

Infrastructure Australia

Infrastructure Priority List

Australian Infrastructure Plan Project and Initiative Summaries February 2017



Infrastructure Australia is an independent statutory body that is the key source of research and advice for governments, industry and the community on nationally-significant infrastructure needs.

It leads reform on key issues including means of financing, delivering and operating infrastructure and how to better plan and utilise infrastructure networks.

Infrastructure Australia has responsibility to strategically audit Australia's nationally-significant infrastructure, and develop 15 year rolling infrastructure plans that specify national and state level priorities.

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Table of Contents

Chairman's Foreword	<u>2</u>
The Infrastructure Priority List	<u>4</u>
The Infrastructure Priority List by State	<u>12</u>
Project and Initiative Summaries	<u>19</u>
High Priority Projects	<u>20</u>
Priority Projects	<u>27</u>
High Priority Initiatives	<u>38</u>
Priority Initiatives	<u>63</u>
Appendices	<u>121</u>
Appendix A: Projects under construction	<u>122</u>
Appendix B: Projects under assessment	<u>123</u>

Chairman's Foreword

This is the infrastructure that Australia needs – to boost our quality of life and our economy

The Infrastructure Priority List identifies 100 major infrastructure proposals that have substantial strategic merit and are of national importance.

The List features the projects in urban centres and across the country that will improve connectivity and deliver better infrastructure services.

As the nation's independent infrastructure advisor, Infrastructure Australia is committed to identifying and advancing the nationally-significant transport, energy, water and telecommunications projects that will support our future economic growth and prosperity.

We maintain the Infrastructure Priority List to help Australian governments make authoritative, integrated decisions and invest in projects that best meet our future infrastructure needs.

The List is informed by the data from the Australian Infrastructure Audit and extensive consultation with State and Territory governments, business and the community.

In February 2016, we published a List alongside the landmark Australian Infrastructure Plan, which set out the nation's long-term infrastructure reform and project investment agenda.

Since then, the Priority List has become the reference point for the most important infrastructure investments Australia needs over the next 15 years. Australia's political leaders regularly consult the List as a source of informed analysis on our most pressing infrastructure needs, and to determine which projects should be prioritised for state and federal funding.

Through the List and our rigorous assessment framework, we have achieved something other Western nations have long sought to achieve – an objective and evidence based list of the projects that will deliver the best long-term outcomes for all infrastructure users.

The impact of the Priority List

In the past 12 months, the Infrastructure Australia Board has positively assessed a record number of business cases for major infrastructure projects. We have therefore fully updated and expanded the List.

This includes transformational projects such as Melbourne Metro (Victoria), Western Sydney Airport (NSW), WestConnex (NSW), Moorebank Intermodal Terminal (NSW), North–South Corridor Darlington Project (SA), Perth Forrestfield Airport Link (WA) and Inland Rail (National).

These large-scale projects will change the shape of their respective cities and regions, and ensure that as a nation we are better equipped to meet the challenges of the future.

Other projects the Board has positively assessed such as M1 Pacific Motorway-Gateway Motorway Merge Upgrade (Queensland), Bruce Highway Upgrade-Caloundra Road to Sunshine Motorway (Queensland) and M80 Ring Road Upgrade (Victoria) will reduce congestion on vital parts of our road network, connecting our regions, towns and cities.



New Projects and Initiatives on the List

The List has been refreshed and now includes seven High Priority and 11 Priority Projects with a total capital value of around \$60 billion. Each of these projects is underpinned by a robust business case meaning governments and the community can have confidence the projects have strategic merit and are truly in the national interest.

The proposed relocation of University of Tasmania STEM Facilities to Hobart CBD is one such example. Listed as a Priority Initiative in the 2016 Priority List, the business case has now been assessed by the Infrastructure Australia Board and been moved up to a Priority Project on the revised Priority List. This project involves relocating the University's Science, Engineering and Technology faculty to a new purpose-built facility in Hobart's CBD. The move will drive an increase in domestic and overseas students at the University and directly support urban regeneration in Hobart.

We have also added a project to upgrade The Northern Road (NSW) to the Priority List. The addition of this project is another important step in harnessing the expected population and employment growth in the Western Sydney Priority Growth Area.

The revised Priority List also includes 82 Initiatives. These are the infrastructure proposals that we have identified as having the potential to address a nationally-significant problem, but which require further development.

The revised High Priority Initiatives on the List includes mass transit options for Parramatta to Sydney CBD (NSW) and the remaining sections of Ipswich Motorway Rocklea-Darra (Queensland). The redevelopment of Sydney's Central Station (NSW), Brisbane to Gold Coast Transport Corridor Upgrades (Queensland) and the Wellington Dam water infrastructure development (WA) are also listed as Priority Initiatives. Each of these initiatives represent vitally needed infrastructure. The Infrastructure Australia Board looks forward to assessing high quality, fully developed business cases for these initiatives in the future.

The future

While we are seeing significant improvements in strategic, long-term infrastructure planning and business case development in Australia's states and territories, there is still much work to do.

For our part, we will continue to strengthen our assessment framework to support better project selection and delivery across the country. We are also proud of the work we have done with project proponents to support high quality proposal development and decision making – from identifying an infrastructure problem and potential solutions to developing a business case and determining project funding, delivery and operation.

We will keep working closely with each level of government and the wider community to progress initiatives that deliver the best social, economic and environmental outcomes for all Australians.

Mark Bivell

The Hon Mark Birrell Chairman

The Infrastructure Priority List

The Infrastructure Priority List provides independent, evidencebased advice to governments and industry on the projects that will most benefit our growing communities

Meeting the challenges of the future

Access to high quality, world class infrastructure is one of the great advantages of living in Australia. Whether it be the roads we travel on each day, the trains, trams or buses we ride to work, essential services such as water and energy, or the telecommunications networks we rely on to connect with one another – access to high quality infrastructure has an enormous impact on our lives.

That is why as Australia's population grows, selecting the projects that deliver the best outcomes for our communities is more important than ever.

The Australian Infrastructure Audit projected that by 2031, Australia's population would grow to more than 30 million people. Between 2011 and 2031, almost threequarters of this population growth will occur in Sydney, Melbourne, Brisbane and Perth. This means our biggest four cities will collectively need to accommodate an additional 5.9 million people.

Adelaide, Canberra, Hobart and Darwin are also projected to grow in total by 26 per cent, while the number of people living in Australia's regional areas will grow from 5.6 million in 2011 to 6.8 million in 2031 – an increase of around 22 per cent. This population growth means we need to be smarter about selecting projects that best address our current infrastructure gaps and set us up to meet the challenges of the future.

Why we developed the Infrastructure Priority List

Defining Australia's infrastructure priorities is important for governments, investors, industry and the community. It guides government decision making on how best to allocate resources, provides transparency on future spending priorities, and supports economic growth. It also provides industry with a clear forward program of works, which helps ensure that Australia retains specialist skills to deliver the infrastructure we need.

As the nation's independent infrastructure advisor, Infrastructure Australia plays a key role in guiding investment decisions. Since our establishment in 2008, supporting better infrastructure decision making and delivery has been our primary focus. At every step of the way we have prioritised the user – the commuter waiting for a train, the family paying their electricity bill or the business looking to access new markets.



With this in mind, we developed the Infrastructure Priority List to define Australia's infrastructure priorities and establish a consistent framework for assessing the economic, social and environmental benefits of potential infrastructure projects

The Priority List is a living document. It is regularly reviewed and updated by the independent Infrastructure Australia Board as robust, evidence-based proposals for nationally-significant projects move through stages of development and delivery. Through the Infrastructure Priority List, we provide clear advice to governments on the significant projects that represent the best use of our infrastructure funding.

Although the Priority List is not designed to provide specific funding recommendations, it sets out a detailed view of opportunities to deliver a better infrastructure future for all Australians. Ultimately, the Priority List supports transparent, evidenced-based decision making, enabling decision-makers to select the projects that deliver the most community benefits.

How we developed the Infrastructure Priority List

Using the Australian Infrastructure Audit as the primary evidence base, we undertook a detailed assessment of the infrastructure gaps and requirements in each Australian state and territory. This was supplemented by extensive consultation and collaboration with state and territory governments to reach a consensus. In adopting this collaborative approach, we acknowledge the important role Australian governments at all levels, industry and the community play in progressing transformative infrastructure projects. This collaboration will be fundamental in successfully responding to the challenges of growth.

New projects are added to the Infrastructure Priority List as the Infrastructure Australia Board receives and assesses new business cases – meaning it evolves over time to meet emerging challenges and opportunities.

Based on our transparent assessment framework, the Priority List promotes the preparation of robust business cases for major infrastructure projects. The List aims to stimulate and support high quality proposal development and decision making – from problem identification, to option and business case development, project funding, delivery and operation.

For example, we require project proponents to show that they have undertaken detailed options analysis, where a full range of innovative, deliverable solutions are developed and the preferred option is selected through a structured assessment process.

Our assessment framework also promotes early consideration of potential funding options, including options such as value capture, and that business cases outline the appropriate governance and processes that will be in place to manage risk in delivering the project.

How to use the Infrastructure Priority List

The Infrastructure Priority List contains two broad groupings:

- **Projects** are advanced proposals that have undergone a full business case assessment by Infrastructure Australia that will address a nationally-significant problem and deliver robust economic, social or environmental outcomes. Projects remain on the Priority List until construction or delivery is underway. We publish a separate list on our website of projects that were previously on the Priority List and are now being delivered.
- **Initiatives** are proposals that have been identified as having potential to address a nationally-significant problem, but which require further development and rigorous assessment to determine if they are the most appropriate solution.

Initiatives or projects that address major problems or opportunities of national significance are highlighted as High Priority. This focuses decision makers' attention on the most significant problems, where delivery of an effective solution will be critical. Within both the High Priority and Priority categories, projects and initiatives are not ranked, but rather ordered by the category of problem they address, then by location and by timeframe.

Each project and initiative on the Priority List includes a broad indication of timeframe. For projects, the timeframe provides the proponent's indication of when the project is likely to be delivered. For initiatives, the timeframe indicates when the problem is likely to have a material impact on our cities and regions.

These timeframes are defined as:

- Within 5 years (near-term);
- Within 10 years (medium-term);
- Within 15 years (longer-term); and
- Expected to be more than 15 years (future).

By including initiatives alongside more advanced projects which have a fully developed business case, we encourage decision makers to think strategically about opportunities to preserve infrastructure corridors, and how potential solutions fit within broader networks and systems.

This edition of the Infrastructure Priority List includes a one-page summary for each project and initiative. The one-page summaries for projects include details of funding commitments, where they have been published. This information is included to assist readers. The funding commitments quoted are based on information provided to Infrastructure Australia. For some projects, committed funding exceeds the estimated capital cost. This is usually because the cost estimate was revised after the funding commitment was made. Not all projects with funding commitments are fully funded. Infrastructure Australia does not take account of funding commitments when evaluating business cases. Funding commitments are a matter for project proponents and governments.

Australia's long-term infrastructure reform agenda

In February 2016, we published the landmark 15-year Australian Infrastructure Plan. With 78 comprehensive and long-term recommendations to improve the way we plan, invest in, deliver and use our infrastructure, the Plan set the nation's long-term infrastructure reform agenda. The Plan's key recommendations include greater emphasis on long-term integrated land use planning and increasing investment in technologies that make better use of existing infrastructure.

Importantly, the Plan acknowledges that when it comes to planning to meet Australia's future infrastructure needs, increased investment in new and existing infrastructure is only one piece of the puzzle. We must also undertake wide-ranging reforms to improve the financing, delivery and operation of Australia's infrastructure networks.

This includes diversifying the source of available infrastructure funding to deliver the projects we need. Similarly, working towards delivering our infrastructure services through well-structured, well-regulated markets must also be a reform priority for Australian governments, as it delivers the best outcomes for users and taxpayers.

The Plan and Priority List provide a 'roadmap'

In its official response, in November 2016, the Australian Government endorsed the Australian Infrastructure Plan, stating that "the Australian Infrastructure Plan, and its companion document, the Infrastructure Priority List provides a positive reform and investment roadmap for Australia and has already been an effective tool in informing decisions by the Australian Government about which further reforms to progress and, over time, investment decisions."

If the nationally-significant projects on the Infrastructure Priority List are delivered alongside the ambitious reforms recommended in the Australian Infrastructure Plan, Australians can look forward to efficient, effective and affordable energy, telecommunications, water and transport services for generations to come.

High Priority Projects

High Priority Projects are potential infrastructure solutions for which a full business case has been completed and been positively assessed by the Infrastructure Australia Board. A High Priority Project addresses a major problem or opportunity of national significance.

Proposed project	Location	Problem description	Page
M4 Motorway upgrade (Parramatta to Lapstone)	NSW	Connectivity in outer western Sydney	<u>20</u>
WestConnex	NSW	Sydney inner west road congestion	<u>21</u>
Melbourne Metro Rail	Vic	Melbourne rail network capacity	<u>22</u>
M80 Ring Road upgrade	Vic	Melbourne M80 Western Ring Road congestion	<u>23</u>
Ipswich Motorway Rocklea–Darra Stage 1c	Qld	Southern Brisbane-Ipswich road network capacity	<u>24</u>
Western Sydney Airport	NSW	Sydney aviation capacity	<u>25</u>
Perth Freight Link	WA	Perth freight network capacity	<u>26</u>

Priority Projects

Priority Projects are potential infrastructure solutions for which a full business case has been completed and been positively assessed by the Infrastructure Australia Board. A Priority Project addresses a nationally-significant problem or opportunity.

Proposed project	Location	Problem description	Page
M1 Pacific Motorway – Gateway Motorway merge upgrade	Qld	Road network capacity Brisbane–Gold Coast	<u>27</u>
The Northern Road Upgrade	NSW	Access to south-west Sydney growth area and construction access to Western Sydney Airport	<u>28</u>
Bringelly Road Upgrade Stage 2	NSW	Access to south-west Sydney growth area and construction access to Western Sydney Airport	<u>29</u>
Murray Basin Rail Project	Vic	Freight rail connection between north-west Victoria and the ports of Geelong and Portland	<u>30</u>
Bruce Highway Upgrade – Cooroy to Curra Section C	Qld	Road network capacity Wide Bay-Burnett region	<u>31</u>
Bruce Highway Upgrade – Mackay Ring Road Stage 1	Qld	Road network capacity Mackay region	<u>32</u>
M1 Pacific Motorway upgrade – Mudgeeraba to Varsity Lakes	Qld	M1 Pacific Motorway capacity	<u>33</u>
Adelaide – Tarcoola Rail Upgrade Acceleration	SA	Rail reliability and axle loadings on the interstate rail network	<u>34</u>
Inland Rail (Melbourne to Brisbane via inland NSW)	National	Freight connectivity Melbourne-Brisbane	<u>35</u>
Eyre Infrastructure Project (Iron Road)	SA	Eyre Peninsula freight capacity	<u>36</u>
Hobart Science and Technology Precinct	Tas	Opportunity to stimulate economic growth and productivity in Tasmania	<u>37</u>

High Priority Initiatives

High Priority Initiatives are potential infrastructure solutions for which a business case has not yet been completed. A High Priority Initiative seeks to address a major problem or opportunity of national significance.

Proposed initiative	Location	Problem description	Page
Sydney Metro: City and Southwest	NSW	Sydney rail network capacity	<u>38</u>
Sydney Gateway	NSW	Connection from WestConnex to Sydney Airport and Port Botany	<u>39</u>
Bus Rapid Transport: Northern Beaches, Parramatta Road, and Victoria Road	NSW	Sydney corridor congestion: Northern Beaches, Parramatta Road, Victoria Road	<u>40</u>
Southern Sydney to CBD public transport enhancement	NSW	Connection between inner south urban growth area and Sydney CBD	<u>41</u>
Sydney Metro West: mass transit between Parramatta and Sydney CBD	NSW	Connectivity between Parramatta and Sydney CBD	<u>42</u>
Hoddle Street capacity upgrade	Vic	Connectivity between Eastern Freeway and Melbourne CBD	<u>43</u>
Cranbourne & Pakenham rail lines upgrade	Vic	Melbourne outer south-east suburbs access to CBD	<u>44</u>
Road connection between West Gate Freeway and Port of Melbourne and CBD North	Vic	Connectivity between West Gate Freeway and Port of Melbourne and CBD North	<u>45</u>
Improve the connection between Eastern Freeway and CityLink	Vic	Connectivity between Melbourne's Eastern Freeway and CityLink	<u>46</u>
Cross River Rail (A rail solution to support an integrated passenger transport network in South-East Queensland)	Qld	Brisbane CBD public transport capacity	<u>47</u>
Ipswich Motorway Rocklea–Darra (remaining sections)	Qld	Southern Brisbane–Ipswich road network capacity	<u>48</u>
Perth CBD – north corridor capacity	WA	Perth northern corridor capacity	<u>49</u>
Gawler Line rail upgrade	SA	Adelaide outer north east suburbs access to CBD	<u>50</u>
Network Optimisation Portfolio	National	National urban road network congestion	<u>51</u>
Port Botany freight rail duplication	NSW	Sydney Port Botany rail freight capacity	<u>52</u>
Chullora Junction upgrade	NSW	Sydney freight rail network capacity	<u>53</u>
Port of Brisbane dedicated freight rail connection	Qld	Freight rail access to Port of Brisbane	<u>54</u>
National Freight and Supply Chain Strategy	National	National strategic planning for future freight initiatives	<u>55</u>
Preserve corridor for Western Sydney Airport fuel pipeline	NSW	Future fuel connection to Western Sydney Airport	<u>56</u>
Preserve corridor for Western Sydney Freight Line and Intermodal Terminal access	NSW	Future freight rail capacity to Eastern Creek Intermodal and Sydney Main West Line	<u>57</u>
Preserve corridor for Lower Hunter freight rail realignment	NSW	Future freight rail bypass of Newcastle urban area	<u>58</u>
Preserve corridor for Outer Sydney Orbital road and rail/M9	NSW	Future connectivity between Western Sydney and Central Coast/Illawarra	<u>59</u>

Proposed initiative	Location	Problem description	Page
Preserve corridor for Western Sydney Airport rail connection	NSW	Future rail connection to Western Sydney Airport	<u>60</u>
Preserve corridor for Melbourne Outer Metropolitan Ring Road/E6	Vic	Future connectivity between Melbourne outer south west and outer north	<u>61</u>
Preserve corridor for East Coast High Speed Rail	National	Future connectivity between east coast capital cities	<u>62</u>

Priority Initiatives

Priority Initiatives are potential infrastructure solutions for which a business case has not yet been completed. A Priority Initiative seeks to address a problem or opportunity of national significance.

