

# LEARNING FROM OTHERS

Applying infrastructure planning lessons from other jurisdictions

February 2016

## OVERVIEW

### Why look at other jurisdictions?

Planning, providing, maintaining and enhancing a society's infrastructure is an important and ongoing challenge. It is also a widespread challenge. Many towns, cities, regions, states and nations are grappling with effective infrastructure provision in the face of shifting demographics, changing demands for services and environmental, economic and technological trends or disruptions.<sup>1</sup>

One of Infrastructure Victoria's primary tasks is to help tackle the challenges Victoria faces by developing a 30-year infrastructure strategy. Recognising the opportunity to learn from others, Infrastructure Victoria has explored how other jurisdictions identify important challenges, prioritise actions to prepare for and respond to these challenges, and improve their responses over the long term.

The research intent has been to highlight infrastructure planning principles and approaches worth emphasising, adopting or adapting for Victoria's context. Consistent with the focus of the 30-year strategy, this research examines different approaches to long-term infrastructure planning, but not the detailed decision-making for, or implementation of, specific projects.

### Summary of lessons

The materials examined suggest the following conditions, practices and mindsets are important to support effective infrastructure planning:

1. build consensus through collaboration with the community, industry and all levels of government
2. establish a long-term plan to guide coordination and prioritisation, and provide certainty
3. focus on how infrastructure can improve social, economic and environmental outcomes
4. establish and maintain clear governance structures to prioritise, not politicise
5. gather solid evidence to improve analysis, transparency and accountability
6. report results to inform public debate and maintain momentum towards a desired future

This paper is structured around these six lessons. Each of the following sections summarises the rationale and significance of the lesson for infrastructure planning, provides instructive examples from other jurisdictions and highlights how Infrastructure Victoria has applied – or intends to apply – the lesson.

## Infrastructure planning in Europe

Research on experiences in France, Germany, the Netherlands, Spain and the United Kingdom has highlighted similar principles for improved major infrastructure planning, arguing that it is important to have a framework for infrastructure prioritisation that:

- is comprehensive in its sectoral and spatial coverage
- is led by democratically elected governments (not in the hands of private infrastructure companies)
- is supported by well-informed public debate about the strategic context
- treats social, economic and environmental considerations together<sup>2</sup>

## Where to look for lessons?

Infrastructure Victoria has received constructive early guidance and advice from peers in local and overseas jurisdictions, as well as representatives from national organisations, industry and professional bodies. Nominated hallmarks of good infrastructure planning arrangements included role clarity, clear long-term needs assessments and collaborative relationships.

This research paper draws on publicly available materials from a range of city, regional and national jurisdictions, with a focus on:

- New South Wales
- New Zealand
- Singapore
- South Africa
- United Kingdom

Jurisdiction selection was guided by stakeholder consultations and materials that highlighted accomplishments in strategic infrastructure development. The aim was to have a wide spread of socio-economic and political contexts.

Other sources reviewed for best practice infrastructure investment principles and models (themselves based on lessons from experience) were publications from organisations including:

- American Society of Civil Engineers
- Australian Academy of Technological Sciences and Engineering
- Australian Sustainable Built Environment Council
- Committee for Melbourne
- Engineers Australia
- Infrastructure Australia
- Infrastructure Partnerships Australia
- Organisation for Economic Cooperation and Development



- Productivity Commission
- World Economic Forum
- World Bank

Whether looking over the fence or over the horizon for lessons, it is important to stay alert to each jurisdiction's context, and our own. Jurisdictions share some common concerns, but each has its own legacy of past events and decisions that present distinct challenges and opportunities. Demographics, environmental issues, political structures, economic development, infrastructure condition, performance and governance capabilities all interact. These interactions are therefore relevant for how lessons from one place and time are transferred to another.

## COLLABORATION

### Build consensus through collaboration with the community, industry and all levels of government

The role of infrastructure in supporting a prosperous society and the challenge in fulfilling that role well highlight the importance of collaboration and consensus.<sup>3</sup> Genuine partnership with the community, industry and all levels of government fosters trust, participation, a deeper understanding of what is required (by who, when and where), how it might be achieved, and what trade-offs are necessary and acceptable.<sup>4</sup>

The nature and extent of government responsibilities in infrastructure provision vary between jurisdictions and across infrastructure sectors, meaning effective coordination across and within governments is crucial.<sup>5</sup>

#### New Zealand

New Zealand has consulted with the community and stakeholders throughout all iterations of its national infrastructure plan (see figure 1). The 2015 plan includes the ‘voices’ of local representatives and community members under the banner ‘Local talk about infrastructure.’<sup>6</sup>

