

Assessment Framework

TEMPLATES AND CHECKLISTS

Template and checklist for Stage 1: Problem Identification and Prioritisation

1. Overview

1.1 Document control details

PROBLEM / OPPORTUNITY NAME	<i>Fremantle – Murdoch Transit Link</i>	PROPONENT	<i>South West Group / State Government</i>
VERSION	<i>1.0</i>	DATE COMPLETED	<i>07/08/2020</i>

CHANGES FROM PREVIOUS VERSION (IF APPLICABLE)

1.2 Prepared by

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DATE	<i>07/08/2020</i>				

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DATE	<i>07/08/2020</i>				

Template for Stage 1: Problem Identification and Prioritisation (continued)

2. Problem/opportunity description

2.1 Nationally significant problem/opportunity statement

Transport is identified in Federal legislation as being nationally significant infrastructure. Infrastructure Australia have identified congestion as a national issue in our five largest cities – Sydney, Melbourne, Brisbane, Perth and Adelaide. Infrastructure Australia have also identified public transport as a transformational infrastructure in shaping urban form and managing congestion.

Fremantle is a nationally significant city through having the largest container port in Western Australia, being a concentration of employment with almost 30,000 local jobs (NIEIR 2019) and being one of Western Australia’s most popular tourist destinations having over 1.4 million visitor nights (Tourism WA June 2020) . It has the busiest heritage rail station in Western Australia.

Murdoch is a nationally significant specialised centre for health and education with strong employment growth potential. It is projected to grow to be the largest employment centre outside the Perth CBD with 35,000 workers, 44,000 students and 22,000 residents (Development WA). It currently has the busiest rail station outside the Perth CBD.

The link between Fremantle and Murdoch is South Street which was identified in 2018 by Main Roads WA as being the second most congested major road in the Perth Metropolitan Area. It has an annual congestion cost of \$58.35 million (MRWA 2018).

The South West Metropolitan Region of Perth will be a significant contributor to Perth’s growth. Between 2016 and 2036, it is estimated that \$24.6 billion will be invested in the Region in dwelling construction, with the Region expected to grow at a faster rate than other parts of Metropolitan Perth, from circa 474,000 today to almost 625,000 by 2036 (source: Informed Decisions). This growth will be accompanied by other major shifts that will have a significant impact on the structure and operation of the Region, such as the changing nature and location of work, the ageing of the population, rapid technological transformation, an increasing urban freight task, and climate change.

A business as usual approach will see a continuing poor rate of public transport usage in Perth. The Australian Infrastructure Audit 2019 projects an increase from 6.4% today to only 6.9% in 2031 (an increase of 7.8%) in the “share of trips taken by public transport”. This compares unfavourably to a projected increase in Perth weekday car travel from 48,035,000 kilometres in 2016 to 64,484,000 kilometres in 2031 (an increase of 34.3%).

The South West Group aims to see public transport use grow through innovative use of transport technology and high quality infrastructure to over 10% of trips by 2031 – a modest target by comparison with other global cities. This will require targeted investment to improve the performance, connectivity and quality of the public transport network.

The project seeks to influence investment, urban form, resident and visitor behaviour and structure of the economy through using public transport as a transformational infrastructure rather than a service that responds to incremental growth.

Template for Stage 1: Problem Identification and Prioritisation (continued)