Proposed initiative	Location	Problem description	Page
Central Station redevelopment – rail and station infrastructure	NSW	Connection between urban and intercity rail, buses, light rail and metro	<u>63</u>
Active transport (walking and cycling) access to Sydney CBD	NSW	Inner city access to Sydney CBD	<u>64</u>
F6 extension	NSW	Connectivity between Wollongong and Sydney CBD	<u>65</u>
Public transport access to Parramatta CBD	NSW	Public transport access to Parramatta CBD	<u>66</u>
Western Harbour Tunnel and Beaches Link	NSW	Sydney road network cross-harbour and Northern Beaches connectivity	<u>67</u>
Melbourne level crossings removal	Vic	Melbourne urban road network congestion	<u>68</u>
Melbourne Airport to CBD public transport capacity	Vic	Access to Melbourne airport	<u>69</u>
Melton Rail Line upgrade	Vic	Melbourne outer western suburbs access to CBD	<u>70</u>
Complete Metro Ring Road from Greensborough to the Eastern Freeway	Vic	Connectivity between M80 and Eastlink in outer NE Melbourne	<u>71</u>
Melbourne outer northern suburbs to CBD capacity upgrade	Vic	Melbourne outer northern suburbs access to CBD	<u>72</u>
Brisbane to Gold Coast transport corridor upgrades	Qld	Brisbane to Gold Coast transport capacity	<u>73</u>
Perth major east-west and southern corridor capacity upgrades	WA	Perth urban road network capacity	<u>74</u>
Adelaide north-south corridor upgrade (remaining sections)	SA	Adelaide north-south urban road network capacity	<u>75</u>
AdeLINK Tram Network (Adelaide tram network expansion)	SA	Adelaide public transport capacity	<u>76</u>
Canberra CBD to north corridor	ACT	Canberra CBD to north transport corridor congestion	<u>77</u>
Canberra public transport improvements	ACT	Canberra public transport capacity	<u>78</u>
Newell Highway upgrade	NSW	Melbourne-Brisbane connectivity	<u>79</u>
Pacific Highway (A1) – Coffs Harbour Bypass	NSW	Sydney-Brisbane connectivity	<u>80</u>
Pacific Highway (M1) – extension to Raymond Terrace	NSW	Sydney-Brisbane connectivity	<u>81</u>

Proposed initiative	Location	Problem description	Page
Western Sydney Infrastructure Plan	NSW	Access to Western Sydney and Western Sydney Airport	<u>82</u>
Freight rail access to Port Kembla	NSW	Freight rail access to Port Kembla	<u>83</u>
Moorebank Intermodal Terminal road connection upgrade	NSW	Road network connectivity to Moorebank Intermodal Terminal	<u>84</u>
New England Highway upgrade	NSW	Sydney-Brisbane connectivity	<u>85</u>
Western Sydney Airport public transport connection	NSW	Access to Western Sydney Airport	<u>86</u>
Northern Sydney Freight Corridor Stage 2 (additional track West Ryde to Rhodes and Thornleigh to Hornsby)	NSW	Sydney freight rail network capacity	<u>87</u>
Southern Sydney Freight Line upgrade	NSW	Sydney South to Moorebank rail freight capacity	<u>88</u>
Lower Hunter freight corridor construction	NSW	Freight rail capacity constraint in suburban Newcastle	<u>89</u>
Newcastle–Sydney and Wollongong–Sydney rail line upgrades	NSW	Connectivity between Newcastle, Wollongong and Sydney CBD	<u>90</u>
Melbourne Airport third runway	Vic	Melbourne aviation capacity	<u>91</u>
Melbourne container terminal capacity enhancement	Vic	Melbourne container terminal capacity	<u>92</u>
Beerburrum to Nambour rail upgrade	Qld	Queensland north coast rail congestion	<u>93</u>
Cunningham Highway – Yamanto to Ebenezer/Amberley upgrade	Qld	Cunningham Highway – Yamanto to Ebenezer/ Amberley congestion	<u>94</u>
Bruce Highway upgrade	Qld	Queensland coastal cities connectivity	<u>95</u>
Mount Isa–Townsville rail corridor upgrade	Qld	Mt Isa-Townsville rail capacity	<u>96</u>
Gladstone Port land and sea access upgrade	Qld	Land and sea access to Port of Gladstone	<u>97</u>
Perth Airport third runway	WA	Perth airport capacity	<u>98</u>
Perth container terminal capacity enhancement	WA	Perth container terminal capacity	<u>99</u>
Strzelecki Track upgrade and mobile coverage	SA	Access to Cooper Basin (South Australia)	<u>100</u>
South Australian regional mineral port development	SA	South Australia bulk port capacity	<u>101</u>
Sturt Highway High Productivity Vehicle capacity enhancement, including Truro bypass	SA	South Australia road freight network capacity	<u>102</u>
Gawler Craton rail access	SA	Freight rail connection to Gawler Craton mineral province	<u>103</u>
Melbourne–Adelaide–Perth rail upgrade	SA	Freight connectivity Melbourne-Perth	<u>104</u>
Derwent River crossing capacity	Tas	Tasmania Derwent River crossing capacity	<u>105</u>
Burnie to Hobart freight corridor strategy	Tas	Tasmania freight network planning	<u>106</u>
Advanced Train Management System implementation on ARTC network	National	Rail freight capacity constraint on ARTC network	<u>107</u>

Proposed initiative	Location	Problem description	Page
Preserve corridor for Salisbury to Beaudesert rail connection	Qld	Future urban rail connection to Beaudesert	<u>108</u>
Improve road access to remote WA communities	WA	Constrained road access to remote WA communities	<u>109</u>
Provision of enabling infrastructure and essential services to remote NT communities (Wadeye, Tiwi Islands, Jabiru)	NT	Infrastructure services for remote NT communities	<u>110</u>
Upgrade Tanami Road	NT	Constrained access to the Tanami region	<u>111</u>
Lower Fitzroy River water infrastructure development	Qld	Opportunity to develop industry and agriculture in Fitzroy region	<u>112</u>
Wellington Dam water infrastructure development	WA	Opportunity to develop industry and agriculture in south-west Western Australia	<u>113</u>
Northern Adelaide Plains water infrastructure development	SA	Opportunity to develop industry and agriculture in Northern Adelaide region	<u>114</u>
Tasmanian irrigation schemes (Tranche 2)	Tas	Opportunity for improved agricultural water supply in Tasmania	<u>115</u>
Darwin region water supply infrastructure upgrades	NT	Darwin water supply security	<u>116</u>
Tasmanian sewerage infrastructure upgrades	Tas	Tasmanian wastewater treatment environmental compliance	<u>117</u>
Hawkesbury-Nepean Valley flood management	NSW	Flood mitigation in Hawkesbury-Nepean Valley	<u>118</u>
Connect gas suppliers to eastern gas markets	National	Constrained East Coast gas supply	<u>119</u>

Infrastructure Priority List by state

National

Proposed project/initiative	Group	Problem description	Page
Inland Rail (Melbourne to Brisbane via inland NSW)	Priority Project	Freight connectivity Melbourne-Brisbane	<u>35</u>
Network Optimisation Portfolio	High Priority Initiative	National urban road network congestion	<u>51</u>
National Freight and Supply Chain Strategy	High Priority Initiative	National strategic planning for future freight initiatives	<u>55</u>
Preserve corridor for East Coast High Speed Rail	High Priority Initiative	Future connectivity between east coast capital cities	<u>62</u>
Advanced Train Management System implementation on ARTC network	Priority Initiative	Rail freight capacity constraint on ARTC network	<u>107</u>
Connect gas suppliers to eastern gas markets	Priority Initiative	Constrained East Coast gas supply	<u>119</u>

New South Wales

Proposed project/initiative	Group	Problem description	Page
M4 Motorway upgrade (Parramatta to Lapstone)	High Priority Project	Connectivity in outer western Sydney	<u>20</u>
WestConnex	High Priority Project	Sydney inner west road congestion	<u>21</u>
Western Sydney Airport	High Priority Project	Sydney aviation capacity	<u>25</u>
The Northern Road Upgrade	Priority Project	Access to south-west Sydney growth area and construction access to Western Sydney Airport	<u>28</u>
Bringelly Road Upgrade Stage 2	Priority Project	Access to south-west Sydney growth area and construction access to Western Sydney Airport	<u>29</u>
Sydney Metro: City and Southwest	High Priority Initiative	Sydney rail network capacity	<u>38</u>
Sydney Gateway	High Priority Initiative	Connection from WestConnex to Sydney Airport and Port Botany	<u>39</u>
Bus Rapid Transport: Northern Beaches, Parramatta Road, and Victoria Road	High Priority Initiative	Sydney corridor congestion: Northern Beaches, Parramatta Road, Victoria Road	<u>40</u>
Southern Sydney to CBD public transport enhancement	High Priority Initiative	Connection between inner south urban growth area and Sydney CBD	<u>41</u>
Sydney Metro West: mass transit between Parramatta and Sydney CBD	High Priority Initiative	Connectivity between Parramatta and Sydney CBD	<u>42</u>
Port Botany freight rail duplication	High Priority Initiative	Sydney Port Botany rail freight capacity	<u>52</u>
Chullora Junction upgrade	High Priority Initiative	Sydney freight rail network capacity	<u>53</u>
Preserve corridor for Western Sydney Airport fuel pipeline	High Priority Initiative	Future fuel connection to Western Sydney Airport	<u>56</u>

Proposed project/initiative	Group	Problem description	Page
Preserve corridor for Western Sydney Freight Line and Intermodal Terminal access	High Priority Initiative	Future freight rail capacity to Eastern Creek intermodal and Sydney Main West Line	<u>57</u>
Preserve corridor for Lower Hunter freight rail realignment	High Priority Initiative	Future freight rail bypass of Newcastle urban area	<u>58</u>
Preserve corridor for Outer Sydney Orbital road and rail/M9	High Priority Initiative	Future connectivity between Western Sydney and Central Coast/Illawarra	<u>59</u>
Preserve corridor for Western Sydney Airport rail connection	High Priority Initiative	Future rail connection to Western Sydney Airport	<u>60</u>
Central Station redevelopment – rail and station infrastructure	Priority Initiative	Connection between urban and intercity rail, buses, light rail and metro	<u>63</u>
Active transport (walking and cycling) access to Sydney CBD	Priority Initiative	Inner city access to Sydney CBD	<u>64</u>
F6 extension	Priority Initiative	Connectivity between Wollongong-Sydney CBD	<u>65</u>
Public transport access to Parramatta CBD	Priority Initiative	Public transport access to Parramatta CBD	<u>66</u>
Western Harbour Tunnel and Beaches Link	Priority Initiative	Sydney road network cross-harbour and Northern Beaches connectivity	<u>67</u>
Newell Highway upgrade	Priority Initiative	Melbourne-Brisbane connectivity	<u>79</u>
Pacific Highway (A1) – Coffs Harbour Bypass	Priority Initiative	Sydney-Brisbane connectivity	<u>80</u>
Pacific Highway (M1) – extension to Raymond Terrace	Priority Initiative	Sydney-Brisbane connectivity	<u>81</u>
Western Sydney Infrastructure Plan	Priority Initiative	Access to Western Sydney and Western Sydney Airport	<u>82</u>
Freight rail access to Port Kembla	Priority Initiative	Freight rail access to Port Kembla	<u>83</u>
Moorebank Intermodal Terminal road connection upgrade	Priority Initiative	Road network connectivity to Moorebank Intermodal Terminal	<u>84</u>
New England Highway upgrade	Priority Initiative	Sydney-Brisbane connectivity	<u>85</u>
Western Sydney Airport public transport connection	Priority Initiative	Access to Western Sydney Airport	<u>86</u>
Northern Sydney Freight Corridor Stage 2 (additional track West Ryde to Rhodes and Thornleigh to Hornsby)	Priority Initiative	Sydney freight rail network capacity	<u>87</u>
Southern Sydney Freight Line upgrade	Priority Initiative	Sydney South to Moorebank rail freight capacity	<u>88</u>
Lower Hunter freight corridor construction	Priority Initiative	Freight rail capacity constraint in suburban Newcastle	<u>89</u>
Newcastle–Sydney and Wollongong–Sydney rail line upgrades	Priority Initiative	Connectivity between Newcastle, Wollongong and Sydney CBD	<u>90</u>
Hawkesbury–Nepean Valley flood management	Priority Initiative	Flood mitigation in Hawkesbury-Nepean Valley	<u>118</u>

Victoria

Proposed project/initiative	Group	Problem description	Page
Melbourne Metro Rail	High Priority Project	Melbourne rail network capacity	<u>22</u>
M80 Ring Road upgrade	High Priority Project	Melbourne M80 Western Ring Road congestion	<u>23</u>
Murray Basin Rail Project	Priority Project	Freight rail connection between north-west Victoria and the ports of Geelong and Portland	<u>30</u>
Hoddle Street capacity upgrade	High Priority Initiative	Connectivity between Eastern Freeway and Melbourne CBD	<u>43</u>
Cranbourne & Pakenham rail lines upgrade	High Priority Initiative	Melbourne outer south east suburbs access to CBD	<u>44</u>
Road connection between West Gate Freeway and Port of Melbourne and CBD North	High Priority Initiative	Connectivity between West Gate Freeway and Port of Melbourne and CBD North	<u>45</u>
Improve the connection between Eastern Freeway and CityLink	High Priority Initiative	Connectivity between Melbourne's Eastern Freeway and CityLink	<u>46</u>
Preserve corridor for Melbourne Outer Metropolitan Ring Road/E6	High Priority Initiative	Future connectivity between Melbourne outer south west and outer north	<u>61</u>
Melbourne level crossings removal	Priority Initiative	Melbourne urban road network congestion	<u>68</u>
Melbourne Airport to CBD public transport capacity	Priority Initiative	Access to Melbourne airport	<u>69</u>
Melton Rail Line upgrade	Priority Initiative	Melbourne outer western suburbs access to CBD	<u>70</u>
Complete Metro Ring Road from Greensborough to the Eastern Freeway	Priority Initiative	Connectivity between M80 and Eastlink in outer NE Melbourne	<u>71</u>
Melbourne outer northern suburbs to CBD capacity upgrade	Priority Initiative	Melbourne outer northern suburbs access to CBD	<u>72</u>
Melbourne Airport third runway	Priority Initiative	Melbourne aviation capacity	<u>91</u>
Melbourne container terminal capacity enhancement	Priority Initiative	Melbourne container terminal capacity	<u>92</u>

Queensland

Proposed project/initiative		Problem description	Page
Ipswich Motorway Rocklea–Darra Stage 1c	High Priority Project	Southern Brisbane–Ipswich road network capacity	<u>24</u>
M1 Pacific Motorway – Gateway Motorway merge upgrade	Priority Project	Road network capacity Brisbane–Gold Coast	<u>27</u>
Bruce Highway Upgrade – Cooroy to Curra Section C	Priority Project	Road network capacity Wide Bay-Burnett region	<u>31</u>
Bruce Highway Upgrade – Mackay Ring Road Stage 1	Priority Project	Road network capacity Mackay region	<u>32</u>

Proposed project/initiative		Problem description	Page
M1 Pacific Motorway upgrade – Mudgeeraba to Varsity Lakes	Priority Project	M1 Pacific Motorway capacity	<u>33</u>
Cross River Rail (A rail solution to support an integrated passenger transport network in South- East Queensland)	High Priority Initiative	Brisbane CBD public transport capacity	<u>47</u>
Ipswich Motorway Rocklea–Darra (remaining sections)	High Priority Initiative	Southern Brisbane–Ipswich road network capacity	<u>48</u>
Port of Brisbane dedicated freight rail connection	High Priority Initiative	Freight rail access to Port of Brisbane	<u>54</u>
Brisbane to Gold Coast transport corridor upgrades	Priority Initiative	Brisbane to Gold Coast transport capacity	<u>73</u>
Beerburrum to Nambour rail upgrade	Priority Initiative	Queensland north coast rail congestion	<u>93</u>
Cunningham Highway – Yamanto to Ebenezer/ Amberley upgrade	Priority Initiative	Cunningham Highway – Yamanto to Ebenezer/ Amberley congestion	<u>94</u>
Bruce Highway upgrade	Priority Initiative	Queensland coastal cities connectivity	<u>95</u>
Mount Isa–Townsville rail corridor upgrade	Priority Initiative	Mt Isa-Townsville rail capacity	<u>96</u>
Gladstone Port land and sea access upgrade	Priority Initiative	Land and sea access to Port of Gladstone	<u>97</u>
Preserve corridor for Salisbury to Beaudesert rail connection	Priority Initiative	Future urban rail connection to Beaudesert	<u>108</u>
Lower Fitzroy River water infrastructure development	Priority Initiative	Opportunity to develop industry and agriculture in Fitzroy region	<u>112</u>

Western Australia

Proposed project/initiative	Group	Problem description	Page
Perth Freight Link	High Priority Project	Perth freight network capacity	<u>26</u>
Perth CBD – north corridor capacity	High Priority Initiative	Perth northern corridor capacity	<u>49</u>
Perth major east-west and southern corridor capacity upgrades	Priority Initiative	Perth urban road network capacity	<u>74</u>
Perth Airport third runway	Priority Initiative	Perth airport capacity	<u>98</u>
Perth container terminal capacity enhancement	Priority Initiative	Perth container terminal capacity	<u>99</u>
Improve road access to remote WA communities	Priority Initiative	Constrained road access to remote WA communities	<u>109</u>
Wellington Dam water infrastructure development	Priority Initiative	Opportunity to develop industry and agriculture in south-west Western Australia	<u>113</u>

South Australia

Proposed project/initiative	Group	Problem description	Page
Adelaide – Tarcoola Rail Upgrade Acceleration	Priority Project	Rail reliability and axle loadings on the interstate rail network	<u>34</u>
Eyre Infrastructure Project (Iron Road)	Priority Project	Eyre Peninsula freight capacity	<u>36</u>
Gawler Line rail upgrade	High Priority Initiative	Adelaide outer north east suburbs access to CBD	<u>50</u>
Adelaide north-south corridor upgrade (remaining sections)	Priority Initiative	Adelaide north-south urban road network capacity	<u>75</u>
AdeLINK Tram Network (Adelaide tram network expansion)	Priority Initiative	Adelaide public transport capacity	<u>76</u>
Strzelecki Track upgrade and mobile coverage	Priority Initiative	Access to Cooper Basin (South Australia)	<u>100</u>
South Australian regional mineral port development	Priority Initiative	South Australia bulk port capacity	<u>101</u>
Sturt Highway High Productivity Vehicle capacity enhancement, including Truro bypass	Priority Initiative	South Australia road freight network capacity	<u>102</u>
Gawler Craton rail access	Priority Initiative	Freight rail connection to Gawler Craton mineral province	<u>103</u>
Melbourne–Adelaide–Perth rail upgrade	Priority Initiative	Freight connectivity Melbourne-Perth	<u>104</u>
Northern Adelaide Plains water infrastructure development	Priority Initiative	Opportunity to develop industry and agriculture in Northern Adelaide region	<u>114</u>

Tasmania

Proposed project/initiative	Group	Problem description	Page
Hobart Science and Technology Precinct	Priority Project	Opportunity to stimulate economic growth and productivity in Tasmania	<u>37</u>
Derwent River crossing capacity	Priority Initiative	Tasmania Derwent River crossing capacity	<u>105</u>
Burnie to Hobart freight corridor strategy	Priority Initiative	Tasmania freight network planning	<u>106</u>
Tasmanian irrigation schemes (Tranche 2)	Priority Initiative	Opportunity for improved agricultural water supply in Tasmania	<u>115</u>
Tasmanian sewerage infrastructure upgrades	Priority Initiative	Tasmanian wastewater treatment environmental compliance	<u>117</u>

ACT

Proposed project/initiative	Group	Problem description	Page
Canberra CBD to north corridor	Priority Initiative	Canberra CBD to north transport corridor congestion	<u>77</u>
Canberra public transport improvements	Priority Initiative	Canberra public transport capacity	<u>78</u>

Northern Territory

Proposed project/initiative	Group	Problem description	Page
Provision of enabling infrastructure and essential services to remote NT communities (Wadeye, Tiwi Islands, Jabiru)	Priority Initiative	Infrastructure services for remote NT communities	<u>110</u>
Upgrade Tanami Road	Priority Initiative	Constrained access to the Tanami region	<u>111</u>
Darwin region water supply infrastructure upgrades	Priority Initiative	Darwin water supply security	<u>116</u>

Project and Initiative Summaries

M4 Motorway upgrade (Parramatta to Lapstone)



Location Western Sydney, NSW

Indicative delivery timeframe Near term (0–5 years)

Proponent

NSW Government

Problem

Demand on the M4 Motorway in Sydney routinely exceeds capacity during peak periods, resulting in congestion and travel delays. Transport modelling undertaken for the Australian Infrastructure Audit 2015 noted that the corridor had a volume to capacity ratio of 1.1 in 2011 for both morning and afternoon peaks.

Greater Western Sydney currently accounts for almost 10% of Australia's population, and the M4 provides the area with an important east-west connection. The population of the main M4 catchment area is expected to grow by 44.5%, or around 490,000 people, between 2011 and 2031. Nearby developments such as the Western Sydney Airport at Badgerys Creek, and the Western Sydney Employment Area, are also likely to add to demand on the corridor. Without action, the impact of the current capacity constraint will increase over time.

Project description

The project encompasses a range of measures aimed at making better use of the existing M4 infrastructure, and increasing capacity, along a 35 km section of the M4 between Mays Hill near Parramatta, and Lapstone at the base of the Blue Mountains. The 'better use' components include:

- The introduction of Intelligent Transport System measures, including ramp signals, vehicle detection devices, and electronic signage
- · Upgrades to entry and exit ramps
- New freight bypass lanes at three entry ramps, westbound at the M7 and the Prospect Highway, and eastbound at Roper Road, Colyton
- A new communications and power 'backbone' along the motorway.

The project also includes the construction of an additional lane in each direction in the median along a 4.3 km section of the motorway between the Roper Road and Westlink M7 interchanges.

Economic, social and environmental value

Economic benefits of the project include improving travel time reliability and safety, and increasing traffic throughout, both of which will boost productivity. Other benefits include reduced vehicle emissions, and enhanced travellers' journey decision making by providing real-time information on road conditions. The proponent's stated benefit-cost ratio is 5.3 (7% real discount rate).

