

Submission by the City of Sydney



Infrastructure Australia

Call for submissions – Australia's Future Infrastructure Requirements

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Overview

Infrastructure Australia is seeking submissions that identify **nationally significant** infrastructure problems that may hinder the achievement of economic, social, and environmental goals.

Sydney is the economic driver which through innovation and global engagement leads Australian economy. Investment in infrastructure in the City of Sydney has significant positive multiplier impacts across the entire Australian economy.

Because of its acute effect on the productivity, sustainability and liveability of Australia’s most significant economic asset, improvements to Inner Sydney surface transport must be included on the national infrastructure priority list. There are also opportunities to advance other physical and collaborative infrastructure priorities in the City of Sydney that can advance key national policy areas.

Sustainable Sydney 2030 is the City’s Vision for a Sydney to be green, global and connected into the future. Adopted by the Council on 30 June 2008 based on the City’s most comprehensive public consultation program and backed by rigorous expert analysis, the Vision provides a publicly endorsed basis for long term infrastructure planning for Sydney. (See www.sydney2030.com.au for more information).

As a regulator, planner and policy maker for Australia’s only global city, the City of Sydney has local spatial expertise that can complement the programmatic orientation of other levels of government. The City can identify and deliver local scale projects that will offer the best value in the shortest time frame to deliver on issues of national significance.

The City of Sydney is keen to work with Infrastructure Australia:

1. The City of Sydney would like to work closely with Infrastructure Australia’s Major Cities unit and can offer access to information, expertise and assistance in developing the Australian Government’s Major Cities Policy.
2. The City broadly supports the NSW Government Infrastructure Priority submission but also proposes three additions to the infrastructure priority list addressing Inner Sydney Surface Mass Transit:
 - (a) Green Loop Light Rail (Green Square Urban Renewal Area);
 - (b) City Centre Loop Light Rail; and,
 - (c) Inner Sydney Strategic Cycle Network (in partnership with NSW Department of Environment and Climate Change, NSW Roads and Traffic Authority, and 15 adjacent Local Councils).

If supported, the City will refine these proposals in partnership with Infrastructure Australia, NSW Government, business and the community.

3. The City would like to further develop in partnership with Infrastructure Australia, the NSW Government and with key business and community stakeholders, the following collaborative infrastructure proposals:
 - (a) Green Transformers;
 - (b) Sydney Harbour Cultural Ribbon & Eora Journey; and
 - (c) Partnerships for Affordable Key Worker Housing.

1. City of Sydney - National Significance

The City of Sydney local government area, covering 26.15 sq km, including the CBD of Sydney, has a particular significance to the nation.¹

The area has a residential population of 170,000 including the nation's highest residential density areas, which bring dramatic sustainability benefits from efficient use of infrastructure and sustainable transportation patterns.

- In the five years since 2001 the City of Sydney was the fastest growing local government area in NSW and is set to grow by a further 120,000 people by 2030.
- The City is also home to one of Australia's largest indigenous communities at Redfern and has a special significance – to Aboriginal people.
- 475,000 people visit the City on a typical weekday, including up to 45,000 students
- 25,000 tourist visitors stay in the City on any given night, and seven of the top ten attractions for international visitors are located within its boundaries.

The City of Sydney is the economic driver which through innovation and global engagement leads Australian economy. Investment in infrastructure in this area has significant positive multiplier impacts across the entire Australian economy.

- Each year, the area generates around 8% of Australia's GDP, and 25% of NSW GDP. It generates export earnings equivalent to Australia's total wool and wheat industries.
- It averages the highest productivity per worker, based on relative income and is home to the Australian Stock Exchange, Futures Exchange and Reserve Bank.
- It is the headquarters to 40% of Australia's largest corporations as listed on the Stock Exchange and leads engagement with the global economy.
- Over the last 15 years, its average economic growth was almost 1% higher than the Australian average. In that time almost 100,000 new jobs (almost a 50% increase) were generated in the City. With research indicating a one-to-one relationship through supply and demand-chains, nearly 200,000 jobs were generated in metropolitan Sydney and NSW as a result of growth in the City Centre.
- It is Australia's financial hub, with almost 30% of all employees in the Sydney CBD directly in the Financial Services Industries. A further 20% are engaged in ancillary business services such as legal, accountancy and management consultancies.
- Its working population at 4.1% of the Australian total workforce contains significant critical creative and ancillary specific industries, comprising:
 - 44% of total Australian Internet Publishing and Broadcasting employment
 - 20% of total Australian Finance sector
 - 16% of total Australian Publishing employment
 - 13% of total Australian Information, Media and Technology sector employment
 - 13% of total Australian Business professionals
 - 13% of total Australian ICT professionals
 - 12% of total Australian Arts and Media professionals
 - 12% of total Australian Legal, Social and welfare professionals
 - 11% of total Australian Creative and Performing Arts activities employment
 - 10% of total Australian Motion Picture and Sound Recording activity employment
 - 9% of total Australian Library and Information Services employment

The City of Sydney also has global city relationships that do not exist at other levels of Government. These include the C40 Cities for Climate Protection, ICLEI Cities for sustainability, organisations like Clinton Climate Initiative and direct individual relationships with other global cities that provide a key resource for accessing high quality international expertise and information on city infrastructure solutions.

2. Infrastructure Australia Goals and Priorities

The City of Sydney is keen to work with Infrastructure Australia as it refines its methodology described in its publication: *Outline of Infrastructure Australia’s Prioritisation Methodology*. The City broadly supports Infrastructure Australia’s stated aims of being: logical and well defined, clear and transparent, evidence driven and robust. The City of Sydney supports infrastructure analysis that seeks to uncover all the costs and benefits associated with an initiative, interpreted in the broadest sense and would like to work closely with Infrastructure Australia to assist it in accurately and appropriately identifying the wider economic benefits of proposed infrastructure from the city’s special expertise in liveability, creativity and social cohesion.

The City of Sydney also broadly supports the direction that Infrastructure Australia indicates it will take in its assessment of the infrastructure need across Australia. The City supports the Goals in the Infrastructure Australia *Discussion Paper 1: Australia’s Future Infrastructure Requirements* and their focus on economy, sustainability and social outcomes.

IA Goals	IA Strategic Priorities
<ul style="list-style-type: none">• Increased economic standard of living for Australians• Environmental sustainability and reduced greenhouse gas emissions• Better social outcomes, quality of life, and reduced social disadvantage in our cities	<ul style="list-style-type: none">• Expand Australia’s productive capacity• Increase Australia’s productivity• Diversify Australia’s economic capabilities• Build on Australia’s global competitive advantages• Develop our cities• Reduce greenhouse emissions• Improve social equity, and quality of life, in our cities and our regions

Infrastructure underpins Sydney’s and Australia’s productivity and international competitiveness. Yet Sydney has too often failed in obtaining well-planned, properly integrated, innovative and timely infrastructure that delivers on multiple national outcomes for the future.

