

Tasmanian Government
2012 Transport Submission to
Infrastructure Australia

Midland Highway – Mangalore to Bagdad Upgrades and future Bagdad Bypass

August 2012

Proposal Summary

Initiative Name:	Burnie to Hobart Freight Corridor: Midland Highway (Bagdad to Mangalore)
Location (State/Region(or City)/ Locality):	Southern Midlands, Tasmania
Name of Proponent Entity:	Tasmanian Department of Infrastructure, Energy and Resources
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Executive summary	<p>This project has already been recognized as a priority by both the Australian and Tasmanian Governments. Federal funding for planning was approved in February 2009. This current submission seeks funding for the next stage of this major project leading to its construction.</p> <p>The Midland Highway is the State's major north-south transport corridor and a key link in Tasmanian's National Land Transport Network (NLTN). The Highway is both a critical freight connection facilitating access from the Southern region to the State's northern ports and the major transport link for passengers (including tourists) travelling between the northern and southern regions.</p> <p>The <i>Auslink Tasmania Corridor Strategy</i> (2006) forecasts a 67 per cent increase in daily heavy vehicle traffic future growth along the section of the Highway (between Brighton and Conara) between 2005 and 2030. Passenger vehicle traffic is expected to grow by 34% over the same period.</p> <p>The primary function of the Midland Highway is to provide safe, high-speed travel for freight and passenger vehicles. However, safety and efficiency over the southern section is currently significantly compromised, with implications for future economic growth in greater Hobart and southern Tasmania more widely.</p> <p>However, the current Midland Highway alignment necessitates travel through a number of rural towns resulting in increased travel times due to variable speed limits and a conflict between the through traffic function of the highway and the local access requirements of these towns. This gives rise to a range of safety, efficiency and capacity issues.</p> <p>The proposal comprises two components, addressing immediate, short-term priority issues on the Highway while planning strategically for longer-term efficiency and capacity improvements:</p> <ol style="list-style-type: none"> 1) Project Development for the Bagdad Bypass project - The Bagdad Bypass would see the construction of approximately 17km of limited access highway to bypass the small rural townships of Mangalore, Bagdad and Dysart north of Brighton on the existing Midland Highway alignment. Funding is requested for the Project Development phase, which includes refinement of the concept design, land acquisition, geotechnical, environmental and heritage investigations and the preparation of a project proposal report for the Delivery Phase. This work will then lead into construction of the Bypass; and 2) Interim Safety Improvements, Bagdad to Mangalore – Funding is requested for the delivery of targeted infrastructure improvements to the existing Midland Highway between Bagdad and Mangalore to address identified safety issues on this section of the highway until the Bagdad Bypass is constructed. Improvements include shoulder widening, crest and grade improvements and the provision of dedicated turning lanes at key intersections/junctions. <p>The Bagdad Bypass is one of a strategic package of the Midland Highway Improvement Projects designed to upgrade the northern approaches to Hobart. Other projects include the provision of the Pontville/ Brighton Bypass (under construction) and construction of an intermodal transport hub at Brighton (under construction)</p>

and a new Bridgewater Bridge.

The primary benefit of the Bypass is a National Transport Network that meets contemporary structural and geometric standards and a highway system that supports the changed direction of trade and export and import from southern Tasmania to the northern ports at Bell Bay, Devonport and Burnie.

The Bagdad Bypass is identified as a key project in both the Tasmanian Infrastructure Strategy and the Southern Tasmania National Transport Network Investment Program, which articulates the specific transport objectives for Southern Tasmania. The project has previously been tested and deemed to have strategic merit, as it reflects jurisdictional objectives, policies and strategies.

The Bagdad Bypass will:

- Improve efficiency by reducing travel times for both freight and passenger vehicles between the Southern and Northern regions of the State;
- Support the other projects in the Southern Tasmania National Transport Investment Program 2007-15, including the Brighton Bypass and Transport Hub, to deliver their full potential in terms of efficiency and capacity improvements;
- Reduce road trauma and maintenance costs;
- Improve amenity in the townships to be bypassed.

More broadly, when completed, the project will also:

- Support trade and freight transport from Southern Tasmania to the northern ports;
- Improve transport efficiency and safety on the approaches to Hobart;
- Improve connectivity for transport operators to the proposed Brighton Transport Hub; and
- Advance the stated objectives of the NLTN.

