CBD AND SOUTH EAST LIGHT RAIL
BUSINESS CASE SUMMARY
NOVEMBER 2013
The NSW Government is committed to providing a first class, integrated public transport network.

The CBD and South East Light Rail is a major project which will transform Sydney.

Congestion in Sydney’s CBD costs our economy around $5 billion a year, results in unreliable journey times and disrupts the city centre. With the population of Greater Metropolitan Sydney set to grow by almost 2 million over the next 25 years, our current road and transport network is unable to cope with the increasing number of daily journeys made to and from the city.

Light rail offers a high capacity, accessible and reliable public transport solution. It will result in up to 220 fewer peak hour buses entering the city centre, serve expected growth in the city’s south east and significantly improve access to major destinations including Moore Park, the University of NSW and Royal Randwick Racecourse.

The project offers excellent value for money for NSW taxpayers and the business case shows the state can expect to more than double its investment of approximately $1.6 billion, with a return of over $4 billion in total economic benefits.

This equates to a benefit-cost ratio (BCR) of 2.5 or, to put more simply, $2.50 worth of benefits for each dollar invested.

Not only will this project bring enormous improvements to the customer experience, it will also boost Sydney’s economic growth and productivity.

The state can expect to more than double its investment with this light rail project, with a return of over $4 billion in total economic benefits.

This investment in our transport infrastructure will benefit the economy by supporting the construction sector and other industries through the direct and indirect creation of over 10,000 jobs during construction and operation of the new light rail service.

The project will also revitalise the urban environment along the route. This will include a one kilometre pedestrian zone on George Street, between Hunter and Bathurst streets.

Subject to planning approval, construction for the CBD and South East Light Rail will begin in 2014 and take five to six years to complete. Delivering light rail in a dense urban environment will present challenges, but as this business case shows, the rewards will be worth the investment and impacts required to deliver this exciting project.

MESSAGE FROM THE MINISTER FOR TRANSPORT

Hon. Gladys Berejiklian MP
Minister for Transport
The CBD and South East Light Rail will deliver an estimated **$4 billion in benefits** to Sydney and NSW, including:

- **Every $1 invested delivers $2.50 in economic benefits**
- **$308 million in environmental and health benefits**
- **10,000 jobs created**
- **$333 million in benefits for pedestrians**
- **97% on time**
- **Frequent and reliable light rail services**
- **Over $2 Billion in benefits for public transport customers**
- **$222 million in wider economic benefits**
- **$264 million in benefits for road users**
- **$707 million in operating savings**
INTRODUCTION

The CBD and South East Light Rail (CSELR) is a key part of the NSW Government’s strategy to reduce congestion, provide for future growth and improve the transport customer experience.

It comprises:
- a new light rail service connecting Circular Quay, the CBD and Sydney’s south east, including Moore Park, the Randwick hospital precinct and the University of New South Wales
- a redesigned bus network to support light rail.

Figure 1: CSELR route
A detailed appraisal has been undertaken to provide a comprehensive assessment of the net impacts of the CBD and South East Light Rail project. This appraisal has shown that the net economic, financial, social and environmental impacts are positive and justify the investment.

**CAPITAL AND OPERATIONAL COSTS**

The expected cost of constructing the CSELR is $1.6 billion. The project would be funded through a combination of Government funds and contributions from key stakeholders (including $220 million from the City of Sydney) and private sector investment, subject to value for money being demonstrated.

The cost includes all construction costs, project management and delivery costs, property acquisition, risk and contingency and escalation.

The cost benefit analysis also considered operating costs of the combined CSELR and the Inner West Light Rail (IWLR) system, including staff salaries and overheads, light rail operating costs and infrastructure maintenance costs.

**ASSESSING DEMAND**

Once implemented, the CSELR will substantially change the transport system in the CBD and south east.

In order to forecast likely future usage of the CSELR, a demand analysis was undertaken (Figure 2). Using the Public Transport Project Model, which assesses various inputs, such as forecast population and employment, land-use patterns, transport plans and parking availability to understand the anticipated future demand.

The new light rail network is expected to attract significant numbers of customers.