Of particular interest to the City of Sydney is the approach that Infrastructure Australia will take in relation to the benefits and costs that cannot be expressed in money units, referred to as ‘nonmonetised’ benefits and costs.

Minister Albanese has spoken of the three goals for the major cities unit, including at the Western Sydney Regional Organisation of Councils Conference on 30 April 2008, as being productivity, sustainability and liveability. In that speech, Minister Albanese described liveability in the following terms “to make sure that planning accommodates participation and lifestyle so that people have access to community services”. The City of Sydney notes that liveability is not expressly in Infrastructure Australia’s stated goals despite the Minister’s speech, and is concerned to ensure that elements of liveability considered by Infrastructure Australia include the fullness of its definition including design quality, cultural offer and participation, inclusiveness, and safety and security.

Currently, program orientated Australian and NSW Government agencies are separately accountable for narrow policy delivery: roads agencies plan and deliver roads, rail agencies plan and deliver railways, and environment agencies manage the environment. The provision of infrastructure follows this unintegrated approach. Projects rarely deliver across multiple outcomes of productivity, sustainability, liveability and social inclusion.

A good illustration of this is Sydney’s Cross City Tunnel. Tolling on the tunnel, which funds the provision of the infrastructure under a PPP, has the effect of minimising the

performance of the infrastructure in reducing traffic congestion, greenhouse gas emissions, and pollution. Instead of encouraging more cars to use the tunnel, the toll provides a disincentive with direct impacts on congestion, productivity, health, amenity and safety in the central business district.

The Australian and NSW Governments do not comprehensively manage city outcomes of liveability, social cohesion, creativity, and innovation. Yet these issues drive the global competitiveness, productivity and sustainability of Sydney and Australia’s other Cities. The City of Sydney, like other Australian City Governments take direct responsibility for these issues in their spatial management of the City. Infrastructure Australia needs to ensure that its investment in infrastructure and its assessment of infrastructure proposals properly evaluate the ‘nonmonetised’ costs and benefits, and the City of Sydney would like to assist Infrastructure Australia in ensuring that outcome.

3. Infrastructure Priority List

NSW Government Infrastructure Audit Submission

The City of Sydney broadly supports the NSW Government infrastructure audit submission and its areas of focus, particularly its emphasis on improvements to Sydney’s public transport system. We are working in partnership with the NSW Government to deliver on local, state and national issues.

As the leading NSW City Government, the City of Sydney is already delivering in key areas covered by the NSW submission including water, energy infrastructure and land transport. These range from drought-proofing of the City’s parks by water recycling and using new water sources, planning for distributed electricity generation in the city, energy efficiency through programs such as the national *CitySwitch Green Office Tenant*, improving pedestrian infrastructure to encourage social inclusiveness and lower carbon dioxide emissions and by leading debate in support of higher urban densities that are well serviced by essential infrastructure. All of these projects and programs touch on Infrastructure Australia’s strategic priorities to varying degrees.

In terms of national significance and priority, however, the City of Sydney submits that the most pressing issue in Sydney is that of land transport in the Inner Sydney region. The City of Sydney strongly supports the NSW Government land transport conclusions that *“Given Sydney’s significance to the national economy, addressing the city’s urban congestion and other capacity constraints is a national priority”* and that favouring road transport over rail *“has contributed to the suboptimal use of the transport network, and escalated broader impacts such as urban congestion, noise and greenhouse gas emissions”*. The City of Sydney agrees that improving efficiency and reducing overcrowding of passenger rail transport and encouraging higher occupancy road transport is needed to reduce pressure on the road network.

The NSW Government has committed to the North West Metro, investment in bus priority measures, and investigation of other Metro alignments. The City of Sydney agrees that these should be on the infrastructure priority list, particularly in light of the long lead times to deliver infrastructure of this scale.

The City of Sydney, however, differs from the NSW Government in seeing an acute need to focus particularly on Inner Sydney transportation *as well as* metropolitan transportation. Demand for travel to the City from the Sydney Region will increase only moderately, yet demand for public transport services in Inner Sydney will increase at a faster rate. The NSW Government *Urban Transport Statement* measures are not sufficient to cater for the long-term increase in demand. ‘Business as usual’, or incremental changes, will not meet the City’s accessibility needs and will diminish its productivity and liveability.

Inner Sydney Surface Transportation - National Priorities

Expand Australia's productive capacity

The radial rail and bus networks perform a major role moving commuters to work in the City Centre, but the system has failed to keep pace with growth. Rail demand increased by just over 20% over the 10 years to 2003. During the morning peak one hour passenger loading across all rail services entering the City Centre is typically 120 per cent of seated capacity². Inner Sydney is suffering substantial transport congestion issues as trains and buses arrive at Inner Sydney stops already full.

Increase Australia's productivity

On an average weekday, an estimated 130,000 motorised trips enter the City. The Bureau of Transport and Regional Economics estimates that Sydney Region's car traffic use will increase by 23 per cent between 2005 and 2020, an increase of 1.4 per cent per year. The cost of congestion in the Sydney Region over the same period is estimated to increase from \$3.5 to \$7.8 billion a year.³

Diversify Australia's economic capabilities

The number of jobs in the City of Sydney local government area has increased by almost 100,000 since 1991. Whilst most expect this growth to slow, there is a real risk that traffic congestion and inadequate transport infrastructure will become limits upon Sydney's economic performance with national economic consequences.⁴

Build on Australia's global competitive advantages

Competition between economies is constant. People, businesses and technologies can be moved around the world to the most desirable location. The ease of access to the City's opportunities and its quality of life are important elements when competing with other city economies. Transport contributes substantially to this quality of life.

Develop our cities

Cities are becoming more congested as populations increase and car use grows. City congestion impacts on the costs of doing business, pollution and overall amenity. Current levels of motor vehicle use to, from and within the City Centre are not sustainable. Options to walk, cycle or use public transport must be improved with improved levels of amenity in pedestrian areas, safe and direct cycle networks and a public transport system which makes it an attractive mode of choice.