PROBLEMS ADDRESSED BY FREMANTLE – MURDOCH TRANSIT LINK

Problem	KPIs or How Quantified	Solution
South Street is the second most congested major route in Perth	Annual Congestion Cost sourced from MRWA	Promote local housing choice and availability and 10% public transport mode share
High car dependency in the SWMR	Mode Share	
Inadequacy of existing transport system to cope with projected SWMR population and economic growth	Infrastructure Australia projections	Take advantage of growth to use public transport as transformational infrastructure and create attractive living locations close to employment
Most workers do not live locally	ABS Journey to Work	
Poor east west public transport links	Public transport patronage and 2018 PTA Review	
Murdoch Activity Centre failing to reach planned Public Transport Mode Share	Opening of Fiona Stanley Hospital and expansion of SJOG Murdoch only gave limited lift in Public Transport use	Higher quality public transport link between Murdoch and Fremantle with competitive travel times, attractive station/stop precincts
Slow public transport travel times between Fremantle and Murdoch	PTA Journey Planner, PTA Timetables and 2018 PTA Review	
Poor resilience of existing public transport network	Chaos experienced with power failures, accidents and congestion	Link the heavy rail stations of Fremantle and Murdoch and provide public transport priority to reduce the number of incidents that can impact public transport
Sub optimal corridor development from incremental development along Fremantle Murdoch Corridor	Forecast ID shows most growth is at Fremantle and Murdoch with limited growth in between	Focussed investment will be triggered by a commitment to develop nodes and upgrade public transport

Local governments in the South West Metropolitan Region have consistently supported development of high quality public transport and have undertaken extensive land use planning related to provision of high quality public transport in Rockingham, Fremantle, Cockburn and Melville. The State Government is committed to further passenger rail investigations within the Region as part of “Perth and Peel @ 3.5 million - The Transport Network”. These investigations will be carried out under the “Metronet Project” as reflected as ‘Perth Rail Network Capacity’ in the IA IPL 2020. The PTA, following its review of the corridor containing the Fremantle – Murdoch Transit Link identified the need to improve public transport performance in that corridor.

In 2018 the annual avoidable cost of congestion for the South Metropolitan Region was estimated at \$518.8 million. With limited opportunities to significantly expand the existing transit corridors within the Region, high quality public transport is seen as a key strategy to manage congestion, maintain amenity, stimulate private sector investment and reduce carbon emissions.

The Business Plan for the adjacent Thornlie Cockburn Link identified three core problems in the existing transport network:

- The connectivity of the existing transport system is insufficient to cope with population growth and support employment nodes within the South Metropolitan Peel sub-region.
- The radial design of the current passenger rail network creates service gaps in public transport and reduces system resilience which limits passenger mobility in the South Metropolitan Peel sub-region.
- Economic and population growth pressures in the South Metropolitan Peel sub-region are leading to increased congestion and crowding across the transport system, adversely impacting the productivity of the system.

Template for Stage 1: Problem Identification and Prioritisation (continued)

All of these core problems apply across the South West Metropolitan Region and to the Fremantle – Murdoch Transit Link.

The PTA have undertaken a review of the Fremantle – Murdoch Transit Link as part of Corridor 19 Review in 2018. PTA identified slow bus average travel time (less than 30 kph) and low occupancy (7.94%) in the 130 buses that travel each day between Murdoch Train Station and the City of Melville western boundary (Section 2 in Figure 2). The PTA Review also identified that bus journey times are negatively impacted by the lack of priority at intersections and traffic congestion. The outcome of the Review was to propose bus priority lanes from Murdoch University to South Fremantle and bus priority at intersections where geometry allowed.

There is an opportunity to make a step change in public transport patronage whilst facilitating private sector investment in urban and commercial development by improving public transport quality and travel times and developing safe, high amenity, walkable nodes in the Fremantle – Murdoch Transit Link.

Assessment by the Cities of Fremantle and Melville estimates that \$2 billion of additional development can be triggered by high quality public transport for the construction of 8,500 dwellings by 2036. This is equivalent to \$132 million a year of additional economic activity that supports the goals of Perth and Peel @ 3.5 million. The combination of congestion impacts and development opportunity well exceed the \$30 million threshold for consideration as being nationally significant.

The South West Group are undertaking a study with Arup to assess the type of transport technology and geometry best suited to stimulating investment and improving public transport patronage and performance. Currently bus travel times on the Fremantle - Murdoch Transit Link are 50% slower than private cars and produce the anomaly that it is faster to travel by public transport from Murdoch to the beachside suburb of Cottesloe via Perth CBD than via Fremantle. The study is considering a range of alignments, station stops and transport technology including enhanced Bus Priority, Bus Rapid Transit, Light Rail and Trackless Trams.