Projected demand includes:

- around 17,900 customers boarding during the AM peak in 2021, growing at an average rate of 1.6 per cent per annum to around 22,500 by 2036.
- around 31.4 million trips annually in 2021, growing to 39.6 million trips annually by 2036.

Whilst the majority (around 76 per cent) of demand is expected to be existing or future public transport users, the light rail is also forecast to attract a significant number of car users (17 per cent), which will reduce pressure on the road network and help address congestion.

**Economic appraisal**

A detailed appraisal of the net economic, financial and sustainability impacts of the project has been undertaken.

A cost-benefit analysis (CBA) of the project based on the expected $1.6 billion project cost and predicted demand over a 30 year period following the start of operations, has identified almost $4 billion worth of benefits to be generated by the project.

This equates to a benefit-cost ratio (BCR) of 2.5 or, to put more simply, $2.50 worth of benefits for each dollar invested.
The majority of the economic benefits ($2.2 billion, or 57 per cent) result from public transport benefits related to faster, more comfortable, more reliable journeys.

Additionally, the light rail project is expected to provide:

- Road users with benefits worth $264 million from decongestion, operating savings and road safety improvements.
- Journey time savings and amenity improvements worth an estimated $333 million for pedestrians.
- Around $707 million in public transport operational savings, including increased revenues, reduced bus operating costs and efficiencies from integrating with the existing IWLR.
- Environmental and social benefits worth $308 million, including a reduction in air and noise pollution, a reduction in greenhouse gas emissions and improvements in health.
- Wider economic benefits worth $222 million, including the sustainability benefits associated with improved urban renewal opportunities.

The Environmental Impact Statement for CSELR also estimates the project will help create over 10,000 direct and indirect jobs between 2014 and 2020.

**SOCIAL BENEFITS**

Social impacts and benefits including social and economic access have been assessed.

The CSELR will improve public transport connections to key cultural, educational, and recreational locations.

The design of light rail vehicles and stops will enable all members of the community to access the light rail service.

**SUSTAINABILITY**

By creating more sustainable transport choices and development opportunities, the introduction of the CSELR will promote a more sustainable future for Sydney.

The CSELR will improve the performance and reduce emissions from the transport system in the CBD and inner Sydney, thereby increasing its overall sustainability.

There will be a reduction in bus and car vehicle kilometres travelled as people switch to the new light rail network.

The project will reduce greenhouse gas emissions by 700,000 tonnes of CO2 over 30 years.

Around 77 per cent of this reduction is due to a decrease in car use, with around 23 per cent due to a reduction in bus use.

The CSELR project will also seek to maximise opportunities for renewable energy production to reduce light rail’s carbon footprint.
The NSW Long Term Transport Master Plan provides the strategic context for an integrated transport, roads and freight network over the next 20 years. The Master Plan is supported by a series of modal and geographical strategies.

Sydney’s Light Rail Future outlined a four stage process to deliver new and improved light rail services in Sydney.

The extension of the IWLR to Dulwich Hill (stage 2) is on schedule for completion in 2014. As shown in Figure 3, CSELR is the third stage of Sydney’s Light Rail Future, following a comprehensive strategic planning and options evaluation process.

**Figure 3: Sydney’s Light Rail Future**

1. **Service integration and improvements**
   - Integration of light rail into the existing MyZone ticketing system and 131 500 information line and website – completed June 2012
   - Introduction of the Opal card, the integrated electronic ticketing system, on light rail to make travelling easier between modes.

2. **Modernise and extend the existing network**
   - Construction of the 5.6 kilometre Inner West Light Rail Extension to connect Dulwich Hill to the CBD – to be completed in 2014
   - Modern light rail fleet introduced to improve commuter experience
   - Real time information and timetable updates.

3. **Deliver a new CBD and south east service**
   - Overhaul of CBD bus network to integrate with light rail and better connect commuters
   - Completion of light rail connecting Circular Quay, the CBD and the south east including Moore Park and the University of NSW
   - Pedestrianisation of George Street between Bathurst and Hunter.

