11.0 Key themes and opportunities

11.1 The infrastructure imperative: value for money investment in productive infrastructure

The purpose of this Report is to advise the NSW Government on the State’s highest priorities for infrastructure investment and to ensure that investment achieves the best value for money outcomes and highest economic returns for the people of NSW.

Where limited public funds are spent on the wrong projects, or wasted on the inefficient delivery of otherwise good projects, this crowds out investment for more beneficial projects and is a drain on the economy.

In *First Things First*, Infrastructure NSW argued that identifying the best projects and delivering them efficiently is imperative because governments are constrained in their ability to fund and finance public infrastructure.

The most significant constraint is that Government infrastructure funding is generally limited to the gap between the total revenue it receives (from taxation and grants) and the recurrent expenditure it makes on services and delivery. By this definition, the infrastructure budget can only grow where:

- Efficiencies are found from existing spending
- Revenues increase via natural (economic) growth or new taxation measures
- Additional funding sources, such as Australian Government grants and user charges, become available
- Public assets are sold to unlock capital for new infrastructure

Importantly, private capital does not necessarily increase the funding available for infrastructure. It can finance infrastructure where it can be repaid at a commercial return by user charges (fares and tolls) or availability payments (Government payments). However, private sector involvement can improve value for money outcomes where the private sector delivers projects more efficiently, harnesses innovation more effectively or better manages project and delivery risks.

Maximising the funding available for critical infrastructure also relies on deciding not to invest in new projects where more efficient use of existing assets can be achieved through demand management, retrofits, refurbishments or targeted enhancements.

Most importantly, extracting maximum value for public infrastructure is about getting the basics right across the whole lifecycle – from strategic planning and prioritisation, to procurement and delivery, and on to the ongoing use and maintenance of infrastructure networks.

This chapter sets out cross-sectoral findings on infrastructure planning and delivery in NSW and makes recommendations to the Government on further improvements that could lift the quality of infrastructure investments and decisions in NSW.

11.2 Good progress, but fiscal discipline more important than ever

Much debate has occurred in NSW in recent years about whether underinvestment has created an ‘infrastructure gap’ and the size of this gap.

The 2012 Commission of Audit report concluded that the perceived ‘infrastructure gap’ was less a result of underinvestment and more a result of poor quality decision-making and sub-optimal infrastructure investments. The report identified a history of poor project planning and governance in NSW, finding that NSW needed a more rigorous framework to evaluate expenditure outcomes, with greater transparency around what agencies achieved with their expenditure. Likewise, the 2014 Productivity Commission Report on Public Infrastructure identified opportunities to lower infrastructure project costs through improvements to project governance and management by public sector agencies.

Signs of real progress since 2012 are now evident, with the development of long-term infrastructure plans, including the State Infrastructure Strategy and the Long-Term Transport Master Plan. The preparation of business cases for major investment proposals is now common practice across NSW Government agencies, as is the use of Gateway reviews of major projects at key points in their lifecycles. Infrastructure NSW plays a key role in supporting and coordinating these activities.
However, while the quality of planning processes and project governance in NSW is increasing, so too has the amount of funding being committed to infrastructure, making fiscal discipline and quality decision-making more important than ever.

With $15 billion allocated in 2014–15, State infrastructure expenditure will total $61.5 billion over the four years to 2017–18.125 This is a step change in the level of investment in infrastructure – an average 19 per cent higher each year over the next four years than for the three years to 2013–14, and 49 per cent higher than the three years prior to that.126

Infrastructure spending is concentrated among a few key agencies. The infrastructure budgets of the State’s transport and health agencies alone account for 58 per cent of the general government’s total infrastructure investment. Spending has grown most significantly in transport, with more than half the State’s infrastructure program dedicated to transport projects in the four years to 2017–18.

Currently, the pace of planning and delivery across Government is significant, with more than 50 projects of more than $100 million in value being delivered. Ambitious timetables have been set for major and complex projects.

The Government’s proposal to unlock $20 billion of additional capital through the ‘poles and wires’ transaction means that worthwhile capital investment in productive infrastructure can be accelerated. Chapters 2 to 10 of this document highlight the areas Infrastructure NSW considers to be the most economically productive ones for investment.