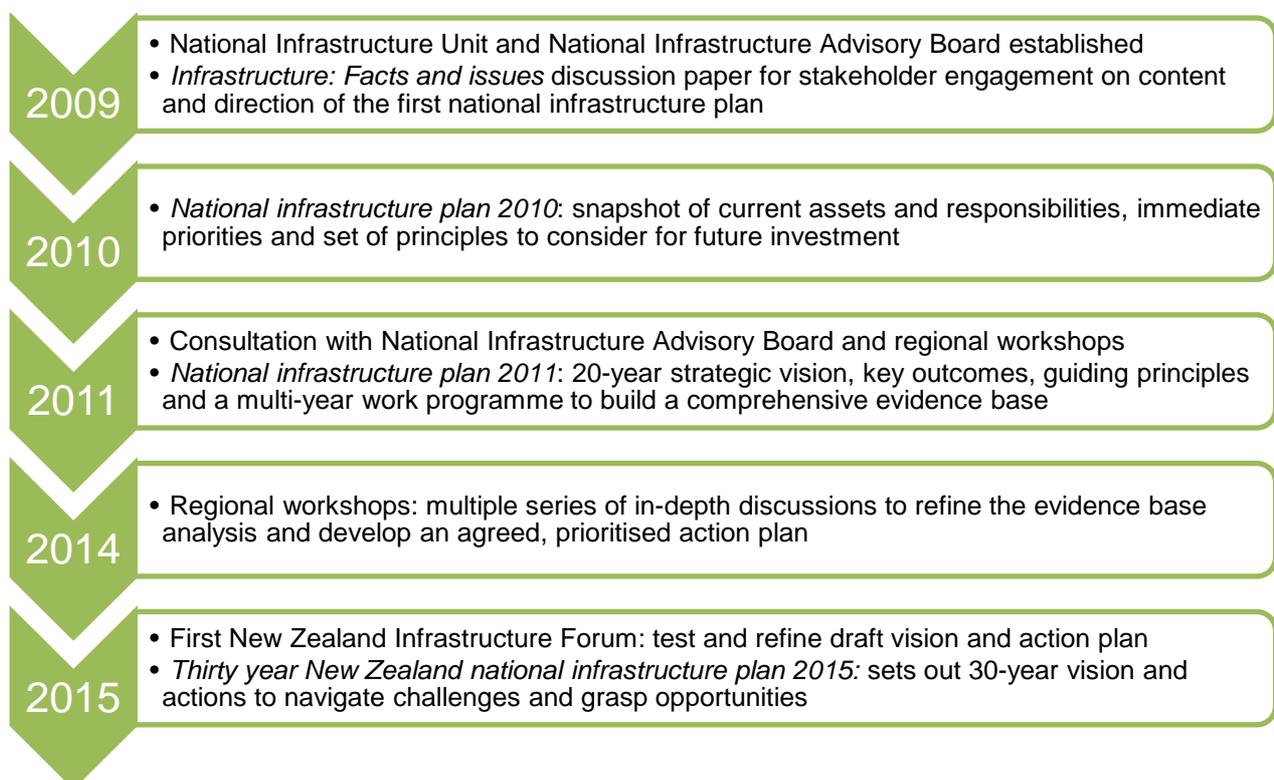


Figure 1: New Zealand’s infrastructure plan journey, 2009–2015<sup>7</sup>

## Singapore

Singapore's Urban Redevelopment Authority conducts a wide range of outreach activities, including crowdsourcing and competitions, school programs, field trips, conservation walks, public discussions, focus groups, research partnerships, industry collaborations and advisory panels.<sup>8</sup> Its offices are home to the Singapore City Gallery, which tells the history of how the city has transformed over the last 50 years (figure 2).<sup>9</sup>

Over time, according to the authority, it has increasingly involved the public and private sector in developing long-term land use and infrastructure plans to facilitate well-informed decision-making.<sup>10</sup>



**Figure 2: Singapore City Gallery<sup>11</sup>**

## Victoria

A commitment to consultation is enshrined in the *Infrastructure Victoria Act 2015*. In preparing a 30-year infrastructure strategy for the state, Infrastructure Victoria is required to consult on objectives to guide the strategy's development and on a draft of the strategy itself.<sup>12</sup>

The consultation program for 2016 fulfils this requirement and goes much further. In addition to running online consultations, holding stakeholder workshops and inviting formal submissions at key points throughout the development of the strategy, Infrastructure Victoria will host two citizen juries, one metropolitan and one regional, in the middle of the year.

Citizen juries bring together representative, random samples of citizens who are briefed in detail on the background and current thinking relating to a particular issue, and asked to discuss possible approaches and/or solutions. Their recommendations will be a key input to the draft strategy.

## LONG-TERM

### **Establish a long-term plan to guide coordination and prioritisation, and provide certainty**

Having a long-term vision and plan is essential to guide coordination of infrastructure provision across regions, sectors and a range of future scenarios (demographic, environmental, technological and economic).<sup>13</sup>

A jurisdictional infrastructure plan can promote a coherent and supportive approach to infrastructure development, which will in turn facilitate infrastructure investment, if it:

- is comprehensive, aligned and integrated (particularly with land use)
- outlines a medium to long-term vision and goals (10 to 30+ years)
- establishes a prioritised and credible pipeline of projects taking into account interactions with other sectors and policy areas
- takes into account national and local development objectives and sustainability goals, and long-term targets<sup>14</sup>

Plans need to be flexible enough to respond to changing circumstances, but clear enough to provide certainty.

#### Steps to create an infrastructure vision and prioritise potential investments

The World Economic Forum's 2012 report, *Strategic infrastructure: Steps to prioritise and deliver infrastructure efficiently and effectively*, presents a framework and process on how a government can create an infrastructure vision and then prioritise individual projects. The seven steps are:

1. understand the current infrastructure situation
2. formulate a long-term vision and medium-term goals
3. prepare a list of infrastructure deficiencies that need to be rectified and identify potential solutions to address these deficiencies
4. decide which potential solutions create the greatest impact in terms of economic growth, while considering social and environmental issues
5. decide who should pay for the infrastructure – users or taxpayers
6. finalise the prioritisation of projects based on available cash resources (both government and private sector)
7. move from planning to action – publish and market the plan, ensure that the necessary policy changes are enacted, and finalise the preparation process for selected projects so that 'bankable' projects can be tendered<sup>15</sup>

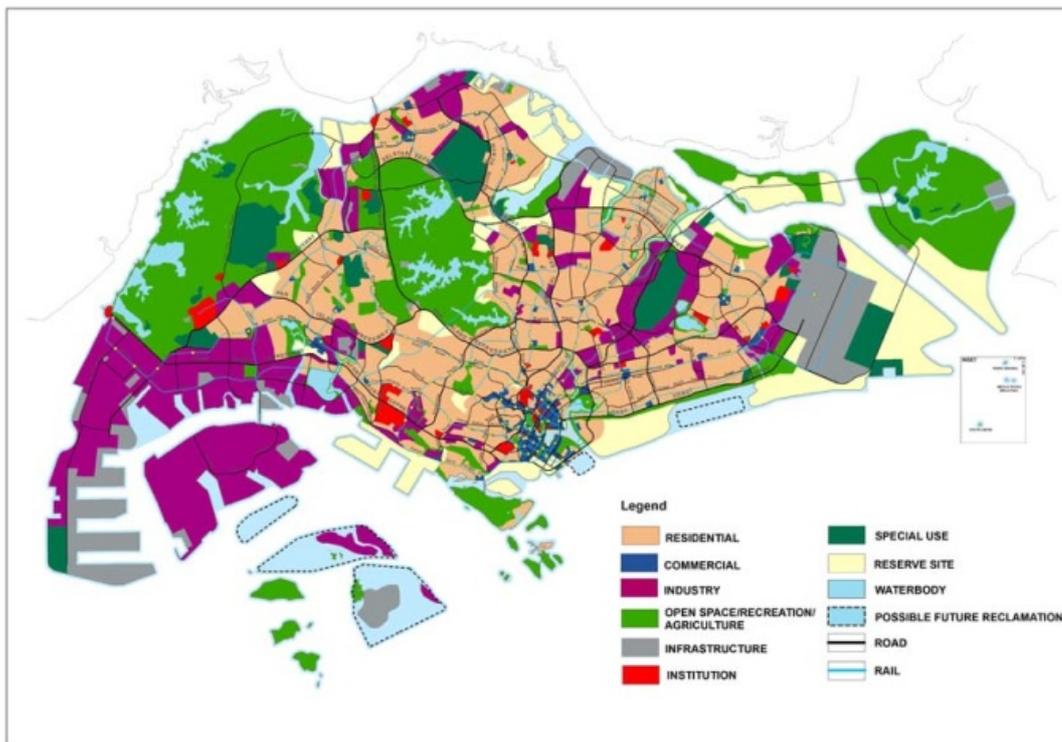
Some of the benefits of having long-term infrastructure plans, according to the report, are greater certainty, including less stop-start investment and less chance of major changes when governments change, better prioritisation of projects and greater coordination between departments.<sup>16</sup>