Template for Stage 1: Problem Identification and Prioritisation (continued)

2.2 Problem/opportunity location

The problem/opportunity location encompasses the area between Leach Highway, the eastern boundary of the City of Melville and the southern boundary of the City of Melville as well as the City of Fremantle excluding North Fremantle. The area has a 2018 population of over 70,000 people and with business as usual growth will have a 2036 population of over 90,000 people.

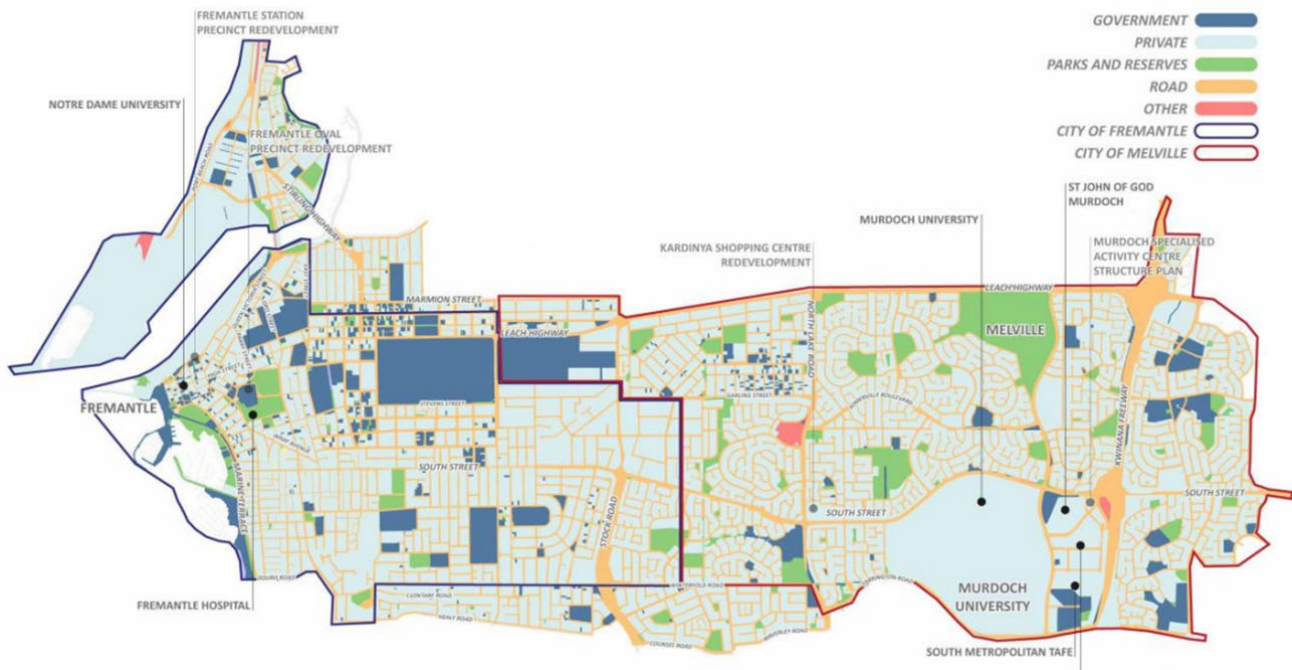


Figure 1. Problem/opportunity Location: Source Arup

The likely transit corridor will run along South Street. The major part of the route is shown as Sections 1 and 2 in the PTA Corridor 19 figure. The corridor commences at the Fremantle Railway Station and links into South Street to connect with Murdoch University, St John of God Hospital, Fiona Stanley Hospital, the Murdoch Health and Knowledge Precinct and Bull Creek Shopping Centre.