Yet this acceleration of investment must not come at the expense of robust planning and assurance. Hence the emphasis, throughout this Report, is on the need for thorough, independently assured business cases to be brought before Government ahead of any substantive decisions to invest in particular projects.

Business cases enable government to be confident of the costs, benefits and risks associated with projects before they lock in investment decisions. They do not preclude governments from giving ‘in principle’ support to particular projects, provided that appropriate flexibility is preserved before the final investment commitment is made.
Business cases also test whether the rationale for public financing is sound. In its report on Public Infrastructure, the Productivity Commission noted that:

_The threshold step for any assessment on the merits of direct government provision of finance should focus on the underlying rationale for government involvement. Both government capital contributions and lending involve a transfer of financial costs and/or risks of a component of the financing to the taxpayer, and the first order question is whether this is warranted on public benefit grounds. To some degree, appropriate project selection and design as well as the decision on the extent of government involvement are more important than the form in which finance is provided by the government._

Transparency in infrastructure decision-making is rarely a bad thing. A number of recent reports – including the Productivity Commission's report – have recommended that business cases for major infrastructure investments should be published, not least in order to discipline governments to undertake rigorous upfront analysis before taking major investment decisions.

In the past, and in response, some governments have argued that by their nature project business cases are likely to contain sensitive information (particularly pricing information) which, if disclosed, would put the State at a commercial disadvantage.

Infrastructure NSW considers that, for the purposes of transparency and public confidence in capital decision-making, the NSW Government should commit to the publication of its business cases for major projects whenever a decision has been made to invest. Any redactions to business cases made prior to publication should be based upon the criteria established in Government Information (Public Access) legislation.

A robust, independent assurance framework and transparency across government of major investment decisions are the hallmarks of a fiscally rigorous public infrastructure program.

### 11.3 Opportunities to improve the planning, delivery and use of infrastructure

#### 11.3.1 The importance of long-term planning

High quality infrastructure projects emerge from high quality long-term plans.

Projects that do not have a strategic underpinning, and emerge on an ad hoc basis without context or strategic rationale, generally make for poor investment choices for government.

As noted above, a key feature of the NSW Government’s approach to infrastructure over the past three years has been its willingness to invest time and resources upfront to identify emerging long-term trends, undertake gap analyses and plan ahead on a properly prioritised and sequenced basis.

In the transport portfolio, for instance, the overarching Long-Term Transport Master Plan is supported by a large and developing suite of modal or place-based planning documents.

Infrastructure NSW welcomes this more strategic approach and notes the importance of the Government ensuring that State agencies’ strategic planning and asset management functions are appropriately skilled and resourced.

Beyond the production of long-term plans, there are steps governments can take in the near term, short of expending major capital, which will ensure future infrastructure investment is made cost effectively. A good example is the identification, reservation and (where necessary) acquisition of sites or corridors to reduce the long-term cost to government of worthwhile infrastructure provision.

Long-term network expansions involve inherent uncertainties such as potential changes to policy, technology, demand and availability of funding. Nonetheless, astute corridor planning and investment can ensure that longer term extensions to the network are not “built out” by urban development or made prohibitively expensive as a result of long-term increases in land prices or a requirement to build underground.

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Infrastructure NSW is currently working with the Department of Planning and Environment and Infrastructure Australia to review and develop a more structured policy basis for government decisions on corridor preservation and management. The review has identified 70 existing major corridors across the transport, electricity, water and wastewater portfolios in NSW at various stages of identification and reservation.

The next step is to establish a pathway for major corridor projects through existing planning and capital investment processes, including:

- Progressing a study jointly with Infrastructure Australia, to demonstrate the economic benefits in the longer term of corridor preservation
- Developing a consistent and streamlined approach to corridors under the planning system to provide a clear pathway for delivery agencies, greater transparency for the public, and facilitate better land use planning outcomes
- Establishing, maintaining and reviewing a common, up-to-date dataset and map of long-term corridors to inform more coordinated future strategic planning.

**Recommendation**

Infrastructure NSW recommends a reservation of $100 million from the Rebuilding NSW initiative for a corridor reservation program for identified strategic projects.