The Federal Minister for Infrastructure and Transport approved funding to complete the scoping and planning phase of the Bagdad Bypass project (in conjunction with the Bridgewater Bridge) in February 2009.

At this stage, only funding for the project Development Phase is being requested under the Nation Building 2 program. Project Development will comprise all tasks critical for project development, including the acquisition of a number of properties necessary to facilitate the proposed works. The key output of the Development Phase will be a design concept that meets all technical, statutory and community requirements.

In the interim, there are serious existing safety issues on the Bagdad-Mangalore section of the Midland Highway that need to be addressed. In the past ten years, there have been 72 crashes on this stretch of road, including five fatalities.

The fundamental issue with the section of the Midland Highway between Bagdad and Mangalore is its competing functional demands, which require an both an efficient road transport connection between the south and north of Tasmania on the one hand and local vehicle access to adjacent properties on the other.

Once the Bagdad Bypass is constructed, there will be separate roads to serve each functional demand. However, given the medium-term horizon for the Bypass' construction, interim infrastructure improvements to the existing Highway between Bagdad and Mangalore have been identified as the most cost effective solution to address existing safety issues.

Crash analysis and a road safety audit of the relevant section of Highway indicate that the relatively narrow sealed shoulder width is contributing to run-off road crashes and rear-end collisions associated with turning movements into side roads and property accesses. The proposed package of interim improvements to the existing Highway alignment will directly address these issues by implementing mitigation measures to reduce the potential for drivers entering and exiting side roads and accesses to be involved in collisions with through movement vehicles on the Highway.

Is this a new submission?

No – this proposal was part of an earlier submission.

Estimated cost of problems?

The strategic framework and transport system problems to which this project responds are outlined in the Overview document and

	within this submission. Detailed information on project costs and benefits, to the extent that they can be quantified, is contained in the Stage 7 template.
Estimated Capital Cost of Initiative by Proponent (\$M, nominal, undiscounted):	<p>\$35 million:</p> <ul style="list-style-type: none"> • Interim Safety Improvements, Bagdad to Mangalore (<i>Design and Delivery</i>) \$24M (P90) • Bagdad Bypass (<i>Development Phase only</i>) \$11M
Commonwealth contribution sought by Proponent (\$M, nominal, undiscounted):	<p>\$35 million:</p> <ul style="list-style-type: none"> • Interim Safety Improvements, Bagdad to Mangalore (<i>Design and Delivery</i>) \$24M (P90) • Bagdad Bypass (<i>Development Phase only</i>) \$11M
Other funding (source/amount/cash flow) (\$M, nominal, undiscounted):	<p>Cost reflective pricing for heavy vehicle access to the road network and road funding reform is being considered as part of the national Heavy Vehicle and Investment Reform agenda, and the Tasmanian government will continue to actively participate in this reform process. Tasmania has many attributes for a pilot study of approaches developed through national processes. It is considered that a national approach to funding and financing transport infrastructure, supported by all levels of government, is critical to effectively address long term transport infrastructure needs. In this context, the recent Infrastructure Australia's Finance Working Group's report "Infrastructure Finance and Funding Reform" is an important lead for national discussion. Tasmania is not in a position currently to adopt a unilateral approach. Further work is required on project financing and the issue of cost reflective pricing in small regional economies.</p>
BCR by Proponent excluding Wider Economic Benefits	1.9 Interim Changes
Estimated program	<p>For the infrastructure upgrades to the existing Midlands Highway between Bagdad and Mangalore, a 12-month scoping phase would commence in the second half of 2013, followed by a two year Project Development Phase (2014 - 2016). Construction of the upgrades is estimated to commence in the second half of 2016 and be completed by early 2018.</p> <p>Project Development for the Bypass will commence in September 2014 and conclude in July 2016 with completion of the Delivery Phase project proposal report.</p>

Goal Definition

The long-term objective of the project is to enhance the efficiency of growing freight and passenger movements between the southern and northern regions of the State. The Bagdad Bypass will provide a continuous, high standard connection for the Midland Highway that reliably meets the standards required of the NLTN. The project will link to the Brighton Bypass and will provide improved connection between the north and south of Tasmania and address traffic, safety and amenity issues associated with freight movements on this route.