## Singapore

In response to the limited availability of land in Singapore, the government takes a systematic, long-term approach to land use and transport planning.

Development in Singapore over a 40 to 50-year horizon is guided by a concept plan, which was first introduced in 1971. The concept plan is refreshed every 10 years and is designed to ensure ‘there is sufficient land to meet long-term population and economic growth needs while providing a good quality living environment’ (see figure 3).<sup>17</sup>

Development over a 10 to 15-year horizon is guided by a statutory master plan, which was first introduced in 1958. The master plan is refreshed every five years and is designed to translate the concept plan into detailed implementation plans.<sup>18</sup>



**Figure 3: Singapore’s land use plan 2013 identifies current and reserved zones for sustainable long-term development<sup>19</sup>**

## South Africa

In responding to the challenges identified in South Africa's *National development plan 2030*, the South African Government adopted a 20-year *National infrastructure plan* in 2012.<sup>20</sup> This was a centrally driven and monitored whole-of-country plan designed to improve service delivery, create jobs and transform the economy.<sup>21</sup>

Based on an analysis of infrastructure gaps, the plan outlined eighteen strategic integrated projects 'to support economic development and address service delivery in the poorest provinces.'<sup>22</sup> The strategic integrated projects covered social and economic infrastructure with an emphasis on lagging regions, and were guided by the projects' long-term contributions to human settlement planning and skills development.<sup>23</sup>

## Victoria

The *Infrastructure Victoria Act 2015* did not just establish a new body, it also established a new process for long-term infrastructure planning in Victoria – one that allows priorities to evolve as circumstances change.

Infrastructure Victoria is currently preparing an infrastructure strategy for the whole state, covering all sectors, over 30 years. It is following a rigorous methodology, defining goals and identifying challenges and opportunities, before considering solutions. The final strategy, due by the end of 2016, will make recommendations about infrastructure priorities for the state in the short, medium and long term.<sup>24</sup> Within a year, government will respond to Infrastructure Victoria's recommendations and produce a 5-year infrastructure plan outlining priority major projects.<sup>25</sup> Every year thereafter, Infrastructure Victoria will assess progress on the 5-year infrastructure plan.<sup>26</sup> Within three to five years, Infrastructure Victoria will update the strategy and the process will begin again (see figure 4).<sup>27</sup>

As time goes by, it is expected that this process would become more embedded in sectoral infrastructure plans and the state budget process, thereby broadening its reach and impact.

## OUTCOMES

### **Aim to improve social, economic and environmental outcomes through infrastructure**

Establishing a long-term infrastructure plan necessarily involves identifying desired outcome/s to define and help measure 'progress'. What type of society, economy, environment, or other 'quality of life' aspects does the community jointly aspire to? What defines 'success'?

Infrastructure Australia's analysis of the published goals and objectives of Australian government and non-government organisations, covering a range of public policy areas, indicated that all governments and most organisations are pursuing a set of three broad aspirations:

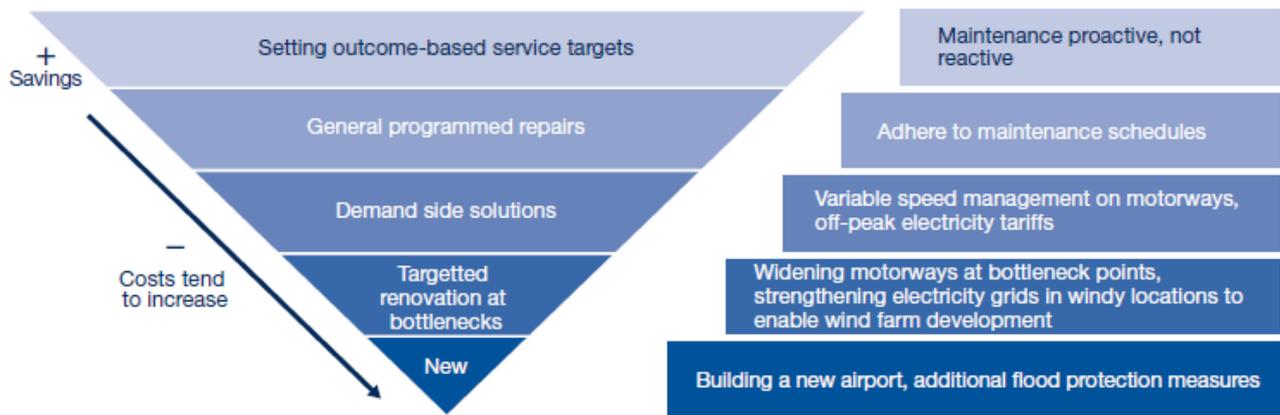
- growth of the Australian **economy** (or relevant jurisdictional economy)
- promotion of **social** equity and inclusion
- acting in a manner that is **environmentally** sustainable<sup>28</sup>

Increasingly, sustainability is viewed as a pillar of responsible economic and social development, not simply an environmental concern.<sup>29</sup> Planning and managing infrastructure is closely connected to the concept of sustainability, as both:

- are concerned with the future and the ability to maintain certain values, assets or capabilities over the long term
- involve decisions that address the interaction between environmental, social and economic domains
- require choices considering equity within society and across generations<sup>30</sup>

The OECD advised that 'in order to maximise the contribution of infrastructure to development, countries need to...emphasise the crucial role of maintenance and sustainability in delivering results.'<sup>31</sup> Infrastructure planners can cultivate a sustainable development mindset by focusing on options to achieve the desired service outcomes that optimise co-benefits between infrastructure, the environment and social development, and across infrastructure sectors and spatial regions.<sup>32</sup> For example, altering maintenance schedules of existing assets may be sufficient. This mindset can result in different, more strategic infrastructure solutions (see Figure 4).





