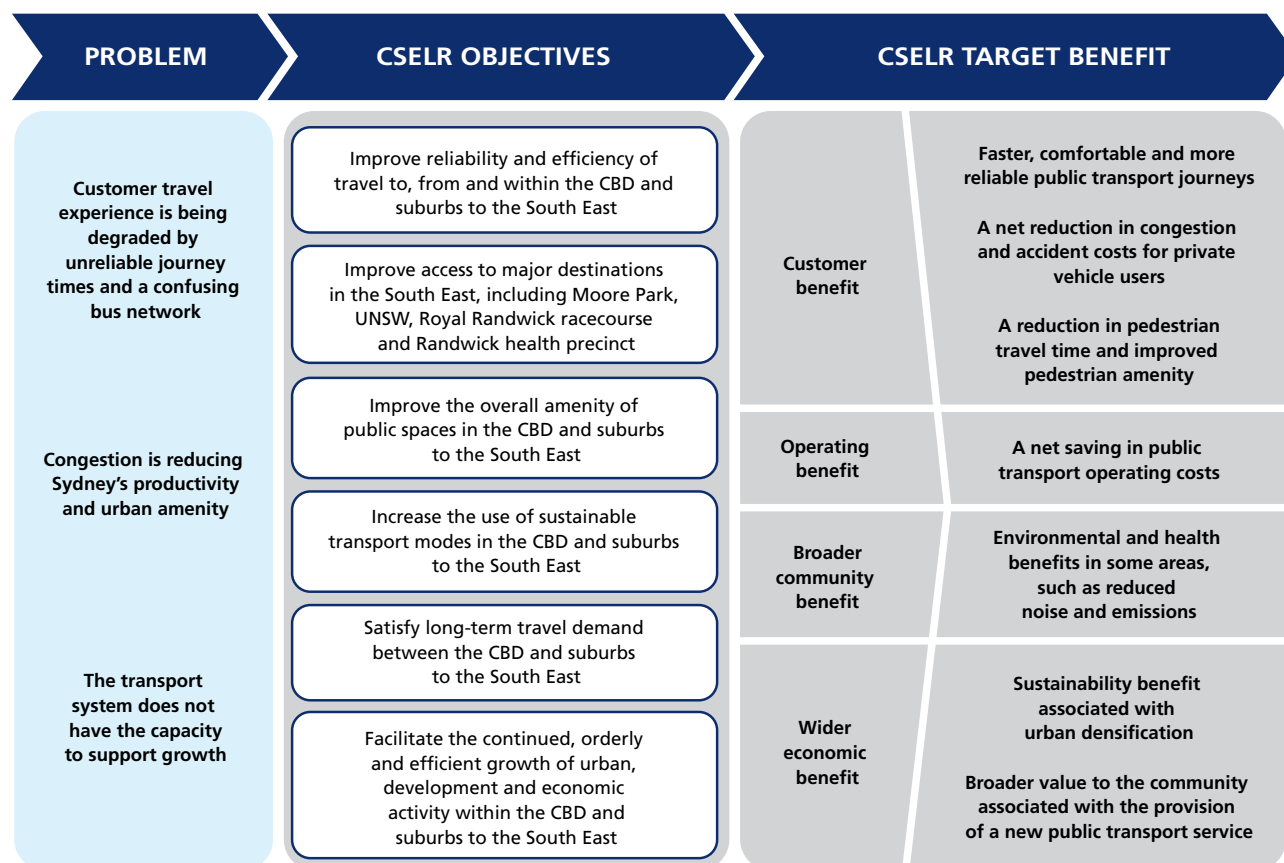
### 3.5.2 Targeted benefits

The CSELR proposal has been developed to meet the identified proposal objectives (refer to section 3.3). It would address a number of key problems with the CBD and inner South East Sydney transport system and is expected to deliver:

- customer benefits* – improved and more reliable journeys for public transport users, a net reduction in congestion and accident costs for private vehicle users, and improved travel times and amenity for pedestrians
- operating benefits* – delivering a savings in existing transport operator costs
- broader community benefits* – through a reduction in environmental and health externalities such as air pollution and noise
- wider economic benefits* – through opportunities for urban renewal and agglomeration.

A summary of the alignment between the transport system problem, proposal objectives and targeted benefits is illustrated in Figure 3.9. Further discussion is provided below.

Figure 3.9 CSELR problem, objectives and benefits alignment





### Customer benefits

By introducing a more attractive and reliable service, the CSELR proposal would attract customers from existing modes of travel, and generate a reduction in private vehicle use. This would lead to improved travel times for continuing road users.