Apart from the absence of bus priority lanes beyond Murdoch Drive, the large number of bus stops (see Figure 3) increases the typical travel time for the 12.5 kilometres from Bull Creek Shopping Centre to Fremantle. For a resident of Dartford Street (near the Bull Creek Shopping Centre) travelling to Notre Dame University, a private vehicle trip would take 22 to 25 minutes and a public transport trip around 46 minutes. For the same resident travelling to work in Napoleon Street, Cottesloe car travel time would be 28 to 30 minutes and a public transport trip 59 to 64 minutes.

Template for Stage 1: Problem Identification and Prioritisation (continued)

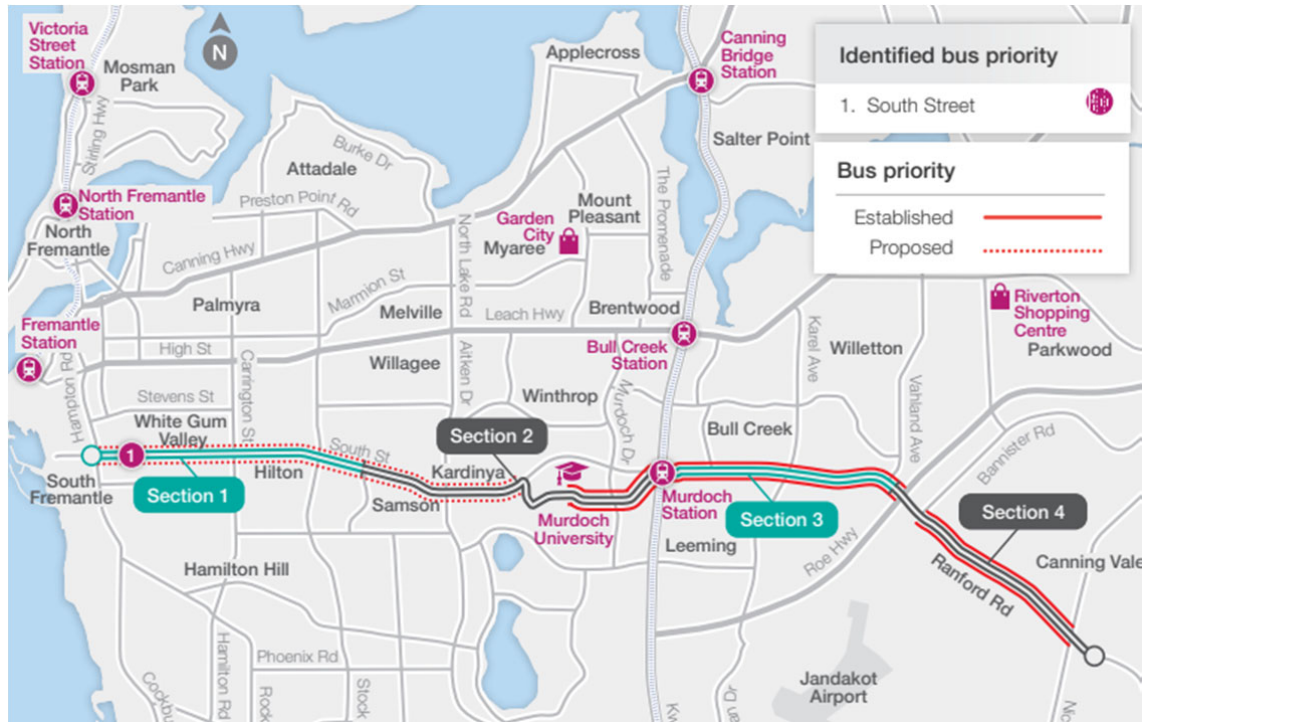


Figure 2. Corridor 19 Review by PTA 2018: Source PTA Public Transport Major Road Corridor Review 2018



Figure 3. Existing Public Transport Layout: Source ARUP

Template for Stage 1: Problem Identification and Prioritisation (continued)