**Figure 4: World Economic Forum's hierarchy of 'quick infrastructure wins', with examples<sup>33</sup>**

Similarly, the Productivity Commission recommended that in providing infrastructure, governments clearly define the principal objective of ensuring that decisions are undertaken in the public interest, taken to be the wellbeing of the community as a whole, and set clear and transparent public infrastructure service standards.<sup>34</sup>

The significance of infrastructure in aiding a society's sustainable development means that decisions about infrastructure often carry far-reaching social, economic and environmental consequences. 'Efficient public infrastructure provides services that can improve productivity, community welfare and quality of life,' stated the Productivity Commission, 'but poorly chosen infrastructure projects can reduce productivity, adversely affect the environment, financially burden the community and crowd out more valuable projects.'<sup>35</sup>

## New South Wales

Infrastructure NSW's *2014 State Infrastructure Strategy Update* outlined goals related to different regions. It aimed to make Sydney a competitive global city, support population and economic growth in Greater Sydney, including Parramatta, and ensure a competitive and connected regional economy.<sup>36</sup>

This framework was supported by a set of sectoral strategic objectives aimed at improving productivity, boosting economic development, and supporting liveability, which in turn shaped Infrastructure NSW's final recommendations.<sup>37</sup>

## New Zealand

The *Thirty Year New Zealand Infrastructure Plan 2015* emphasised the contributions infrastructure can make to a strong economy, a prosperous and inclusive society and a healthy and sustainable natural environment.

The desired outcome of the strategy was that: ‘By 2045 New Zealand’s infrastructure is resilient and coordinated and contributes to a strong economy and high living standards’ (see figure 5).<sup>38</sup>

### The vision

By 2045 New Zealand’s infrastructure is resilient and coordinated and contributes to a strong economy and high living standards.

#### What this means...

New Zealand has a **modern, integrated, and efficient infrastructure system** which underpins a **prosperous and inclusive society** with high-quality state services and a healthy and sustainable natural environment. Economic performance is strong with infrastructure that supports **international connectedness, increased productivity, movement up the global value chain, and more exports and growth**. It helps enable **all New Zealanders to reach their full potential** and play a meaningful role in the economy and society.

- > National decision-making is **integrated** with regional and local planning and considers the interdependencies between sectors...
- > Separate national, regional, and local entities **work together** to create an efficient and effective infrastructure network...
- > Our infrastructure investments provide clear **overall social, environmental, and fiscal benefits** that increase economic prosperity and living standards for all New Zealanders...
- > New Zealand has **stable and predictable regulatory settings**, with industries clear on the expectations and requirements of them...
- > We have **mature asset management practices** which provide a good understanding of intended levels of service and whole-of-life costs of investment, and these are effectively communicated...
- > There is widespread use of **shared infrastructure data standards** so that our infrastructure networks can be benchmarked and network interdependencies can be better understood...
- > Infrastructure providers **consider both demand and supply-side solutions** to infrastructure problems...
- > Where supply-side solutions are necessary, **appropriate funding options** are always considered and **advanced procurement tools** are being used across the country...
- > Our infrastructure is **resilient**...

Figure 5: Desired outcomes from New Zealand’s 2015 national infrastructure plan<sup>39</sup>

## Singapore

Singapore's Urban Redevelopment Authority takes a triple bottom line approach to planning, with sustainability at the centre (see figure 6). In planning for the needs of future generations, it aims to balance social, economic and environmental considerations to:

- offer growth opportunities and jobs
- provide a good quality living environment with adequate housing and a range of amenities and facilities
- safeguard Singapore's environment for future generations<sup>40</sup>



**Figure 6: Singapore's planning approach<sup>41</sup>**

## Victoria

The triple bottom line approach underpins Infrastructure Victoria's primary purpose, outlined in the *Infrastructure Victoria Act 2015*, to 'support improved social, economic and environmental outcomes for the State.'<sup>42</sup>

Infrastructure Victoria has been pursuing this purpose from the outset. It is currently considering key challenges and opportunities facing Victoria, as well as the relationship between social, economic and environmental outcomes and infrastructure needs.

Infrastructure Victoria has prepared draft objectives, or goals, for its first 30-year strategy that cover important current and projected social, economic and environmental trends. These objectives will go through a rigorous public consultation process before being confirmed.

## GOVERNANCE

### **Establish and maintain clear governance structures to prioritise, not politicise**

Good governance is a necessary condition for good infrastructure provision.<sup>43</sup> In a sobering diagnosis of the current Australian context, the Productivity Commission found that ‘institutional and governance arrangements for the provision of much of Australia’s public infrastructure are deficient and are a major contributor to unsatisfactory outcomes.’<sup>44</sup>

A clear infrastructure prioritisation remit is a core element in promoting satisfactory outcomes. Suitable powers, scope and credibility support an effective, coordinated, consistent, rigorous and transparent process for infrastructure prioritisation, impervious to short-term political incentives.<sup>45</sup> Democratic institutional arrangements for such prioritisation vary, from government assigning the role to an existing department (subject to standard ministerial control), to establishing a statutory advisory body (with varying levels of independence from ministerial control).