In the more immediate term, the project aims to address specific safety issues identified on the existing Highway alignment between Bagdad and Mangalore, specifically by reducing the potential for drivers entering and exiting side roads and accesses to be involved in collisions with through movement vehicles on the Highway at key junctions.

Positive contribution to Infrastructure Australia's strategic priorities

The project aligns with a number of Infrastructure Australia's strategic objectives, including:

- **Improving the efficiency of connections to major road and rail freight corridors to facilitate domestic trade and international exports** – The Midland Highway is a critical freight connection facilitating access to the State's northern ports (Burnie, Bell Bay and Devonport), through which 86% of the exports and 99% of imports from the Southern Region are moved.
- **Achieving better utilisation of existing infrastructure** – the new Bagdad bypass will ensure that the anticipated benefits from the significant investment already made in the Brighton Transport Hub and the Brighton Bypass are fully realised.

Alignment with State/regional strategic plans

The need to upgrade the Midland Highway approaches to Hobart – including both the Bagdad Bypass and the Bridgewater Bridge has been recognised as a priority in the Tasmanian Auslink Network Corridor Strategy and forms a key part of the *Southern Tasmania National Transport Investment Program 2007-15*.

The Bagdad Bypass Project (together with the new Bridgewater Bridge) was the subject of a Strategic Merit Test (SMT) completed by the Department of Infrastructure, Energy and Resources in November 2008. As a result of the SMT, the project was deemed to have merit to pursue further scoping as it reflected jurisdictional objectives, priorities and strategies.

Planning for the project was approved for funding under the original Nation Building program by the Minister for Infrastructure and Transport on 26 February 2009.

Tasmanian Infrastructure Strategy (www.infrastructure.tas.gov.au)

The Bagdad Bypass (together with the Bridgewater Bridge) is identified as a key short to medium-term transport infrastructure priority under the *Tasmanian Infrastructure Strategy* (TIS). The TIS, released in 2010, is the State's integrated long-term strategy to guide future infrastructure projects and decision making. The TIS identifies the State's heavy economic reliance on the ability of its transport system to move freight from producers to processors and on to markets – within Tasmania, nationally and internationally.

Southern Tasmania National Transport Network Investment Program 2007-2015

Released in 2007, the Southern Tasmania National Transport Network Investment Program articulates the key road transport projects for Southern Tasmania. The New Bridgewater Bridge project is identified as one of a strategic, integrated package of Midland Highway

Improvement Projects designed to upgrade the northern approaches to Hobart. Other projects include the provision of another bypass at Pontville/ Brighton (under construction) and construction of an intermodal transport hub at Brighton (under construction) and a new Bridgewater Bridge.

The package of projects proposed under the Investment Program – including the Bagdad bypass - reflects the objectives of the NLTN, by adding to an integrated network which:

1. *Improves national and inter-regional connectivity for people, communities, regions and industry;*
2. *Improves national, inter-regional and international logistics and trade;*
3. *Enhances health, safety and security;*
4. *Is consistent with the obligation to current and future generations to sustain the environment;*
5. *Is consistent with viable, long-term economic and social outcomes; and*
6. *Is linked effectively to the broader transport network.*

The ultimate success of the Investment Program – in terms of the outcomes that it seeks to deliver – is dependent on the delivery of both the Bagdad Bypass and the New Bridgewater Bridge. The projects are part of this self-reinforcing, strategic investment package and will provide support for other developments in the area and for continued economic growth in Southern Tasmania. For example, the Bagdad Bypass and Bridgewater Bridge projects will:

- Maximise the benefits of developing an efficient freight corridor connecting to the new Brighton Transport Hub via the Brighton Bypass;
- Along with Brighton Bypass, support the development and expansion of the Brighton Industrial Estate; and
- Support the future development and economic opportunities for southern Tasmania and the Brighton/Bagdad region.

Draft Transport Policy and Draft Freight Strategy

This proposal is consistent with the objectives of the Integrated Transport Policy and Freight Strategy (both currently under development) outlined in the Tasmanian Government's Transport Submission Overview.

Southern Integrated Transport Plan

The Southern Integrated Transport Plan – released in 2010 - is a collaborative initiative between the Tasmanian Government, Southern Tasmanian Councils Authority, and twelve member councils. It provides a coordinated and strategic framework to recognise and address transport issues within the Southern Region over the next twenty years.