4. **Longer term investigations**
   - Feasibility investigations of light rail or other high capacity public transport, like Bus Rapid Transit, for additional corridors including Victoria Road, Parramatta Road, Anzac Parade to Maroubra and potentially Western Sydney
   - Continued support to councils investigating potential light rail schemes
   - Growing the light rail network in line with demand and integrated with new urban development
   - Investigating potential extensions to the line such as to Malabar, Walsh Bay and Barangaroo North.
The Sydney City Centre Access Strategy is the CBD’s first ever integrated transport action plan.

This strategy focuses on three priorities for action in central Sydney:
• reduce congestion
• provide for future growth
• improve customer experience.

New light rail services form a central part of the Access Strategy and will provide the necessary step change in the capability and capacity of Sydney’s transport system.

The strategy outlines in detail what is required to decongest the CBD and reduce travel times.

The Anzac Parade corridor is identified as an area where urban renewal will be supported by improvements to infrastructure and public spaces.

The Randwick Urban Activation Precinct supports this corridor with new housing and jobs planned alongside future light rail stops.
SYDNEY’S TRANSPORT CHALLENGE

Over the next 25 years, the population of Greater Metropolitan Sydney is forecast to increase from 5.6 million to 7.4 million.

Over the next 20 years, nearly 150,000 workers will be located in the city centre. These changes will place greater demands on our road, rail and bus networks. The existing transport system does not have sufficient capacity to accommodate the sheer volume of demand that converges on the CBD and inner Sydney on a daily basis.

By 2031, the number of trips made around the city each day will increase by 31 per cent, from 16 to 21 million trips.

Figure 4: Daily trips to the city centre
Reduced productivity
Around 630,000 passenger trips are made into the city centre each weekday, including 180,000 during the AM peak. Heavy rail and bus are the primary forms of public transport modes used to access the CBD. Figure 4 shows the average mode share for city centre access during the morning peak.

Congested roads result in lengthy and unreliable travel times. In the CBD, it can take up to 30 minutes to travel between Circular Quay and Central – a distance of only 2.5 kilometres. This constrains productivity, particularly for commuters and business-related travel. Congestion also results in higher transport costs, which in turn can drive up the price of goods and services affecting the competitiveness of businesses.

Pedestrian experience and accessibility
Road congestion can also impact the urban environment. This is particularly evident along George Street where noise and poor air quality because of congestion results in a relatively poor experience for pedestrians and public transport users.

Given the high volumes of traffic within the CBD, pedestrians are also often delayed at traffic signals. This can increase walking times in the CBD by up to 60 per cent.
Unreliable journey times and a confusing bus network
Key CBD bus corridors are close to or at capacity, resulting in lengthy travel times and poor travel time reliability.

In addition, the existing bus network lacks the capacity to support efficient and reliable access to major destinations in the south east, such as UNSW and the Randwick Health Precinct.

Over 1600 buses enter the CBD during the AM peak, resulting in congestion, lengthy delays for customers and a difficult system to navigate.

This discourages the use of these services, particularly for trips within the CBD.

Access to special events
Bus services currently account for only 5 to 20 per cent of travel to events at Moore Park (depending on the event and location).

This high dependence on private vehicles results in congestion and delays in and around the precinct during major events.

The transport system does not have the capacity to support growth
By 2036 an additional 86,000 residents and 150,000 workers are expected within the CBD. Anticipated growth in south east Sydney is also strong with an additional 37,000 new residents and 17,000 new workers expected.

If not addressed, this forecast growth will exacerbate existing congestion and transport reliability issues.
A 30 per cent increase in buses alone would be required just to meet the additional bus demand for travel to the CBD over the next 20 years. The existing CBD transport system cannot accommodate this growth in buses.

A step change in the capacity of the transport system is required to address these problems and facilitate economic growth. Light rail has been identified as the best option to achieve this.

Based on the three problems identified, six objectives were defined to guide and assess potential transport solutions. A range of potential benefits were also assessed, including customer, operational, broader community and wider economic benefits. Figure 5 depicts the alignment between these problems, objectives and benefits. This is also aligned with the priority action areas of the Sydney City Centre Access Strategy.

Light rail will carry five times more passengers than a traditional bus.