Stop/Station	Current Zoning Dwellings	Current Zoning Population	Conceptual Zoning Dwellings	Conceptual Zoning Population
Stockland Bull Creek District Shopping Centre	814	2,051	5,000	12,600
Kardinya	987	2,487	4,500	11,250
Plane Tree Grove/Samson	737	1,682	1,482	2,509
O'Connor	257	555	4,754	10,275
Hilton	1,831	3,955	2,749	5,938
Beaconsfield	892	1,927	3,993	8,625
Hampton Road	1,317	2,845	1,440	3,110
Fremantle Hospital	949	2,050	2,644	5,712
Fremantle Rail Station	3,022	6,527	3,022	6,527
South Quay	2,191	4,733	2,257	4,825
Total of Selected Stops/Stations	12,997	28,812	31,841	71,371

The Cities of Fremantle and Melville have undertaken a planning exercise to assess what density would be possible at nodes supporting a high quality public transport link. For 10 selected locations (see Table 1) there is a potential increase, from business as usual, of 19,000 dwellings and a population increase of 42,000 persons. If half of this increase were to occur by 2036 it would represent an additional \$2 billion private sector investment or \$132 million a year.

Template for Stage 1: Problem Identification and Prioritisation (continued)

2.3 Problem/opportunity root causes and time period

Root cause	Time period
1. Court State Government passes Railway (Northern and Southern Extensions) Act 1999 to construct Perth to Mandurah heavy rail line.	1999
2. Gallop Government decides to locate rail alignment within the Kwinana Freeway from Perth to Kwinana to improve travel time and reduce project cost.	2002
3. Perth Mandurah Rail opened	December 2007
4. 783 bed Fiona Stanley Hospital opens at Murdoch (largest building project undertaken by WA State Government)	December 2013
5. 2016 Census Journey to Work for Perth 83.8% by car as passenger or driver and only 11.8% by public transport. Australia Infrastructure Audit 2019 estimates only 6.4% of Perth trips undertaken by public transport in 2016.	2016
6. Murdoch Rail Station has highest daily boardings outside of Perth CBD with 9,603 boardings	March 2019
7. Thornlie Cockburn Link Construction Contract awarded	December 2019
8. Murdoch Health and Knowledge Precinct Medihotel due to be completed	2022
9. Mandurah Rail Line forecast to exceed crush capacity in Australia Infrastructure Audit 2019	2031
10. Murdoch Rail Station boardings forecast to reach 15,000 passengers per day	2031
11. Population growth in study area from 70,977 in 2018 to 91,430 in 2036	2036

Template for Stage 1: Problem Identification and Prioritisation (continued)

2.4 Information about the problem and opportunity

Note: the monetised cost is the economic cost of the problem / opportunity, not the financial (capital) cost of resolving it.