Reduce greenhouse emissions

There is international consensus that all countries need to respond quickly and seriously to climate change. In 2000 almost 10% of the City's greenhouse emissions came from transport. The Bureau of Transport and Regional Economics estimates that under a 'business as usual' scenario greenhouse gas emissions from transport in 2010 will be 47 per cent higher than 1990 levels, and 68% higher in 2030.⁵

Improve social equity, and quality of life, in our cities and our regions

Achieving health and wellbeing outcomes is recognised as an important objective of urban transport planning. The Centre for International Economics estimates that in 2005 the health and environmental costs of air pollution and greenhouse gas emissions in Sydney was \$1.4 billion per year⁶. Urban design and transport behaviour that reduces the levels of active travel can accelerate the spread of obesity and other health problems. Improving access and mobility is a response to basic human rights and social justice, providing life opportunities and reducing discrimination. The transport system should be accessible to all residents, regardless of their level of mobility. Consideration of a clear path of travel is important for the safety and mobility of older people, children, carers with prams, and people with physical impairments.

4. Infrastructure Priority Proposal: Inner Sydney Surface Transport

1. Goal definition

- Improved productivity through efficiency measures arising from reduced traffic congestion and improved ease of travel in inner Sydney supporting business
- Improved sustainability by lower or zero carbon transportation opportunities
- Better social outcomes through improved liveability, increased accessibility and support for health and well-being outcomes arising out of active transport

2. Problem identification

By 2030 the City's population is expected to increase from 130,000 to 245,000. This is a higher growth rate than any other metropolitan subregion except the South West. Employment in the City is expected to increase from 370,000 to 465,000.⁷

The higher growth in population than employment will change the distribution of work trips into the City. The percentage of work trips from City residents is expected to increase from 10% in 2001 to 17% in 2030 and the percentage of work trips entering the City from outside will decrease from 90% to 83%. As a result demand for public transport services in Inner Sydney will increase at a faster rate than for Metropolitan Sydney. Infrastructure investment in this area is required to meet the City's accessibility needs and to ensure its continuing productivity, sustainability and liveability.

Much of the public transport in Inner Sydney is focused radially on the City Centre. This pattern maximises access to the City Centre however passengers who want to move across Inner Sydney have to travel via the City Centre, placing unnecessary demand on services and an inefficient travel outcome.

3. Options generation

Sustainable Sydney 2030, the city's Vision for Sydney to be green, global and connected over the next 20 years and beyond is the framework to develop an integrated transport system for the City. No single action will achieve this goal; rather, the vision suggests a package of complementary actions is required to meet the transport needs of residents, businesses and visitors in a more sustainable way.

1. Support and plan for enhanced access by public transport from the Sydney Region to the City of Sydney
2. Develop an integrated Inner Sydney public transport network
3. Reduce the impact of transport on public space in the City Centre and Activity Hubs to 'protect the heart' of the Global Sydney
4. Manage regional roads to reflect their role in supporting Sydney.

The City of Sydney has identified three key infrastructure priority projects essential to address this nationally significant problem:

1. Green Loop Light Rail
2. City Loop Light Rail
3. Inner Sydney Strategic Cycle Network

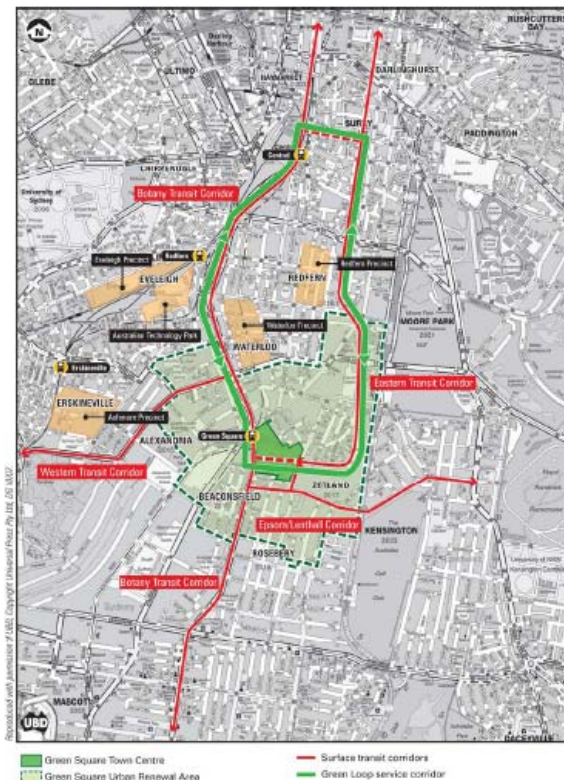
Infrastructure Priority Proposal 1: 'Green Loop' Light Rail

The Green Square Urban Renewal Area is central Sydney's largest and most accessible growth district and the nation's largest urban renewal area. For Inner Sydney's future mobility, it is critical that an integrated development plan is developed to deliver world class outcomes in sustainable development in Green Square over the next twenty five years.

The Green Loop transit concept responds to the need for a transport measure that specifically addresses the needs of Green Square residents, supports the development of the new town centre and supports a low car-use lifestyle.

The key principles of the concept are:

- a business as usual scenario of future growth is incompatible with a vision of Green Square as sustainable and liveable
- the vision for Green Square is best supported by a no-car-growth scenario, which requires a package of measures to manage car use and deliver responsive public transport provision
- key transport corridors that can accommodate higher forms of transit and the needs of all transport users over time
- priority for walking and cycling for local trips with increased connections to surrounding key destinations including the CBD
- promoting travel demand management tools that achieve increased transit use and reduced dependence on private vehicles.



The proposed two-way loop is designed to provide high quality, convenient, local mobility to Green Square Urban Renewal Area residents and workers while feeding cross-regional transit services. Over time, supporting infrastructure measures, including new links, dedicated bus lanes and transit-only streets, would be developed along the Green Loop route to deliver average service speeds of 25 km/h (including time spent at stops).

Population and employment growth

Recommended targets for the Green Square Urban Renewal Area, developed by the City of Sydney in consultation with the Department of Planning, would see population grow to 28,000 residents by 2031 from about 9,000 in 2006. Most of these new residents will live outside the Town Centre. Employment growth is expected to be more moderate, increasing from about 20,000 in 2006 to 22,000 in 2031. This includes 7,000 new retail and commercial jobs in the Town Centre, and a decrease in industrial and manufacturing jobs in the other zones of Green Square.

A 2031 forecast of 'business as usual' trends based on 2001 census travel data indicated that, without policy and management intervention, total private vehicle trips to and from the Renewal Area would increase significantly. There is little available capacity in the regional road network to accommodate increased traffic from the Green Square Urban

Renewal Area and there are strong environmental, economic and social arguments for adopting mode share targets that deliver no net *increase* in private vehicle traffic.

The greatest potential threat to the goal of controlling local traffic growth generated by the Green Square Urban Renewal Area is the growth in traffic from the expansion of the neighbouring transport hubs at Port Botany and Sydney Airport. These major pieces of nationally significant infrastructure need to be supported by major regional transport network upgrades to ensure the ability of sub-regional and local roads to form their appropriate function.