**11.3.2 Optimising asset utilisation**

Infrastructure funding can be used to support relatively low cost interventions that maximise the value obtained from existing economic assets. Examples proposed for investment in this Report include projects that relieve congestion at pinch points on key arterial road and rail links, unlocking the full potential of economically critical assets such as coalfields, intermodal terminals, ports or airports.

Too often, governments place excessive emphasis on ‘big ticket’ infrastructure projects to the exclusion of lower cost alternatives, even when the evidence points to many lower cost interventions delivering greater value, higher returns and being quicker to implement.

The 2006 UK Eddington Transport Study first articulated a ‘Small Can be Beautiful’ principle, demonstrating that smaller scale projects and better utilisation strategies often offered higher economic returns relative to larger schemes.

An initial mapping of the project proposals submitted to Infrastructure NSW for consideration in the 2014 State Infrastructure Strategy shows a similar trend, whereby ‘better use’ and asset optimisation strategies such as pinch point relief, managed motorways technologies or small-scale upgrades to traffic control systems often demonstrate higher benefit-cost ratios than large projects.

A simple representation of these is depicted on page 144.

**11.3.3 Harnessing technology across the infrastructure lifecycle**

Infrastructure is not simply about pouring concrete. Recent advances in information and communications technologies (‘Smart ICT’) have brought about a fundamental shift in how infrastructure can be designed, constructed and operated.

Smart ICT includes data analytics, optimisation, advanced modelling and software systems. As computational power and algorithmic complexity grow, these tools are becoming more powerful drivers of improved productivity.

Smart technology can improve infrastructure outcomes across the asset lifecycle:

- **Smart ICT in planning, options analysis and design:** Smart ICT enables more precise and insightful decision-making at the planning stage by collecting data from current infrastructure systems (such as transport and water networks) and building evidence-based, data-driven models that provide an understanding of network effects. For example, data analytics can demonstrate how major planned infrastructure such as airports will affect demand for other infrastructure such as road and rail links.

- **Smart ICT in construction:** Data analytics and optimisation can unlock significant value during the construction phase of major infrastructure projects. Project management – prioritising, scheduling and managing the delivery of multiple components, trades and essential services – is an already complex optimisation task. Rarely does a project proceed without some major component being rethought, replanned and redesigned, with knock-on effects across the balance of the project.

- **Smart ICT in operations:** Smart ICT can ensure that infrastructure networks are operated efficiently, reducing the need for costly new investment. The financial, telecommunications, water and gas sectors are now routinely integrating data analytics into their operations.

Remote reading technology in Goldenfields Water County Council

The Goldenfields Water County Council has implemented a Data Acquisition Network, for a total cost of $1.2 million.

As part of this program, the council has put in place a meter replacement program that installs remote metering via wifi connection to households and properties. The remote meters record water flow data and enable early identification of leaks.

Within three months of use, the technology was found to have reduced leaks by more than 100ML, led to capital works savings of $10 million, and yearly meter reading savings of $200,000.

The network also provides a platform for ancillary services such as soil moisture testing, livestock tracking, monitoring trough and tank levels and rainfall trend analysis.

Goldenfields Water County Council, 2013/14 Overview
• **Smart ICT in maintenance:** A key attribute of major infrastructure projects is their long life cycles and the value that can be derived from being able to model future states and predict the impact of changing demand profiles on existing infrastructure and maintenance and re-investment decisions. In many cases, preventative maintenance costs are around one-tenth the cost of reactive repairs and maintenance. Predictive tools can help prioritise maintenance spend to those elements most likely to fail, thus avoiding or delaying major capital outlays.

• **Smart ICT in pricing:** New technologies provide a platform for infrastructure pricing that responds to the needs of users or the network. For example, new in-vehicle technologies support enhanced heavy vehicle access to the network, enable a charging framework for freight vehicles, and mitigate risks to safety or road infrastructure from HPV use. In the electricity sector, advanced metering and time-of-use pricing can give households the ability and incentive to use electricity more efficiently, which can spread peak demand and enable more responsive service provision to customers.

• **Smart ICT in service delivery:** Service models that utilise ICT have different infrastructure requirements, and can realise significant efficiencies. For example, eHealth can connect patients to service providers across vast distances, providing instant and responsive services for regional communities or for home-based care. In the training sector, ICT-enabled connectivity can reduce the need for multiple sites, supporting specialisation by select TAFE campuses and enabling regional and remote access to courses. For example, the development of the Lindfield Learning Village will include Skype hubs that put students in daily contact with their peers around the world.