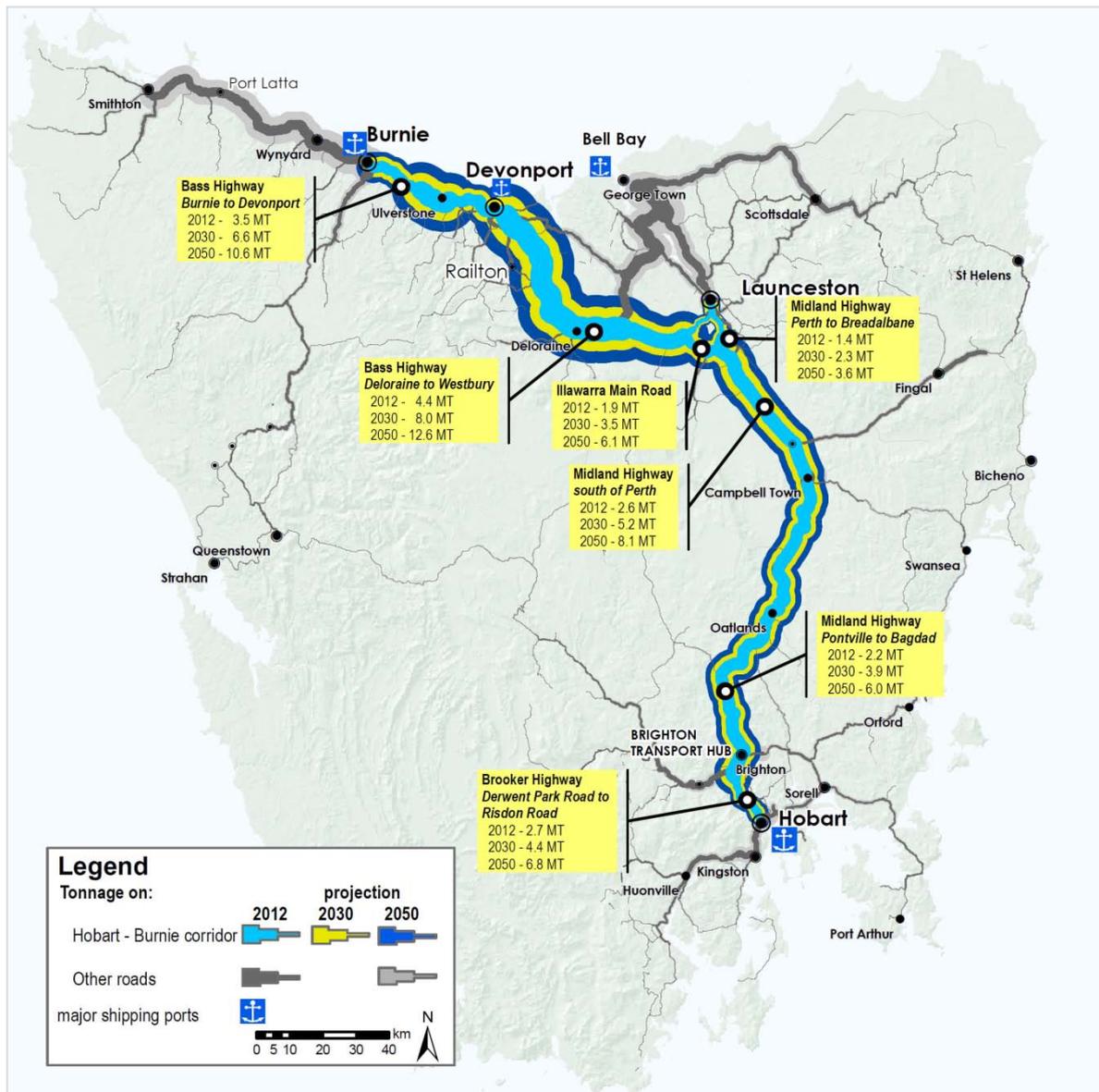
The Plan identifies the planning and design of the Bagdad Bypass as a priority as part of the Government's ongoing commitment to deliver on actions outlined as part of the Southern Tasmania National Transport Investment Program.

Problem identification, assessment and analysis

Efficiency and Capacity Issues

The primary function of the Midland Highway is to provide safe, high-speed travel for freight and passenger vehicles. However, safety and efficiency over the southern section is currently significantly compromised, with implications for future economic growth in Greater Hobart and Southern Tasmania more widely.