Total package of measures

The key measures as part of the Green Loop concept are:

- investing in the key transit corridor along Botany Road and a new Eastern Transit corridor connecting Green Square with Central Station
- once transit corridors are in place, development of a 'Green Loop' dedicated transit service connecting the Green Square Urban Renewal Area with Central, Redfern and Surry Hills
- integrating the Green Loop with improved north-south and east-west cross-regional bus routes and with other existing and proposed light rail (Lilyfield and City Centre)
- allocating road upgrades based on the performance of transit modes
- reinforcing the preferred road hierarchy by constraining traffic levels on local streets to improve the safety and amenity for pedestrians and cyclists
- modifying Green Square Station and surrounds to improve access connectivity and convenience
- modifying key cycling corridors that serve the Town Centre and adjacent hubs
- applying restrictive parking codes for new development to influence mode choice
- promoting car share schemes to support lower levels of private car ownership
- extending residential parking schemes to allocate access to on-street parking
- demonstrating innovative sustainable transport measures, such as low emission and alternative fuel technology transit vehicles, advanced information systems and high levels of transit priority.

Staging and Implementation

The Green Loop service would be introduced in stages as new route links are available, regional transit capacity grows, and local development creates the demand for the local connectivity that is offered. The implementation of this service can only follow the development of key transit corridors along Botany Road and the continuation of a new Eastern Corridor through Victoria Park to Surry Hills. In the short term, the Green Loop would be operated by dedicated buses, but the design of the transit priority corridors should be suitable for later incorporation of higher capacity systems.

Next Steps

The City of Sydney to work in partnership with Infrastructure Australia, NSW Government, business and the community to refine this proposal for inclusion on the Infrastructure Australia Priority Infrastructure List.

Infrastructure Priority Proposal 2: City Light Rail Loop

For Sydney to expand its productivity and at the same time improve its sustainability, the city centre needs to be easy to get around through a connected pedestrian and public space network and integrated public transport system. The quality of the public domain and its ease of accessibility have a direct relationship on the liveability of the City and to productivity, innovation and the global competitiveness of Sydney.

The City Light Rail Loop responds to the need for a transport measure that specifically addresses interconnectivity on the surface of the Central Business District, reducing greenhouse gas emissions, reducing traffic congestion – particularly from buses, and linking the nation's global financial services hub to supporting industry clusters in the south and west of the city.

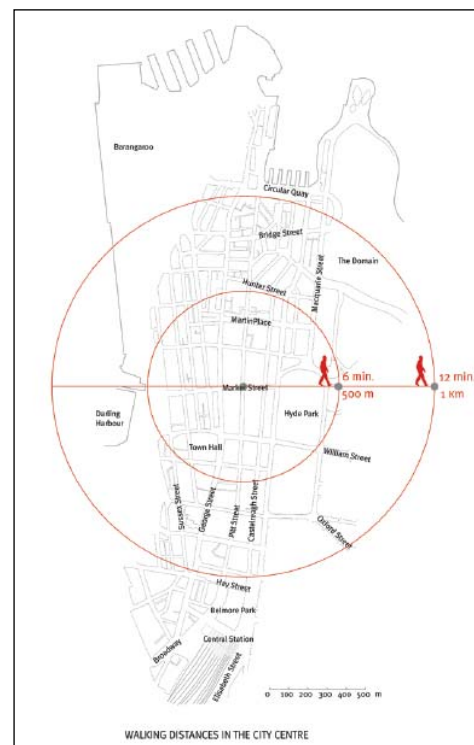
Key principles of the City Light Rail Loop are:

- Reduce travelling time from Central to Circular Quay by 50 per cent to about 14 minutes in peak periods, compared to an average 30 minutes by bus
- Better connect the nation's global financial services hub to creative support clusters in the south and west of the City
- Help relieve severe passenger congestion on Town Hall Station and reduce the current strain on buses
- Allow long-distance train commuters to change at Central to use light rail instead of the CBD's overcrowded City Rail network
- Relieve severe overcrowding of buses in George and Elizabeth Streets in the morning and evening peak
- Provide efficient transport solutions for an estimated 18 per cent increase in employment and a projected doubling of the population in the corridor
- Provide a key missing link between the existing Lilyfield light rail route and proposed Green Loop through the heart of the CBD and servicing Barangaroo.

Walkable Scale

With its long but relatively narrow street grid the City Centre is easily accessible by walking in an east-west direction. But the same is not true north-south. Walking should be a realistic mode of transportation for the whole city if supported by a public transport mode that traverses the centre of the street grid. Few cities have a 2km main street – what comes closest is Oxford Street in London which is 500m shorter than George Street.

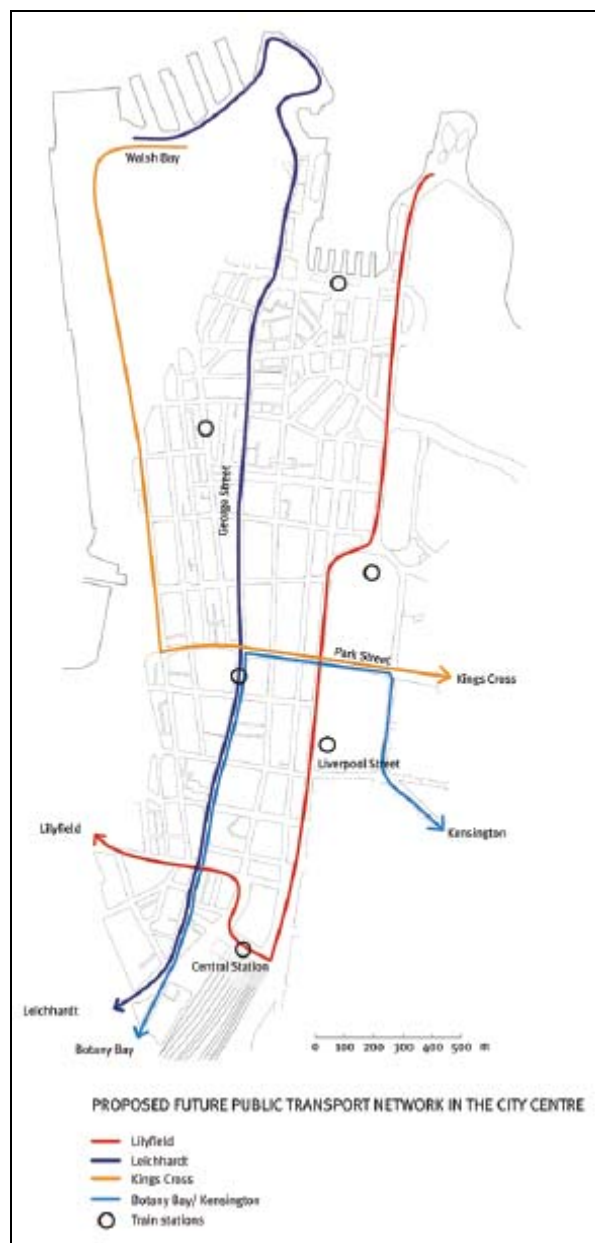
The City suffers from an east-west divide caused in part by its topography but primarily by the introduction of large scale infrastructure of the Western Distributor. This has a severe downgrading effect on the western side of the City and is an acute problem for the Sydney and the NSW economy if the Barangaroo development is not properly connected in to rest of the Central Business District though high quality public streets and effective surface transportation.