Staying abreast of ICT developments and their potential to be harnessed on NSW networks and infrastructure increasingly needs to be part of a ‘business as usual’ approach to planning investments.

NSW is home to NICTA (Australia’s centre of excellence for research on Smart ICT applications). NICTA’s remit is to develop technologies that generate economic benefit for Australia and that can be applied to transport, water, and other infrastructure across Australia.

Infrastructure NSW considers that Smart ICT can add significant value to the planning, construction and operation of infrastructure across a range of sectors. It proposes to enter into a long-term non-exclusive partnership with NICTA to ensure that NICTA’s expertise, and the benefits of Smart ICT, are available to agencies across the NSW Government sector.

11.3.4 Reforming contingency management and project governance

Recent trends in Australia point to an increase in the average size of public infrastructure projects, with cost over-runs averaging 6.5 per cent, and nearly twice that level for larger projects of over $1 billion.

Against this backdrop, Infrastructure NSW undertook a review of contingency management across major NSW capital projects, considering approaches to the overall risk assessment, budget setting process and project management outcomes across the project lifecycle.

The main findings of this review were that contingency management practices vary across agencies with a tendency towards overly conservative allowances that could be reduced though better planning, control and governance.

As a result of the review, best practice guidelines for contingency and governance were recently adopted by NSW Treasury as policy for NSW agencies.

129. NICTA 2014, as above
11.3.5 Identifying new approaches to funding and procurement

With governments facing a ‘perfect storm’ of fiscal constraint, high project costs (particularly in urban areas) and high community expectations, a meaningful discussion on alternative funding approaches is needed.

A number of funding and procurement options can be tested to help bridge the funding gap for new infrastructure, to make better use of the government’s balance sheet and to improve equity across users, beneficiaries and taxpayers.

- **Value capture mechanisms for major urban transport projects:** Where new transport or other infrastructure facilitates significant urban renewal and increases surrounding property or land values, value capture levies can assist with funding that infrastructure project. For example in Queensland, as part of the Gold Coast Rapid Transit project, the local council implemented a city-wide transport improvement levy as part of all property owners’ annual council rates notices.

- **Commercial revenue streams:** Private infrastructure owners routinely diversify their sources of commercial revenue. For example, airport operators develop revenue sources from terminal retailing, car parking, advertising to property development. Public transport investments such as interchanges and rolling stock represent opportunities for on-site commercial revenues – from retailing, property development, development of air rights and entertainment.

- **Asset recycling:** Selling mature public assets unlocks significant value for one-off, generational investments in economic and social infrastructure. Provided the right regulatory environment is established upfront, asset recycling can lead to reduced regulatory conflicts, improved efficiency and customer prices, and more responsive service delivery. The Commonwealth Government’s incentive payments for asset recycling will also deliver additional funding for State infrastructure priorities.

- **Commissioning services:** Commissioning services may enable more outcomes-focused service provision, improve value for money and better utilise system capacity across the government and non-government sectors, avoiding the need for costly new capital investment. The Northern Beaches Hospital is the first of its kind in NSW, being a long-term operator-led PPP where Healthscope will enter into a long-term contract with the NSW Government for the design, construction, commissioning, operation and maintenance of all aspects of the hospital and for the provision of the full suite of clinical and other services.

- **Road pricing:** Tolling is an important way to finance new motorway links in urban areas, and can also assist with maintaining the productivity benefits of new road infrastructure. In relation to heavy vehicle road pricing, the Long-Term Transport Master Plan undertook to assess the potential for a pricing trial on the Hume Highway which would hypothecate revenue for freight infrastructure improvements to the corridor to support HPV use. Consultation with industry indicated that firms would only make the requisite fleet investments where they had certainty around policy settings governing HPV access on identified corridors. Reinventing the road pricing reform agenda is critical to meeting the long-term costs of efficient road provision and arresting the slowdown in national road freight productivity growth.

11.3.6 Delivering ‘whole of government’ outcomes

While this report has adopted a sector-by-sector structure, Infrastructure NSW considers that integrated, cross-agency planning is of the highest importance.