Map 1: Current and forecast freight volumes, Burnie to Hobart Freight Corridor



DIER's Southern Integrated Transport Plan 2010 indicates that freight MT volumes through Tasmania's ports are forecast to increase by 60% and port container movements by 80% by 2023. With 86% of total exports from southern Tasmania leaving via northern ports this increases the demand for the Midland Highway which is the primary road transport link from the south to the northern ports to cater for the increasing movement of freight.

In the context of an increasing freight task, the Midland Highway will see considerable growth in freight volumes and heavy vehicle numbers. BY 2032, AADT for heavy vehicles from Bagdad to Mangalore is forecast to increase by 74% and passenger vehicle traffic by 33% over the same period.

The Road is forecast to carry 3.9 million tonnes by 2030, remaining a high tonnage section of the north-south freight supply chain (see Map 1). The following table outlines tonnages at strategic locations along the Highway.

Table 1: Freight tonnages, commodity type and value, Midland Highway

Road Link	2008/09 tonnage (millions tonnes per annum)
Midland Highway, Perth to Breadalbane	1.72
Midland Highway, White Lagoon, Mona Vale, Tunbridge	2.20
Midland Highway, St Peters Pass	2.10
Midland Highway, Bagdad-Mangalore	2.10
Midland Highway, Brighton	2.06

Source: DIER Tasmanian Freight Survey 2008/09

The section of the Midland Highway through Bagdad-Mangalore has a low level of service at Level of Service D. Travel times along the highway are unpredictable, there is a high rate and severity of crashes and multiple direct access and uncontrolled intersections. There are safety issues for pedestrians and cyclists moving along and across the existing highway, particularly at Bagdad in the vicinity of the local school and shop.

Factors contributing to the poor level of service along the existing section of the Highway include:

- 25 public (council owned) road junctions providing access to residential areas and local services/activities, with only five of these provided with separate right turning lanes;
- 160 private property accesses within the space of only 9km, giving rise to approximately one property access every 60m.
- Speed limit restrictions of 80km/h through Bagdad (necessary for local amenity and safety)
- Restricted overtaking opportunities between Pontville and Bagdad, with traffic stream delays leading to driver frustration and potentially risky overtaking behaviours

The current Midland Highway alignment necessitates travel through a number of rural towns resulting in increased travel times due to variable speed limits and a conflict between the through traffic function of the highway and the local access requirements of these towns. Residential development is forecast to grow in this area, with subsequent increases in conflict between local access and through traffic.

Road Safety Issues

Safety issues on this section of the Midland Highway reflect:

- High level of direct abutting land-use development causing local traffic to engage with high-speed highway through traffic;
- Traffic entering and leaving the highway creates significant speed differential with high-speed through traffic, and can contribute to through traffic altering its course and either crossing to opposing traffic lane, or leave the carriageway to the left; and
- Poor skid resistance of the road pavement contributing to a failure to evade vehicles propped waiting to turning right off the highway.

Crash history on the Highway indicated from the past ten years shows a total of 72 crashes. Of these:

- 36 resulted in property damage
- 22 in minor injury
- 8 in serious injury
- 5 in fatalities.

The predominant crash types were:

- Run off road– 25 crashes
- Wrong side/other head on (not overtaking) – 9 crashes
- Vehicles in same lane/right near – 8 crashes
- Vehicles in same lane/rear end – 6 crashes.

Crash analysis and a road safety audit of the relevant section of Highway indicates that the relatively narrow sealed shoulder width is contributing to run-off road crashes and rear-end collisions associated with turning movements into side roads and property accesses.

Three of the wrong side/other head-on crashes resulted in a fatality. The run off road crashes represent 35% of the total crashes. The vehicles in same lane/right near are predominantly associated with vehicles propped waiting to turn into side roads or private property accesses being collided with by a following vehicle. Serious and fatal outcomes account for 36% of injury crashes, which is higher than expected.

The analysis identified several crash clusters along the Highway. The crash types at one cluster indicate that insufficient road widening for vehicles turning left into Winstead Road from the north is likely to have contributed to turning vehicles being collided with from behind.

The total social cost of injury crashes on this section of the Highway over a ten year period is estimated at \$15.7 million.