City Light Rail Loop

The City Light Rail Loop concept has arisen out of *Public Spaces Public Life – Sydney 2007* prepared by Danish firm Gehl Architects. This work, completed in parallel with *Sustainable Sydney 2030* includes a thorough analysis of the City Centre public domain and provides recommendations that have implications on traffic, public transport, parking, city planning and public space design. It builds on earlier work by others, principally Glazebrook and Associates examining the benefits of reintroducing light rail networks into Inner Sydney.

Gehl Architects has completed similar work in London, New York, Zurich, Copenhagen, Adelaide and Perth. Their work in Melbourne supported by the City of Melbourne Council and at key times by the Victorian State Government has driven the dramatic turnaround in productivity, creativity, liveability and social inclusion in Melbourne's central business district.



The proposed City Light Rail Loop would see George Street as the main public transport spine with opportunities for loops / connections along Hickson Road to service Barangaroo and corridors along the eastern side of the City Centre. Initially, these could be simplified bus routes, which could be gradually replaced by light rail. Key objectives include:

- Develop an integrated public transport network to provide an alternative to cars.
- Provide a more traffic calmed City Centre by terminating all suburban bus routes at the periphery of the city centre and provide an alternative transport link within the City Centre.
- Light rail will provide a simplified attractive, quieter and pollution free ground level public transport that supplements the extensive rail network. Future transport system should incorporate a strong sustainable dimension.
- George Street should be developed as main public transport spine with supporting improvements in pedestrian and cycling infrastructure.
- Current CBD bus numbers are unsustainable and have a large impact on congestion, noise, air quality and safety.

Concept Feasibility

Proposals for a light rail route along Hickson Road and Sussex Street date back to the 1980s when “people mover” systems were considered by State Government for the redevelopment of Darling Harbour. Hyder Consulting were engaged in 2006 by the City to undertake a preliminary feasibility study of light rail along Hickson Road. The reports focussed on a range of planning, transport and engineering issues to check the technical feasibility of the proposals.⁸ The East Darling Harbour “Response to Department of Planning and Revised Statement of Commitments” submitted on behalf of Sydney Harbour Foreshore Authority in January 2007 recommends that the feasibility of a light rail route along Hickson Road be further investigated to service this urban renewal area.

The City of Sydney also investigated options for light rail in Castlereagh Street to assess key engineering and technical implications of the then proposed route. The Hyder Consulting report assessed engineering issues, possible stop locations, infrastructure impacts, traffic management issues, construction costs and assessed if the gradient of the streets along the alignment would allow light rail vehicles to operate, concluding there was an opportunity to provide an efficient route for light rail and further light rail extensions.

Glazebrook and Associates reviewed previous studies and updated potential patronage estimates for the Central to Circular Quay route along Castlereagh Street. The report identified revenue forecast of 9 million per year in 2008 and depending on the revenue sharing approach used indicative estimates of \$3.4 million to \$6.9 per year were suggested. Full revenue and patronage potential would be reached after two years with future patronage and revenue expected to grow in line with population and employment at 1.13% per year until 2021. Among the study's key findings was that overall cost (including construction and operating) could be as little as \$10M per year to government.

Hyder Consulting in 2007 considered indicative construction costs for the Central-Circular Quay light rail route via Castlereagh, Bligh, Bent, Loftus, Alfred and Young Streets. The estimated cost to the public sector is \$92 million (plus contingencies) for fixed infrastructure works, if rolling stock is provided by a private sector operator.

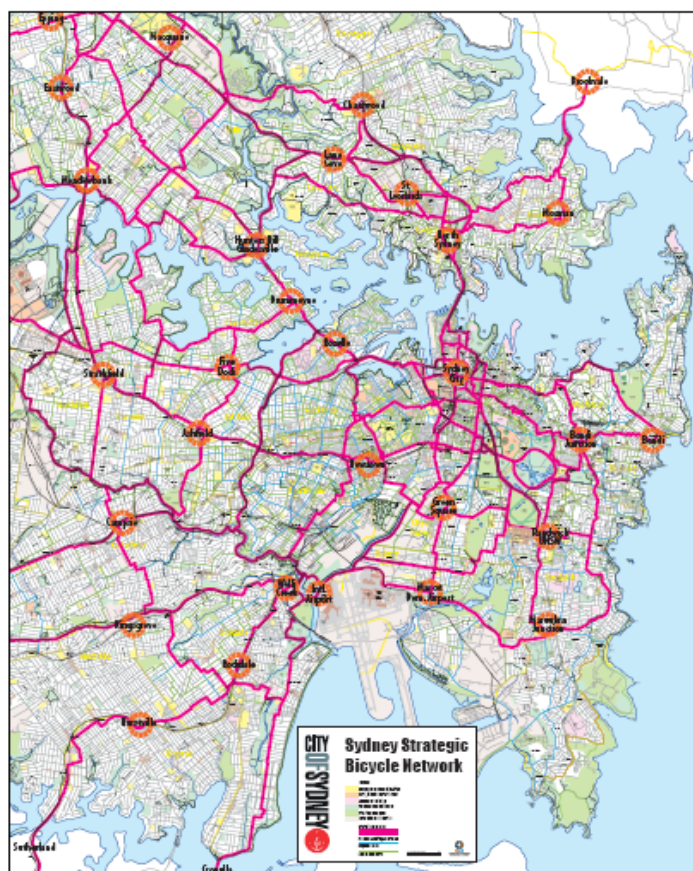
Next Steps

The City of Sydney to work in partnership with Infrastructure Australia, NSW Government, business and the community to refine this proposal for inclusion on the Infrastructure Australia Priority Infrastructure List. The initial focus would be Hickson Road and George Street light rail loops supported by a range of streetscape, pedestrian and cycling improvements and coordinated with improved bus arrangements in the CBD, accelerating the *NSW Urban Transport Strategy* measures

Infrastructure Priority Proposal 3: Inner Sydney Strategic Cycle Network

The Inner Sydney Strategic Cycle Network is a radial and orbital cycling network for Sydney created by improving the utilisation of the existing road network to provide safe access for cycling. Market research (undertaken on behalf of the City of Sydney) has shown that Inner Sydney can achieve a 10% mode split for cycling provided that a cycling network on which people feel safe enough to ride is constructed.