Two major priorities identified in this report for whole of government cooperation are planning for population growth and housing acceleration in urban areas, and integrated planning for Greater Parramatta as Sydney’s second CBD. Both these priorities will require a focus on deep integration of place-based infrastructure, investment and service planning.

**Housing acceleration in metropolitan Sydney**

Housing supply acceleration is critical to the economic fortunes of the State and should be a key objective in determining investment priorities.

Urban renewal and the acceleration of housing in metropolitan Sydney require significant coordination of delivery agencies across Government. Delivered well, transit-oriented development has the potential to achieve wider economic benefits, such as improved land use productivity, and to improve the returns on major transport investments. There may also be the potential for government-led projects to achieve other housing objectives in relatively low cost ways, including social housing renewal, the delivery of affordable housing, and universal (lifelong) housing options.
The major obstacle to the delivery of urban renewal is the need to address community concerns around impacts of densification on existing infrastructure, and to plan and fund improvements in a coordinated manner to match growth.

One option for investigation is for Restart NSW funding to support the integrated planning and infrastructure requirements of urban densification programs. This could include supporting transport and community infrastructure and the provision of social housing, with repayment or co-contribution mechanisms established over time through developer contributions.

**Greater Parramatta – Sydney’s second CBD**

Greater Parramatta is unique in the Australian context, being a suburban CBD that serves a metropolitan-wide catchment. Its precincts have a traditional ‘CBD-type’ offering that includes a mix of professional and administrative services, health and education, retail, government offices and civic functions, and provide public spaces and infrastructure for arts and culture. It already operates as a CBD for Sydney’s west.

Efforts to grow Parramatta as Sydney’s second CBD provide a genuinely ‘city shaping’ opportunity and a test of place based approaches to planning. Coordination should take place across all levels of government, working closely with the private sector.

Within this context, Infrastructure NSW is of the view it is better to invest Rebuilding NSW proceeds in economic infrastructure which improves the lives of social housing tenants by providing them with improved quality of life and access to opportunities.

**Infrastructure to enable housing choice — private and social housing**

Housing diversity promotes choice, providing opportunities for people to select the housing that matches their current situation. The state’s housing stock should have adequate levels of private and social housing, with the latter allowing workers on lower incomes to enter the housing market with a view to a later transition into private rental and private ownership.

The NSW Department of Planning and Environment’s population projections describes the changing nature of Sydney’s households. In 2011 only 36.6 per cent of households in Sydney were couples with children, while detached dwellings represented 57.3 per cent of Sydney’s housing stock. Pressure to reconfigure existing stock will grow over the next twenty years, with lone person households projected to grow on average by 2.1 per cent each year, faster than any other household type.

Similarly, the portfolio of social housing assets should be optimised to meet tenant needs in terms of size and location. The reconfiguration of the state’s public housing portfolio to meet current and projected client needs could be expedited with the assistance of the private and not-for-profit sectors. Infrastructure NSW is supportive of reform and innovation in the social housing sector and notes the Premier’s call for innovative ideas to provide for an increase in social housing stock.

Social housing optimisation should leverage transport investment to improve access to jobs and services. Recommended investments like Sydney Rapid Transit and urban road pinch points will provide better connections to more people in more locations.
11.3.7 Working with the Commonwealth Government

One of the benefits of a federal system of government is the ability to harness cooperation between governments on infrastructure projects of national significance – and for that cooperation to improve the quality of project planning and delivery, and the affordability of national-scale projects.

There are sound policy reasons why the Commonwealth is a critical partner in delivering infrastructure in NSW. The Australian system is characterised by vertical fiscal imbalance, whereby State governments are responsible for funding and delivering the larger share of public services, while having fewer broad-based taxes than the Commonwealth Government. In addition, productivity-boosting infrastructure yields economic returns that are captured more easily by Commonwealth revenues.

Some recent examples of constructive cooperation between the Commonwealth and NSW Governments include:

- The Moorebank Intermodal Terminal Project – where the Commonwealth is running the tender for its construction and working with NSW Government on landside access
- The Western Sydney Roads Package – which will be jointly funded by the Commonwealth and NSW Governments, and will support landside access to the Western Sydney Airport (being delivered by the Commonwealth Government)
- The WestConnex project – where the Commonwealth will provide $2 billion of capital made available through a Federal Subordinated Loan
- The NorthConnex project connecting the M1 and M2 – with the NSW and Commonwealth Governments each contributing $405 million towards the $3 billion project.

