

Infrastructure Australia

Project Business Case Evaluation

Project name	Mitchell Freeway extension (Burns Beach Road to Hester Avenue)
Rating	High Priority Project
Date of IA Board rating	April 2016

Location	Northern Perth, Western Australia
Proponent	Western Australian Government
Project timeframe	Construction commenced in May 2015 and is expected to be completed by mid-2017

Evaluation Summary

The *Australian Infrastructure Audit* (the Audit) identified the northern and north-western suburbs of Perth as areas of projected high population growth over the period 2011 to 2031. Congestion on the Mitchell Freeway, which links these suburbs to the rest of Perth, is already causing significant delays and costs to the local economy. Growth in the area is expected to increase these delays and costs.

The project seeks to address this problem by improving the connectivity to, from, and within these suburbs. The project proposes extending the Mitchell Freeway by six kilometres, and undertaking a number of related local road improvements to expand road capacity and reduce congestion.

The proponent's cost-benefit analysis of the preferred option shows a benefit-cost ratio (BCR) of 10.4. The assumed key demand drivers, demand forecasts and methodology underpinning the analysis are generally robust. Infrastructure Australia notes that the business case provided was undertaken at an early stage of project development. Infrastructure Australia understands that key risks are being managed by the Western Australian Government and the contractor, Leighton Contractors.

This project is under construction, with work commencing in May 2015. The project is anticipated to be completed in mid-2017.

Context and Problem Description

1. Strategic context

The Audit notes that high levels of population and economic growth are projected for the Perth region over the period 2011 to 2031. These factors are likely to drive growth in demand for Perth's transport networks.

The Mitchell Freeway connects Perth's northern suburbs to the rest of Perth, including the CBD. The Audit notes that the population of this area is projected to grow faster than the average for the Perth metropolitan area, and much faster than the national average between 2011 and 2031.

The project has previously been identified as a priority in the Western Australian Government's *Directions 2031 and Beyond* (released August 2010) and *Economic and Employment Lands Strategy* (released April 2012). Both planning strategies highlight the need for reduced congestion and improved connectivity through the Mitchell Freeway corridor.

2. Problem description

The Mitchell Freeway corridor is already operating at or near capacity during peak periods. The Audit found that in 2011 the corridor was ranked as the most congested in Perth and fourth most congested in Australia, as measured by delay cost per lane kilometre.

The population and economic growth in Perth's north and north-west are likely to exacerbate the congestion problem in the corridor. The Audit projects that, without additional capacity, the Mitchell Freeway will become the most congested corridor in Australia by 2031. Fully addressing this problem will require further initiatives addressing both capacity and demand.

The problem directly addressed by the Burns Beach Road to Hester Avenue extension is connectivity to the suburbs north of the current terminus of the Mitchell Freeway.

The scale of the projected growth in the Perth area, and the likely impact of increased congestion on the northern and north-western suburbs – as well as the broader Perth transport network – make this a problem of national significance.

Failure to provide adequate and efficient connectivity for residents and workers in the northern growth area of Perth could have significant economic impacts. The business case identifies that the local area suffers from limited road links to existing community services, low levels of local employment and private sector investment, and limited alternative transport options, including public transport, and facilities for walking and cycling.

The proponent estimates that the cost of ongoing and worsening problems in the local area is in the order of \$250 million per year. Without action, congestion along the Mitchell Freeway corridor will likely further constrain employment and economic growth.

The area suffers from relatively poor quality transport services. Access to services is limited by long journey times due to congestion connecting to and along the Mitchell Freeway. Further congestion would likely exacerbate this, and deter investment in local businesses and facilities. Such investment could lead to higher local employment and improved community amenity.

Project description

3. Project overview

The project seeks to extend the Mitchell Freeway at its northern end from Burns Beach Road, Joondalup to Hester Avenue, Clarkson. The project includes provision of:

- Six kilometres of two-lane freeway in each direction, with capacity for widening to three lanes in each direction in future;
- Interchanges at Burns Beach Road, Neerabup Road and Hester Avenue;
- A shared path for pedestrians and cyclists with an overpass at Burns Beach Road;
- Pedestrian underpasses at Neerabup Road, Hester Avenue and Currambine train station; and
- Noise mitigation mechanisms where required.