The City, in collaborating with 15 Inner Sydney Councils, the NSW Department of Environment and Climate Change, and the NSW Roads and Traffic Authority, has identified a network 245 kilometres of additional travel lanes (bi-directional) that can be created within the existing road corridor. This includes 160 kilometres of separated bicycle roads and 70 kilometres of upgraded shared path.



The key objectives for the infrastructure proposal are:

- Effective infrastructure expenditure through improved efficiency in utilising the existing road space to provide for cycling
- Zero carbon emissions from vehicles using the infrastructure
- Maximising infrastructure use and congestion relief by providing infrastructure in rideable distances from Australia’s densest residential and employment areas (rather than low-density locations where use is low)
- Improved social inclusion by providing a zero or near-zero cost transport option
- Benefits, rather than costs, in key national significance area of health.

Background

The *Sustainable Sydney 2030 Vision* proposes a Liveable Green Network to provide safe, quality, continuous routes for pedestrians and cyclists. It proposes a cycling network that is safe enough for children to use, giving priority to separated, dedicated cycle lanes.

The *City’s Cycle Strategy and Action Plan*, endorsed by Council in 2007, supports the *Sustainable Sydney 2030 Vision*. The Strategy also identifies potential routes, treatments and priorities for establishing a comprehensive network of separated cycleways across the local government area. It identifies that the best way to dramatically increase cycling levels is to provide cycleways that are physically separated from moving traffic and parked vehicles. Bi-directional cycleways were endorsed as the

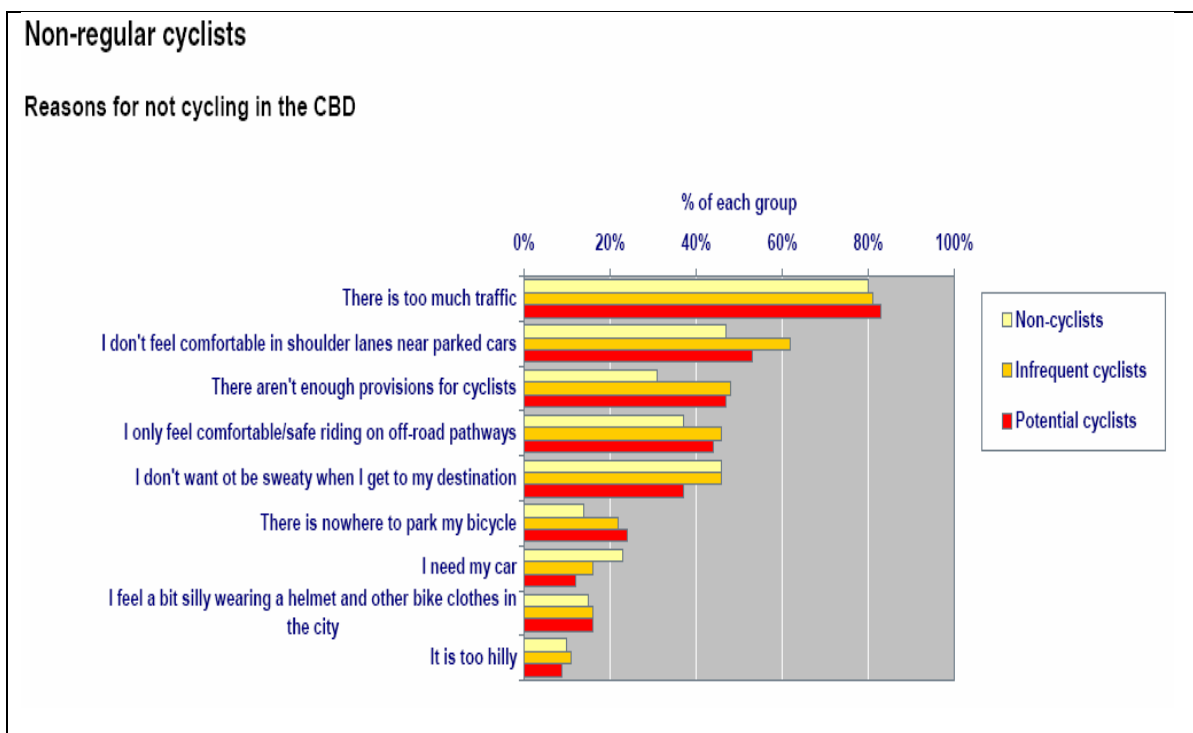
preferred treatment for inner Sydney as they minimise impact on parking and increase urban and pedestrian amenity.

As part of the Strategy preparation, the City of Sydney undertook social research in 2007 to better understand why cycling rates in Sydney were low. The results were very clear:

- 75% of City non-regular cyclists said having bicycle dedicated lanes and off road routes would make them cycle more regularly
- 71% of residents in adjoining councils within 10km said the same

The focus group study found that, of the infrastructure options, paths furthest away from traffic and pedestrians were the most favoured and “Shoulder lanes were of the most concern because of the danger of opening car doors.” That concern is justified: accident statistics show that the shoulder lane is not the safest place to be. RTA/police data identifies “dooring” as responsible for 14.7% of bicycle crashes. More accurate hospital data (Austroads report AP-R157) identifies dooring as the cause of 40.7% of cyclist injuries in Sydney CBD and 17.6% in the rest of the City.

The existing approach is what gives us the existing cycling levels – people are voting with their pedals and indicating that only 1-2% of people are prepared to “mingle with the traffic” and ride in shoulder lanes.

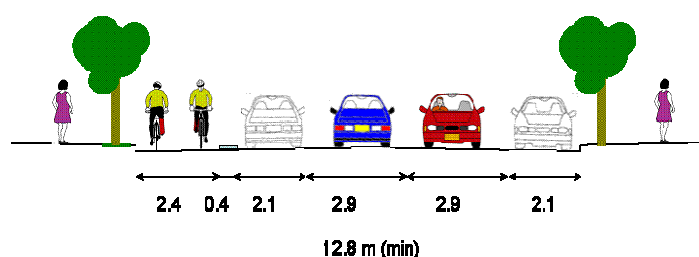


What is a Separated Bicycle Road?