Capital cost of initiative stated by proponent (2015 business case) \$853 million (P90, nominal, undiscounted) | Australian Government contribution \$60 million through the Asset Recycling Initiative | State Government contribution \$400 million | Private sector contribution N/A

WestConnex



Location Sydney, NSW

Indicative delivery timeframe Near term (0–5 years)

Proponent

NSW Government

Problem

The Australian Infrastructure Audit 2015 projected that, in the absence of interventions to address the problem, the cost of congestion in the Sydney/Newcastle/Wollongong area would more than double from \$5.6 billion in 2011 to \$14.8 billion in 2031. The Audit noted that a number of corridors in Sydney's inner west, including the M5, M4 and key arterials such as King Georges Road and Parramatta Road, are severely congested now, and will become more congested in the future in the absence of additional capacity.

Project description

WestConnex is a program of interconnected road projects that involves:

- Stage 1: Widening the existing M4 Motorway and extending the motorway from Strathfield towards Sydney's inner-west (13.8 km, including a 5.5 km tunnel)
- Stage 2: Widening the M5 (surface section east of Kings Georges Road) and duplicating the tunnels to St Peters (11 km, including a 9 km tunnel)

- Stage 3: Linking the two motorways with a new tunnel under the inner western suburbs of Sydney (9.2 km tunnel)
- 'Sydney Gateway' road improvements between an interchange at St Peters and the Airport precinct, which would also provide some improvement in access to Port Botany.

WestConnex was the major priority project put forward in Infrastructure NSW's 2012 State Infrastructure Strategy, and was subsequently identified in the NSW Government's Long Term Transport Master Plan as an immediate priority in a longer term vision to complete the critical links in Sydney's motorway network.

Economic, social and environmental value

The primary benefits of the project are travel time savings and vehicle operating cost savings, constituting a combined 86% of benefits. However, other benefits include reduced vehicle emissions and improved community wellbeing. The proponent's stated benefitcost ratio for the project is 1.7 (7% real discount rate), not including wider economic benefits.

Capital cost of initiative stated by proponent (2015 business case) \$16.8 billion (P50, nominal, undiscounted) | Australian Government contribution \$1.5 billion grant; \$2 billion loan for Stage 2 | State Government contribution Commercial-in-Confidence | Private sector contribution Commercial-in-Confidence

Melbourne Metro Rail



Location

Central Melbourne, Victoria

Medium term (5-10 years)

Indicative delivery timeframe

Proponent

Victorian Government

Problem

Rail services into central Melbourne are becoming capacity constrained, particularly during peak periods. Melbourne's future population growth will expand the city's urban footprint into greenfield areas in the north, west and south-east, while employment will grow most strongly in central Melbourne. The Australian Infrastructure Audit 2015 found that major rail corridors, including the Craigieburn, Sunbury, Werribee and Cranbourne/Pakenham lines, are projected to reach or exceed crush capacity by 2031. Without investment to improve the capacity of the rail network, growing demand for rail services into and around central Melbourne will exacerbate capacity constraints, leading to passenger crowding and network reliability issues.

Project description

The project will connect the Sunbury line with the Cranbourne/Pakenham line through twin 9 km rail tunnels running from South Kensington to South Yarra under the CBD. This would form a new line which would operate independent of the rest of the network, and release capacity for more services into the CBD on other lines through the city loop. The overall capacity of the network would increase by over 39,000 passengers for each two-hour peak period. The project includes five new underground stations – Arden, Parkville, Domain, and two new stations in the CBD with connections to the broader rail network. The project is expected to catalyse urban renewal in the Arden-Macaulay precinct (north-west of the CBD) in particular. This precinct has the potential to accommodate 25,000 residents and 43,000 jobs.

Economic, social and environmental value

Economic benefits include public transport user and road user benefits, and broader societal benefits such as crash cost savings and environmental benefits. Infrastructure Australia expects additional unquantified benefits, such as those associated with urban renewal, will be realised by the project. The proponent's stated benefit-cost ratio for the project is 1.1 (7% real discount rate), or 1.5 when wider economic benefits are included.

Capital cost of initiative stated by proponent (2016 business case) \$10.2 billion (P50, nominal, undiscounted) | Australian Government contribution N/A | State Government contribution The Victorian Government has committed to funding the project independent of any Australian Government funding contribution. | Private sector contribution to be determined

M80 Ring Road upgrade



Location Melbourne, Victoria

Indicative delivery timeframe

Near term (0–5 years)

Proponent

Victorian Government

Problem

The M80 connects major population centres in Melbourne's north and west to the CBD and elsewhere, and facilitates access to Melbourne's port, airports and other major road corridors. Congestion on the M80 is increasing average travel times, imposing significant costs on business. Congestion also produces negative social and environmental impacts as a result of increased travel time and fuel consumption, and higher vehicle crash rates. Projected population and economic growth in centres to the west and north of Melbourne are likely to increase these problems.

The Australian Infrastructure Audit 2015 identified capacity constraints along the corridor as a significant problem, and found that, without additional investment, the annual cost of congestion along the corridor is projected to grow from \$86 million in 2011 to \$161 million in 2031.

Project description

The project proposes to complete three sections of the freeway that have yet to be upgraded. These are (i) Plenty Road to Greensborough Highway (2.4 km); (ii) Princes Freeway to Western Highway (7.9 km); and (iii) Sydney Road to Edgars Road (4 km). The project would widen the existing road to a minimum of three through-lanes in each direction with auxiliary lanes between interchanges where required, and implement intelligent transport system infrastructure.

Economic, social and environmental value

The project will deliver significant economic benefits in the form of travel time savings, with associated social and environmental benefits including reduced fuel consumption costs and lower vehicle crash rates. The proponent's stated benefit-cost ratio for the current project is 2 (7% real discount rate).

Ipswich Motorway Rocklea–Darra Stage 1c



Location

Western Brisbane, Queensland

Indicative delivery timeframe Near term (0–5 years)

Proponent

Queensland Government

Problem

The Ipswich Motorway is one of the three busiest freight corridors in Queensland. It is the principal corridor between Ipswich and Brisbane, and is a nationally recognised Key Freight Route. The section between Rocklea and Darra is used by 10,000–12,000 heavy vehicles a day, representing 15–18% of all traffic. The road forms a strategically significant link within metropolitan Brisbane, connecting the western sections of the Ipswich Motorway and the Centenary Motorway to the Brisbane Urban Corridor. The Australian Infrastructure Audit 2015 projected that, in the absence of intervention, the direct cost of congestion along the Ipswich Motorway corridor would increase from around \$42 million in 2011 to \$139 million (2011) in 2031.

Project description

The project constitutes:

- An additional lane in both directions along an approximately 2 km section of the motorway between Oxley Road and Suscatand Street
- The closure of three motorway ramps
- The upgrade of three ramps
- A new one-way southern service road from Boundary Road to Factory Road
- Pavement rehabilitation along the section between Granard Road and Suscatand Street
- Upgrade of bridges over Oxley Creek and Little Doris Creek.

Economic, social and environmental value

The Project's major benefits will be in travel time and vehicle operating cost savings. The proponent's stated benefit-cost ratio is 3.8 (7% real discount rate).

Western Sydney Airport



Location Western Sydney, NSW

Indicative delivery timeframe

Medium term (5–10 years)

Proponent

Australian Government

Problem

Sydney is Australia's primary aviation gateway, accounting for around 40% of international services, 43% of domestic services, and 45% of international air freight. Demand for airport services in the Sydney basin is forecast to grow beyond the capacity of Sydney's Kingsford Smith Airport by the 2030s. Airports are critical economic assets, and constraints on Sydney's airport capacity would increase the cost of accessing Sydney, with a significant negative impact on Australia's economy and national productivity.

The Australian Infrastructure Audit 2015 identified the need for additional airport capacity in the Sydney basin, and the February 2016 Infrastructure Priority List included development of a Western Sydney Airport as a High Priority Initiative.

Project description

The project includes initial construction of a 3,700 m runway with a parallel taxiway, and associated aviation terminal infrastructure and support precincts. Subsequent stages of development would ensure the Airport could meet longer-term passenger demand in the Sydney basin. The final design of Stage 1 and the nature and timing of subsequent developments will be at the discretion of the airport operator, subject to contractual and regulatory requirements.

Economic, social and environmental value

Addressing the identified capacity constraint would improve productivity and facilitate broader economic impacts such as increased trade, tourism and foreign direct investment, and wider economic benefits such as agglomeration benefits derived from improved connectivity between businesses (including the clustering of airport businesses). The proponent's stated benefit-cost ratio is 1.9 (7% real discount rate).

Perth Freight Link



Location Perth, WA

Indicative delivery timeframe Near term (0–5 years)

Proponent WA Government

Problem addressed

Perth Freight Link seeks to address the following problems:

- Growth in freight traffic on mixed use routes
- Sub-optimal access to Fremantle port and key strategic industrial areas.

There is currently heavy congestion and significant delays to freight journeys for many sections of the route. Impacts of this include inefficient freight movement which limits productivity and economic growth, higher than average crash rates involving heavy vehicles and diminished amenity for the nearby community.

Project description

The Perth Freight Link project seeks to remove the 'missing link' to Fremantle Port through the provision of a high standard road freight link. This includes extension of Roe Highway west of the Kwinana Freeway to become the principal east-west freight link, and a high standard freight connection between Roe Highway and Fremantle Port via Stock Road, Leach Highway and Stirling Highway.

Note: This project summary, including the map above, is based on the business case submitted to Infrastructure Australia in 2015. Subsequent to Infrastructure Australia's assessment, the WA Government has advised it is considering alternative route options between the end of the Roe Highway at Stock Road and Fremantle Port.

Economic, social and environmental value

The Perth Freight Link would deliver economic and social benefits, through reducing delays for port-related traffic and general traffic. The benefit-cost ratio stated by the proponent is 2.5 (7% real discount rate).

M1 Pacific Motorway – Gateway Motorway merge upgrade



Location South-east Brisbane, Queensland

Indicative delivery timeframe Near term (0–5 years)

Proponent

Queensland Government

Problem

The Pacific Motorway between Tugun and Brisbane is the busiest road corridor in Queensland, with an average of 78,500 vehicles travelling southbound per day. The corridor, which links Brisbane to Logan, the Gold Coast and New South Wales, is a key element of South East Queensland's road transport network and is part of the National Land Transport Network. During peak periods, the corridor is heavily congested between Eight Mile Plains and Springwood, where the Pacific and Gateway Motorways merge, and seven lanes of traffic merge into a three-lane carriageway.

The capacity constraint on the road network between Brisbane and the Gold Coast was identified as a problem in the Australian Infrastructure Audit 2015, which projected that, in the absence of intervention, the cost of congestion on the Pacific Motorway (City to Beenleigh) corridor would increase from \$75 million in 2011 to \$374 million in 2031.

Project description

The project would provide additional capacity along a 3.8 km southbound section of the Pacific Motorway, to reduce congestion caused by lane merges. This will include widening the Underwood Road overpass to accommodate five lanes of traffic.

Economic, social and environmental value

The project will deliver travel time and vehicle operating cost savings, improve journey reliability, and reduce vehicle accident rates. The proponent's stated benefit-cost ratio is 6.3 (7% real discount rate).

The Northern Road Upgrade



Location Western Sydney, NSW

Indicative delivery timeframe Near term (0–5 years)

Proponent NSW Government

Problem addressed

Growth in south-west Sydney is being driven by employment growth associated with the Western Sydney Priority Growth Area, and population growth associated with the South West Priority Land Release Areas. Development of the Western Sydney Airport at Badgerys Creek is expected to accelerate this growth. While current levels of service on the road are adequate, significant growth over the next 20 years will lead to higher levels of congestion, poor accessibility and adverse safety conditions for users, particularly during peak periods. The future operation of the Western Sydney Airport will exacerbate these issues.

Project description

The Northern Road project involves staged upgrades to 35 km of road, with construction expected to be completed by 2020. The project will increase capacity and improve journey times with additional lanes and intersection improvements, as well as dedicated northsouth bus lanes and other bus priority measures. The project also provides for cyclists and pedestrians. The Northern Road will also play an important role in providing access to the construction site of the Western Sydney Airport at Badgerys Creek. This project is part of the broader Western Sydney Infrastructure Plan, which is listed on the Infrastructure Priority List as a Priority Initiative.

Economic, social and environmental value

The major source of benefit for the project is travel time savings, followed by safety benefits, vehicle operating cost savings and journey time reliability improvements. The proponent's stated benefit-cost ratio is 1.32 (7% real discount rate).

Bringelly Road Upgrade Stage 2



Location Western Sydney, NSW

Indicative delivery timeframe Near term (0–5 years)

Proponent NSW Government

Problem

Growth in south-west Sydney is being driven by employment growth associated with the Western Sydney Priority Growth Area, and population growth associated with the South West Priority Land Release Areas. Development of the Western Sydney Airport at Badgerys Creek is expected to accelerate this growth. Average daily traffic on Bringelly Road, a primary east-west route connecting the region with Sydney's motorway network, is estimated to increase by over 300% from current levels as the region develops. In the absence of additional capacity, this would lead to increased congestion, adverse safety outcomes, and poor connections between bus services and the south-west rail link at Leppington.

Project description

The proposed project complements an earlier project to upgrade Bringelly Road between Camden Valley Way and King Street (Stage 1), which was previously listed on the Infrastructure Priority List and is now under construction. The Stage 2 project would upgrade the remaining 4.3 km of two-lane rural road between King Street and The Northern Road to a four-lane divided carriageway with a wide central median. This would allow for future widening to six lanes if required. The project is part of a broader program of works, the Western Sydney Infrastructure Plan, which includes significant upgrades to The Northern Road, and development of the M12 Motorway linking The Northern Road and the M7. The broader program is listed as a Priority Initiative on the Infrastructure Priority List.

Economic, social and environmental value

Travel time and vehicle operating cost savings constitute the majority of projected benefits. The proponent's stated benefit-cost ratio is 2.8 (7% real discount rate).

Murray Basin Rail Project



Location North-west Victoria

Indicative delivery timeframe Near term (0–5 years)

Proponent

Victorian Government

Problem

Capacity on the Murray Basin rail network is constrained by the mixture of broad and standard gauge lines, a 19 tonne axle load limit, and declining levels of service due to a historical underspend on maintenance. This results in fragmentation and capacity constraints, reducing network accessibility and flexibility. As a consequence, transit times for rail freight are longer and less reliable than those for road freight, and costs to business are higher. Increasing rail freight costs have resulted in an increase in road freight in the Murray Basin region, which has a detrimental impact on grower returns, regional amenity and the environment.

Project description

Rail network improvements include standardisation of the existing broad gauge rail, and axle load upgrades from 19 to 21 tonnes, for the Mildura, Sea Lake and Manangatang lines. It will also include re-instatement and upgrade of the standard gauge rail line between Ararat and Maryborough, and conversion of the rail line between Gheringhap and Maryborough to dual gauge.

Economic, social and environmental value

The majority of benefits are economic, in the form of transport cost savings. Other benefits include reductions in noise and greenhouse gas emissions. The proponent's stated benefit-cost ratio is 1.7 (7% real discount rate).

Bruce Highway Upgrade – Cooroy to Curra Section C



Problem addressed

The Bruce Highway is part of the National Land Transport Network, and forms part of the Queensland Government's Priority Freight Network. The section between Cooroy and Curra, in the Wide Bay–Burnett region, carries over 15,000 vehicles per day, but is constrained by limited capacity, poor safety conditions and vulnerability to flooding. These constraints are expected to increase as Queensland's freight task potentially doubles over the next 20 years, and population of the Wide Bay–Burnett region continues to grow.

Location Wide Bay–Burnett region, Queensland

Indicative delivery timeframe Near term (0–5 years)

Proponent

Queensland Government

Project description

The project is part of a package of works to upgrade and realign 61 km of the Cooroy to Curra section of the Highway. The Section C South project will construct an 8.8 km four lane dual carriageway highway and a 1.8 km single carriage highway along a new alignment. The project will provide safer and more efficient travel along the Bruce Highway and will minimise disruption and road closures from flooding.

This project forms part of a broader initiative to upgrade the Bruce Highway, which is listed as a Priority Initiative on the Infrastructure Priority List.

Economic, social and environmental value

Travel time and vehicle operating cost savings make up the majority of projected benefits. The proponent's stated benefit-cost ratio is 2.2 (7% real discount rate).

Bruce Highway Upgrade – Mackay Ring Road Stage 1



Location Mackay, Queensland

Indicative delivery timeframe Near term (0–5 years)

Proponent

Queensland Government

Problem addressed

The Bruce Highway is part of the National Land Transport Network and forms part of the Queensland Government's Priority Freight Network. In the Mackay region, the highway acts as an urban arterial connection, a primary access route to the Port of Mackay, and the major connection between Queensland's coastal cities. Congestion in the urban corridor is reducing the efficiency of freight movements, while high numbers of large commercial vehicles travelling through the city's urban areas are impacting on local safety and amenity. Future population and freight growth will exacerbate these problems, with traffic modelling indicating that, by 2021, the city's bridges will become capacity constrained.

Project description

The Mackay Ring Road Stage 1 project proposes to construct a two-lane, 11.3 km highway bypass of Mackay. This would provide faster journeys for through traffic, and reduce congestion in Mackay's urban area. The project will require the construction of 10 bridges, and major intersection upgrades. The bypass will have 1-in-100 year flood immunity, and is expected to carry approximately 3.65 million vehicles per year. This project is part of the Bruce Highway Upgrade program, which is listed as a Priority Initiative on the Infrastructure Priority List.

Economic, social and environmental value

The largest benefit of the project is travel time savings, primarily for users who will avoid congested urban areas in Mackay. The project would also yield significant crash cost savings, as the existing route is prone to accidents due to the large number of heavy vehicles moving through local areas. The proponent's stated benefit-cost ratio is 3.3 (7% real discount rate).

M1 Pacific Motorway upgrade – Mudgeeraba to Varsity Lakes



Location Gold Coast, Queensland

Indicative delivery timeframe Near term (0–5 years)

Proponent

Queensland Government

Problem

The Mudgeeraba to Varsity Lakes section of the M1 Pacific Motorway carries up to 90,000 vehicles per day, a volume which exceeds the practical capacity of the current four lane motorway. Traffic demand for this section of the motorway is growing, and is expected to exceed 110,000 vehicles per day by 2036. The Australian Infrastructure Audit 2015 projected that, in the absence of intervention, the cost of congestion in the corridor would increase from \$26 million in 2011 to \$125 million in 2031. The freight task on this section, currently 7,000 heavy vehicles per day, is growing at 3–4% per year.

Project description

The project will widen a 5 km section of the motorway from four to six lanes between Mudgeeraba Road/Robina Town Centre Drive (Mudgeeraba) and Reedy Creek Road (Varsity Lakes). This will involve widening the motorway into the central median area, providing a central concrete barrier, reconstructing the Mudgeeraba Creek bridges, and lengthening entry and exit ramps. The upgrade proposal includes installation of managed motorway enabling technologies which are proposed to become operational when the entire Nerang to Tugun section is upgraded. The project would provide an additional 50% in traffic capacity, which is expected to address congestion on the section for the next 15–20 years.

Economic, social and environmental value

Economic benefits include travel time and vehicle operating cost savings, together with crash cost savings and residual value. Environmental benefits would be realised through lower air pollution. The benefit-cost ratio stated by the proponent is 3.5 (7% real discount rate).

Adelaide – Tarcoola Rail Upgrade Acceleration



Location Adelaide–Tarcoola, SA

Indicative delivery timeframe Near term (0–5 years)

Proponent

Australian Rail Track Corporation

Problem

Rail dominates freight movements between Perth and Australia's eastern states, with approximately 80% of the land-based freight market serviced by the interstate railway network. Rail freight volume is projected to increase by two-thirds by 2030, placing additional pressure on the east-west railway corridor. At the national level, the Australian Infrastructure Audit 2015 projected the value-add of rail freight services to grow from \$5.4 billion in 2011 to \$9.5 billion by 2031. Without adequate investment, travel time and reliability for the interstate rail freight network will deteriorate as a result of congestion, poor alignments, and asset age. This, in turn, will reduce national productivity.

Upgrading rail infrastructure along the Melbourne– Adelaide–Perth corridor is currently listed as a priority initiative on the Infrastructure Priority List. The initiative proposes upgrades along the corridor to accommodate higher axle loads, via enhanced network capacity and speed, and improved train management systems.

Project description

The project represents an acceleration of phase one of the 25-year long, phased re-railing program outlined in Australian Rail and Track Corporation's Asset Management Plan. The project will bring forward the upgrade of 600 km of track from 23 Tonne Axle Load (TAL) capabilities, to 25 TAL, to completion by 2019. This will support the operation of double-stacked trains at speeds of up to 115 km/hour between Adelaide and Tarcoola, north-west of Port Augusta.