Business and the community often decry the complexity of multiple levels of government planning, funding, delivering and maintaining infrastructure, with overlapping approvals for individual projects.

Duplication and unclear roles and responsibilities can impact national productivity, through longer project lead times, increased uncertainty around planned projects, overlapping approval processes, ‘gaming’ of the system and reduced accountability and a focus on large new projects rather than systematic investment in improving existing networks.

An example is regional road infrastructure. Heavy vehicle road charges are collected by two levels of government while investment, maintenance and renewal is spread across three levels of government. The Commonwealth Government assists the State Government with maintaining the interstate freight routes defined on the National Land Transport Network. The NSW Government has primary responsibility for the State Road Network and local governments maintain the regional and local road network and govern heavy vehicle access on this network. In addition, the Commonwealth provides grants to Councils for local roads, and invests through discrete road programs including Black Spots, Bridges Renewal Programme and Roads to Recovery.

Poor alignment between State and federal planning and priorities can be a factor behind variable levels of Commonwealth investment in State infrastructure projects.

Commonwealth funding to NSW peaked in 2009/10, when NSW received $5.3 billion, including stimulus payments for Education, Housing and Nation Building One. NSW funding fell by 75% to $1.4 billion in 2012/13. Recent cooperation on key projects will return Commonwealth contributions to $8.8 billion over the next four years (see Figure 11-4 opposite).

The establishment of Infrastructure Australia marked a shift in the Commonwealth’s approach to investment towards a framework based on support for nationally significant, productive infrastructure projects that demonstrate individual merit.

Infrastructure NSW welcomes the Commonwealth’s renewal of Infrastructure Australia’s mandate and strengthening of its independence and looks forward to ongoing collaboration and partnership with its sister body in the future.
Infrastructure NSW also welcomes the Reform of the Federation White Paper process (due to report in 2016), which aims to clarify roles and responsibilities across health, education and transport based on guiding principles that include subsidiarity (where the lower level of government has responsibility for ensuring responses reflect the community’s needs), equity and efficiency, national interest considerations and fiscal sustainability.

Infrastructure NSW urges the Commonwealth to continue its focus on projects that demonstrate economic merit and deliver benefits to national productivity. This big-picture approach should be modally ‘agnostic’ and recognise that good infrastructure investment has positive spillovers to other jurisdictions and to the national economy.

Throughout this report, opportunities are identified for Commonwealth co-funding of infrastructure investments. The NSW Government should work with Infrastructure Australia and other Commonwealth agencies to ensure that these opportunities are realised.

Figure 11.4 Commonwealth Government contribution to State Infrastructure Program

Source: NSW Budget Papers 2014/15
### 11.4 Recommended actions

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<th>OPPORTUNITY</th>
<th>KEY Infrastructure NSW RECOMMENDATIONS</th>
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| Reserve corridors for future development   | • Reserve $100 million from the Rebuilding NSW initiative for a corridor reservation funding program for identified strategic projects  
• This program should be supported by:  
  – A study jointly undertaken with Infrastructure Australia to demonstrate the long-term economic benefits of corridor preservation  
  – A consistent and streamlined approach to corridors under the planning  
  – The establishment of a common, up-to-date dataset and map of long-term corridors to inform more coordinated future strategic planning | Reservation of $100 million from the Rebuilding NSW initiative over 10 years                            |
| Harness technology                          | • Infrastructure NSW should enter into a long-term non-exclusive partnership with NICTA to develop ICT and innovation options to be applied across the government infrastructure program | Cost is not material                                                                                     |
| Alternate funding sources for projects     | • The NSW Government should assess the potential for alternative funding options for the following projects recommended in this report:  
  – Diversification of revenue for major transport projects, including development of commercial revenue streams at new interchanges and value capture mechanisms being rolled out as part of urban renewal efforts  
  – Developer contributions as a way to offset potential Restart NSW reservations for housing acceleration and support infrastructure development for housing densification projects  
  – Recycling of public assets to support generational improvements to infrastructure stock, for example, in health, education or social housing | Should lead to savings on total profit costs                                                              |