**One light rail vehicle has the capacity to move 300 people.**

Operating in dedicated lanes separate from other traffic, light rail will also provide a more reliable service than buses, with around 97 per cent of services forecast to run within two to three minutes of the timetable, compared to only 19-34 per cent of buses currently on these routes.

Increasing public transport capacity by introducing light rail to the CBD and south east will also improve amenity by reducing noise and air pollution associated with congestion. It will also improve safety and reduce travel times for pedestrians.

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**Figure 5: Problem, Objectives and Benefits Alignment.**

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<thead>
<tr>
<th>PROBLEM</th>
<th>OBJECTIVES</th>
<th>TARGET BENEFITS</th>
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<tbody>
<tr>
<td>Unreliable journey times and a confusing bus network are degrading customers’ travel experience</td>
<td>Improve journey reliability</td>
<td>Faster and more reliable public transport</td>
</tr>
<tr>
<td>Congestion is reducing Sydney’s productivity and urban amenity</td>
<td>Improved access to major destinations</td>
<td>Reduced congestion</td>
</tr>
<tr>
<td>The transport system does not have the capacity to support growth</td>
<td>Increase sustainable transport</td>
<td>Pedestrian amenity</td>
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<td></td>
<td>Improve amenity of public spaces</td>
<td>Operating benefits</td>
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<td></td>
<td>Satisfy long term travel demand</td>
<td>Reduced public transport costs</td>
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<td></td>
<td>Facilitate urban development and economic activity</td>
<td>Broader community benefits</td>
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<td></td>
<td></td>
<td>Increased productivity</td>
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</tbody>
</table>

**Customer benefits**

- Faster and more reliable public transport
- Reduced congestion
- Pedestrian amenity

**Operating benefits**

- Reduced public transport costs

**Broader community benefits**

- Environmental and health benefits

**Wider economic benefits**

- Increased productivity
A LIGHT RAIL NETWORK FOR SYDNEY

The project includes the introduction of a new 12km light rail service connecting Circular Quay, the CBD and Sydney’s south east, a pedestrian zone along George Street and the connection to the existing Inner West Light Rail (IWLR).

The CSELR would have capacity to carry up to 9,000 people per hour in each direction, providing reliable and user-friendly transport services.

As an example, the Kingsford interchange is being designed to be a consistent cross-platform interchange – significantly reducing the transfer time for customers. We are working to ensure that light rail services will deliver a positive door to door journey for customers. This includes easy access to information about the service, travelling to the stop, paying a fare, waiting at the stop, travelling on board the light rail service and connecting with other services.

Placing the customer at the centre

CSELR forms part of a new customer-focused light rail service with a strong focus on developing seamless, convenient interchanges supported by integrated customer information and way-finding.

Light rail will integrate with the new Opal electronic ticketing system, with the NSW Government responsible for setting fares and timetables.

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Figure 6 – Sydney Light Rail route map

KEY
- CBD and South East Light Rail
- Inner West Light Rail
- Pyrmont Light Rail
- Proposed maintenance facility
- Proposed stabling
- Pedestrian zone
- Major bus interchange
- Rail interchange
- Ferry interchange

97% on time
Frequent and reliable light rail services
High capacity special event services

GO TEAM

NOVEMBER 2013 | 15
Fast, reliable, frequent services
CSEL R will deliver a frequent and reliable service with average journey times estimated to be:
- 15 minutes from Randwick to Central
- 18 minutes from Kingsford to Central
- 15 minutes from Central to Circular Quay
- 6 minutes from Moore Park to Central
- 34 minutes from Circular Quay to Randwick or Kingsford.

There will also be the opportunity to run double capacity, longer special event services to the Moore Park Precinct, Randwick Racecourse, the city centre and other events as required. These services would be in addition to normal scheduled services.

George Street Pedestrian Zone
The George Street Pedestrian Zone will consist of a one kilometre pedestrianised area shared with light rail along George Street, between Bathurst and Hunter streets. This will cover around 40 per cent of the 2.4 km street between Circular Quay and Railway Square, with 60 per cent of George Street remaining open for motorists.

Motorists would also still be able to travel east to west along cross streets in the pedestrianised zone, as well as north to south along other streets within the CBD.