A separated bicycle road is where a section of the existing roadway is cordoned off for the use of cyclists without impacting on footpaths and maintaining parking. A two-way separated bicycle road is shown in the figure below.

Separated bicycle roads are a proven infrastructure technology. Separated bicycle roads have been retrofitted into existing infrastructure in many cities around the world, including London, New York, Amsterdam and Melbourne. The City of Sydney is currently constructing one on King Street, Sydney, in the heart of the CBD and in Bourke Street on the City’s eastern edge.

Separated Cycleway Diagram



Bourke Street, Sydney



These bicycle roads will be retrofitted on existing, low traffic and bus volume roads and provide a low cost measure for increasing transport capacity and impacting on traffic congestion.

Project Deliverables

Separated bicycle road network	161 kilometres	\$241 m
Shared path network	70 kilometres	\$24 m
Harbourlink	2 kilometres	\$30 m
Total	235 kilometres	\$295 m

The non capital Key Performance Indicators include:

- Annual Average Daily total kilometres cycled
- Annual Average Daily number of cyclists (at key locations)
- Community cycling confidence
- Cycling crash rates (number of accidents/total kilometres)
- Annual Average Daily vehicle trips under 2 km
- Annual Average Daily vehicle trips 2-20 km

Benefits beyond transport

Climate Change

Cycling and walking produce zero greenhouse emissions during the transport activity. In Europe, many families have trailers for carrying goods and children and cycling is a normal, first choice transport mode.

Safety

The National Road Safety Strategy has a strategic objective of, “encourage alternatives to motor vehicle use”, because reducing car use saves lives. The Australian Transport Council reports that continued road safety gains are increasingly difficult to achieve, so increasing alternatives to car use is an as yet underutilised strategy.

Equity

Individuals and communities are economically and socially disadvantaged if they lack access to employment, services and social opportunities. Currently, 14 per cent of Australians who are over 18 years of age do not have access to a car and may be disadvantaged if they do not have alternative transport options. People who do have access to cars face major risks of social exclusion and financial hardship if they live in car-dependent areas and oil prices rise.

Unlike many climate change policy options, investment in healthy transport infrastructure is positive for social equity by making low cost transport viable, especially for young people and those without a licence or access to a car, as well as extending the reach of public transport. Effective cycling infrastructure provides low cost and free transportation access for all people.

Health Impacts

Australia's adult obesity rate is high among OECD countries. While Australia's mortality rates for coronary heart disease, stroke, lung cancer and transport accidents have improved significantly in terms of our ranking with other OECD member countries, this is not the case for our obesity ranking. The new National Preventative Health Taskforce Paper, "Australia: The Healthiest Country by 2020" (released 10 Oct 2008) identifies that the total financial cost in Australia of obesity alone, not including overweight, was estimated at \$8.3 billion in 2008. It says that "the Australian healthcare system could save \$1.5 billion annually if more people were physically active for 30 minutes a day" (an 8-10km cycle). Investing in cycling infrastructure is one of the paper's "major imperatives".

Improved use of existing infrastructure to reduce urban congestion

The low cost addition of 235 kilometres of extra travel lanes within the existing road corridor is very cost effective improved utilisation of existing infrastructure. Bicycle trips replacing car trips will reduce road congestion and bicycle trips replacing public transport trips will help with capacity problems on overcrowded Inner Sydney public transport.

Offsetting Infrastructure Costs

While the full level of the economic benefits of implementing the Inner Sydney Bicycle Road System have not been fully analysed due to data constraints, an indicative estimate based on the Anzac Bridge is contained below.

The Anzac Bridge was opened to traffic in 1995 at a cost of \$80m (1995 dollars) connecting Victoria Road to the Sydney CBD. It now carries 12,100 (2005 volumes) vehicles city bound between 7 and 9 am and is growing by 2% per year (average growth 1996-2005). By diverting 10% of car occupants across this bridge to bicycles or approximately 730 cyclists per hour (2005 volumes), the life of the current bridge configuration can be extended by approximately 8 years – a saving of \$46 m based on the \$143m (2007 dollars) construction cost for the bridge.

The above saving, based on postponing one bridge, when applied across the Inner Sydney Bicycle Road Network, can result in significant infrastructure cost savings and efficiency gains from existing infrastructure.

Active transport and compact urban form

Governments have a strategic choice about whether to invest in mode shift to active transport and more compact urban forms. The need to plan cities for population growth provides us with an opportunity to plan for different densities and public and active transport structures. Governments also have a major role to play in lowering the economic costs of adjustment to higher oil prices, an emissions price and population growth, through planning for more compact urban forms public transport and active transport. Mode shift may account for a quarter of emissions reductions in urban passenger transport, lowering the cost of transition and delivering multiple community benefits.

There are substantial opportunities for mode shift in local passenger transport, particularly in urban areas. But individuals will only be able to express their demand for mode shift if there are suitable services and infrastructure. Governments' responses in delivering infrastructure and services, and influencing urban form will have a critical effect on the extent of shifting to different transport modes. Even in the absence of an emissions price, there are many good reasons for governments to improve infrastructure and services for public transport, walking and cycling. Following business-as-usual trends, avoidable traffic congestion will cost Australians \$20.4 billion by 2020.

In most Australian capital cities, around 1 per cent of people cycled to work in 2006. Cycling is increasing rapidly in some Australian cities. The number of cyclists using measured routes in Sydney increased by 11.4% per annum between 2003 and 2007, and on key routes in Melbourne by 20% per annum from 2006.⁹

In Canberra, 2.5% of commuters already cycle to work. In the United States, where travel is dominated by car, cycling accounts for 3.5 per cent of trips to work in Portland, a city of over half a million people. In many European cities cycling rates are much higher: for example, bicycles account for 12% of traffic in Berlin, a city of around 3.5 million people. Thirty-six per cent of trips to work are made by bicycle in Copenhagen, a city with a population of around half a million.

One of the strengths of inner city living is the ability to access many services locally, by using healthy and low impact transport modes such as walking or cycling. There is a strong base on which to build even greater use of these options, particularly cycling, within and beyond the City of Sydney. Already 92% of trips less than 2 km are made by walking and cycling, but this level drops to 26% for trips between 2 and 5 km.¹⁰ There is potential to increase the proportion of these latter trips by providing safe and connected networks. Concentrating the network provision on the highest density and highest employment area in the nation maximises the potential uptake and return on investment.

Institutional Barriers

Walking and cycling has tended to be marginal to transport thinking—which has focussed mostly on road and public transport alternatives. Current environmental and economic challenges mean that walking and cycling should be mainstream travel options.

