Audit findings

Australia's infrastructure needs and expectations

1. Australians expect their infrastructure networks to support a high quality, first world standard of living. They expect infrastructure to improve their quality of life in the future, notwithstanding significant population growth and major economic, social and environmental change.
2. There are grounds for concern that Australia's infrastructure networks and the systems under which they are managed are not meeting these expectations.
3. Infrastructure exists to provide services. The focus of governments and the private sector must be on the quality of infrastructure services, and their cost to users and the community at large.
4. Inadequate attention is being given to the level of service Australians need and expect from their infrastructure, how much different service levels cost, and how they will be paid for. In some sectors, there is insufficient public data and information to support informed public discussion about these questions.

Future demand for infrastructure

5. Future demand for infrastructure will be directly affected by growth in population, broader developments in the local and global economy, technological change, the need for environmental sustainability and consumer preferences.
6. Population growth will drive a significant rise in the demand for infrastructure services. On medium level projections, Australia's population is projected to grow from 22.3 million in 2011 to 30.5 million in 2031 − an increase of 8.2 million or 36.5 per cent.
7. Almost three-quarters of this growth (72.0 per cent) is projected to be in the four largest capitals – Sydney, Melbourne, Brisbane and Perth. In total, these four cities are projected to grow by 5.9 million people, or 46 per cent, to 18.6 million in 2031. This growth will impose additional demands on urban infrastructure already subject to high levels of demand.
8. The other capital cities – Adelaide, Canberra, Hobart and Darwin − are projected to grow in total by slightly more than 0.5 million people or 26.7 per cent. Given this, it is worth considering what steps could be taken to foster greater long-term growth in those cities, which may moderate the consequential infrastructure challenges in the larger cities.
9. The value-add (economy-wide spending) attributable to infrastructure services was estimated to be 13.3 per cent of GDP in 2011. Over 70 per cent of this was attributable to transport. The value-add attributable to infrastructure services is projected to grow roughly proportionate with the economy to 2031.
10. The infrastructure sectors projected to grow faster than GDP are transport, ports, telecommunications, gas pipelines and airports. The sectors projected to grow slower than GDP are water, petroleum, electricity, non-urban roads and non-urban rail.
11. Infrastructure decision making must place a high priority on productivity growth. This can only be achieved through efficient management of existing infrastructure, rigorous and disciplined evaluation of investment initiatives, and efficient delivery of new projects.
12. International and local reviews show that rigorous project selection is key to boosting economic activity and supporting productivity growth. However, investment in poorly conceived projects can undermine a country's economic prospects.

Current and prospective infrastructure gaps

13. Across various sectors, gaps in service quality already exist and will grow. These gaps are particularly evident in urban transport. Gaps in the quality and reliability of water services in some rural towns are also evident.

14. There is also a gap between expectations about infrastructure quality, and the willingness or ability to pay. There is a need for serious public discussion about infrastructure service levels and funding.

15. In several areas, Australia's infrastructure performance compares poorly with a number of other countries (including those that have similar population densities and harsh weather conditions). These international rankings indicate that Australia can perform better in infrastructure effectiveness and quality.

Governance and policy reform

16. Australia needs integrated infrastructure and land-use planning, across all levels of government. Progress has been slow in securing the efficiency and service delivery benefits of strategic decision making.

17. Sound infrastructure planning requires an ongoing commitment to engage communities throughout the decision-making process. This improves the likelihood of meeting community needs and expectations, and reduces objections to development.

18. Improvements in long-term infrastructure planning, project appraisal and project selection (including the consistent use and transparent reporting of cost−benefit analyses) are necessary if Australians' expectations are to be realised.

19. Long-term planning necessarily involves dealing with uncertainty, with current issues including:

    a. the implications of demographic change for Australian society generally and government finances in particular;

    b. the scope and direction of technological change;

    c. changes in the global economy;

    d. the future of work, e.g. where people work, incomes, and part-time work; and

    e. the prospect of climate change, and uncertainty as to how the international community will respond.

20. There is a need for more detailed information on infrastructure performance to be assembled consistently, at a national level, and for this information to be reported publicly to assist the forecasting of benefits and costs when planning infrastructure.

21. An improved framework is required to protect corridors for transport and other linear infrastructure. The failure to protect corridors can lead to significantly higher construction costs, making otherwise beneficial projects uneconomic.

22. Post-completion reviews are not regularly undertaken for infrastructure projects, limiting the opportunities for governments and others to learn from mistakes and successes. This is to the detriment of current and future decision-making processes.