Emergency vehicles, property owners and small delivery trucks would retain access to the pedestrianised zone 24 hours a day under controlled conditions. Requirements for taxi and hire car access are still being considered.

Outside of the pedestrianised zone, there would be a general traffic lane on either side of the light rail on George Street.

$264 million in benefits for road users

Artist’s impression of light rail on George Street at Martin Place.
$308 million in environmental and health benefits

$333 million in benefits for pedestrians

EXPECTED TRAVEL TIMES

- 15 minutes from Randwick to Central
- 18 minutes from Kingsford to Central
- 15 minutes from Central to Circular Quay
- 6 minutes from Moore Park to Central
- 34 minutes from Circular Quay to Randwick or Kingsford.

GO TEAM

High capacity special event services

$707 million savings

$264 million in benefits for road users

$222 million in wider economic benefits

$333 million in benefits for pedestrians

10,000 jobs created

Frequent and reliable light rail

97% on time
DELIVERING CSELR

PROCUREMENT

The CSELR delivery strategy was developed in consultation with key stakeholders and industry.

The strategy recommends some early works, such as long lead utility relocations, be packaged together and delivered in advance of other works. It also recommends that the design, construction, operations and maintenance would best be managed by a single private sector entity and a single point of accountability as part of a Public Private Partnership (PPP), subject to demonstrated value for money.

The CSELR will therefore be delivered in two key packages:

- **Package one** critical early works, including some major service relocations, and will be delivered by a Managing Contractor.
- **Package two** the PPP Contract – will cover other early works, civil works, rail systems, rolling stock, operations and maintenance, and is likely to be delivered by a design, construct, operate and maintain contract over a 15 year term from the completion of construction.

The PPP is subject to a value for money test and will likely be structured to provide availability payments to the PPP private sector partner on meeting certain performance targets. The Government would retain ownership of the fixed assets and be able to exercise control of the rolling stock at the expiration of the contract term and allow for potential future expansions of the light rail network.

The NSW Government would also retain control of fares and timetables.

A staged procurement process began on 21 October 2013 with an initial request for Expressions of Interest (EOI) to the open market for both packages and will be followed by a Request for Proposals (RFP).

Transport for NSW intends to shortlist a maximum of three applicants for the RFP Stage. This is anticipated to deliver a value for money outcome and lower overall procurement risk through early engagement of the market, progressively assessing and selecting the most capable applicants while reducing the constraints on the market by only proceeding with up to three applicants for each RFP process.
CONSULTATION WITH STAKEHOLDERS AND THE COMMUNITY

Stakeholder and community engagement has been critical in developing the scope of the project and communicating its potential impacts and benefits.

This has included doorknocking, letterboxing and holding information sessions along the project corridor. Further consultation will be undertaken during the Environmental Impact Statement exhibition period, and following this during detailed design and construction.

Transport for NSW has also developed Memoranda of Understanding with City of Sydney and Randwick City Councils, Centennial Parklands, Australian Turf Club and the University of NSW. Additional agreements are also being set in place to confirm arrangements with these key partners, approval authorities, utilities and service providers and other stakeholders such as major business and property owners.

These consultation activities will help the project team to understand the requirements of our customers and stakeholders as the project moves forward into delivery, construction and operation.

PROJECT TIMELINE

2013
• Environmental Impact Statement
• Detailed reference design

2014
• Planning approval
• Start of major works

2019/2020
• Construction complete
The business case confirms that the CBD and South East Light Rail will play a crucial role in addressing the customer experience, reliability, congestion and amenity problems faced by Sydney siders. These matters are critically important to, and aligned with, the NSW Government’s strategic direction and plans.

By utilising a high capacity light rail system in one of Sydney’s busiest travel corridors, the project delivers substantial economic and financial benefits for the state that more than justify the required investment.

The project requirements, scope and delivery strategy have been developed based on comprehensive engagement with industry, key stakeholders and the community.

Continued engagement will guide the successful delivery of the project to improve customer journeys and allow Sydney’s transport network to meet the challenges of the future.

Artist’s impression of light rail at Circular Quay.