Economic, social and environmental value

The project will deliver economic benefits through reduced travel time for interstate freight, and increased reliability on the east-west rail corridor. The proponent's stated benefit-cost ratio for the project is 1.1 (7% real discount rate).
Inland Rail

Melbourne to Brisbane via inland NSW



Location Melbourne to Brisbane via inland NSW

Indicative delivery timeframe

Longer term (10–15 years)

Proponent

Australian Government

Problem

Demand for freight transport in the Melbourne to Brisbane corridor is expected to grow substantially over coming decades, from approximately 4.9 million tonnes in 2016 to around 13 million tonnes, or 1.1 million containers (Twenty-Foot Equivalent Units), by 2050. This increased demand will require additional freight capacity in the corridor.

The current rail connection between Melbourne and Brisbane, via Sydney, cannot offer the transit times and reliability required by industry. This is largely a function of poor rail alignments and capacity constraints, particularly on the section between Sydney and Brisbane, and delays on freight transiting the Sydney metropolitan area. The current road connection between Melbourne and Brisbane via inland NSW offers faster transit times than rail via Sydney. However, much of the road is two-lane single carriageway, with limited passing lanes. Without additional capacity, transit times on this corridor will increase as freight volumes rise.

Project description

Construction of a freight rail line of approximately 1,700 km between Melbourne and Brisbane via inland Victoria, New South Wales and Queensland. Around 40% of the proposed route would be constructed as new railway, or converted from narrow gauge to dual gauge in Queensland, maintaining the existing narrow gauge connections between Brisbane and regional centres. The remainder of the route would utilise and where necessary upgrade existing standard gauge track in Victoria and NSW.

Trains operating the service would have capacity to carry up to 485 containers (TEU) when capacity for longer, double-stacked trains is introduced over time.

Economic, social and environmental value

Key benefits of the proposed project include improved productivity, improved network efficiency and reliability, shorter transit times, safety improvements, sustainability benefits, and reduced lifecycle costs. The proponent's stated benefit-cost ratio is 1.1 (7% real discount rate).

Capital cost of initiative stated by proponent (2016 business case) \$9.89 billion (P50, nominal, undiscounted) | Australian Government contribution: pre construction and corridor acquisitions \$893.7 million; construction to be determined | State Government contribution to be determined | Private sector contribution to be determined

Eyre Infrastructure Project (Iron Road)



Location Eyre Peninsula, SA

Indicative delivery timeframe Near term (0–5 years)

Proponent Iron Road Limited

Opportunity

Iron Road Limited, a publicly listed company, is proposing to develop an iron ore mine in South Australia's Central Eyre Peninsula. When operating at full capacity, the mine is expected to produce 24 million tonnes per annum of 67% iron concentrate ore. The project would facilitate the transport of the ore from the mine to the coast, and its export through a deep water port facility at Cape Hardy.

Project description

The company is proposing to develop a deep water port at Cape Hardy, and a 148 km heavy-haul, standard gauge rail connection between the mine and the port. The proposed infrastructure would be available for other users ('open access'), including grain exporters and other miners in the region, and the new rail line could potentially be connected to the National Rail Network.

Development of the rail and port infrastructure is subject to the mine development proceeding. The project is supported by the South Australian Government.

Economic, social and environmental value

Without the port and rail infrastructure, the economic activity associated with the mine, and the royalties and tax receipts expected to be derived from it, would not be realised.

The public net benefit to Australia is estimated by the proponent at \$3.8 billion (net present value at 7% real discount rate). Iron Road Limited's stated benefit-cost ratio for the project is 1.3, from an Australian economy perspective.

Hobart Science and Technology Precinct



Location Hobart, Tasmania

Indicative delivery timeframe Near term (0–5 years)

Proponent University of Tasmania

Problem addressed

Tasmania faces a number of economic challenges. The state's rate of economic growth is significantly below the Australian average. Unemployment is relatively high, productivity is relatively low, as are rates of education attainment and population growth.

Hobart's CBD lacks the scale and diversity necessary to support strong population and economic development in high value industries. Increased densification and urban development in Hobart's CBD, coupled with development of science, technology, engineering and mathematics-related industries, may help attract new industries to locate in Hobart. This could, in turn, help increase economic and population growth.

The University of Tasmania's existing science, technology, engineering and mathematics facilities at the Sandy Bay campus are fragmented, and nearing the end of their usable life. The facilities struggle to attract Tasmanian students, and have very limited appeal to interstate and international students. The facilities lack the modern technical infrastructure that characterises a high-end research environment.

Project description

The project would relocate the University of Tasmania's Faculty of Science, Engineering and Technology from the existing campus at Sandy Bay to a purpose-built facility for education, research and training in the Hobart CBD. The proposed 45,050 m² facility would initially accommodate 3,000 students and 700 staff. The University anticipates that the project would result in a 60% increase in undergraduate student demand, and enable improved research outcomes. The project would be supported by ongoing university and government programs and policies to increase higher education participation in Tasmania. The development would also contribute to the urban regeneration of Hobart's CBD.

The project is supported by the Tasmanian Government.

Economic, social and environmental value

The primary benefit of the project is derived from attracting new students to tertiary education. Other benefits include improved accessibility and amenity for existing students and research benefits, and development of the Hobart CBD. The proponent's stated benefit-cost ratio is 1.95 (7% real discount rate).

Capital cost of initiative stated by proponent (2016 business case) \$400 million (single point cost estimate, nominal, undiscounted) | Australian Government contribution to be determined | State Government contribution to be determined | Private sector contribution to be determined

Sydney Metro: City and Southwest

High frequency rail connection from Chatswood to Bankstown via Sydney CBD



Location

Northern, central and south-western Sydney, NSW

Problem timescale

Near term (0–5 years)

Nominator NSW Government

Problem

Sydney's key employment and economic areas are clustered along the 'Global Economic Corridor' which extends from the Airport to the CBD, and north to Macquarie Park. The corridor is home to high-value service industries such as finance, insurance, technology, health, education and tourism, and contributes around 50% of NSW Gross State Product. High levels of transport connectivity are an essential input to support growth in these industries, providing access to a deep labour market and connectivity to suppliers, knowledgebased institutions, and customers.

Driven by population growth, employment in Sydney is expected to increase from its current level of 2.1 million workers to 2.8 million by 2031, of which about two-thirds are expected to work within the Global Economic Corridor.

Transport access to the Global Economic Corridor is reaching capacity. An analysis of transport capacity and employment growth indicates that, without additional transport capacity, some 42,000 potential jobs in the Global Economic Corridor would be unrealised by 2036.

A significant increase in transport capacity in key parts of the network, especially to the CBD and the Global Economic Corridor, will assist in realising employment growth and increased productivity.

Proposed initiative

The Sydney Metro (City and Southwest) would provide single deck, fully-automated metro rail services connecting the Sydney Metro Northwest operations from Chatswood through Sydney's North Shore, under Sydney Harbour to the CBD and beyond to Sydenham Station. The proposed rail line would connect to the existing Bankstown Line, converting that line (13.5 km from Sydenham to Bankstown) to Sydney Metro operations.

Next steps

Sydney Gateway

Connection from WestConnex at St Peters to Sydney Airport and Port Botany



Location Sydney, NSW

Problem timescale Near term (0–5 years)

Nominator NSW Government

Problem

The initiative addresses the problem of connectivity between Sydney Airport, Port Botany and the Sydney Motorway network. Road congestion on the arterial road network in and around Port Botany and Sydney Airport causes significant delays.

Congestion is a problem throughout the day, rather than just at peak times, with the major road links congested for over half the day. Part of this congestion is generated by road freight in and around Port Botany. Truck traffic at Port Botany is estimated to increase by 400% by 2029/30, if the mode share of rail does not increase. Congestion will be exacerbated by:

- Growing imports and exports through Port Botany. The 2011 throughput of two million Twenty Foot Equivalent Units (TEU) per annum at Port Botany is projected to increase to seven million TEU by 2031, an annual growth rate of approximately 7%
- High growth rates for passenger air travel, estimated by Sydney Airport at 4.2% per year and 2.9% per year for international and domestic travel respectively.

Proposed initiative

The initiative aims to provide a connection from Sydney Airport and Port Botany to WestConnex. It will provide an integrated high capacity road connection from the WestConnex–St Peters Interchange to the Sydney Airport and Port Botany precinct, allowing airport and port traffic to avoid local arterial roads when accessing WestConnex.

Next steps

Bus Rapid Transport

Northern Beaches, Parramatta Road and Victoria Road



Problem

In 2012, the NSW Government identified the need to redesign Sydney's bus system as part of the Long Term Transport Master Plan. The three most important corridors requiring significant improvements in connectivity and efficiency are: the Mona Vale to Sydney CBD corridor; the Burwood to Sydney CBD via Parramatta Road corridor; and the Parramatta/Ryde/ Sydney CBD via Victoria Road corridor.

Each of these corridors is vital from a broader urban transport network perspective, with buses being used by a large number of commuters to travel into the Sydney CBD and other commercial centres. While parts of the Parramatta and Victoria Road Corridors are served by rail, part of these corridors, and all of the Northern Beaches Corridor, are only practically served by road. For these corridors, bus travel is the most practical form of public transport.

Efficient management of the transport network along the three corridors is a priority issue. The Australian Infrastructure Audit 2015 identified that some of Sydney's highest congestion delay costs are along these routes, including the harbour crossing approaching the CBD from the north, and along Victoria Road, which feeds onto the Anzac Bridge. The cost of congestion in the greater Sydney region is projected to rise from \$5.6 billion in 2011 to \$14.8 billion in 2031. Inadequate investment in bus systems along the three corridors will result in greater reliance and use of private passenger vehicles, in turn leading to further road congestion and delays at the expense of economic efficiency.

Proposed initiative

The provision of high-capacity, on-road bus transport infrastructure is potentially an effective method of improving connectivity along priority corridors and alleviating congestion on Sydney's urban transport network.

Next steps

Southern Sydney to CBD public transport enhancement



Location

Central Station to southern Sydney corridor, NSW

Problem timescale

Medium term (5-10 years)

Nominator

NSW Government

Problem

The transport network between the Sydney CBD and the area south towards Kingsford Smith Airport lacks the capacity to effectively handle prospective population growth. The population of the Green Square Precinct is projected to grow from 33,000 in 2016 to 61,000 in 2031. While Green Square has a railway station on its western side, the north and east of Green Square make up a fast growing inner residential area that is not directly served by rapid public transport. Green Square forms part of the nation's largest bus transport task (Eastern Suburbs - South to Sydney Inner City), as identified in the Australian Infrastructure Audit 2015. Due to road congestion, bus transport to the Sydney CBD is slow and unreliable. Potential growth in bus transport, to service a larger population, will add to congestion close to the centre of Sydney.

With Green Square abutting the Sydney Airport precinct and close to the Port Botany precinct (which together generate more than \$10 billion per year in economic activity), there is also an opportunity to grow commercial activity, facilitated by reliable, rapid public transport.

Proposed initiative

Provide a high capacity, rapid transport link, which could be bus or light rail, between the Sydney CBD and the unserved parts of the area. Subject to further investigation, this could be extended in future to Mascot, Rosebery, Sydney Airport and Port Botany.

Next steps

Sydney Metro West

Mass transit between Parramatta and Sydney CBD



Location

Sydney-Parramatta, NSW

Problem timescale

Medium term (5-10 years)

Nominator

NSW Government

Problem

Demand for transport service in the corridor between Sydney CBD and Parramatta is high, and growing. This reflects high levels of employment and population growth in the corridor, and the corridor's role as a conduit for servicing growing transport demand from Western Sydney to the Sydney CBD.

An extra 420,000 people are expected to move into the corridor between Greater Parramatta and central Sydney over the next 20 years, and more than 300,000 jobs are expected to be created in this corridor by 2036.

Future employment and population growth in the corridor will be driven in part by four key precincts: Parramatta, Sydney Olympic Park, The Bays precinct and Sydney CBD.

The Australian Infrastructure Audit 2015 projected that passenger demand on the existing T1 Western Line – which is more than a century old – would increase by about 50% between 2011 and 2031. Currently, the T1 Western Line moves around 40,000 people in the morning peak hour and is operating at 135% of seated capacity.

Proposed initiative

The initiative would provide a direct connection between Parramatta and Sydney, linking communities not previously serviced by rail as well as supporting growth between the two CBDs. Investigations are focused on a corridor between the Parramatta River and existing T1 Western Line, because of the potential to transform communities, create new ones and link them using a new state-of-the-art public transport system.

A new metro rail service would be able to move about 40,000 people an hour in each direction, and would work together with the T1 Western Line to service the growing needs of Western Sydney, effectively doubling the rail capacity of the Parramatta to Sydney CBD corridor.

The initiative would be integrated with long-term transport and land use planning for Western Sydney, including rail needs currently being investigated around the future Western Sydney Airport.

Next steps

Hoddle Street capacity upgrade



Location

Inner Melbourne, Victoria

Problem timescale

Near term (0–5 years)

Nominator

Victorian Government

Problem

Hoddle Street is a major arterial road in inner Melbourne that provides a link between the Eastern and Monash Freeways. The Victorian Government estimates that over 300,000 people travel along or across Hoddle Street each day either by car, tram, bus, bike or on foot. Hoddle Street is often heavily congested, and as a result, is unsafe and inefficient. Average travel speeds during the morning and evening peaks are generally around 20 km/hour but can drop below 10 km/hour in some sections. The Australian Infrastructure Audit 2015 found that the cost of congestion on Melbourne's major roads could reach \$9 billion a year by 2031 if nothing is done to reduce congestion. Congestion on Hoddle Street increases travel time costs, vehicle operating costs, vehicle emissions and the chance of accidents.

A study conducted by the Victorian Government found that Hoddle Street is in the 'very high' risk group for accidents – higher than similar arterial roads.

Proposed initiative

A number of options are being considered to alleviate congestion on Hoddle Street. Options being considered include, but are not limited to:

- Enhancing computerised traffic management systems
- Implementing best practice Intelligent Transport Systems
- · Revising operations at intersections
- · Prioritising public transport
- · Increasing service levels
- Exploring the use of continuous flow intersections, which are designed to improve traffic flow through intersections by reducing delays caused by right-turning traffic.

Next steps

The Victorian Government has identified the first stage of works, which includes upgrades to four intersections. Construction is planned to commence in 2017.

Cranbourne & Pakenham rail lines upgrade



Location

Melbourne-Dandenong, Victoria

Problem timescale

Near term (0-5 years)

Nominator

Victorian Government

Problem

The Cranbourne & Pakenham rail lines are part of the Dandenong Rail Corridor. Reliability and punctuality on the corridor is an issue. The corridor performs poorly in terms of customer satisfaction, and is the worst performing line in the Melbourne metropolitan network in terms of punctuality. Unless reliability and punctuality can be improved, existing users will be discouraged from continuing to use rail and may seek other modes of transport – placing additional pressure on the already congested road network.

Peak passenger demand, which drives levels of service and affects punctuality and reliability, is forecast to remain strong over the medium to long term. The Australian Infrastructure Audit 2015 estimated that demand on the corridor will exceed crush capacity by 2031 – causing further train delays.

The corridor is already operating above its practical capacity (i.e. operating over the accepted threshold passenger load in peak periods). As the population along the corridor grows, and peak demand continues to increase, there is no spare capacity to service additional passengers.

Proposed initiative

The Cranbourne & Pakenham Lines Upgrade Program includes rolling stock and supporting infrastructure upgrades (e.g. procuring high capacity trains and improving signalling to increase train frequency). Complementary corridor initiatives including a proposal to remove nine level crossings between Caulfield and Dandenong are also being progressed.

Next steps

A public private partnership contract has been executed for delivery of 65 new 7-car high capacity trains and a new maintenance depot in Pakenham East.

Road connection between West Gate Freeway and Port of Melbourne and CBD North



Location Melbourne, Victoria

Problem timescale

Near term (0–5 years)

Nominator

Victorian Government

Problem

The key problem is the absence of an east-west connection between West Gate Freeway and Port of Melbourne and CBD North. A lack of connectivity results in road transport congestion and the reliance on the West Gate Bridge for travel from Melbourne's west towards the CBD.

The initiative relates to an area which suffers from significant congestion. According to the Australian Infrastructure Audit 2015, the cost of congestion on the West Gate Freeway/Princes Freeway corridor is projected to increase from \$105 million in 2011 to \$355 million in 2031. The network-wide cost, including the cost for arterial roads that are used to access the Port of Melbourne, would be higher than this.

Proposed initiative

The initiative proposes to develop a connection between the West Gate Freeway, CityLink and Port of Melbourne.

Next steps

Improve the connection between the Eastern Freeway and CityLink



Location Melbourne, Victoria

Problem timescale

Near term (0–5 years)

Nominator

Audit identified gap

Problem

The Australian Infrastructure Audit 2015 identified the east-west corridor to the north of Melbourne CBD as one of Melbourne's major congestion challenges. Vehicles travelling east-west between the Eastern Freeway and CityLink are forced to navigate the congested inner city road network, or the heavily utilised M1 corridor to the south of the city. This results in congestion and delays on Melbourne's urban road network for both passenger and freight vehicles. The Audit found that this corridor had the highest road congestion delay cost in Melbourne in 2011, with a delay cost of \$73 million. This is expected to worsen by 2031, with the delay cost projected to increase to \$144 million.

The Eastern Freeway only extends as far as Hoddle Street on the edge of the CBD, channelling the large volume of vehicles heading into and out of the city onto residential streets in the inner north.

Proposed initiative

The initiative is to improve the connection between the Eastern Freeway and CityLink.

Next steps

Initiative development - required

Cross River Rail

A rail solution to support an integrated passenger transport network in South East Queensland



Location Brisbane, Queensland

Problem timescale Near term (0–5 years)

Nominator Queensland Government

Problem

The problem relates to capacity constraints in the existing transport system for trips to and from the Brisbane CBD, and strong population and employment growth in South East Queensland.

The current rail connection into and through Brisbane's CBD is expected to reach capacity by the early to mid 2020s, while parts of the road and bus network are close to or at capacity. The population of South East Queensland is forecast to continue growing over coming decades. This growth, together with jobs growth centred on the CBD, will drive additional demand for trips to and from the CBD.

The Australian Infrastructure Audit 2015 identified crossings of the Brisbane River as a critical bottleneck for trains and buses.

Proposed initiative

The Cross River Rail initiative would provide a northsouth passenger rail line through Brisbane's inner city from Bowen Hills (north of the CBD) to Dutton Park, via Roma Street, the southern CBD and Woolloongabba. This would provide a second rail crossing of the Brisbane River, and reduce demand for buses to enter the CBD by providing bus connections to the rail network.

Next steps

Ipswich Motorway Rocklea–Darra (remaining sections)



Location

Western Brisbane, Queensland

Problem timescale

Near term (0–5 years)

Nominator

Queensland Government

Problem

The initiative seeks to address congestion and extensive delays in the Ipswich Motorway corridor. Modelling undertaken for the Australian Infrastructure Audit 2015 estimates the direct cost of congestion along the corridor at around \$30 million to \$40 million in 2011, which is projected to increase considerably over time.

The problem results in inefficient freight movement. The Ipswich Motorway is one of the three busiest freight corridors in Queensland. The section between Rocklea and Darra is used by 10,000–12,000 heavy vehicles a day, representing 15–18% of all traffic.

Proposed initiative

A suite of road upgrades along 7 km of the Ipswich Motorway between Rocklea and Darra, including:

- Widening the corridor to six lanes
- Improved flood immunity
- Ramp rationalisation
- · Improved east-west local connectivity
- Enhancement of cross motorway connections
- Managed motorway treatments.

A business case for Stage 1c of the Initiative (Package 1) was assessed by Infrastructure Australia in May 2016, and the project was listed on the Infrastructure Priority List. The Project provides for widening along 2 km of the corridor, removal of three ramps and upgrades of bridges, ramps, pavement and service roads to the east of Oxley Road.

Package 2 proposes the upgrade of the Oxley/Blunder Road interchange, and Package 3 proposes to construct a new Boundary Road connection across Oxley Creek.

Next steps

Perth CBD – north corridor capacity



Location Perth, WA

Problem timescale Near term (0–5 years)

Nominator Audit identified gap

Problem

Traffic congestion in the Perth metropolitan region is impacting on the efficiency of the transport network.

The Australian Infrastructure Audit 2015 found that transport delay costs in Perth are expected to grow at an average annual rate of around 11% over the next 20 years, from \$2 billion in 2031 to \$16 billion in 2031.