### **New Zealand**

New Zealand established a National Infrastructure Unit within Treasury in 2009 to work in cooperation with other government agencies and to take a cross-sector, high-level view of New Zealand’s infrastructure.<sup>46</sup> Its stated responsibilities are to:

- form a 20-year national infrastructure plan and establish cross-government frameworks for project appraisal and asset management
- establish robust and reliable cross-government frameworks for infrastructure project appraisal and capital asset management, and monitoring the implementation and use of those frameworks
- provide secretariat support to the National Infrastructure Advisory Board

The New Zealand National Infrastructure Advisory Board is made up of members from the private sector and outside central government.<sup>47</sup>

### **United Kingdom**

In October 2015, the British Government launched the National Infrastructure Commission as an independent body to take a strategic, long-term approach to the country’s major infrastructure investment decisions.<sup>48</sup> The Commission’s primary tasks are to:

- look at Britain’s future needs for nationally significant infrastructure
- help maintain Britain’s global economic competitiveness
- seek to promote knowledge of and debate on international best practice in the planning, financing and delivery of major infrastructure
- provide greater certainty for investors

The British Government is running an open consultation on the Commission's proposed governance structure and operation to help inform legislation that will permanently establish the Commission.<sup>49</sup>

The establishment of an independent National Infrastructure Commission was the key recommendation of Sir John Armitt's 2013 review of infrastructure planning, commissioned for UK Labour's policy review.<sup>50</sup> The Armitt review considered previous attempts to improve infrastructure provision, including the 2010 establishment of Infrastructure UK, which was, until recently, a unit within HM Treasury.<sup>51</sup>

The review concluded that Infrastructure UK had helped raise the level of debate around infrastructure, but was inevitably constrained in its remit by being within Treasury, noting that Infrastructure UK's national infrastructure plans consolidated government's short to medium-term priorities rather than representing a genuinely evidence-based strategic vision for Britain.<sup>52</sup>

## Victoria

Infrastructure Victoria's governance arrangements support an independent, non-politicised process for infrastructure prioritisation. In particular, the *Infrastructure Victoria Act 2015* requires that the majority of Infrastructure Victoria's Board are non-government members and enables Infrastructure Victoria to publicly release its 30-year strategy without approval from the responsible Minister.<sup>53</sup> This will facilitate a rigorous, independent process for infrastructure prioritisation, while leaving decision-making appropriately with government.

Infrastructure Victoria's 30-year strategy will identify projects and reforms that should be prioritised in the short, medium to long term to meet the state's infrastructure needs. A prioritised list, or 'pipeline,' of projects, clearly aligned to identified needs, will provide guidance to government and give more certainty to the private sector.

## EVIDENCE

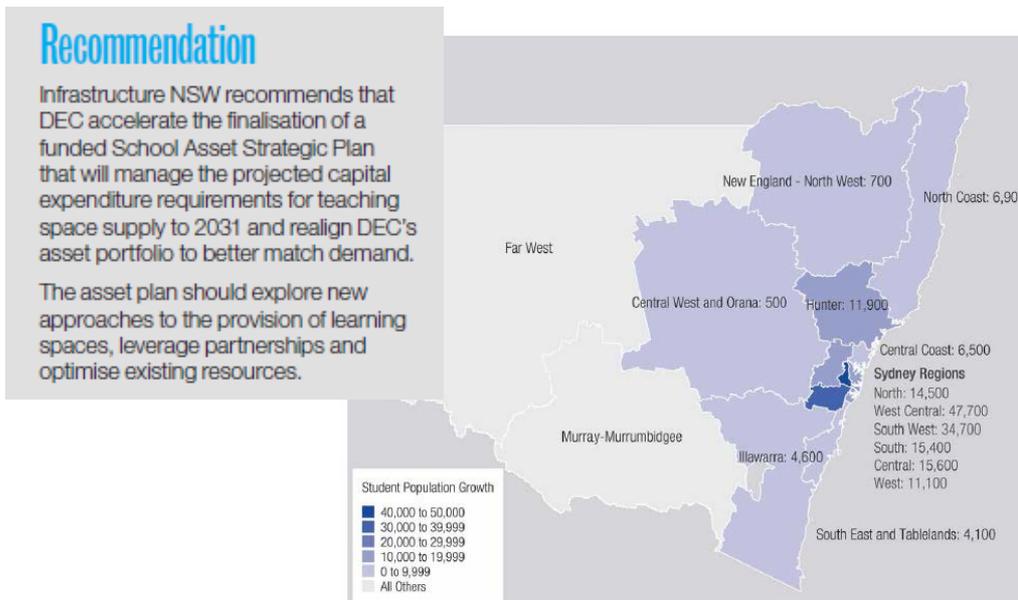
### Gather solid evidence to improve analysis, transparency and accountability

Effective infrastructure prioritisation requires a good understanding of current and desired social, economic and environmental circumstances, how these may be shaped by trends or disruptions and how infrastructure contributes to, and is impacted by, these factors. Quality data underpins rigorous current state and future scenario assessments, complex needs analysis and evaluations of actual or modelled infrastructure performance – and should also be open to scrutiny.<sup>54</sup>

While gathering suitable data can be challenging (especially at the appropriate spatial level), it improves public debate, transparency and accountability for decisions.<sup>55</sup> A complementary approach is to create a ‘perceptual snapshot’ of the situation from the views of suitably knowledgeable stakeholders from government, industry, academic and community groups.<sup>56</sup>

### New South Wales

In developing its infrastructure strategies, Infrastructure NSW is required to assess the current state of infrastructure in New South Wales and the needs and strategic priorities for infrastructure for the next 20 years.<sup>57</sup> This promotes an holistic network and spatial view covering urban and regional projects and reforms across sectors.<sup>58</sup> Figure 7 provides an illustration of the relationship between Infrastructure NSW’s analysis and recommendations.



**Figure 7: NSW student population growth projections to 2031 and Infrastructure NSW’s accompanying recommendation<sup>59</sup>**