23. Ineffective and inconsistent regulation has had adverse outcomes for infrastructure users and the Australian community. These include high costs in parts of the electricity sector, poor pricing decisions leading to potential problems in the future in the water sector, and poor levels of cost-recovery in the transport sector. Greater independence of regulatory oversight would improve the quality of decision making.

24. Environmental considerations should form a fundamental aspect of infrastructure project selection and planning processes.

25. More rigorous and transparent strategic planning offers the potential to minimise project level disputes about the environmental merits and impacts of specific projects.

Funding

26. Over recent years, rates of public and private investment in infrastructure have been higher than the long-term average.

27. The current level of public sector expenditure – especially in the transport sector, which remains largely funded by government rather than user charges – may be unsustainable in the face of increasing budget pressures to fund welfare and health services.

28. Current arrangements for the funding of land transport represent the most significant opportunity for public policy reform in Australia's infrastructure sectors.

29. Government funding alone is unlikely to be sufficient to provide the infrastructure that Australia requires. Maintaining or strengthening conditions to facilitate private sector investment in and operation of Australia's infrastructure networks is fundamentally important.

30. The country needs to consider a broader system of transport pricing, both for road and public transport.

31. Amalgamation of local government in some areas, and other reforms such as shared services arrangements, will be necessary if local councils are to have the scale and financial capacity to meet their local infrastructure responsibilities.

32. Skills shortages contribute to cost increases for infrastructure construction. Development of an infrastructure pipeline presents an opportunity to develop a better skilled workforce and to minimise skills shortages in the future.

33. Australia would benefit from a strong and consistent pipeline of future infrastructure projects. Without this, there is uncertainty and less likelihood of a well-resourced environment for project procurement. The effectiveness and cost of current procurement processes in some jurisdictions are also an ongoing concern.

34. Governments, industry and the community should ensure there is a continuous focus on reducing construction costs, and promoting modern building practices.

Social considerations

35. Access to transport remains a critical social equity consideration, particularly for the outer suburbs of Australia's cities and most parts of regional Australia. These areas generally have an undersupply of transport services (especially public transport) and of local employment options.

36. Telecommunications have become a highly important part of people's lives, for social as well as economic reasons. The National Broadband Network (NBN) is expected to materially improve service levels and the ability of households in rural and remote regions to connect with their wider social networks.

37. Following completion of the NBN roll-out, governments will still need to consider what steps are required to provide appropriate and equitable services in rural and urban telecommunications services.

38. Dealing equitably with the affordability of infrastructure services is an important consideration, as a matter of social policy. Unless affordability concerns are addressed, the necessary shift to greater application of user charging will struggle to gain community and political support.

39. Households with incomes in the lowest 20 per cent are the most exposed to the monetary costs of inefficient economic infrastructure. Public policy settings need to assist Australians on low incomes to access the infrastructure services they need, in an equitable manner.

Sustainability considerations

40. Adapting to climate change and pursuing sustainable environmental outcomes is a core responsibility of infrastructure planners, owners and operators.

41. The projected decrease in rainfall (and the associated increasing exposure to severe drought) in the heavily populated southern parts of Australia presents significant challenges for the water sector.

42. The number and intensity of extreme weather events is increasingly likely to threaten certain infrastructure assets. Repairing these assets, and enhancing their resilience, will require an increase in maintenance expenditure.

43. Infrastructure operations can be disrupted by a range of hazards, including natural disasters. Ensuring infrastructure is able to continue operating through minor disruptions, and recover quickly from major disruptions, will be critical.

44. Infrastructure-related emissions accounted for approximately half of Australia's total greenhouse gas inventory in the year to September 2014, mainly from the electricity sector (33 per cent) and transport sector (17 per cent).

45. Transitioning to a lower emissions economy will require full consideration of reducing greenhouse gas emissions when infrastructure plans, construction methods and operational frameworks are being determined.

46. Underinvestment in the maintenance of some parts of Australia's infrastructure networks, notably in regional Australia, could reduce the ability of those networks to provide reasonable levels of service in the future. The most significant risks are in:

    a. local roads, especially in regional and remote areas, where there are large road networks to be maintained and local councils have limited or declining income bases;

    b. regional rail infrastructure carrying low volumes of grain and/or general freight, especially those with ageing timber bridges and timber sleepers; and

    c. regional town water services provided by local councils.

47. All jurisdictions need to direct attention towards improving whole-of-life asset management processes, and to ensuring adequate long-term funding strategies are in place.

Transport sector – specific findings

48. Demand for urban transport infrastructure is projected to increase significantly. The cost of congestion in our capital cities, estimated at $13.7 billion in 2011, is expected to increase to around $53.3 billion in 2031, or around 290 per cent, in the absence of additional capacity and/or demand management.