The northern corridor is projected, in the absence of additional capacity, to become the most congested corridor in Perth, with demand expected to exceed capacity well before 2031. The Audit estimates that delay cost on the corridor, including the Mitchell Freeway, Marmion Ave/West Coast Highway and Wanneroo Road, will reach \$2 billion (2011) by 2031. While the projected rate of population growth in the region has been scaled back compared to the rate used in the Audit, reflecting the slower rate of growth in WA following the mining boom, growth is still projected to average around 2.6% per year.

This growth will continue to drive increased demand for both road and public transport.

Proposed initiative

A number of options are being considered to increase supply and to manage demand, including additional road capacity, mode shift to public transport or better use of existing roads. The WA Government's draft *Transport* @ 3.5 million plan identifies several potential initiatives in this corridor, including implementation of Intelligent Transport Systems on the Mitchell Freeway, development of an East Wanneroo rail link, implementation of Automatic Train Control for high capacity signalling, and linking the Whiteman-Yanchep Highway with the Mitchell Freeway.

Next steps

Options assessment - underway

Gawler Line rail upgrade



Location Gawler to Adelaide CBD, SA

Problem timescale Near term (0–5 years)

Nominator SA Government

Problem

The Australian Infrastructure Audit 2015 identified that demand on the northern line between Gawler and Adelaide is expected to almost double by 2031. Salisbury (serviced by the Gawler rail line) has been identified by the Audit as the second most frequented destination in greater Adelaide for rail trips. The current load factor during the morning peak reaches 75% along the busiest sections of the rail line and network capacity is expected to be reached within five to 10 years.

Increased patronage is being driven by high population growth in areas that are serviced by the Gawler line, including Gawler-Two Wells, Playford and Salisbury. An additional 116,000 residents are expected to live in these suburbs by 2031.

The Gawler rail line is currently serviced by diesel rail cars as the line has not been fully electrified. As 22 electric railcars are currently serviced at the maintenance facility at Dry Creek on the Gawler line, diesel rail cars are required to haul the electric fleet to and from the maintenance facility, resulting in inefficient use of the diesel fleet and unnecessary dead running. The diesel fleet and the signalling system on the line are reaching the end of their reliable service life, presenting an opportunity to invest in sustainable, reliable and efficient transport solutions.

Proposed initiative

The upgrade and electrification of the Gawler rail line, including installation of a new signalling system.

Next steps

Network Optimisation Portfolio



Location National

vational

Problem timescale Near term (0–5 years)

Nominator Audit identified gap

Problem

The Australian Infrastructure Audit 2015 found that, in the absence of demand management and suitable investment, the total cost of urban congestion could increase from \$13.7 billion in 2011 to \$53.3 billion (2011) in 2031. Although its root causes vary, it is a widespread problem across multiple corridors in Australian cities.

Addressing these problems will require multiple investments that are focused on productivity-enhancing network optimisation as well as continued investment in new capacity.

Proposed initiative

The initiative would involve a portfolio of works focused on addressing congestion on urban road networks with comparatively high public transport and freight use. These works could use data and technology to improve network operations by, for example, optimising traffic flow through intersection treatments, traffic light sequencing, clearways and incident management.

The initiative would build on existing work being undertaken in this field. It would focus on urban motorways, major urban arterials, and access to central business districts.

Next steps

Initiative development - required

Port Botany freight rail duplication



Location Sydney, NSW

Problem timescale Near term (0–5 years)

Nominator NSW Government

Problem

Port Botany is one of Australia's most significant import/ export terminals for containerised freight, and a backbone asset for economic productivity within Sydney and NSW. Infrastructure NSW forecasts container movements through the Port will increase from 2 million twenty-foot equivalent units in 2011 to 7 million in 2031.

The Port Botany freight line is currently operating close to capacity. Additional demand arising from growth in interstate, intrastate and import/export freight has the potential to create a bottleneck along this line, impacting on reliability and restricting the efficient movement of freight across the broader Sydney rail network.

As Sydney's primary container port, it is vital that Port Botany maintains throughput capacity to meet demand over the long term. Currently, only a small portion of freight is moved using the freight rail network, which imposes additional demands on the road network. Truck traffic at Port Botany is estimated to increase by 400% by 2030, driven largely by expected growth in throughput at Port Botany.

Proposed initiative

The proposed initiative aims to upgrade the capacity of the Port Botany rail line by completing a duplication of 2.8 km of the line. The proposed initiative will form part of a broader strategy designed to drive growth in rail mode share.

Next steps

Chullora Junction upgrade



Location Sydney, NSW

Problem timescale Near term (0–5 years)

Nominator NSW Government

Problem

The current configuration of Chullora Junction creates a significant operational constraint for Sydney's Metropolitan Freight Rail Network. Given the forecast growth in freight movements as a result of significant developments (such as the Moorebank Intermodal Terminal) and population growth, the junction will become a major bottleneck in the absence of any improvements. This will negatively impact on the efficient movement of freight across the network.

If the capacity and resilience of Sydney's rail freight network is not addressed, congestion on both the rail and road networks will substantially increase, impacting productivity and increasing delays for freight and passengers.

In order to reduce reliance on Sydney's road network, the rail network and intermodal terminals must provide an efficient and cost competitive alternative to road distribution. Removing identified bottlenecks on the network is critical to increasing the competitiveness of rail.

Proposed initiative

The proposed initiative involves improvements to the current low speed at-grade junctions at Chullora, including possible duplication of the Chullora North/ Chullora West connection and a holding road between Chullora Junction and Flemington Junction. The proposed initiative would form part of a broader strategy designed to drive growth in rail mode share.

Next steps

Options assessment - underway

Port of Brisbane dedicated freight rail connection



Location

Brisbane, Queensland

Problem timescale

Medium term (5-10 years)

Nominator

Audit identified gap

Problem

Container trade at the Port of Brisbane is forecast to increase by 300%, representing an increase of 4.8% per year to 2045. The Australian Infrastructure Audit 2015 identified that growth at the Port of Brisbane is likely to become constrained by the lack of a dedicated rail freight connection.

Population growth in South East Queensland is creating congestion on both the road and rail networks, negatively impacting the productivity of greater Brisbane and the Queensland economy as a whole.

The preservation and, ultimately, construction of a dedicated freight rail corridor will allow more freight movements to be removed from the road network, which would help alleviate congestion.

Proposed initiative

The proposed initiative is to improve connectivity between the Port of Brisbane and freight terminals in the Brisbane region through preserving and, ultimately, constructing a dedicated freight rail corridor. The initiative should aim to meet the projected increase in freight volumes and capitalise on economic opportunities, while encouraging a modal shift from road to rail.

Next steps

Options assessment - required

National Freight and Supply Chain Strategy



Location

National

Problem timescale

Near term (0–5 years)

Nominator

Audit identified gap

Problem

The Australian Infrastructure Audit 2015 found that population and economic growth will increase demand for freight transport, with the national land freight task expected to increase by 86% to 2031.

While there has been significant work undertaken on national strategies for land transport and ports, there is a need to further progress this work, taking a wholeof-supply chain perspective. National-level long-term freight master planning will facilitate more effective infrastructure planning, and more robust investment decisions in the freight and supply chain sector. Failure to adequately cater for the expected increase in freight transport will increase freight network congestion around Australia, and ultimately harm national productivity.

Proposed initiative

A National Freight and Supply Chain Strategy would build on existing work, adopting a holistic approach to the planning and performance of the national freight and supply chain networks. This would provide appropriate frameworks to support end to end planning of key freight and supply chains, and to:

- Guide future investment
- Support better use from existing infrastructure assets
- Enable a program of regulatory reforms and capital initiatives to be developed.

The Australian Government has announced its intention to appoint an expert panel to provide advice on how best to lift the productivity and efficiency of Australia's freight and supply chain infrastructure, and to use the expert panel's advice as an input to the development of a national freight and supply chain strategy by the end of 2017.

Next steps

Initiative development - underway

Preserve corridor for Western Sydney Airport fuel pipeline



Location Western Sydney, NSW

Problem timescale Near term (0–5 years)

Nominator

NSW Government

Problem

Western Sydney Airport is projected to commence operation by 2025. When operation reaches full capacity, the airport could potentially require 50–65 B-double fuel tanker deliveries per day, which would add to congestion on Sydney's urban road network. The reliance on fuel transportation by heavy vehicles could also generate congestion problems at the airport site, and contribute to delay costs along key freight corridors.

While a dedicated fuel pipeline is unlikely to be required upon the commencement of operations at Western Sydney Airport, the identification and preservation of a corridor will ensure a route for the pipeline is available when required.

Developing a fuel pipeline connection would enable efficient, safe and cost effective transportation of jet fuels in significant volumes.

Proposed initiative

Identify and preserve a corridor for a fuel pipeline connection between the Sydney fuel pipeline network and Western Sydney Airport.

Next steps

Business case development - underway

Preserve corridor for Western Sydney Freight Line and Intermodal Terminal access



Location Western Sydney, NSW

Problem timescale

Near term (0-5 years)

Nominator NSW Government

Problem

The national land freight task is expected to grow by 86% between 2011 and 2031. The Australian Infrastructure Audit 2015 found that freight rail will need to play a growing role in the movement of goods between ports and inland freight terminals. The role of freight rail will be particularly important for containerised freight with demand for container terminal port infrastructure projected to grow faster than Gross Domestic Product.

Currently, only 14% of container freight handled at Port Botany is transported by rail. If this trend continues, congestion on Sydney's road network will increase as the number of trucks required to meet the growing freight task increases.

In order to facilitate a shift from road to rail for containerised freight movement in Sydney, additional capacity and higher levels of service are required on Sydney's rail freight network.

Proposed initiative

The Western Sydney Freight Line is a proposed dedicated rail freight line connecting Western Sydney to the Sydney Metropolitan Freight Network, with connections to intermodal terminals to service freight moving through Western Sydney from across NSW. The core objective of the initiative is to reduce growth in truck movements on the Sydney road network and reduce delays to freight trains on the main Western Line, where passenger trains have priority. Preservation of the corridor is the first step to achieving this objective.

Next steps

Preserve corridor for Lower Hunter freight rail realignment



Location Hunter Region, NSW

Problem timescale Near term (0–5 years)

Nominator NSW Government

Problem

The existing Main North railway line services coal freight movements to the Port of Newcastle, interstate freight movements from Sydney and Melbourne to Brisbane, as well as intrastate freight and passenger trains.

Line congestion, and the priority given to passenger trains on shared parts of the rail network, reduce the efficiency and cost effectiveness of freight movement in the Lower Hunter region. This affects bulk freight destined for the Port of Newcastle as well as containerised and general freight being transported on the east coast freight rail network linking Melbourne, Sydney and Brisbane. Rail freight inefficiency increases costs, and makes rail less competitive than road. This in turn creates an incentive to use trucks, which increases congestion, vehicle emissions and noise, and affects amenity.

Proposed initiative

This initiative is to identify and protect a rail corridor alignment in the Lower Hunter Region to provide an opportunity to construct a dedicated freight rail line that will allow passenger services and freight trains to run concurrently on separate lines.

Next steps

Preserve corridor for Outer Sydney Orbital road and rail/M9



Location

Western Sydney, Illawarra, Central Coast, NSW

Problem timescale

Near term (0–5 years)

Nominator

NSW Government

Problem

Western Sydney, and areas north and south of Sydney, will need to accommodate large travel demand increases due to significant population and employment growth.

An additional 140,000 people are expected to live in the Illawarra and Central Coast, and an additional one million people in Western Sydney by 2031. The broader Western Sydney Employment Area is expected to provide 378,000 new jobs in the long term.

Traffic modelling undertaken as part of the Australian Infrastructure Audit 2015 indicates that in 2031 parts of the existing outer Sydney road network will be at or above capacity, which is expected to result in congestion and long travel times.

In the absence of long term planning and corridor protection, future infrastructure provision would be complex and costly.

Proposed initiative

This initiative proposes to conduct a planning study to identify a preferred alignment for a multi-modal transport corridor comprising a motorway, a north-south freight rail line, and where practical, passenger rail, and to preserve the preferred corridor.

Next steps

Options assessment - underway

Preserve corridor for Western Sydney Airport rail connection



Location Western Sydney NSV

Western Sydney, NSW

Problem timescale Near term (0–5 years)

Nominator NSW Government

Problem

Over the next two decades, the population of Western Sydney will increase by 900,000 people, with around half of all Sydney basin residents expected to be living in the region within 25 years. Preliminary analysis indicates that passenger demand at Western Sydney Airport could reach 10 million per year within five years from commencement of operations in the mid 2020s.

Provision of efficient transport options connecting the Western Sydney Airport to other key hubs such as the CBD, Parramatta, Western Sydney Employment Area, and North West and South West Growth Centres is critical to avoid unnecessary travel delays and enable sustained economic growth.

Proposed initiative

Identify and preserve a rail corridor connecting the Western Sydney Airport to the Sydney rail network.

The Australian and New South Wales Governments have jointly released a scoping study which considers six options for rail services to the Western Sydney Airport, including the proposed South West Rail Link extension.

Next steps

Options assessment - underway

Preserve corridor for Melbourne Outer Metropolitan Ring Road/E6



Location Melbourne, Victoria

Problem timescale

Near term (0–5 years)

Nominator

Audit identified gap

Problem

There is a need to preserve transport corridors to ensure cost effective transport infrastructure can be provided in the future. Preserving transport corridors is a multi-step process which includes defining the corridor, applying land use controls, and acquiring the land required for the corridor.

The Victorian Government has undertaken planning for the Outer Metropolitan Ring Road and E6 corridor, and defined the corridor through application of a Public Acquisition Overlay in 2010. This allows for compulsory acquisition of property when required. It also gives VicRoads rights to request refusal of development applications.

The early protection and staged purchase of land in the corridor is aligned with Infrastructure Australia's previous recommendations to the Council of Australian Governments, and consistent with the 2016 Australian Infrastructure Plan.

Proposed initiative

The initiative is corridor preservation for the Outer Metropolitan Ring Road and E6 in Melbourne. The corridor has provision for a freeway (four to six lanes in each direction) and four rail tracks. The land required for the corridor was defined and preserved in 2010 through a Public Acquisition Overlay. The next step in preserving the corridor is acquisition of land in the corridor as it becomes available.

Next steps

Preserve corridor for East Coast High Speed Rail



Location Melbourne to Brisbane via Sydney

Problem timescale

Near term (0–5 years)

Nominator

Audit identified gap

Problem

By 2075, the combined population of Melbourne, Sydney and Brisbane is projected to exceed 30 million people. The future demand for efficient, high-capacity transport services between major centres on the east coast will likely exceed the capacity of existing and planned rail, road and aviation services.

Protecting a corridor would significantly increase options for future development of high speed rail infrastructure to meet future demand for inter-city and regional travel.

Proposed initiative

Confirm and begin the preservation of a corridor, based on the corridor set out in the Australian Government's High Speed Rail Study Phase 2, for a high speed rail link between Melbourne, Sydney and Brisbane.

Next steps

Central Station redevelopment – rail and station infrastructure



Location Central Sydney, NSW

Problem timescale

Medium term (5-10 years)

Nominator NSW Government

Problem

Central Station is Sydney's busiest transport interchange. It serves as a critical multimodal transport interchange for suburban and intercity rail services, country and interstate coaches, suburban buses and light rail services. From 2019, Central will be an interchange point for the CBD and South East light rail line, and from 2024 Central will also be an interchange station for the Sydney Metro (rapid transit) service.

Day-to-day customer experience of the station is poor in terms of circulation, navigation, legibility, access, capacity and crowding. These problems are expected to get worse as total passenger movements are projected to increase by 67% between 2014 and 2036, and passenger interchanges between rail services in the morning peak increase by 106% in the same period.

Proposed initiative

The initiative comprises upgrades to rail and station infrastructure to support passenger movement and interchange, including potential access improvements to connect the new Metro station with the rest of Central Station, and other enhancements to the station's functionality.

A proposed second stage of the initiative deals with the renewal of the broader station precinct. This second stage has not been assessed for inclusion on the Infrastructure Priority List at this stage.

Next steps

Options assessment - underway

Active transport (walking and cycling) access to Sydney CBD



Location Inner Sydney, NSW

Problem timescale Near term (0–5 years)

Nominator City of Sydney

Problem

The cost of congestion in Sydney is estimated to increase from around \$6 billion in 2011 to \$15 billion in 2031. With a growing population and an increasingly centralised workforce, Inner Sydney is forecast to have the highest number of trips for any region in NSW.

Five of Sydney's most congested urban roads are located within a 10 km radius of Sydney's CBD. The public transport network in Inner Sydney is also projected to reach or exceed current capacity by 2031.

There are more than one million daily short distance trips (i.e. less than five km) undertaken by private motor vehicles and taxis within 10 km of the CBD. Safety concerns, along with disparate travel routes, are current barriers to other forms of short distance or active transport.

A 2% to 5% shift of short distance car trips within 10 km of the CBD to active transport may result in a reduction of between 20,000 and 50,000 motor vehicle trips per day on Inner Sydney's congested corridors.

Proposed initiative

Upgrade a network of 284 km of dedicated cycling and shared cycling/walking paths, on existing radial and cross regional corridors within a 10 km radius of the CBD.

Next steps

F6 Extension

Connection between the M1 at Waterfall and the Sydney motorway network



Location Southern Sydney, NSW

Problem timescale Medium term (5–10 years)

Nominator NSW Government

Problem

There is no motorway standard route southwards between the Sydney motorway network and the M1 at Waterfall. Demand for road travel along this corridor is high and the arterial network is at capacity during peak periods. The three crossings of the Georges River, which together accommodate almost 200,000 trips per day, are at or close to capacity. These problems lead to long travel times, both because of slower speeds and intersections on arterial roads and congestion.

The Australian Infrastructure Audit 2015 identified the Sutherland-Ryde/Parramatta Corridor as being the fifth most congested in the greater Sydney area in 2011, and the sixth most congested in 2031. The King Georges Road Corridor, from Princes Highway to the M4, was ranked as the second most congested in 2011 and third most congested in 2031.

Proposed initiative

The initiative is a motorway connection from the M1 at Waterfall to the Sydney motorway network.

Next steps

Public transport access to Parramatta CBD



Location Western Sydney, NSW

Problem timescale

Medium term (5-10 years)

Nominator NSW Government

Problem

The Australian Infrastructure Audit 2015 identified significant future congestion and capacity constraints on both the road and rail network operating in Western Sydney.

Over the next 20 years, Sydney's population is estimated to increase by 1.6 million people. The majority of this growth (900,000 people) is forecast to occur in the Western Sydney region. As a stand-alone region, Western Sydney is now the nation's fourth largest city and third largest economy.

The Parramatta CBD and several other precincts including the Westmead health precinct, the Western Sydney University, Rydalmere, North Parramatta, and Camellia have been identified for urban renewal and residential and commercial redevelopment. This redevelopment is expected to accelerate Parramatta's growth and bring more jobs, businesses and residents into the Parramatta CBD and surrounding areas. Employment in the Parramatta Local Government Area is expected to grow by 30% by 2031 (from 114,000 people at present). This growth will create significant transport-related challenges which are expected to exacerbate an existing problem of limited public transport accessibility to Parramatta and Western Sydney. Without investment in public transport, population growth and people coming in to the area is expected to increase congestion on the road and train networks.

Proposed initiative

Additional public transport, which could include bus or light rail, is required in Western Sydney to alleviate congestion on the road and public transport networks. Some public transport solutions can also facilitate urban renewal in Western Sydney.

Next steps

Options assessment/business case development

Western Harbour Tunnel and Beaches Link



Location Sydney, NSW

Problem timescale Longer term (10–15 years)

Nominator NSW Government

Problem

The initiative is aimed at addressing projected travel demand across Sydney Harbour and onto the Northern Beaches. Congestion on these corridors impacts on bus and private vehicle travel, with bus travel particularly impacted by congestion on the Spit Bridge/Military Road. The high levels of demand for existing infrastructure reflects the channelling of traffic into harbour crossings Sydney Harbour Bridge and Tunnel (across Sydney Harbour) and Spit Bridge (across Middle Harbour).

The Australian Infrastructure Audit 2015 ranked the North Sydney–Northern Beaches corridor as the 10th most congested corridor in the wider Sydney region in 2011, and 11th in 2031. The Gore Hill/Warringah Freeway/Sydney Harbour Bridge/Eastern Distributor was ranked 12th in 2011, and is projected to be the most congested corridor in NSW in 2031.

Proposed initiative

The initiative proposes a motorway crossing underneath Sydney Harbour, connecting WestConnex with the Warringah Freeway, and a motorway connection from the Warringah Freeway to Seaforth/Balgowlah on the northern side of Middle Harbour.