## New Zealand

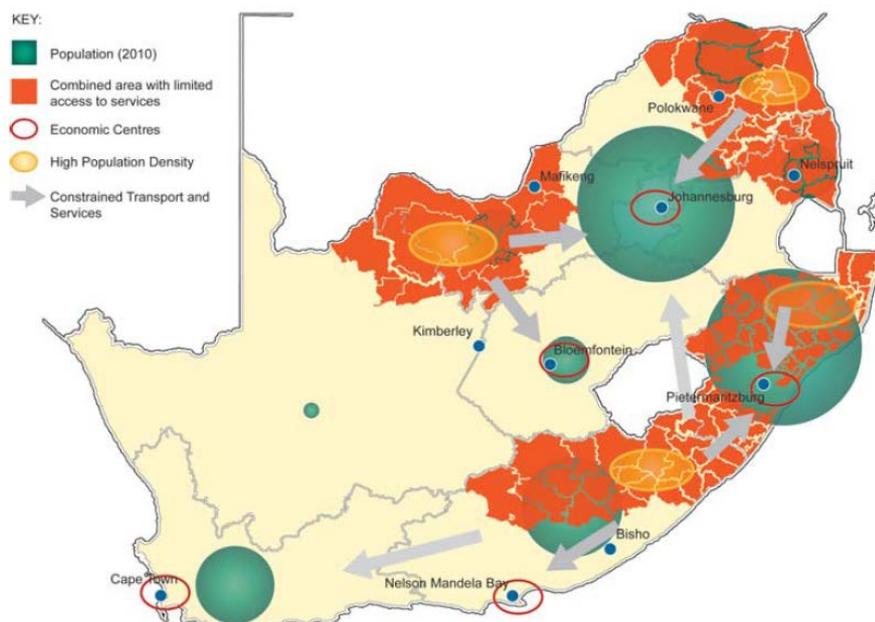
New Zealand's *National infrastructure plan 2011* identified a lack of data to assess the performance of its infrastructure.<sup>60</sup> In 2014, the National Infrastructure Unit published the first cross-sector infrastructure evidence base (refreshed in 2015).<sup>61</sup>

The evidence base included sector specific narratives with an assessment of the current state of infrastructure, analysis of potential future demand pressures on infrastructure, based on sector specific scenario and trend information, and a national resilience assessment. The narratives drew on the knowledge and expertise of the sector, underpinned by a set of infrastructure performance indicators.<sup>62</sup>

## South Africa

In developing its 2012 *National infrastructure plan*, South Africa used spatial mapping to identify key gaps and opportunities, including:

- the state of existing infrastructure
- future needs analysis based on current and projected economic growth
- constrained access to jobs and services relative to population density and economic centres (see figure 8)
- international comparisons of urban population densities and implications for efficient provision of utility services
- addressing spatial imbalances in services through targeted infrastructure investment



**Figure 8: Spatial mapping in South Africa's 2012 *National infrastructure plan***<sup>63</sup>

## Victoria

Infrastructure Victoria began the process of developing its 30-year strategy by commissioning two major pieces of evidence: reports on the current and future state of Victoria and sectoral infrastructure capability assessments. These pieces of work set the strategic context for Victoria's society, economy and environment and the state of infrastructure in Victoria.

This evidence has informed the development of Infrastructure Victoria's draft objectives and identification of infrastructure needs, and will lay the groundwork for generating options, or possible solutions, in the next phase of work. It will be made public so that the assumptions and data underpinning the strategy are open to contest and critique. Further detailed assessments of options will be undertaken to form the basis of solid recommendations.

Longer term, Infrastructure Victoria's research function will improve the quality and availability of evidence on infrastructure matters.<sup>64</sup>

## REPORTING

### Report results to inform public debate and maintain momentum towards a desired future

Useful, timely reports on progress improve the effectiveness of long-term infrastructure strategies, inform ongoing public debate and hold infrastructure prioritisation, decision-making and custodian bodies accountable.<sup>65</sup>

Reviewing and publishing infrastructure systems' performance and project outcomes are important – but rarely undertaken – to establish their effectiveness in meeting identified community needs and expectations, and to help identify lessons for future assessments of infrastructure needs and proposals.<sup>66</sup>

### New South Wales

Infrastructure NSW's *State infrastructure strategy update 2014* outlined progress since the release of the *State infrastructure strategy 2012–2032* across a number of sectors including transport, water, health and education.<sup>67</sup> The New South Wales Government also tracks its progress in implementing key commitments in an annual state infrastructure plan (which forms part of the state budget papers), based on Infrastructure NSW's advice.<sup>68</sup>

### New Zealand

In 2012 and 2013, the National Infrastructure Unit and National Infrastructure Advisory Board co-published *National state of infrastructure reports* that reviewed the preceding year to:

- identify key areas of progress against the national infrastructure plan outcomes and principles
- highlight outstanding opportunities and challenges
- identify priority areas for focus or in particular need of attention<sup>69</sup>

To facilitate desired changes, the *Thirty year New Zealand infrastructure plan 2015*, included an action plan outlining timeframes and lead responsibilities across central and local government and infrastructure peak bodies. The action plan emphasised and reflected the collaborative effort required to change how New Zealand infrastructure is planned, developed and managed.<sup>70</sup>

### United Kingdom

HM Treasury's annual national infrastructure plans included delivery milestones and progress reports for Britain's 'Top 40' priority policy reforms and projects across economic infrastructure sectors (see figure 9). It also included an estimated economic impact of infrastructure investment. This was supplemented with performance indicators for different infrastructure classes, such as major roads, airports and electricity.<sup>71</sup>



Figure 9: Summary of progress since 2010 in delivering the UK infrastructure pipeline to 2020-21<sup>72</sup>

## Victoria

Infrastructure Victoria will review the 5-year plan government produces in response to its 30-year infrastructure strategy, publicly assessing the plan's adequacy in meeting the identified priority needs.<sup>73</sup> This will provide timely review for government and departments, and facilitate further informed discussions across government, industry and the public. The development and content of subsequent strategies will also be reviewed and improved, drawing on and heeding lessons from Victoria and further afield.<sup>74</sup>

Defining and measuring 'success' for Victoria's 30-year strategy will necessarily involve both data – on the performance of infrastructure systems, associated service provision and social, environmental and economic outcomes – and perception – how influential, representative and enduring is it? Infrastructure Victoria is currently considering the best way to gauge the strategy's effectiveness, resilience and usefulness.

## CONCLUSION

Many places are grappling with similar infrastructure challenges. Victoria can learn from how other places respond to and prepare for demographic shifts, environmental changes, economic transitions and technological transformations.

Several consistent lessons emerged. Good decisions are more likely when there is genuine community collaboration on a stable long-term vision to coordinate region-wide planning, using solid evidence that is open to scrutiny.

Victoria's revised approach to infrastructure planning has been deeply influenced by the good practices of other places. Infrastructure Victoria's strategy development applies core principles to improve the state's long-term outcomes, particularly via:

- a collaborative and evidence-based approach to infrastructure prioritisation through extensive engagement with the public, industry and across governments
- a strategy for the whole state over the next 30 years that looks at all types of infrastructure, the links between sectors and their interactions with demographic, environmental, economic and technological changes
- a process to identify, agree on and measure progress towards social, economic and environmental objectives

### Continuing to learn from others

Do you know of other infrastructure planning examples from which we should learn?  
Please share them at [yoursay.infrastructurevictoria.com.au](https://yoursay.infrastructurevictoria.com.au).