The project also proposes broader road network improvements to ease congestion and support increased traffic volumes through the corridor:

- Extension of Neerabup Road from Connolly Drive to Wanneroo Road;
- Widening of Hester Avenue from Hidden Valley Retreat to Wanneroo Road;
- Reconfiguration of the Flynn Drive, Wanneroo Road and Neerabup Road intersection;
- Widening of Wanneroo Road from Flynn Drive to Hall Road; and
- Upgrade of the Joondalup Drive and Wanneroo Road intersection.

Business Case and Economic Evaluation

4. Options identification and assessment

The proponent undertook an options assessment for this project to determine the preferred highway extension option.

A long list of 12 interventions to the existing Mitchell Freeway was shortened to six options for multi-criteria analysis. The multi-criteria analysis included undertaking transport modelling for each option. All options included an extension of the freeway, with other proposed works. All options align with the problem by seeking to address congestion through the corridor and provide additional transport capacity for the region's growing population.

A cost-benefit analysis was undertaken for two options: a full package of works, and a smaller package of works that could be used as a first stage of development. The smaller package of works returned a BCR of 10.4, compared to the full package of works with a BCR of 7.6. The submission and contracted project largely reflects the smaller package of works with the BCR of 10.4, although with some variations. Consideration of other components of work, including further extending the Mitchell Freeway, is progressing separately.

Public transport options were not explicitly considered because the Joondalup passenger rail line was recently extended to Butler, so this service now extends further north than the proposed freeway extension.

Further consideration will be required to address Mitchell Freeway capacity issues more broadly, as the project focuses on extending access to the freeway only. As noted above, the Audit projects that, without additional capacity, the Mitchell Freeway will become the most congested corridor in Australia by 2031. In considering the broader corridor in the future, Infrastructure Australia would encourage a broader set of options to be assessed, covering pricing, land use planning and public transport options.

5. Economic evaluation

The cost-benefit analysis of the option most closely aligned to that chosen has a BCR of 10.4. The assumed key demand drivers, demand forecasts and methodology of the analysis are generally robust. The project is evaluated over a standard 30-year timeframe.

The majority of benefits are derived from travel time savings and reduced vehicle operating costs to users. The analysis does not include other potential benefits which could have resulted in a higher BCR. These include residual asset values, or externality benefits. The analysis did not include consideration of wider economic, social and environmental impacts of the project.

The modelling has not accounted for induced demand. Infrastructure Australia's assessment of other projects has shown that the inclusion of induced demand would reduce the user benefits attributable to the project. Notwithstanding these potential downward pressures, Infrastructure Australia remains satisfied that the project will deliver significantly positive net benefits, and directly addresses a nationally significant issue identified by the Audit.

Major cost items

The proponent has provided the following capital cost estimates (prepared in April 2014) for the project:

- \$322.6 million (nominal P90); and
- \$297.9 million (nominal P50).

The contract signed with the preferred tenderer, Leighton Contractors, to design and construct the project was reported to be \$261.4 million. It is assumed that this cost is nominal, but the proponent has not provided further information on the project cost, including a more detailed breakdown of cost components, and the extent of variations that might occur to this contract price.

Total capital cost (nominal, undiscounted)	\$261.4 million
Proponent's proposed Australian Government funding contribution	\$209.1 million
Other funding (source / amount / cash flow) (nominal, undiscounted)	WA Government to fund the remainder (\$52.3 million)

Major sources of benefit

The major sources of benefit identified in analysis provided to Infrastructure Australia are:

- Travel time savings arising from reduced congestion and a more direct route (\$1,551 million net present value, comprising 64% of benefits); and
- Reduced vehicle operating costs because of reduced congestion and a more direct route (\$880 million net present value, comprising 36% of benefits).

Deliverability

The project has been under construction since May 2015. A high-level risk assessment was provided by the proponent. Infrastructure Australia was not provided with sufficient information to undertake a full delivery risk evaluation of the preferred option. Given the project is under construction, the deliverability risks are being managed by the Western Australian Government and its contractor, Leighton Contractors.