Problem	Qualitative description	Quantitative evidence	Monetised cost of problem/opportunity \$m, real 2000
Current			
<i>Problem 1</i>	<i>High level of avoidable annual congestion costs within the Region</i>	<i>BITRE and Main Roads estimates</i>	<i>\$518.8 million</i>
<i>Problem 2</i>	<i>High level of avoidable annual congestion on South Street</i>	<i>Main Roads estimate</i>	<i>\$58.35 million</i>
<i>Problem 3</i>	<i>Over \$145 million a year of annual building activity within the study area</i>	<i>Congestion can add 2.5% to the cost of building</i>	<i>\$3.6 million additional cost</i>
<i>Problem 4</i>	<i>Existing public transport on Fremantle _ Murdoch Transit Link slow and poor occupancy with car travel time half that of public transport</i>	<i>PTA report average bus speeds of less than 30 kph and average occupancy of less than 8% of the 130 buses that travel on the Murdoch end of the Transit Link</i>	
Medium term (2026)			
<i>Problem 1</i>	<i>Increasing level of avoidable congestion costs within the Region</i>	<i>BITRE and Main Roads estimates</i>	<i>\$700 million</i>
<i>Problem 2</i>	<i>High level of avoidable annual congestion on South Street</i>	<i>Projected Main Roads estimate</i>	<i>\$78.7 million</i>
<i>Problem 3</i>	<i>Over \$145 million a year of annual building activity within the study area (business as usual)</i>	<i>Congestion can add 2.5% to the cost of building</i>	<i>\$3.6 million</i>
Longer term (2036)			
<i>Problem 1</i>	<i>Increasing level of avoidable annual congestion costs within the Region</i>	<i>BITRE and Main Roads estimates</i>	<i>\$1,044 million</i>
<i>Problem 2</i>	<i>High level of avoidable annual congestion on South Street</i>	<i>Projected Main Roads estimate</i>	<i>\$117.4 million</i>
<i>Problem 3</i>	<i>Over \$145 million a year of annual building activity within the study area (business as usual)</i>	<i>Congestion can add 2.5% to the cost of building</i>	<i>\$3.6 million</i>
<i>Problem 4</i>	<i>Infrastructure Audit 2019 predicts little public transport growth and substantial car travel increase</i>	<i>Perth weekday car travel growing by 34.3% from 48,035,000 kilometres in 2016 to 64,484,000 in 2031.</i>	

Template for Stage 1: Problem Identification and Prioritisation (continued)

2.5 Stakeholder impact

Stakeholder	Impact
South West Group	Active participant in public transport planning and use of new technology
City of Fremantle	Active participant in public transport planning and use of new technology
City of Melville	Active participant in public transport planning and use of new technology
Murdoch University	Supporter of local employment, managing congestion and improved infrastructure
Curtin University	Supporter of local employment, managing congestion and improved infrastructure
Notre Dame University	Supporter of local employment, managing congestion and improved infrastructure
West Australian State Government	State Government Proponent of Metronet including a commitment to investigate passenger rail in the Region
RAC	Active participant in public transport planning and use of new technology

Template for Stage 1: Problem Identification and Prioritisation (continued)

2.6 Problem/opportunity alignment with relevant government policy objectives, strategies and other problems/opportunities/programs

Plan Policy or Strategy	Date	Body	Comment
Perth and Peel @ 3.5 Million	2018	State Government	Fremantle is a secondary centre and Murdoch is a specialised centre Link between Fremantle and Murdoch is identified as an Urban Corridor
Perth and Peel @ 3.5 Million Central Sub Region Planning Framework	2018	State Government	47% of new dwellings as an infill target 215,000 new dwellings in the Central Sub Region by 2050
Perth and Peel @ 3.5 Million – The Transport Network	2018	State Government	Fremantle to Murdoch has been identified as a High Priority Transit Route
State Planning Policy 4.2 Activity Centres for Perth	2010	State Government	Fremantle is a secondary centre and Murdoch is a specialised centre
Murdoch Specialised Activity Centre Structure Plan	2014	State Government	Is based on a major public transport trunk infrastructure in an east west direction
Murdoch Health and Knowledge Precinct		State Government through Development WA	A well designed connected centre providing 35,000 jobs for education facilities for 44,000 students and homes for 22,000 residents
Inner City Light Rail Problem Definition	2019	State Government through Metronet	Stage 1 Submission to Infrastructure Australia
City of Fremantle Integrated Transport Strategy	2015	City of Fremantle	The City of Fremantle believes that Light Rail is capable of providing sufficient capacity to serve Fremantle and the surrounding growing regional centres
Murdoch University Masterplan	2016	Murdoch University	Makes provision for light rail or bus rapid transit through the site
Perth Rail Growth Plan		State Government through PTA	PTA Plan for rail capacity growth to 2051 and beyond
Public Transport Major Road Corridor Review	2018	State Government through PTA	The corridor between Fremantle and Murdoch is identified as part of Corridor 19 in the review. Bus priority lanes proposed for the full length of South Street
Australia Infrastructure Audit	2019	Infrastructure Australia	Seeks to align transport infrastructure with universities and hospitals
Planning Liveable Cities	2018	Infrastructure Australia	Our cities need more high quality, high density development supported by adequate infrastructure
Future Cities – Planning for our growing population	2018	Infrastructure Australia	Australian governments should increase investment in public transport infrastructure