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## ENDNOTES

<sup>1</sup> See, for example: Australian Academy of Technological Sciences and Engineering, *Building a better Australia: Getting the best from our infrastructure*, ATSE FOCUS # 187, 2014; Australian Sustainable Built Environment Council, *Pathway to productive and sustainable infrastructure workshop report*, 2015; OECD, *Policy framework for investment*, 2015, Chapter 9; World Bank Group, *Transformation through infrastructure: Infrastructure strategy update FY2012-2015*, 2012; World Economic Forum, *Strategic infrastructure: Steps to prioritise and deliver infrastructure effectively and efficiently*, 2012, pp. 2-7.

<sup>2</sup> Marshall, T., *Planning major infrastructure: A critical analysis*, 2013, especially pp. 258-261.

<sup>3</sup> Prominent elements across a range of policy and good practice pieces, for example: Infrastructure Australia and Australian Academy of Technological Sciences and Engineering, *Infrastructure planning: Towards best practice*, Workshop communiqué, 2013; David Singleton, 'Infrastructure priorities for Australian cities', in Australian Academy of Technological Sciences and Engineering, *Building a Better Australia*, pp.12-13; Max Lay, 'The infrastructure dilemma: effective planning is critical', in Australian Academy of Technological Sciences and Engineering, *Infrastructure Planning: Finding the best approaches, models and practices*, 2013, p.16; Australian Sustainable Built Environment Council, *Pathway to productive and sustainable infrastructure workshop report*, p.3; Committee for Melbourne, *The case for an independent Infrastructure Victoria*, 2015, pp.13, 21; Engineers Australia, *The critical role of state infrastructure planning authorities*, 2015, pp.3, 10-12; World Economic Forum, *Strategic infrastructure*, pp. vi, 12-17.

<sup>4</sup> Several reports also emphasise how public discussion can build community and political consensus about infrastructure planning priorities, in turn encouraging private sector investment: OECD, *Fostering investment in infrastructure: Lessons learned from OECD investment policy reviews*, 2015, p.11; OECD, *Towards an infrastructure governance framework*, 2015, pp.8-9; World Economic Forum, *Infrastructure investment policy blueprint*, 2014, p.19.

<sup>5</sup> In the Australian context, see the Productivity Commission, *Public infrastructure inquiry report*, Vol.1, 2014, p.58.

<sup>6</sup> New Zealand Government, *Thirty year New Zealand infrastructure plan 2015*, 2015.

<sup>7</sup> Summary drawn from *ibid.*, p.65 and New Zealand National Infrastructure Unit and National Infrastructure Advisory Board, *Infrastructure 2013: National state of infrastructure report*, 2013, p.6.

<sup>8</sup> Singapore Urban Redevelopment Authority, 'Outreach', <https://www.ura.gov.sg/uol/outreach.aspx>

<sup>9</sup> Singapore Urban Redevelopment Authority, 'Singapore City Gallery', <https://www.ura.gov.sg/uol/citygallery.aspx>

<sup>10</sup> Singapore Urban Redevelopment Authority, 'Connecting with the community', <https://www.ura.gov.sg/uol/about-us/our-work/connecting-with-our-communities.aspx>

<sup>11</sup> Singapore Urban Redevelopment Authority, 'Singapore City Gallery', <https://www.ura.gov.sg/uol/citygallery/>

<sup>12</sup> *Infrastructure Victoria Act 2015*, Section 34.

<sup>13</sup> Infrastructure Australia and Australian Academy of Technological Sciences and Engineering, *Infrastructure planning*, 2013, p.3; Australian Sustainable Built Environment Council, *Pathway to productive and sustainable infrastructure workshop report*, pp. 6-9; Engineers Australia, *The critical role of state infrastructure planning authorities*, p.9; World Economic Forum, *Strategic infrastructure*, pp.8-10; World Bank Group, *Transformation through infrastructure*, 'Lessons learned', p.64.

<sup>14</sup> OECD, *Policy framework for investment*, p. 96; World Economic Forum, *Infrastructure investment policy blueprint*, pp.19-24; Infrastructure Partnerships Australia and Arup, *Re-thinking cities: A strategy for integrated infrastructure*, 2012, p.8.

<sup>15</sup> World Economic Forum, *Strategic Infrastructure*, pp.11-17.

<sup>16</sup> *Ibid.*, p.9.

<sup>17</sup> Singapore Urban Redevelopment Authority, 'Introduction to concept plan', <https://www.ura.gov.sg/uol/concept-plan.aspx?p1=View-Concept-Plan>

<sup>18</sup> Singapore Urban Redevelopment Authority, 'Introduction to master plan', <https://www.ura.gov.sg/uol/master-plan.aspx?p1=View-Master-Plan>

<sup>19</sup> Singapore Urban Redevelopment Authority, 'Concept Plan 2011 and Land Use Plan', <https://www.ura.gov.sg/uol/concept-plan.aspx?p1=View-Concept-Plan&p2=Land-Use-Plan-2013>

<sup>20</sup> Republic of South Africa, 'National infrastructure plan', <http://www.gov.za/issues/national-infrastructure-plan>

<sup>21</sup> Presidential Infrastructure Coordinating Commission, *A summary of the South African national infrastructure plan*, 2012, pp.6-7.

<sup>22</sup> *Ibid.*, p. 6.

<sup>23</sup> *Ibid.*, pp.6, 17-25.

<sup>24</sup> *Infrastructure Victoria Act 2015*, Section 34.

<sup>25</sup> *Ibid.*, Section 39.

<sup>26</sup> *Ibid.*, Section 43.

<sup>27</sup> *Ibid.*, Section 36.

<sup>28</sup> Infrastructure Australia, *Infrastructure: Aspirations and goals – Australian infrastructure audit background paper*, 2015, p.5.

<sup>29</sup> See for example, the United Nations' sustainable development goals, <https://sustainabledevelopment.un.org/sdgs>; World Bank, 'Sustainable Development Overview',

<http://www.worldbank.org/en/topic/sustainabledevelopment/overview#1>

<sup>30</sup> National Sustainability Council, *Sustainable Australia report 2013*, 2013, p.9.

<sup>31</sup> OECD, *Policy framework for investment*, p. 5.