Next steps

Melbourne level crossings removal



Location Melbourne, Victoria

Problem timescale Near term (0–5 years)

Nominator

Victorian Government

Problem

Melbourne's transport network includes approximately 180 road/rail level crossings. Road traffic at these level crossings is managed by boom gates which give priority to trains. Level crossings interrupt the flow of road traffic and contribute to congestion and delays on Melbourne's roads. The Australian Infrastructure Audit 2015 projected that the cost of road congestion in the Melbourne/ Geelong area is expected to reach approximately \$9 billion by 2031 (2011).

As Melbourne's train network is modernised, longer and more frequent trains are planned to be introduced to the network to cater for increased demand. Longer and more frequent trains at level crossings will increase delays for road users.

Level crossings also introduce a 'conflict point' between rail and road traffic which creates safety issues. Incidents at level crossings, including collisions and signal faults, impact the efficiency and reliability of Melbourne's transport network.

Proposed initiative

This initiative proposes to remove priority level crossings in Melbourne. The objective of the initiative is to deliver a more reliable, convenient, productive and safer transport system in Melbourne.

Next steps

Construction has already commenced on several sites, and planning and early consultation is underway for the delivery of the entire project.

Melbourne Airport to the CBD public transport capacity



Location Melbourne, Victoria

Problem timescale Medium term (5–10 years)

Nominator

Audit identified gap

Problem

The Australian Infrastructure Audit 2015 noted that the corridor between the Melbourne CBD and Melbourne Airport is already one of the most heavily congested in Melbourne. The Tullamarine Freeway was already operating at, or close to capacity in 2011. Congestion affects traffic in both directions, particularly close to the airport terminal. Analysis completed as part of the Audit estimated that travel times to the airport during peak periods will increase substantially between 2011 and 2031 (even when the current project to widen the freeway is completed). Travel time by car in the morning peak from the CBD to the airport is projected to increase by nine minutes from 33 minutes to 42 minutes, while travel times by car from Werribee and Doncaster are projected to increase from an average 61 minutes to 90 and 74 minutes respectively.

Melbourne's population growth, combined with expected growth in passenger numbers at Melbourne Airport will be key drivers of future congestion on the Melbourne CBD – Melbourne Airport corridor.

Proposed initiative

Develop options for increasing public transport capacity to Melbourne Airport.

Next steps

Initiative development - required

Melton Rail Line upgrade



Location Western Melbourne, Victoria

Problem timescale

Medium term (5-10 years)

Nominator

Audit identified gap

Problem

Melbourne's long term growth strategy identifies Melton– Bacchus Marsh as a key growth area. The Australian Infrastructure Audit 2015 estimates that population growth in the Melton–Bacchus Marsh region will grow at an average annual rate of 3.9% per year between 2011 and 2031. This is the second highest growth rate in Greater Melbourne.

The Audit identified the Melton–Bacchus Marsh region as an area in which high levels of additional transport activity is expected out to 2031. Audit data shows that demand on the Melton line is projected to grow to around three times current capacity by 2031.

Currently, the line between Melton Station and Sunshine Station is operated by V/Line and is not part of the metropolitan network. This section of the line is not electrified, which limits higher capacity trains being introduced on the line. The Melton line currently lacks the capacity to service future population growth.

Proposed initiative

The proposed initiative would involve upgrading the Melton line to expand capacity to service additional demand associated with population growth. Options that may be considered as part of the upgrade include, but are not limited to:

- Preservation of corridors for extensions and/or duplication of the Melton line
- Duplication of the Melton line
- Electrification of the Melton line
- Capacity upgrades where the Melton line meets the metropolitan network at Sunshine Station (part of the Sunbury line).

Next steps

Initiative development - required
Complete Metro Ring Road from Greensborough to the Eastern Freeway



Location Melbourne, Victoria

Problem timescale Medium term (5–10 years)

Nominator

Victorian Government

Problem

The option for freeway travel between Melbourne's north and south-east is currently limited, and requires passing through Melbourne's inner city which is regularly congested with commuter traffic and freight traffic from the Port of Melbourne.

There is currently a 'missing link' between the M80 Metropolitan Ring Road in Melbourne's north and the M3 Eastern Freeway – EastLink in Melbourne's east and south-east. The current route – which is to use Greensborough Highway, Rosanna Road, Banksia Road and Bulleen Road – spanning approximately 9.5 km, is congested and operating close to capacity during peak periods, making it inadequate for supporting commercial and freight transport activities.

The Australian Infrastructure Audit 2015 estimates the total cost of delay on Melbourne–Geelong's urban transport network in 2011 at around \$3 billion. In the absence of additional capacity, this cost of delay is projected to grow to around \$9 billion by 2031.

Proposed initiative

Development of a new motorway-standard connection between the Metropolitan Ring Road and Eastern Freeway ('North East Melbourne Corridor') to reduce congestion and capacity constraints.

Next steps

Melbourne outer northern suburbs to CBD capacity upgrade



Location Melbourne, Victoria

Problem timescale

Longer term (10-15 years)

Nominator

Audit identified gap

Problem

The Australian Infrastructure Audit 2015 noted that by 2031 the Hume Freeway would become the most congested corridor in Victoria, on a delay per cost lane kilometre basis, with a total delay cost of around \$172 million per year. The Audit also projects that demand for rail transit in the corridor, on the Craigieburn line, will exceed capacity by a factor of four. In the absence of transport capacity improvements, the Audit indicates that daily vehicle movements on the Hume Freeway would grow from 43,100 in 2011 to 107,400 by 2031, and the rail line would become the most crowded in Melbourne by 2031.

Traffic demand growth along the corridor is expected to be driven by population and employment growth in the area. Victorian Government projections indicate that population in the corridor is expected to almost double between 2015 and 2031, while the northern growth corridor plan indicates the corridor has the capacity to accommodate between 83,000 and 105,000 new jobs.

Proposed initiative

Develop options to address demand for transport services in the corridor.

Next steps

Initiative development - required

Brisbane to Gold Coast transport corridor upgrades



Location Brisbane–Gold Coast, Queensland

Problem timescale Near term (0–5 years)

Nominator

Queensland Government

Problem

The Brisbane to Gold Coast corridor is subject to high levels of demand, leading to congestion at peak and inter-peak times across both road and rail networks. The Australian Infrastructure Audit 2015 projected that, without intervention, the cost of congestion on key corridors in the Gold Coast region would increase by over \$1 billion between 2011 and 2031.

On certain sections of the M1 Pacific Motorway, daily traffic volume exceeds 147,000 vehicles, around 40% of which is heavy and light commercial vehicles. During peak periods, users are experiencing poor reliability and increasing journey times, particularly where congestion creates bottleneck sections. Road incidents are a major contributor to poor reliability, with over 12,000 incidents reported on the M1 and Pacific Motorway annually. In the absence of proper planning and investment, future growth in population, employment, tourism and freight will lead to an increase in the cost of congestion in the corridor, with an adverse impact on the region's productivity.

Proposed initiative

The initiative sets out a 10-year network-wide program for upgrades to transport infrastructure in the corridor. It identifies 33 proposed infrastructure upgrades to the road, rail, cycling and bus transport networks to deliver more efficient, reliable and safe transport. These include motorway widening and interchange upgrades, rail line extensions, duplications and signalling upgrades, and cycleway and busway extensions.

Next steps

Perth major east-west and southern corridor capacity upgrades



Location Perth, WA

Problem timescale Medium term (5–10 years)

Nominator Audit identified gap

Problem

The Australian Infrastructure Audit 2015 identified that the road and rail corridors linking the southern suburbs with Perth's CBD, and the east-west road and rail links across Perth, include four of the top 10 most congested corridors in Australia.

The Kwinana and Rockingham areas south of Perth are projected to experience population growth of 210% and 153% respectively between 2011 and 2036. Without additional capacity, the increase in demand for transport in the southern part of Perth will lead to significant delays on both road and rail infrastructure.

The southern and eastern areas of Perth are serviced by three main rail corridors: the Mandurah line, the Armadale line and the Midland line. Passenger loadings on Perth's rail corridors are projected to increase over time, reaching or exceeding crush capacity on the Mandurah line by 2031.

Many of Perth's east-west connections have at-grade intersections and level crossings that contribute to congestion and increase the likelihood of accidents. In the absence of additional capacity, the Tonkin Highway is projected to be the second most congested corridor in Australia by 2031. Congestion has a direct impact on productivity by increasing freight and passenger transport travel times and impacting on the efficiency of the transport network. The cost of delay on Perth's road network in 2011 was around \$2 billion. Without intervention, this is projected to grow to around \$16 billion by 2031.

Proposed initiative

The WA Government's draft *Transport* @ 3.5 million plan identifies several potential initiatives for the east-west and southern corridors, including upgrades to the Reid, Roe, and Tonkin highways, and a rail extension from Thornlie to Cockburn.

Next steps

Adelaide north-south corridor upgrade (remaining sections)



Location Adelaide, SA

Problem timescale Near term (0–5 years)

Nominator SA Government

Problem

The underlying problem is congestion on the road network, specifically for north-south traffic in the corridor and east-west traffic which crosses the corridor.

Sections of the north-south corridor which have not been upgraded are subject to slow travel times and reduced travel time reliability. The Australian Infrastructure Audit 2015 found that South Road, which is part of the northsouth corridor, is projected to have a delay cost of \$164 million in 2031. North-south traffic congestion is not limited to South Road; it is also evident along parallel routes, such as Marion Road (projected delay cost of \$97 million in 2031) and Goodwood Road (projected delay cost of \$60 million in 2031).

South Road is currently optimised for north-south travel in Adelaide, given its role as part of the National Land Transport Network and as a prioritised freight corridor. As such, it can impede east-west traffic movements, potentially increasing travel times in those directions.

Proposed initiative

This initiative focuses on the remaining unfunded sections of the north-south corridor – Anzac Highway to Darlington; River Torrens to Anzac Highway and Regency Park to Torrens Road. When completed, the north-south corridor will be the major transport spine for Adelaide's north-south traffic over a total distance of 78 km.

Next steps

AdeLINK Tram Network

Adelaide tram network expansion



Location Adelaide, SA

Problem timescale Medium term (5–10 years)

Nominator

SA Government

Problem

The Australian Infrastructure Audit 2015 found that the performance of urban roads and urban public transport in Adelaide is a key challenge for South Australia.

The Audit estimated that the cost of delay on Adelaide's urban transport network was \$1 billion in 2011 and would grow to \$4 billion in 2031, in the absence of investments or other changes beyond those already funded.

The major public transport destination in Adelaide is the CBD, with most public transport use being on buses. Public transport use in Adelaide is significantly lower than in Sydney, Melbourne and Brisbane. In Adelaide, the proportion of passengers using public transport for journeys to work is just over 8%, whereas in Melbourne and Brisbane it is 11.5%, and in Sydney it is 17.6%.

Proposed initiative

The initiative is a major expansion of the tram network in Adelaide, creating a tram network around the CBD and inner suburbs. The proposed link to Port Adelaide would entail conversion of existing diesel heavy rail to a modern electric light rail service which would integrate with land use changes and facilitate increased densification. The completed initiative would constitute tram services across inner Adelaide and the CBD, including:

- To Outer Harbor, Port Adelaide, Sempahore,
- Grange and West Lakes
- To Adelaide Airport and Henley Beach
- To Unley and the south
- To Norwood and Magill Campus
- To Prospect and the north
- A tram loop around the CBD.

Next steps

Canberra CBD to north corridor



Location

Canberra, ACT (Civic to Gungahlin)

Problem timescale

Medium term (5-10 years)

Nominator

ACT Government

Problem

The underlying problem is growing congestion on the Canberra CBD to north corridor. This congestion is being caused by limited road and public transport capacity and increasing travel demand as a result of major population growth in the corridor.

The Australian Infrastructure Audit 2015 shows the cost of delay on greater Canberra's urban transport network was \$0.2 billion in 2011, and is projected to increase to \$0.7 billion in 2031. Further, the Audit shows that in the absence of additional public transport capacity, significant projected population growth in the CBD to north corridor will lead to demand for public transport outstripping available supply.

Proposed initiative

The initiative proposes several measures to alleviate congestion in the Canberra CBD to north corridor, including the construction of light rail between Gungahlin and Canberra CBD, improvements to bus connectivity and reliability and capacity improvements for a number of arterial roads.

Next steps

Options assessment. Construction of light rail between Gungahlin and Canberra CBD is underway.

Canberra public transport improvements



Location

Belconnen, Queanbeyan to central Canberra, ACT

Problem timescale

Medium term (5-10 years)

Nominator

ACT Government

Problem

Canberra's limited public transport network capacity, coupled with high rates of private vehicle reliance, is causing the transport network to suffer from increasing congestion. Congestion is likely to be exacerbated by projected significant population growth.

This congestion results in adverse economic impacts through increased travel times and higher vehicle operating costs.

Proposed initiative

The initiative proposes to develop bus transit corridors connecting Belconnen and Queanbeyan to central Canberra. These corridors will provide an integrated transport solution, reducing traffic congestion and providing transport network capacity for future economic development in the region.

Next steps

Options assessment - required

Newell Highway upgrade



Location

NSW section of Melbourne-Brisbane Inland route

Problem timescale

Near term (0–5 years)

Nominator

NSW Government

Problem

The Newell Highway is part of the National Land Transport Network. It is the principal inter-capital freight route between Melbourne and Brisbane, and is a critical link for regional producers in central and western NSW. Freight movements on the corridor are expected to grow strongly, supported by robust population growth in both Melbourne and Brisbane.

The efficiency of the route is constrained by localised congestion, deteriorating pavement and a lack of overtaking opportunities. Road alignment and geometry in several sections are also unsuitable for some High Productivity Vehicles.

These factors constrain freight productivity by increasing travel times and the number of vehicle journeys required, as well as reducing freight reliability.

Proposed initiative

The initiative seeks to improve several sections of the highway to support safe Higher Productivity Vehicle access, and improve safety and reliability. The initiative will also consider first/last mile issues faced by Higher Productivity Vehicle operators in the corridor.

Next steps

Pacific Highway (A1) – Coffs Harbour Bypass



Problem

Connecting Sydney and Brisbane, the Pacific Highway is an important passenger and freight corridor, and is part of the National Land Transport Network. Currently, vehicles on the Pacific Highway must travel through the Coffs Harbour CBD. This increases freight and passenger vehicle travel times and increases the potential for conflict between heavy vehicles, passenger vehicles and pedestrians in this built-up area. The Australian Infrastructure Audit 2015 identified improving freight network efficiency as a key challenge for New South Wales.

Preliminary economic analysis estimates that the annual cost of the problem is in the order of \$55 million per year.

Proposed initiative

Construct a bypass around Coffs Harbour. This would also include an upgrade to an existing section of highway to deliver a total of 13.2 km of motorway standard dual carriageway on the Pacific Highway.

Next steps

Pacific Highway (M1) – extension to Raymond Terrace



Location

Beresfield to Raymond Terrace, NSW

Problem timescale

Near term (0-5 years)

Nominator

NSW Government

Problem

The Pacific Highway is one of the most heavily used road corridors for freight in NSW. The highway is critical to the transport of freight between Sydney and Brisbane.

Between John Renshaw Drive and Raymond Terrace, the highway is at arterial road standard with at-grade intersections, hindering the free-flow of traffic.

Traffic speed during the morning peak is estimated to be 60 km/hour by 2021 and to drop to 23–39 km/hour by 2031. Current traffic volumes are 21,835 vehicles during the afternoon peak. This is expected to increase by 36% by 2031. The major growth drivers are the planned industrial developments at Black Hill, Tomago Road and Weakleys Drive. It is estimated that road network improvements could increase travel speed by around 20 km/hour.

The current road network does not adequately cater for High Productivity Vehicles. Heavy vehicles travelling to and from Tomago industrial area and the Port of Newcastle are required to undertake contraflow movements during the night. The use of Higher Productivity Vehicles is estimated to generate significant productivity benefits. It is estimated that these vehicles could perform the freight task with up to 37% fewer trucks and 37% fewer vehicle kilometres travelled.

Proposed initiative

Upgrade of the Pacific Highway between John Renshaw Drive and Raymond Terrace to motorway standard. This would lead to productivity benefits from faster freight movements in the Sydney to Brisbane corridor.

Next steps

Western Sydney Infrastructure Plan



Location

Western Sydney, NSW

Problem timescale

Near term (0 - 5 years)

Nominator Audit identified gap

Problem

Over the next two decades, the population of Western Sydney will increase by around 900,000 people, with around half of all Sydney basin residents expected to be living in the region within 25 years. Preliminary analysis indicates that initial demand at the Western Sydney Airport will be about three million passengers per year from commencement of airport operations in the mid-2020s.

Future development in Western Sydney, and at the Western Sydney Airport, is expected to generate additional travel demand which would eventually exceed the capacity of the existing road network.

Proposed initiative

The initiative proposes a suite of road projects including:

- Upgrading The Northern Road to a minimum of four lanes
- Building a new M12 Motorway with up to six lanes
- Upgrading Bringelly Road to a minimum of four lanes
- A package for local roads upgrades.

Projects to upgrade The Northern Road and Bringelly Road Stage 2 are included on the Infrastructure Priority List. Stage 1 of the Bringelly Road upgrade is now under construction.

A separate initiative proposes the preservation of a rail corridor to the Western Sydney Airport.

Next steps

Freight rail access to Port Kembla



Location

Illawarra/Southern Highlands region, NSW

Problem timescale

Near term (0-5 years)

Nominator

NSW Government

Problem

The Australian Infrastructure Audit 2015 identified that Port Kembla would face capacity constraints in the absence of any additional rail network improvements. Port Kembla is a significant economic asset. Maintaining efficient movement of freight to and from the port is a key challenge.

Currently, 60–65% of freight travelling to and from Port Kembla is transported by rail on either the Illawarra line or the Moss Vale to Unanderra line. Operations on both lines are limited by passenger rail services in the region, resulting in disruptions to freight scheduling. Queuing of up to 11 hours is common as passenger services are given priority.

Port Kembla's Outer Harbour development is expected to attract overflow container traffic from Port Botany. The NSW Government has stipulated that Port Kembla should generally not accept more than 120,000 TEUs per annum by road. This is around 10% of Outer Harbour container capacity. This is likely to lead to a significant increase in demand for rail services.

Inadequate rail freight capacity may lead to a substantial increase in road freight, further constraining the Illawarra region's road network.

Proposed initiative

Improve rail freight access to Port Kembla. This could be through enhancements to the Illawarra and/or Moss Vale–Unanderra lines, or through future development of an alternative rail alignment to the port.

Next steps

Options assessment - required

Moorebank Intermodal Terminal road connection upgrade



Location

Western Sydney, NSW

Problem timescale

Near term (0–5 years)

Nominator NSW Government

Problem

The Australian Infrastructure Audit 2015 identified the M5 corridor – the key corridor linking the Moorebank Intermodal Terminal (MIT) and Port Botany – as highly economically significant. The delay cost per kilometre in the corridor is projected to be the 10th highest of any corridor in NSW in 2031, even after accounting for the duplication of the M5 as part of WestConnex Stage 2.

The development of the MIT presents an opportunity to moderate growth in freight traffic on the M5 corridor. However, it will generate additional freight traffic in the vicinity of the terminal. The current road network provides a single point of access to the freight precinct. This constraint could create significant 'last mile' congestion affecting the efficiency of freight movements, and ultimately the effectiveness of the MIT itself.

The broader road network surrounding the MIT is currently highly congested, particularly sections of the M5, which has a poor safety record due to significant 'weaving' conflicts (where vehicles are weaving in and out of lanes). In the absence of any network improvements, the additional freight demand will adversely affect travel times and reliability to the precinct, and ultimately harm freight productivity.

Proposed initiative

The initiative proposes a package of inter-related road infrastructure improvements to increase network efficiency and improve access to the MIT. The major components of the Program include:

- Upgrades to the M5 interchanges at the Hume Highway and Moorebank Avenue
- Connection improvements between the MIT and the M7 Motorway and M31 Hume Motorway
- Upgrades to key intersections.

Next steps

New England Highway upgrade



Location

South of Singleton to Muswellbrook, NSW

Problem timescale

Medium term (5-10 years)

Nominator

NSW Government

Problem

The New England Highway is part of the National Land Transport Network and is a major freight and passenger route forming part of the inland Sydney–Brisbane corridor. The corridor services a high proportion of heavy freight vehicles and is the main road freight route from the Hunter Valley coalfields to the Port of Newcastle.