The George Street pedestrian zone between Hunter Street and Bathurst Street would generate significant benefits for pedestrians with the removal of buses and other traffic. Improved travel times for pedestrians would result from reduced footpath congestion and reduction in the amount of time required to cross east-west streets. There would also be improved amenity as a result of a quieter, less polluted journey in more attractive surroundings. The George Street pedestrian zone would also result in additional east-west traffic flows.

### Operating benefits

The CSELR proposal would generate a net reduction in the operating costs of existing transport modes. The introduction of light rail and the complementary bus network changes implemented as part of the inner Sydney bus network redesign would generate a reduction in bus network kilometres. This in turn would drive a reduction in bus operating costs and a reduction in total bus fleet requirements, which would also yield a savings associated with avoided fleet replacement costs.

The integration of the new CSELR system with the existing Inner West Light Rail would create a more efficient operating environment which would generate savings in Inner West Light Rail operating costs.

### Broader community benefits

By attracting demand away from existing less sustainable transport modes (including improved utilisation of buses and a reduction in private vehicles) the CSELR proposal would generate environmental benefits, including a reduction in greenhouse gas emissions, air pollution and noise pollution.

Similarly the CSELR proposal would also generate health benefits associated with the net increase in active transport modes (walking and cycling). The net increase in active transport usage is generated from:

- increased walking and cycling access through more use of public transport (e.g. switching from car trips to 'walk access to light rail' trips)
- more convenient interchange between transport modes such as walking and cycling
- improved pedestrian conditions in the Sydney CBD.

### Wider economic benefits

The CSELR proposal would increase the capacity and improve the performance of the transport system, which is expected to generate a range of wider economic benefits, including:

- *Agglomeration benefits* — The CSELR proposal would significantly improve the accessibility of current and future employment areas in Sydney's CBD and South East. This improved accessibility would enable connections between employers, labour markets and suppliers. Agglomeration benefits are gained by the increased productivity associated with these improved connections between employees (refer to section 9.4 for further details).
- *Higher density development* — The introduction of the CSELR proposal would increase the attractiveness of living and working within the corridor, which would increase the demand for residential and commercial floor space and attract higher density development. This is expected to drive four key benefits:
  - lower infrastructure costs (such as utilities) associated with higher density development
  - reduced transport externalities from higher density transit-orientated development, including additional environmental and health benefits generated by additional reductions in car vehicle kilometres travelled and increases in walking and cycling (due to higher density development)

- supporting growth through urban consolidation and densification, reducing the demand for greenfield development and urban sprawl
- providing an option of being able to use a high capacity/efficient, public transport service, even for people that do not intend to use it regularly.

### 3.5.3 Economic appraisal

An economic appraisal for the CSELR proposal indicates that the project economic benefits significantly outweigh the project costs. A benefit-cost ratio (BCR) is used to compare the total expected cost of each option against the total expected benefits to see whether the benefits outweigh the costs and by how much. A BCR above one (1.0) indicates that the benefits outweigh the costs. The CSELR proposal has been assessed as having a benefit cost ratio of 2.4 (with a net present value of \$2,174 million) excluding wider benefits; or a BCR of 2.5 (with a net present value of \$2,396 million) including wider benefits (including resource efficiencies, greenhouse gas reductions, and efficient public transport service).

The economic appraisal considered a range of potential benefits including:

- public transport customer benefits from improved reliability
- reliability savings
- road user benefits including decongestion and reduced accident costs
- pedestrian amenity and time savings benefits
- avoided bus costs
- avoided Inner West Light Rail costs for stand alone operating costs compared with combined operation costs
- reduced air and noise pollution
- reduced greenhouse gas emissions
- health benefits
- wider economic benefits including agglomeration and infrastructure savings from increased development density.

These benefits are assessed as having a total value of approximately \$4 billion.

### 3.5.4 Implications of not proceeding

The volume of buses in the city, especially on major transport corridors such as the Harbour Bridge, York Street, George Street and Elizabeth Street, results in major bus congestion on these routes on a regular basis. Additional buses required to address the growth in population and employment in the region cannot be accommodated without compounding existing bus congestion in the city centre, leading to further delays for commuters and further reductions in reliability of service. Not proceeding with the CSELR proposal would not address increased traffic congestion and a worsening in the reliability of travel from the South East suburbs to the city centre.

Additionally, as land uses continue to evolve and intensify, and travel demand increases and continues to expand from its focus on the CBD alone, the existing structure and service offering of the public transport system would become increasingly out of step with customer expectations. The result would be worsening levels of customer satisfaction and the subsequent inability to effectively meet the transport demand with available public transport options.

Finally, the economic benefits from the proposal discussed above would fail to be realised with flow-on impacts to productivity and Sydney's regional economy.