Though it is the responsibility of local councils to develop local infrastructure, most councils do not have sufficient resources to build cycleway networks. To achieve national goals of improving health by increasing physical activity, and reducing emissions to meet international obligations, the Australian Government must rely on local government infrastructure.

The City of Sydney is committed to the roll-out of separated cycleways in the City. The following table indicates the allocations in the City’s current 4 year financial plan.

Year	Budget \$m
08/09	\$22m
09/10	\$15m
10/11	\$15m
11/12	\$15m
4 year Total	\$77m

Without the supporting infrastructure from adjoining Councils, however, the City’s investment cannot realise its full potential. To achieve its goals, the Australian Government needs to facilitate local government’s provision of healthy and emission reducing infrastructure.

Next Steps

The City of Sydney will complete the Inner Sydney Bicycle Road Network masterplan with its NSW Government and Local Government partners in 2009. The City will work in partnership with Infrastructure Australia, NSW Government, business and the community to refine this proposal for inclusion on the Infrastructure Australia Priority Infrastructure List.

5. Collaborative Infrastructure Proposals

Introduction

The City of Sydney *Sustainable Sydney 2030 Vision* provides a framework for ongoing cooperation and partnership building to make Sydney green global and connected. Many of its outcomes involve issues of collaborative infrastructure and coordination of Government, private and community sectors.

This submission does not propose to cover these in detail, but three key projects are highlighted. The purpose is to prompt future discussion with Infrastructure Australia's Major Cities Unit and to ensure that the significant benefits arising from supporting this softer infrastructure are not lost as Australia move to implement physical infrastructure improvements.

Proposal 1 – Green Transformers

Sustainable Sydney 2030 proposes the introduction of Green Transformers to re-invent the supply of energy and water in the City, securing supply and reducing dependence on coal-fired electricity. Major renewal sites across the City present an opportunity to develop Green Transformers to lead a shift to energy generated by gas as a low carbon energy, recycled water use and waste to energy conversion.

Green Transformers are intended to produce 330 megawatts of natural gas generation. When combined with other demand reduction measures they will provide 70 per cent of the electricity requirements for the City in 2030 and lower greenhouse intensity by approximately 35 per cent. The by-products of this generation could provide greenhouse-free hot water, heating, and cooling to approximately 35 per cent of all dwellings in the City and 43 per cent of all non-residential buildings in the City, reducing overall gas and electricity consumption.

The Vision proposes intervention from 2010 with small green transformer installations; increasing to 25 MW by 2015, and then by an additional 20 MW each year for the next 15 years. The 2030 Green Transformers offer leadership by implementing fast and effective transition to a low carbon economy by 2030. The first step by 2009 will be to complete a Green Infrastructure Plan to identify suitable sites for Green Transformers across the City. Implementation is proposed through partnerships with energy and water utilities.

Australian Government participation could include regulatory and policy guidance, research, and potentially direct infrastructure provision.

Proposal 2 – Eora Journey and Sydney Harbour Cultural Ribbon

Sustainable Sydney 2030 proposed a cultural 'ribbon' that will link Sydney's leading cultural landmarks such as The Sydney Opera House, Wharf Theatre, Australian Theatre for Young People, Powerhouse Museum, MCA and other arts groups and attractions along the harbour's edge together to undertake joint programming, marketing and tourism management.

Eora Journey, from Mrs Macquarie's Chair to Redfern Carriageworks will be path extending the Cultural ribbon and creating a participative Indigenous interpretation experience in the City via a cultural walk. Artworks and messages about traditional and contemporary Indigenous culture at intervals along the walk would teach and share stories. An Indigenous Knowledge and Cultural Centre was called for by Sydney's Indigenous community, which is a seeking a place of learning, employment, cultural celebration, understanding and innovation in Sydney. It will be located along the walk and will nurture cultural regeneration and cultural understanding among visitors and the Sydney community.

The detailed development of the Eora Journey and Knowledge and Cultural Centre will involve broad consultation with local Aboriginal peoples and Aboriginal and Torres Strait Islander art organisations and artists and other levels of government, and a range of initiatives—including training and education—to culminate in the Eora Journey.

Australian Government participation could include partnership with Commonwealth Arts, Tourism and Indigenous agencies, coordination, promotion and funding.

Proposal 3 – Partnerships for Affordable Key Worker Housing

For the City's economy to grow, key workers, such as teachers, nurses and police and specialist tradespeople must be able to afford to live in the City and benefit from the broad range of quality services offered by the City.

Rents in the City have risen over the past three years and the vacancy rate for rental properties has reached a record low at 1.7 per cent. Of 16 apartment developments for sale in the City in the June 2007 quarter, only two units were less than \$500,000.

The 2030 Vision aims for a coordinated and strategic approach to facilitating delivery of affordable housing by all levels of government and the not-for-profit sector. The City wants to establish a subsidised level of long-term rental to give key workers the security of affordable housing in the City and to ensure inclusiveness and diversity of the residential population.

The City of Sydney has signed a Memorandum of Understanding with the NSW Government, committing the City and Housing NSW to work collaboratively to develop plans to provide affordable housing on a 3.6 hectare site in Glebe. The City of Sydney and Housing NSW will share the strategic planning for any proposed developments, utilise existing under-used land and potentially will redevelop existing public housing.

Australian Government participation could include policy guidance, regulatory reform including in areas of taxation and depreciation of assets, partnership with Commonwealth Housing agencies, coordination, and potentially direct participation in funding of proposed developments.

More information on these collaborative infrastructure proposals can be found at www.sydney2030.com.au.

References

¹ Figures in this section compiled by the City of Sydney using a range of published sources including 2001 and 2006 census data from the Australia Bureau of Statistics (ABS), Bureau of Transport and Resource Economics (BTRE), and the City's own Floor Space and Employment Survey

² CityRail, Compendium of Statistics, 2006.

³ BTRE, *Estimating urban traffic and congestion cost trends in Australian cities*, Working paper No. 71, 2007, pp. xv, 47

⁴ City of Sydney research based on ABS census data.

⁵ BTRE, 2002 Report 107. *Greenhouse Gas Emissions from Transport – Australian Trends to 2020*

⁶ Centre for International Economics, 2005. *Sydney's transport infrastructure – the real economics*

⁷ NSW Department of Planning 2005, *Metropolitan Strategy*, targets for City of Sydney

⁸ The studies referred to in this section are published on the City of Sydney website www.cityofsydney.nsw.gov.au at the relevant Council meeting dates.

⁹ Figures from The Garnaut Review - Final Report, Chapter 21 Transforming transport

¹⁰ Statistics for the Subregional Planning Process, Transport Data Centre, 2006