Under the existing alignment, the New England Highway passes through the centre of towns such as Singleton and Muswellbrook. Traffic congestion, reduced land freight transport productivity, safety (due to the mix of heavy vehicles and residential traffic in the town centres) and amenity issues are the principal problems. The current alignment also limits the extent to which Higher Productivity Vehicles can be mobilised.

Proposed initiative

The initiative includes a number of potential projects, including bypasses of the towns of Singleton and Muswellbrook, and intersection upgrades.

The initiative is designed to contribute to the efficient movement of freight from regional exporters to the Port of Newcastle which is essential to supporting economic growth and productivity in New South Wales.

Next steps

Options assessment/business case development

Western Sydney Airport public transport connection



Location

Western Sydney, NSW

Problem timescale

Longer term (10–15 years)

Nominator NSW Government

Problem

As identified in the Australian Infrastructure Audit 2015, meeting the Sydney region's future air passenger demand will require expansion of airport capacity beyond Sydney Airport. Much of this demand is expected to be absorbed by the proposed Western Sydney Airport at Badgerys Creek.

Upon opening, Western Sydney Airport would require reliable public transport connectivity, appropriate to the level of demand, to service arriving and departing air passengers, as well as employees and airport, aviation, freight and related businesses. Fast and reliable bus connections using dedicated infrastructure, integrated with the broader Sydney rail and public transport network, can help minimise road congestion in Sydney's South West Growth Centre.

Proposed initiative

Provide infrastructure to support bus connections between the proposed Western Sydney Airport and the nearby centres of Liverpool and Penrith, and connecting the airport to the broader Sydney rail and public transport network. This proposed initiative does not preclude direct rail access to the proposed Western Sydney Airport in the future, and should be viewed as a potential complementary investment to preserving a rail corridor.

The Australian and New South Wales Governments have jointly released a scoping study which considers six options for rail services to the Western Sydney Airport, including the proposed South West Rail Link extension.

Next steps

Northern Sydney Freight Corridor Stage 2

Additional track West Ryde to Rhodes and Thornleigh to Hornsby



Location Sydney, NSW

Problem timescale Longer term (10–15 years)

Nominator NSW Government

Problem

Demand for East Coast rail freight is projected to grow rapidly. Interstate container freight in the Newcastle to Sydney corridor is projected to grow four-fold from 2012 to 2028. This rapid near term growth is driven by improvements to freight transport availability and reliability due to the Northern Sydney Freight Strategy Stage 1 project.

Once Stage 1 is completed in 2016, the corridor's capacity will increase by 50%, from 29 to 44 freight trains each day, and will accommodate growth in demand for rail freight up until 2028. In the longer term, the Sydney metropolitan rail network may again become a point of bottleneck for the rail freight network, mainly because of priority given to passenger rail services.

Proposed initiative

The initiative comprises additional tracks from West Ryde to Rhodes and from Thornleigh to Hornsby.

Next steps

Southern Sydney Freight Line upgrade



Location Sydney, NSW

Problem timescale Longer term (10–15 years)

Nominator NSW Government

Problem

The forecast growth in interstate, intrastate and import/ export freight, particularly with the development of the Moorebank Intermodal Terminal, will place significant pressure on Sydney's rail freight network and the Southern Sydney Freight Line (SSFL) in particular. The SSFL forms a key connection between the proposed terminal and other logistics hubs. Without additional capacity once Moorebank Intermodal Terminal is fully operational, the SSFL could become increasingly unreliable and face capacity constraints.

Currently, only 14% of freight handled at Port Botany is transported by rail with the remainder transported by road. On average, Port Botany produces around 3,900 truck movements daily, contributing to significant congestion on key arterial roads including the M4 and M5, both of which were identified in the Australian Infrastructure Audit 2015 as highly congested corridors.

In order to incentivise a shift from road to rail for containerised freight movement in Sydney (consistent with both NSW Government policies and findings from the Audit), further capacity and higher levels of service are required on Sydney's freight rail network. Investment in the rail freight network will be crucial to ensuring the competitiveness of landside freight infrastructure such as the Moorebank Intermodal Precinct.

Proposed initiative

The SSFL is a 36 km single line from Macarthur to Sefton. The proposed initiative involves track duplications and additional passing loops on the line. The initiative aims to support the movement of freight by rail through the city, particularly between Port Botany and the Moorebank Intermodal Precinct. It forms part of a broader strategy designed to drive growth in rail mode share.

Next steps

Lower Hunter freight corridor construction



Location Lower Hunter region, NSW

Problem timescale Longer term (10–15 years)

Nominator NSW Government

Problem

The existing Main North railway line services coal freight movements to the Port of Newcastle, interstate freight movements from Sydney and Melbourne to Brisbane, as well as intrastate freight and passenger trains.

Line congestion, and the priority given to passenger trains on shared parts of the rail network, reduce the efficiency and cost effectiveness of freight movement in the Lower Hunter region. This affects bulk freight destined for the Port of Newcastle as well as containerised and general freight being transported on the east coast freight rail network linking Melbourne, Sydney and Brisbane. Rail freight inefficiency increases costs, and makes rail less competitive than road. This in turn creates an incentive for more trucks to be on the road, which increases congestion, vehicle emissions and noise, and affects amenity.

Proposed initiative

Develop a new rail freight alignment from Fassifern to Hexham bypassing suburban Newcastle.

Next steps

Newcastle–Sydney and Wollongong–Sydney rail line upgrades



Location

Newcastle-Sydney-Wollongong, NSW

Problem timescale Longer term (10–15 years)

Nominator

NSW Government

Problem

Slow regional passenger rail speeds (average 56 km/ hour) result in lengthy travel times of two hours 37 minutes (Newcastle–Sydney) and one hour 27 minutes (Wollongong–Sydney), that are generally longer than car travel. This service level reduces accessibility to the Sydney employment market from regions with above average unemployment. It also limits the opportunities to develop greater economic synergies between Australia's largest, 7th largest and 9th largest cities, which would benefit productivity and relieve metropolitan housing market pressure.

Uncompetitive rail services also add to road congestion on key roads linking Sydney with Newcastle and Wollongong. The current level of rail capacity and quality of service reflect a range of operational and infrastructure constraints, including winding alignments across the Hawkesbury River (Newcastle–Sydney) and the Illawarra Escarpment (Wollongong–Sydney).

Proposed initiative

The proposed initiative is expected to include but is not limited to the following improvements:

- An initial set of operational and fleet improvements
- Targeted fixed infrastructure improvements (e.g. new deviations to eliminate curvatures and flatten grades)
- New rail crossing of the Hawkesbury River and Illawarra Escarpment.

Next steps

Options assessment - required

Melbourne Airport third runway



Location Melbourne Airport, Victoria

Problem timescale

Near term (0–5 years)

Nominator Melbourne Airport

Problem

Melbourne Airport is Australia's second-busiest airport, handling almost 34 million passengers and 238,000 aircraft movements, in 2015–16. The airport's contribution to Gross State Product is forecast to increase from \$1.47 billion in 2013 to \$3.21 billion by 2033, including 23,000 jobs.

Demand for the airport is increasing, and by 2033 the airport anticipates facilitating 64 million passengers and 348,000 aircraft movements.

With its existing two-runway system, Melbourne Airport is expected to reach capacity during peak periods between 2018 and 2022.

This capacity constraint will inhibit the efficient functioning of the airport, leading to significant delays for passengers and freight, increasing fuel costs for airlines, and increasing emissions.

Proposed initiative

The initiative proposes a third runway to meet increased demand at Melbourne Airport. The three-runway system could facilitate at least 380,000 total aircraft movements at the airport per year, providing sufficient capacity to accommodate projected aircraft movements until around 2040.

Next steps

Melbourne container terminal capacity enhancement



Location Melbourne, Victoria

Problem timescale

Longer term (10-15 years)

Nominator

Audit identified gap

Problem

The Port of Melbourne is Victoria's busiest port and the largest container and general cargo port in Australia. Traffic at the port has grown at 6% per year over the last two decades. The Australian Infrastructure Audit 2015 identified that, even with planned expansions, additional container terminal capacity will be required before 2031.

The development of additional container terminal capacity in Melbourne, with dedicated rail links connected to the national rail system, will help to alleviate congestion caused by road freight movements.

Given Melbourne's central role in Australia's freight supply chain, inadequate port capacity in Melbourne could have broader national consequences.

Proposed initiative

Planning and construction of additional container terminal capacity in Melbourne to cater for projected increases in containerised freight volumes.

Next steps

Initiative development - required

Beerburrum to Nambour rail upgrade



Location

Sunshine Coast to Brisbane, Queensland

Problem timescale

Near term (0-5 years)

Nominator

Queensland Government

Problem

Capacity issues on the rail line between Beerburrum and Nambour were identified as a priority in the Queensland Government's *Moving Freight* strategy, and in the Northern Australia Audit.

The existing rail line is operating above capacity, and failing to support current levels of passenger and freight demand. The configuration of the route as a single track with limited passing loops severely limits capacity of the line. Modelling undertaken suggests that passenger demand on this route could grow by between 5% and 8% per year out to 2031.

In the absence of any rail network enhancements, a significant increase in traffic on the already constrained Bruce Highway is likely to occur, to cater for increased commuter movements from the Sunshine Coast to Brisbane. Economic modelling suggests that improvements to this line to increase capacity and efficiency could yield around \$150 million and \$300 million in passenger and freight benefits respectively.

Proposed initiative

The proposed initiative is located on the North Coast Line between Beerburrum and Nambour stations. The proposed initiative involves the duplication of the track, extensions of existing passing loops and improvements to stations along the route. All the proposed improvements will facilitate greater flexibility and passing opportunities, improving the efficiency of both passenger and freight services, and taking pressure off the Bruce Highway.

Next steps

Cunningham Highway – Yamanto to Ebenezer/ Amberley upgrade



Location

Yamanto to Ebenezer, Queensland

Problem timescale

Near term (0-5 years)

Nominator

Queensland Government

Problem

The Cunningham Highway is a key interstate freight corridor that forms part of the Sydney to Brisbane inland corridor. It is part of the National Land Transport Network, and plays a significant role in transporting people and freight (recording 2,700 heavy vehicle movements per day) to and from Brisbane and the Port of Brisbane from the west.

With the construction of the Port of Brisbane Motorway, and the recent upgrading of the Gateway Motorway South and the western Ipswich Motorway, the Cunningham Highway at Amberley is one of the few remaining 'pinchpoints' for interstate freight along the western corridor.

The identified 'pinch point' is the intersection of the Cunningham Highway and the Ipswich Rosewood Road. It results in high levels of congestion particularly during the morning peak. Preliminary modelling suggests that the current direct cost of congestion is approximately \$45 million per year.

The material impacts of the problem include declining levels of service which reduces freight efficiency and through-traffic movements, as well as potentially limiting major developments planned for the area. The intersection does not meet current design standards, resulting in significantly higher than average crash rates. These problems are likely to worsen in the face of the significant population and freight growth expected in the region.

Proposed initiative

The initiative involves upgrades to a 4.75 km section of the Cunningham Highway between Warwick Road at Yamanto and Ebenezer Creek, including the Amberley Interchange. Specific capital works include a major offline deviation with grade-separation for the Amberley Interchange, additional capacity at the Amberley Interchange off-ramp, and a new service road between Coopers Road and Yamanto.

Next steps

Bruce Highway upgrade



Location Brisbane to Cairns, Queensland

Problem timescale Various

Nominator

Queensland Government

Problem

The Bruce Highway is Queensland's major north-south corridor, connecting coastal population centres from Brisbane to Cairns. The Highway is part of Queensland's Priority Freight Network and forms part of the National Land Transport Network.

With Queensland's freight task expected to double over the next 20 years, the highway is expected to have to accommodate a significant increase in freight volumes. The Highway's roles in connecting regional centres and facilitating significant freight movement were identified as key regional priorities for Queensland in the Australian Infrastructure Audit 2015.

The problems identified along the Bruce Highway include: safety concerns, poor flooding immunity, poor connectivity to regional centres and capacity constraints around key economic clusters.

The root cause of the problems identified along the highway are largely driven by increased traffic volumes associated with population and economic growth, resulting in congestion around key economic hubs, this diminishes Queensland's freight productivity.

Proposed initiative

Progressive priority upgrades to the Bruce Highway to address specific capacity constraints, flood resilience and safety concerns. Major planned works include:

- Burdekin deviation
- Mackay Ring Road
- Edmonton to Gordonvale duplication
- Maroochydore Road interchange
- Ingham to Cardwell Range deviation
- Haughton River and Pink Lily Lagoon upgrade.

Next steps

Individual upgrade projects are at various stages of development

Mount Isa–Townsville rail corridor upgrade



Location Far North Queensland

Problem timescale

Medium term (5-10 years)

Nominator

Queensland Government

Problem

The current rail line between Townsville and Mount Isa is capacity constrained with inefficient rail and terminal operations. These constraints include access to the Port of Townsville, short passing loop lengths, and limited passing opportunities.

In its current form, the rail line does not have capacity to cater for the projected increase in demand for rail haulage from mines in the Mount Isa region to the Port of Townsville. Future demand on the line is, under a moderate scenario, estimated to be 20 million tonnes per year. In 2011, the line carried 6 million tonnes and had a theoretical capacity of 7.5 million tonnes.

Proposed initiative

The initiative proposes the following works:

- Enhancements to western sections of the Mount Isa to Townsville Rail Corridor
- Construction of a new 6.5 km Townsville Eastern Access Rail Corridor to provide direct access to export facilities at the Port of Townsville for longer trains.

Next steps

Gladstone Port land and sea access upgrade



Location Gladstone, Queensland

Problem timescale Medium term (5–10 years)

Nominator

Gladstone Ports Corporation

Problem

The Australian Infrastructure Audit 2015 found that growth in mineral and gas exports will lead to significant growth in demand for regional highway, rail and port infrastructure. Improving connections to ports will be essential to supporting these industries.

Gladstone Port handled 116.7 million tonnes in 2015–16. The Port's most recent 50 year plan (2012) envisages the port's capacity will ultimately grow to 250–300 million tonnes per year. The Audit noted that Gladstone Port handled around 7.5% of Australia's total bulk imports and exports (measured in gross mass tonnes) in 2012–13.

Gladstone Ports Corporation has referred to a recent study which identified a number of opportunities to invest in infrastructure to underpin growth in Central Queensland's mining, export and agricultural sector. These opportunities relate to land and sea access infrastructure designed to support productive supply chains to Gladstone Port.

Proposed initiative

The proposal covers a range of potential projects including:

- Channel management to increase export capacity through the port
- Upgrades to road and bridge infrastructure that service the port
- New rail infrastructure to provide direct connections from the Surat Basin to the port.

Next steps

Options assessment - required

Perth Airport third runway



Location Perth, WA

Problem timescale Medium term (5–10 years)

Nominator Audit identified gap

Problem

Perth Airport is the fourth busiest in the country. The Australian Infrastructure Audit 2015 found Perth Airport will need additional capacity to meet projected growth in demand. Passenger throughput is projected to double from 13.7 million in 2013 to 28.5 million in 2034, and total aircraft movements are predicted to grow from 151,300 annually in 2013 to 242,400 in 2034.

This growth is partly driven by the airport's role as a critical fly-in-fly-out transport hub for shift workers travelling to Western Australia's regional mining operations.

Due to the nature of the resource sector's deployment of a fly-in fly-out workforce, passenger movements in and out of Perth Airport are concentrated around peak periods. The high level of demand during peak periods leads to delays, which can lead to higher operating costs for business travellers and fly-in fly-out workers, reducing Australia's international competitiveness.

Proposed initiative

Construction of an additional runway at Perth Airport to provide capacity needed to meet increasing demand.

Next steps

Perth container terminal capacity enhancement



Location Perth, WA

Problem timescale Longer term (10–15 years)

Nominator Audit identified gap

Problem

Capacity at the current container terminal at Fremantle Port is limited. The Australian Infrastructure Audit 2015 indicates that with improvements in productivity and some development, the capacity of the terminal could be up to 1.4 million containers per year.

In 2015–16, Fremantle Port handled 715,107 containers. Assuming port container traffic grows at 3.6% (in line with the average annual growth rate between 2010/11 and 2015/16), and based on current port and landside access capacity, the current facility could reach capacity in around 15 years.

According to the Audit, Fremantle Port accounted for 9.4% of Australia's containerised trade in 2012–13.

The Audit found that significant investment will be required in order to ensure that port capacity can meet the forecast growth in demand by 2031.

Proposed initiative

The initiative involves investigation, planning, and potentially corridor and site preservation for additional container terminal capacity to accommodate future demand in Perth.

Next steps

Initiative development - required

Strzelecki Track upgrade and mobile coverage



Location

Lyndhurst-Innamincka, SA

Problem timescale

Near term (0–5 years)

Nominator SA Government

Problem

The Strzelecki Track was identified in the Australian Infrastructure Audit 2015 as a key freight route. It is the only viable land route between Adelaide and the Cooper Basin, and will be increasingly important to service the expanding oil and gas industry in the Cooper and Eromanga Basins, and the pastoral industry in the north east of South Australia.

The Strzelecki Track is unsealed and suffers from potholes, corrugation and a lack of drainage. It is not sufficiently wide for triple road trains.

The road's condition and alignment reduce travel speed, damage vehicles, cause unpredictable closures due to flooding, and result in road safety risks. The road is not currently suitable for the most productive heavy road vehicles.

Proposed initiative

Upgrade 426 km of the Strzelecki Track between Lyndhurst and Innamincka, and 26 km of the Nappa Merrie Access Road. This will provide an upgraded connection between SA and Queensland. Improvements to mobile phone coverage along the route are also proposed.

Next steps

South Australian regional mineral port development



Location Spencer Gulf region, SA

Problem timescale

Medium term (5-10 years)

Nominator

SA Government

Problem

To date, South Australian mining and resource operations have been accommodated within existing ports and landside transport infrastructure. The Australian Infrastructure Audit 2015 noted that expansion of a number of regional ports, as well as development of new high-capacity ports, could support further increases in exports, especially of minerals and resources. There is a particular requirement to develop deep ports with the capacity to accommodate the 'capesize' vessels which are essential to compete in global iron ore markets.

The lack of a clear path to market (including high capacity, deep ports) can be a barrier to attracting capital to new mining projects. However, it is difficult to attract capital for new port projects without financial and contractual commitments from miners.

Proposed initiative

Consider options for the development of bulk commodity port capacity in the Spencer Gulf region. A business case completed in September 2015 identified three sites that could meet potential demand. These are:

- The existing Whyalla Port in the northern Spencer Gulf
- The Cape Hardy Port on the central eastern Eyre Peninsula, proposed to be developed by Iron Road Limited
- The planned Myponie Point Bulk Commodity export facility on the northern Yorke Peninsula.

Next steps

Sturt Highway High Productivity Vehicle capacity enhancement, including Truro bypass



Location Truro, SA

Problem timescale Medium term (5–10 years)

Nominator SA Government

Problem

The road transport system is the only means of transporting goods in most regional areas of South Australia. However, the existing road network does not allow for the use of High Productivity Vehicles and the absence of a fully developed High Productivity Vehicle network is constraining productivity and the realisation of opportunities in the South Australian economy.

The Sturt Highway is part of the National Land Transport Network, providing the main route between Adelaide and Sydney. Freight growth on the Sturt Highway is expected to increase at 1.6 % per year. Increases in freight vehicle numbers will reduce the capacity of the Sturt Highway, resulting in increased travel time and costs. This negatively affects business competitiveness and productivity.

High Productivity Vehicles have the potential to carry over 30% more freight per vehicle, resulting in fewer vehicles required to move the same freight task. This reduces the costs to transport operators and end users, and reduces the number of heavy vehicles on the road, improving safety, capacity and efficiency of transport services.

Proposed initiative

This initiative proposes the realignment of the Sturt Highway through the Truro Hills, including a bypass of the town of Truro, to improve safety and allow use of High Productivity Vehicles on the highway.

Next steps

Options assessment - required

Gawler Craton rail access



Location Gawler Craton minerals region, SA

Problem timescale

Longer term (10–15 years)

Nominator

SA Government

Problem

The Gawler Craton is a remote mineral region north-west of the Eyre Peninsula in South Australia. The region, which extends into the Woomera Prohibited Area, contains extensive copper, gold, silver and iron ore deposits.

The remoteness of the mineral deposits within the northern part of South Australia is a challenge for exploration and development. Development of a railway could provide a significant transport connection to the Prominent Hill, Olympic Dam and Carrapateena mines, and open up other potential reserves in the area, including Wirrda Well, Acropolis, Vulcan, Titan and Millers Creek.