<sup>32</sup> World Bank Group, *Transformation through infrastructure*, pp.10-11, 64; World Economic Forum, *Strategic Infrastructure*, p.5; Engineers Australia, *Critical role of state infrastructure planning authorities*, pp.12, 14.

<sup>33</sup> World Economic Forum, *Strategic Infrastructure*, p.5. Similar points about efficient asset operation, maintenance and demand management are made in Productivity Commission, *Public infrastructure inquiry report*, Vol. 1, p.83.

<sup>34</sup> Productivity Commission, *Public infrastructure inquiry report*, Vol. 1, p.39.

<sup>35</sup> *Ibid.*, p.51.

<sup>36</sup> Infrastructure NSW, *State infrastructure strategy update 2014*, pp. 7-9

<sup>37</sup> *Ibid.*

<sup>38</sup> New Zealand Government, *Thirty year New Zealand infrastructure plan 2015*, p.11.

<sup>39</sup> *Ibid.*

<sup>40</sup> Singapore Urban Redevelopment Authority, 'Our planning process', <https://www.ura.gov.sg/uol/concept-plan/our-planning-process/our-planning-process.aspx>

<sup>41</sup> *Ibid.*

<sup>42</sup> *Infrastructure Victoria Act 2015*, Section 7.

<sup>43</sup> OECD, *Towards an infrastructure governance framework*, pp.1-2, 7.

<sup>44</sup> Productivity Commission, *Public infrastructure inquiry report*, Vol. 1, Finding 7.1, p.39.

<sup>45</sup> Armitt, J., *The Armitt review: An independent review of long term infrastructure planning commissioned for Labour's policy review*, 2013; Australian Sustainable Built Environment Council, *Pathway to productive and sustainable infrastructure workshop report*; Infrastructure Partnerships Australia and Arup, *Re-thinking cities*, p.8; The Committee for Melbourne, *The case for an independent Infrastructure Victoria*; Engineers Australia, *The critical role of state infrastructure planning authorities*.

<sup>46</sup> New Zealand National Infrastructure Unit, 'The National Infrastructure Unit', <http://www.infrastructure.govt.nz/aboutniui>

<sup>47</sup> New Zealand National Infrastructure Unit, 'National Infrastructure Advisory Board',

<http://www.infrastructure.govt.nz/advisoryboard>

<sup>48</sup> UK National Infrastructure Commission, 'About us', <https://www.gov.uk/government/organisations/national-infrastructure-commission/about>

<sup>49</sup> UK Government, 'National Infrastructure Commission: Open consultation',

<https://www.gov.uk/government/consultations/national-infrastructure-commission>

<sup>50</sup> Armitt, *The Armitt review*, p.2.

<sup>51</sup> On 1 January 2016 Infrastructure UK merged with the Major Projects Authority to form the Infrastructure and Projects Authority, <https://www.gov.uk/government/organisations/infrastructure-uk/about>

<sup>52</sup> Armitt, *The Armitt review*, p.13.

<sup>53</sup> *Infrastructure Victoria Act 2015*, Sections 12, 22, 35.

<sup>54</sup> Engineers Australia, *The critical role of state infrastructure planning authorities*, pp.9-10, 12.

<sup>55</sup> Australian Sustainable Built Environment Council, *Pathway to productive and sustainable infrastructure workshop report*, p.5; Productivity Commission, *Public infrastructure inquiry report*, Vol. 1, p.2 (see also its Recommendation 9.2 for the establishment of national infrastructure benchmarks); National Sustainability Council, *Sustainable Australia report 2013*, p.16.

<sup>56</sup> World Economic Forum, *Strategic Infrastructure*, pp.11-15.

<sup>57</sup> *Infrastructure NSW Act 2011*, Section 17 (1).

<sup>58</sup> Infrastructure NSW, *First things first: State infrastructure strategy 2012–2032*, 2012, p.11

<sup>59</sup> Infrastructure NSW, *State infrastructure strategy update 2014*, pp.101-102.

<sup>60</sup> New Zealand Government, *National infrastructure plan 2011*, 'Three-Year Action Plan', actions 3 and 4.

<sup>61</sup> National Infrastructure Unit, '2015 Evidence Base', <http://www.infrastructure.govt.nz/plan/evidencebase>

<sup>62</sup> National Infrastructure Unit, 'Performance indicators and trends/scenarios analysis',

<http://www.infrastructure.govt.nz/plan/2011implementation/performanceindicators>

<sup>63</sup> Presidential Infrastructure Coordinating Commission, *A summary of the South African national infrastructure plan*, 2012, p.11

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<sup>64</sup> *Infrastructure Victoria Act 2015*, Section 8 (d).

<sup>65</sup> Australian Sustainable Built Environment Council, *Pathway to productive and sustainable infrastructure workshop report*, p.12; Infrastructure Australia and Australian Academy of Technological Sciences and Engineering, *Infrastructure Planning*, pp. 3-5; Infrastructure Partnerships Australia and Arup, *Re-thinking cities*, p.8; OECD, *Towards a framework for the governance of infrastructure*, p.17.

<sup>66</sup> Engineers Australia, *The critical role of state infrastructure planning authorities*, p.11; Productivity Commission, *Public infrastructure inquiry report*, Vol.1, Recommendation 7.1, pp. 39-40.

<sup>67</sup> Infrastructure NSW, *State infrastructure strategy update 2014*, p.14; plus 'progress since 2012' sections for each sector.

<sup>68</sup> For example, chapter 3 of NSW Government, *Infrastructure statement 2014-15: Budget paper no. 4*; and chapter 4 of the *Infrastructure statement 2015-16: Budget paper no. 2*

<sup>69</sup> National Infrastructure Unit, 'Implementation of the national infrastructure plan',

<http://www.infrastructure.govt.nz/plan/2011implementation>

<sup>70</sup> New Zealand Government, *Thirty year New Zealand infrastructure plan 2015*, pp.51-65 and Appendix 1: Action plan.

<sup>71</sup> HM Treasury, *Performance indicators* [National infrastructure plan], 2015.

<sup>72</sup> HM Treasury, *National infrastructure plan 2014*, 2014, pp.4-5.

<sup>73</sup> *Infrastructure Victoria Act 2015*, Section 43.

<sup>74</sup> *Ibid.*, Sections 32 (1), 33 (3), 36.