Option Generation and assessment

As noted above, achievement of enhanced freight productivity to meet Tasmania's future economic development needs is the key goal.

Use of rail to meet future productivity needs could be seen as an alternative to upgrading road infrastructure. However, as noted in the transport overview document, rail and road act in a complementary manner to meet Tasmania's freight needs. Rail has inherent advantages in the movement of bulk freight and some growth in the intermodal task is expected. However the majority of the freight task will continue to be moved by road, as the service characteristics of road are, in most cases, better suited to freight market needs. Consequently, road network upgrades will continue to be a priority in Tasmania.

Interim Safety Improvements to Existing Alignment

The fundamental issue with the section of the Midland Highway through Bagdad and Mangalore is its competing functional demands. There is significant conflict between interstate traffic characterised by significantly higher speeds and a higher proportion of heavy vehicles; and local traffic characterised by slower speeds, increased turning movements and shorter travel distances.

Interim infrastructure improvements to the existing Highway between Bagdad and Mangalore have been identified as an appropriate, cost-effective solution to address safety and efficiency issues over the short term.

The proposed package of interim improvements to the existing Highway will directly address existing safety issues by reducing the potential for drivers entering and exiting side roads and accesses to be involved in collisions with through vehicle movements.

Funding is therefore being requested for the delivery of targeted infrastructure improvements, focused on:

- shoulder widening to provide area for vehicles leaving the highway to the left to move and slow outside of the through traffic lane;
- crest and grade improvements and the provision of dedicated turning lanes at key intersections/junctions;
- targeted vertical and horizontal improvements to reduce the incidence of vehicle losing control and either crossing into the opposing traffic lane or leaving the carriageway; and
- improved skid resistance of the road pavement to reduce loss-of-control crashes

Attachment 1 shows the locations of proposed safety improvements, which include:

- Shoulder widening at Shene Road, Goodwins Road, Roberts Road, Wilsons Road and De Camera Road junctions;
- Extension of existing turning lanes at Black Brush Road and Winstead Road junctions;
- Crest and grade improvements between Goodwins Road and Roberts Road junctions;
- New dedicated left and right turning lanes at Hall Lane junction and at Quarrytown Road northern junction and service station/post office;
- New dedicated left turn lane at Quarrytown Road southern junction; and
- Median widening to provide turning facilities between East Bagdad Road and Iden Road.

The package of proposed improvements will lead to an expected crash reduction factor 30 per cent and an expected average annual crash saving of \$472,000.

Bagdad Bypass

The strategic merit of a Bagdad Bypass was confirmed as part of National Building I, under which the Tasmanian Government received funding to undertake preliminary planning and design.

The Bypass will see construction of approximately 17km of high-standard road, bypassing the Mangalore, Bagdad and Dysart areas. It will comprise two northbound lanes and a single northbound lane, with overtaking lanes provided where necessary in the southbound direction. The design ensures that the single southbound lane sections can be upgraded to dual carriageway in the future.

Key benefits of the Bypass include:

- Increase LOS to **A**, thereby improving efficiency by reducing travel times for both freight and passenger vehicles between the Southern and Northern regions of the State;
- Support the other projects in the Southern Tasmania National Transport Investment Program 2007-15, including the Brighton Bypass and Transport Hub, to deliver their full potential in terms of efficiency and capacity improvements;

- Reduce road trauma and maintenance costs, **with an expected reduction of 90% in fatal crashes and 75% in injury crashes;**
- Improve amenity in the townships to be bypassed, and provide opportunities for commercial and residential development.

The Federal Minister for Infrastructure and Transport approved funding to complete the scoping and planning phase of the Bagdad Bypass project (in conjunction with the Bridgewater Bridge) in February 2009. Funding is now sought for the Development Phase.

The Development Phase will focus on completing all necessary investigations so that permit applications can be lodged for environmental and planning approvals. Key activities during this phase include:

- Further geotechnical investigations
- Sub-surface Aboriginal cultural heritage investigations
- Further flora and fauna investigations
- Further detailed historic heritage investigations, including subsurface investigations where required
- Refinement of the concept design with particular focus on accommodation works for affected landowners
- Further stakeholder/community engagement
- Land acquisition
- Preparation of a Project Proposal Report for the Delivery Phase.

The key output of the Development Phase will be a design concept that meets all technical, statutory and community requirements.