Template for Stage 1: Problem Identification and Prioritisation (continued)

Development targets for infill have been set under Perth and Peel @ 3.5 million to support a sustainable and resilient city. These targets are a split of 47% infill and 53% greenfield development. Progress towards these targets is reported in the Department of Planning Urban Growth Monitor. The Central Sub Region has an infill target of 124,880 dwellings between 2011 to 2031 or 6,244 dwellings a year. The 2020 Urban Growth Monitor reports that performance to 2018 has been 4,534 dwellings a year well short (72.6%) of the target.

Infrastructure Australia in their 2019 Audit Report state that 70% of Metropolitan Perth development has been greenfield development. This is consistent with the 2020 Urban Growth Monitor which reports of the 118,460 dwellings constructed between 2015 and 2018, 81,880 or 69% were constructed in greenfield areas.

The Fremantle - Murdoch Transit Link has the potential to add 500 infill dwellings a year, making up 8.0% of the 27.4% current gap.

The project is connected with the Thornlie – Cockburn Link, Murdoch Health and Knowledge Precinct, Inner City Light Rail, Murdoch University Masterplan, Murdoch Drive Connection, Grade Separation South Street, Public Transport Major Corridor Review, Murdoch University Masterplan and the Murdoch Specialised Activity Centre Structure Plan.

3. Confidentiality

Confidentiality

None of the information is confidential.

Checklist for Stage 1: Problem Identification and Prioritisation (continued)

The following provides a checklist for proponents to prepare Stage 1 submissions.

Proponents are encouraged to contact Infrastructure Australia for clarification on any part of this checklist, or for additional guidance in preparing a submission.



Infrastructure Australia can be contacted via email on IPLSubmissions@infrastructure.gov.au, or telephone on (02) 8114 1900.

Key questions	Complete?
Is the problem/opportunity expressed as a straightforward statement?	<input checked="" type="checkbox"/>
Is there an explanation of how and why the problem/opportunity is nationally significant?	<input checked="" type="checkbox"/>
Is the problem/opportunity to link to jurisdictional goals and objectives, as well as other problems, programs and projects?	<input checked="" type="checkbox"/>
Is the problem/opportunity measured by quantitative and/or qualitative data?	<input checked="" type="checkbox"/>
Is the problem/opportunity articulated in the base case i.e. the state of the world in the absence of major future investment?	<input checked="" type="checkbox"/>
Has the problem/opportunity been monetised over time?	<input checked="" type="checkbox"/>
Have assumptions about future trends in drivers (e.g. population, economic growth, technology, climate trends) been described?	<input checked="" type="checkbox"/>
Have the project/opportunity interrelationships been described?	<input checked="" type="checkbox"/>

*Checklist for Stage 1: Problem Identification and Prioritisation (continued)***National Significance Definition**

Infrastructure Australia uses the IPL to identify major infrastructure proposals that have substantial strategic merit and are of national significance. An infrastructure investment is considered to be nationally significant if, based on the evidence presented, the Infrastructure Australia Board is of the opinion that the investment is expected to have a material impact on national output by:

1. Addressing a problem that would otherwise impose economic, social, and/or environmental costs; or
2. Provide an opportunity for realising economic, social, or environmental benefits; or
3. Both addressing a problem and providing an opportunity.

For the purposes of assessing submissions to the IPL, we have applied, as a guide, a threshold value of \$30 million per annum (nominal, undiscounted)¹ in measuring material net benefit², taking potential unquantified quality of life considerations into account.

¹ This threshold was adopted by the Infrastructure Australia Board based on evidence drawn from the 2015 Infrastructure Audit

² This includes economic, social and environmental net benefits