49. Demand for many key urban road and rail corridors is projected to significantly exceed current capacity by 2031.

50. Urban transport decisions need to complement land use decisions (especially about the supply and affordability of housing). Although some improvements have been made in this area, there remains a risk that community resistance to land use change and higher densities will undermine the economic, social and environmental benefits of investment in urban transport.

51. The national land freight task is expected to grow by 80 per cent between 2011 and 2031, with a large component of this task expected to be handled by road freight vehicles.

52. Accommodating this growth will require a focus on policy reform to enable the wider use of higher productivity heavy vehicles (such as B-triples), and selected investment (such as increasing bridge load limits and targeted safety improvements, aimed at improving the performance of national highway infrastructure).

53. Demand for freight rail infrastructure is projected to grow, in particular for resource bulk commodity haulage in WA, Queensland and NSW.

54. Freight rail will need to play a growing role in the movement of goods between ports and inland freight terminals, and in the movement of containerised and general freight over longer distances.

55. Demand for container terminal port infrastructure and bulk terminal infrastructure are both projected to grow faster than GDP. Traffic through some ports is projected to significantly exceed current capacity by 2031.

56. The nation's larger ports are operated as commercial enterprises, whether they are publicly or privately owned, or leased. Accordingly, investment requirements for these ports are expected to be met by user charges.

57. Given wider funding constraints, governments face challenges in ensuring adequate landside rail and road access to ports.

58. Demand for airport infrastructure is projected to approximately double between 2011 and 2031.

59. Australia's 10 busiest airports handle more than 80 per cent of total passenger traffic. Over the next 15 years, additional capacity will be required in Sydney, Brisbane, Perth and Melbourne. The regulatory framework for airports, which obliges private airport operators to provide required airport capacity, appears to be working appropriately.

60. The larger airports are all privately operated commercial enterprises, and investment requirements for these airports should be able to be met by user charges. However, given wider funding constraints, governments and airport operators face challenges in ensuring adequate landside access to airports.

61. A number of smaller airports are unlikely to have the throughput to cover their maintenance and potential capital costs. Governments will need to prioritise their outlays in support of these airports.

62. As well as being the largest infrastructure sector, transport is also the most challenging, with relatively high projected growth in demand, a low proportion of user-based funding and market-based pricing mechanisms, challenges with project selection processes, and emerging maintenance issues in some segments.

Energy sector – specific findings

63. Lack of certainty on national and international approaches to dealing with climate change directly affects investment in the energy sector.

64. Demand for electricity infrastructure is projected to grow significantly slower than GDP.

65. There is expected to be sufficient electricity generating capacity for at least the next five to 10 years.

66. The National Electricity Market is functioning well. However, several regulatory issues will require attention, including tariff reform to reduce peak period demand.

67. There is a need for continued government assistance to support electricity supply in remote communities where generation is not able to be provided on a commercial basis.

68. Australia's dependence on imported fuel has increased. The current arrangements for managing petroleum reserves and ensuring energy security deserve wider public policy consideration.

Telecommunications sector – specific findings

69. The quality of telecommunications service across Australia is mixed, with generally good services in cities and with lower quality services in rural areas and some outer urban areas. The NBN is expected to reduce service disparities within the next five years.

70. Demand for telecommunications infrastructure will continue growing rapidly across the nation, faster than GDP growth.

71. A key challenge will be the efficient rolling-out of an open access, wholesale only fixed-line broadband network.

72. Governments and the private sector will need to focus on making the best use of the NBN, thereby delivering the expected economic and social benefits to the country.

73. The telecommunications sector's economic contribution will be best served by continuing support for effective competition.

Water sector – specific findings

74. Demand for water infrastructure is projected to grow significantly slower than GDP.

75. Economic regulation of the sector is fragmented and may not effectively protect the long-term interests of consumers: objectives are often not clearly specified; links between economic, health and environmental regulation are not well identified; and existing economic regulation does not provide the consistency, certainty and transparency necessary to support further private involvement in the sector.

76. There is a need for more transparent and competitive pricing of water supply and wastewater treatment services, across urban and regional areas. In encouraging greater competition, careful consideration of the appropriate market structure(s) is required.

77. There is a need for additional market reform in the rural water sector, including market-based allocation of defined catchment resources, and transparent pricing of irrigation water.

78. Water quality in urban areas is good, but in parts of regional Australia it does not meet relevant drinking water standards.

79. Future climate variability could lead to a need for further water infrastructure to augment supplies.

80. A number of urban water utilities have increased their borrowings over recent years, for various reasons, with consequential impacts on their commercial performance and their ability to take on additional debt.

81. Underinvestment in maintenance of some water assets, and ageing infrastructure, will require an increased focus on maintenance and renewal.