Geological surveys have indicated that potential deposits in the Woomera Prohibited Area are valued at up to \$35 billion, indicating that a significant uplift in the region's mineral exports could be attainable.

Proposed initiative

The initiative proposes that a third party builds, owns and operates a 350 km railway in the Gawler Craton province, linking to the existing interstate rail network. Future connections to other potential mining projects will be possible.

Next steps

Options assessment - required

Melbourne-Adelaide-Perth rail upgrade



Location

Corridor between Melbourne and Tarcoola, SA

Problem timescale

Longer term (10-15 years)

Nominator

SA Government

Problem

The interstate rail freight network in South Australia comprises links between Melbourne, Adelaide, Perth, Sydney and Darwin and was identified in the Australian Infrastructure Audit 2015 as a key part of the National Land Transport Network. The track handles 80% of the land-based east-west intercapital freight market and is also utilised by regional mineral and agricultural producers in South Australia.

The track is expected to become capacity constrained over the next 10–15 years due to steady growth in the east-west non-bulk freight task (expected to double by 2030) and future mining and agricultural production. Some sections of track are approaching the end of asset life and have alignments that impose speed and axle load restrictions.

The combination of congestion, poor alignment, and asset age is expected to impact travel times and the reliability and productivity of the interstate freight network. The viability of future mining projects may also be affected.

Proposed initiative

The initiative proposes upgrades to accommodate higher axle loads, capacity and speed, and improve train management systems. Future development of the Melbourne–Port Augusta sections of the network will need to be considered as part of the development of the National Freight and Supply Chain Strategy, which is being recommended in the Australian Infrastructure Plan.

A project to accelerate re-railing of the Adelaide–Tarcoola section of the track, which is listed as a Priority Project on the Infrastructure Priority List, will facilitate higher axle loads, capacity and speed on that section of the track.

Next steps

Derwent River crossing capacity



Location Bridgewater, Tasmania

Problem timescale Medium term (5–10 years)

Nominator

Tasmanian Government

Problem

The Bridgewater Bridge does not meet contemporary loading and design standards as part of the National Land Transport Network. The bridge provides one lane in each direction, and has a posted speed limit of 60 km/h.

The existing bridge and causeway are reaching the end of their serviceable lives and future refurbishments will be increasingly costly.

The bridge has high maintenance costs due to its age and current operation as a vertical lift bridge.

Proposed initiative

The initiative involves the development of options to enhance Derwent River crossing capacity.

The Tasmanian Government is progressing development of a business case for the preferred option.

Next steps

Burnie to Hobart freight corridor strategy



Location Burnie to Hobart, Tasmania

Problem timescale Medium term (5–10 years)

Nominator Tasmanian Government

Problem

The road and rail corridor connecting Burnie and Hobart is identified in the Australian Infrastructure Audit 2015 as a corridor of national significance.

The corridor connects regional producers to Tasmania's ports, and producers depend on it to bring goods to market at competitive prices. The Audit projects that economic activity in the corridor will increase by 44% between 2011 and 2031.

Given the corridor's importance to Tasmania's transport network, there is a need for an integrated strategy to ensure its future efficiency and reliability. This strategy would facilitate the development of the corridor as a key freight route, supporting the economic productivity of regional producers and businesses.

Proposed initiative

The initiative seeks to develop a Burnie to Hobart Freight Corridor Strategy, which will prioritise areas for investment along the corridor, with a focus on improving intermodal freight productivity. The key elements of the strategy are to:

- Identify a single, integrated package of investment priorities for road and rail based on freight demand, corridor and system outcomes
- Confirm required road and rail infrastructure standards and service levels
- Plan for appropriate road freight infrastructure standards across the state road network, including the use of high productivity vehicles.

The strategy would be considered in conjunction with the development of the National Freight and Supply Chain Strategy.

Next steps

The Tasmanian Government is developing a Freight Strategy for the corridor for release in the first half of 2017.
Advanced Train Management System implementation on ARTC network



Location

Australian interstate rail network

Problem timescale

Near term (0–5 years)

Nominator

Australian Rail Track Corporation

Problem

Australia's interstate freight rail network is constrained over many long sections of single track. This restricts the number of train paths, reducing rail's competitiveness with road, and hindering rail's ability to meet growing freight movement demand.

Proposed initiative

An Advanced Train Management System (ATMS) is a wireless satellite communications-based train control system, that will replace line-side signalling, allowing:

- More train paths on single tracks
- Improved line capacities
- · Reduced transit times and improve competition with road
- · Improved rail safety
- Improved system reliability.

ATMS will improve the safety and efficiency of train operation between metropolitan centres and between national ports.

Next steps

Preserve corridor for Salisbury to Beaudesert rail connection



Location Brisbane–Beaudesert, Queensland

Problem timescale Near term (0–5 years)

Nominator

Queensland Government

Problem

The South East Queensland region's population is projected to increase by two million people between 2015 and 2041. Under current Queensland Government plans, much of this growth will be accommodated in the south-west of the region. The Logan Local Government Area (LGA) is expected to accommodate an additional 277,300 people, and the Scenic Rim LGA is expected to accommodate an additional 22,200 people, bringing its population to 62,000. Further growth beyond 2041 is anticipated.

Without improvements to public transport, much of the associated growth in transport demand from this area will need to be accommodated on a road network that will become progressively more congested. Unless a corridor for improved rail transport is protected, opportunities to provide sufficient rail capacity could be 'built out'.

Proposed initiative

The 54 km proposed corridor would link Salisbury to Beaudesert in Brisbane's south-west region. The corridor largely aligns with the existing interstate rail line between Salisbury and Kagaru. The initiative is aimed at providing for electrified passenger rail services, with 12 stations, and additional space for duplication of the existing interstate freight line. A cycleway is proposed along sections of the corridor.

The initiative is close to the alignment for a section of the proposed east coast high speed rail line (also a corridor protection initiative on the Infrastructure Priority List). Subject to further design development, the initiative could be adapted to provide sufficient space for a high speed rail line.

Next steps

Options assessment - underway

Improve road access to remote WA communities



Location Remote areas of WA

Problem timescale

Near term (0–5 years)

Nominator

Audit identified gap

Problem

There are approximately 270 remote communities in Western Australia, many of which are in the Kimberley region, 2,000 km from Perth. According to the Australian Bureau of Statistics, approximately 35,000 people live in remote areas of Western Australia. Many of these areas have limited transport access and poor freight connectivity. Existing roads are generally of low quality and some freight routes are unsealed. This:

- Constrains access to employment, health and education services
- Presents safety issues
- Increases the costs of transporting goods
- Reduces resilience to flooding, particularly during the wet season.

The Australian Infrastructure Audit 2015 noted that lower levels of infrastructure service in remote areas can reinforce social and economic inequalities.

Proposed initiative

The initiative is a program of works to improve road access to remote WA areas. This would consider:

- · Providing higher standard gravel roads
- · Sealing gravel roads
- · Floodway improvements
- Improvements to remote and regional airstrips.

Next steps

Options assessment - required

Provision of enabling infrastructure and essential services to remote NT communities

Wadeye, Tiwi Islands, Jabiru



Location

Remote locations in the Northern Territory: Jabiru region/Arnhem Highway, Wadeye region/Port Keats Road, Tiwi Islands

Problem timescale

Near term (0-5 years)

Nominator

NT Government

Problem

This initiative addresses infrastructure problems in three remote regions of the Northern Territory:

- Jabiru, and the Arnhem Highway, which connects Jabiru to Darwin
- Wadeye (Port Keats) and other nearby remote communities, and the Port Keats Road, which connects Wadeye to Darwin
- The Tiwi Islands.

These remote communities lack the infrastructure required for sustainable economic and social development. For example:

- Key road corridors, such as the Arnhem Highway and the Daly River Road, can be severely impacted by floods during the wet season, severing land transport access for remote communities for extended periods of time
- Essential services infrastructure, such as water storage and sewerage management, is not always adequate for the population it supports
- Demand for community infrastructure, such as youth centres and public housing, can often outstrip the available supply.

These infrastructure deficiencies constrain the economic development of these remote regions and can impose significant social costs on the local populations.

Proposed initiative

This initiative proposes a portfolio of upgrades to road infrastructure, as well as a range of essential services and community infrastructure upgrades to support economic and social development:

- Road upgrades to improve the accessibility and flood resilience of key road networks
- Upgrades to provide new or improved water storage facilities and wastewater management facilities in a number of remote population centres
- Upgrades to provide additional public housing and upgrades to social infrastructure, such as community centres and youth centres.

Next steps

Upgrade Tanami Road



Location

Tanami Road links the Stuart Highway in the NT to the Great Northern Highway in WA

Problem timescale

Near term (0–5 years)

Nominator

NT Government

Problem

The key problems identified in the region include:

- Limited economic opportunities for Indigenous and non-Indigenous people in the region
- Limitations to development in mining, tourism and pastoral operations
- High vehicle operating costs
- · Poor flood immunity resulting in lengthy road closures
- · Reduced opportunities for employment in remote areas
- Reduced access to essential services for the Indigenous population
- Broader risks to the health and safety for road users arising from poor road geometry, excessive corrugations and poor visibility.

A key cause of these problems is the poor quality of the road. Over two thirds of Tanami Road is unsealed with substantial sections being unformed. This surface has led to the development of significant ruts and corrugations from heavy vehicles. This initiative aligns with the findings from the Australian Infrastructure Audit 2015, as well as with other government priorities, such as Closing the Gap policies. Further, the initiative was identified as an infrastructure gap in the Northern Australia Audit 2015.

Proposed initiative

Upgrade and improve flood immunity and resilience for the Tanami Road between the Stuart Highway north of Alice Springs, and the Great Northern Highway at Halls Creek.

Next steps

Lower Fitzroy River water infrastructure development



Location

Fitzroy River, Central Queensland

Opportunity timescale Near term (0–5 years)

Nominator

Gladstone Area Water Board and SunWater

Problem

Demand for water resources is predicted to rise as a result of continued industrial and urban growth in the Lower Fitzroy and Gladstone areas and potentially some agricultural development within the Fitzroy Agricultural Corridor.

Water demand projections indicate a total shortfall of high priority water for urban and industrial needs in the Central Queensland region in the order of 41,000 megalitres per year by 2020.

Without secure access to water, further development in this high growth region is expected to be constrained beyond this period.

Proposed initiative

The initiative proposes increasing water storage in the region by constructing a new weir at Rookwood on the Fitzroy River.

The primary benefit of the initiative will be to provide 76,000 megalitres of high priority water per year. The water will be used primarily for industrial and urban purposes and potentially underpin further agricultural development.

Next steps

Wellington Dam water infrastructure development



Location South-west, WA

Opportunity timescale Near term (0–5 years)

Nominator WA Government

Opportunity

Wellington Dam is Western Australia's second largest water storage and the largest surface water storage in the state's south-west. Increasing salinity means water from the dam is no longer suitable for drinking, and is compromising the suitability of the water for irrigation.

Wellington Dam supplies water to the Collie River Irrigation District. Over 20% of irrigators in the Collie River district have handed back their water licences due to poor water quality. If this trend continues, the viability of irrigation in the district is at risk.

Water from Wellington Dam is likely to become increasingly important in the nearby Myalup Irrigated Area Precinct as groundwater resources are fully allocated, and are declining in quality. The estimated gross turnover of horticulture in the Myalup precinct was \$62 million in 2012.

An early estimate indicates this initiative could deliver significant economic benefits, primarily driven by increased agriculture income.

Proposed initiative

The initiative comprises the following components:

- Reforestation (10,000 hectares of pine plantation) upstream of the dam
- · Upstream diversion and temporary water storage
- Construction of a desalination plant and a pipeline for desalinated water
- Relocation of Burekup Weir downstream of the dam
- A piping system upgrade in the Collie district and new pipeline infrastructure in the Myalup district

Next steps

Northern Adelaide Plains water infrastructure development



Location

Northern Adelaide Plains, SA

Opportunity timescale Near term (0–5 years)

Nominator

SA Government

Opportunity

By 2028, SA Water will have to significantly reduce nitrogen discharge into the marine environment from the Bolivar Wastewater Treatment Plant (in Northern Adelaide) to satisfy contemporary environmental standards. SA Water wants to deliver environmental compliance at the lowest possible cost for their sewerage customers, which would involve a land-based disposal option and avoid the need to invest in additional treatment technology to remove nitrogen.

At the same time, the Northern Adelaide Plains has a limited availability of natural water resources. Groundwater is the major natural resource supporting the existing irrigation area. This groundwater is considered to be over allocated and it is likely that future allocations will decrease.

Proposed initiative

The initiative proposes to expand the Bolivar Wastewater Treatment Plant to achieve least cost compliance for the treatment and disposal of waste water, and make an additional 20 gigalitres of recycled water available for high value agricultural production.

Investing in infrastructure to expand the Bolivar plant presents the opportunity to bring forward the lowest cost wastewater compliance option while providing water to support high value agriculture in the region. Without the 20 gigalitres of water that the expansion of Bolivar would deliver, there are limited opportunities to further expand agricultural activity and build the regional economy.

This is expected to significantly extend the current irrigation scheme in the Northern Adelaide Plains, increasing the value of primary production in the region.

Next steps

Options assessment - underway

Tasmanian irrigation schemes

Tranche 2



Location

Various locations, Tasmania

Opportunity timescale

Near term (0–5 years)

Nominator

Tasmania Irrigation Pty Ltd and Tasmanian Government

Opportunity

The gross value of Tasmanian agricultural, foresting and fishing production for 2015–16 was over \$2.3 billion. Research has shown that Tasmanian agriculture could generate a further \$5 billion per year with additional irrigation water.

In 2014, the Tasmanian Government allocated \$30 million towards the development of new irrigation schemes as part of its plan to grow the value of the agricultural sector in Tasmania tenfold to \$10 billion per year by 2050.

The Australian Government announced \$60 million in funding towards Tranche 2 schemes in February 2015.

Proposed initiative

The initiative is to invest in rural water storage and delivery infrastructure to enable large-scale, multi-user irrigation schemes in rural areas in Tasmania. There are five Tranche 2 irrigation schemes:

- Circular Head
- North Esk
- Scottsdale
- Southern Highlands
- Swan Valley.

In combination, these schemes are estimated to deliver approximately 40,000 megalitres of new irrigation water entitlements with 95% reliability.

Next steps

The Southern Highlands scheme is currently under construction, with the other schemes at various stages of development

Darwin region water supply infrastructure upgrades



Location Darwin, NT

Problem timescale Medium term (5–10 years)

Nominator NT Government

Problem

Population growth and industrial development is driving increases in demand for water in the Darwin region.

The Northern Australia Audit 2015 found that an additional water source for Darwin is essential to support further growth of the city. At the same time, climate change is forecast to impact on supply by increasing evaporation and transpiration, which will lead to reduced inflows to reservoirs and decreasing yields.

Failure to expand Darwin's water supply will increasingly constrain population and economic growth. It is also likely to impact on business and investor confidence.

Proposed initiative

The Darwin Region Water Supply Strategy details the options currently being investigated for expanding supply in the region by 2025. While the preferred option has not yet been identified, the Northern Territory Government is continuing to investigate options for developing new surface water sources.

The Darwin region water supply infrastructure upgrades initiative should be considered as part of the National Water Reform Plan recommended in the Australian Infrastructure Plan. It is indicative of the requirement to ensure secure water supply to support further urban, industrial and/or agricultural development in some parts of the country – including in response to increasing water demand associated with population and economic growth, and increasing variability in water supply.

Next steps

Options assessment - underway

Tasmanian sewerage infrastructure upgrades



Location

Hobart, Launceston and Devonport, Tasmania

Problem timescale

Near term (0–5 years)

Nominator Tasmanian Government

Problem

The Australian Infrastructure Audit 2015 noted problems in Tasmania's sewerage infrastructure. The major population centres of Hobart, Launceston and Devonport are serviced by a large number of poorly performing sewage treatment plants, a legacy of past ownership and delivery arrangements.

Non-compliant and ageing infrastructure is contributing to public health and environmental outcomes that do not meet contemporary standards. These outcomes present a threat to Tasmania's status as a 'clean green state' renowned for its natural values and as a preferred tourist destination. Furthermore, a number of sewage treatment plants are located on prime waterfront land in densely populated areas.

Proposed initiative

The initiative is to rationalise existing sewage treatment plants and upgrade and operate a reduced number of sewage treatment plants in Hobart, Launceston and Devonport. The completion of these projects will provide adequate treatment capacity for future growth, minimise environmental regulatory breaches, increase levels of service and improve operational efficiencies.

Next steps

Options assessment/business case development

Hawkesbury-Nepean Valley flood management



Location Hawkesbury–Nepean Valley, NSW

Problem timescale Near term (0–5 years)

Nominator NSW Government

Problem

The problem is the increasing flood risk in the highly populated and major growth region of the Hawkesbury– Nepean Valley. The annual average cost of damage of flooding in the Hawkesbury–Nepean Valley is expected to be in the order of \$70 million.

Hawkesbury–Nepean Valley flood management represents a long-term infrastructure resilience challenge. Increasing frequency of extreme weather events, combined with the impacts of population growth into new and more densely populated areas, will likely require an increase in the level of resilience of some of our infrastructure networks. Infrastructure should be able to continue operating through minor disruptions, and recover quickly from major disruptions.

The largest flood on record in the Hawkesbury–Nepean Valley occurred in 1867 when the river level at Windsor reached 19.2 m above mean sea level, compared to the normal river level which is less than 0.5 m above mean sea level. If the 1867 flood levels were to occur today, it is estimated that the total tangible damages could exceed \$3 billion. If a more extreme event were to occur, the total damages could approach \$8 billion.

Proposed initiative

The Hawkesbury–Nepean Valley Integrated Flood Management Strategy presents a series of initiatives and investments to reduce flood risk in the valley. Elements of the strategy being investigated include:

- Flood mitigation infrastructure (including raising Warragamba Dam)
- Road infrastructure upgrades to improve flood evacuation capacity
- A community engagement strategy
- Improved governance and accountability to reduce flood risk through the integration of emergency, road and land use planning.

Next steps

Connect gas suppliers to eastern gas markets



Location National

Problem timescale Near term (0–5 years)

Nominator

Audit identified gap

Problem

The Australian Infrastructure Audit 2015 identified a potential gas supply shortfall in the eastern gas market as a result of increased domestic and export demand. In the absence of additional supply, this increased demand is expected to lead to higher prices. The Northern Territory and Western Australia have price-competitive gas available, but are not directly linked to the eastern gas pipeline network.

Providing a connected national energy market with sufficient capacity to supply domestic and foreign markets, withstand supply shocks and market forces, and sustainably contribute to Australia's broader environmental goals will support the resilience of the national economy.

Proposed initiative

Develop infrastructure to connect northern and/or western Australian gas reserves to the eastern gas markets.

A project to construct a pipeline between Tennant Creek and Mt Isa, connecting the Northern Territory gas supply with the eastern gas market, is currently underway. This will provide some additional supply to the eastern states, and support economic growth in the Northern Territory. However it is not clear whether this link will be sufficient, on its own, to address the shortfall in the eastern gas market. Additional capacity between the Northern Territory and the eastern states, or a pipeline connection to Western Australia, may be required in the future.

Next steps

Options assessment - required



Appendix A: Projects under construction

These are projects which were previously listed on the Infrastructure Priority List and are now being delivered. Projects normally remain on the List until construction or delivery is underway.

State	Project	Removed from List
New South Wales	Moorebank Intermodal Terminal	2017
	Bringelly Road Upgrade Stage 1	2016
	NorthConnex	2016
Victoria	CityLink Tullamarine Widening Project	2016
Queensland	Bruce Highway Upgrade-Caloundra Road to Sunshine Motorway	2017
	Gateway Motorway Upgrade North	2016
Western Australia	Forrestfield Airport Link	2017
	Mitchell Freeway extension Burns Beach Road to Hester Avenue	2016
South Australia	North-South Corridor (Darlington Upgrade Project)	2017

Appendix B: Projects under assessment

As at February 2017, Infrastructure Australia is assessing the following business cases for inclusion on the Infrastructure Priority List as Projects.

State	Proposed Project
New South Wales	Sydney Metro
	Northern Beaches Bus Rapid Transport
Victoria	Western Distributor
Queensland	Cross River Rail
Western Australia	Armadale Road upgrade
	Mitchell Freeway (Hester Ave to Romeo Road)
	Tonkin Highway (Collier Road to Great Eastern Highway)
	Swan Valley Bypass Enhancements
Northern Territory	Tanami Road

Infrastructure Priority List Australian Infrastructure Plan

February 2017

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