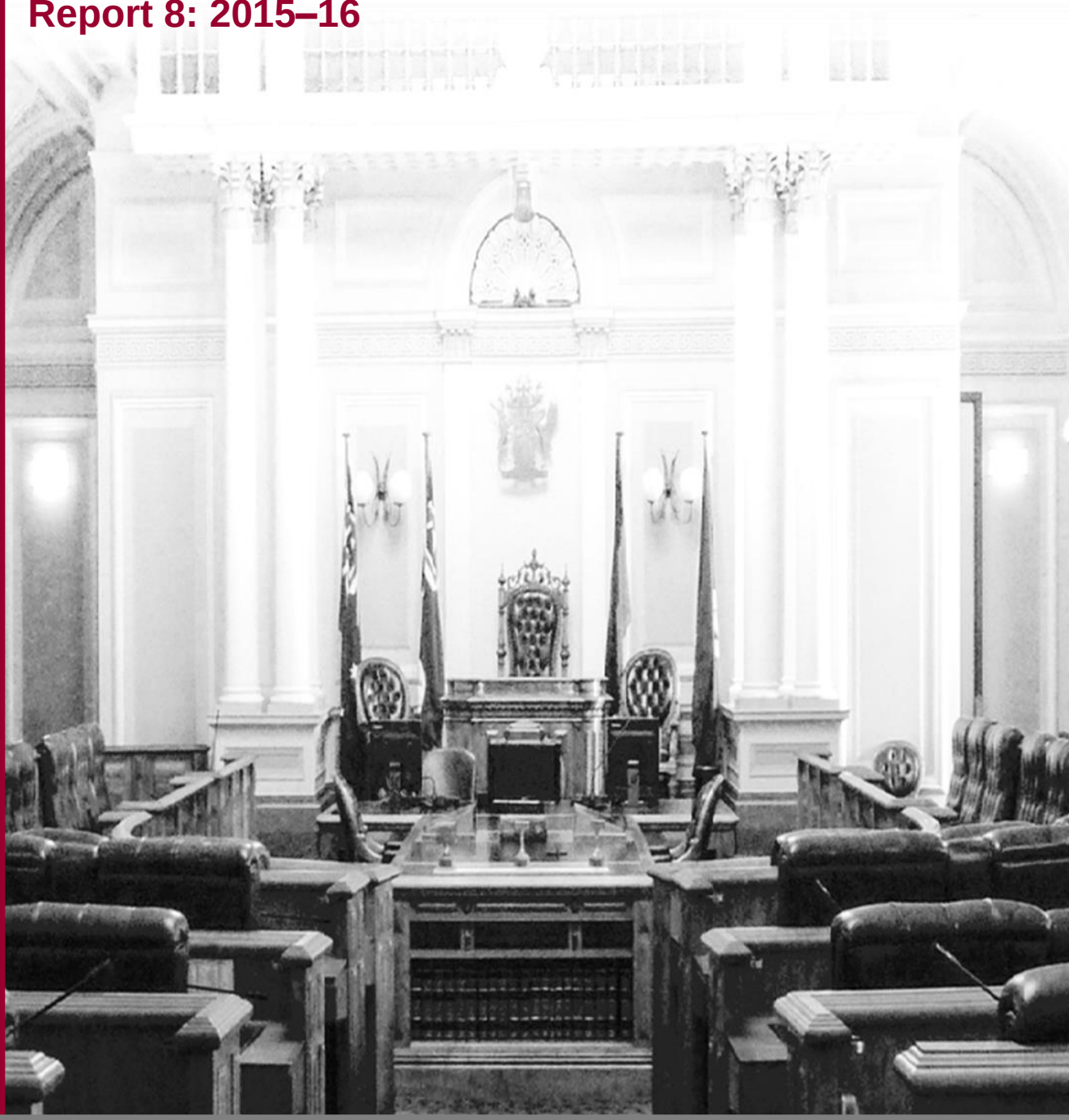
Queensland Audit Office

Transport infrastructure projects

Report 8: 2015–16



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Queensland Audit Office

December 2015

The Honourable P Wellington MP
Speaker of the Legislative Assembly
Parliament House
BRISBANE QLD 4000

Dear Mr Speaker

Report to Parliament

This report is prepared under Part 3 Division 3 of the *Auditor-General Act 2009*, and is titled Transport infrastructure projects.

In accordance with s.67 of the Act, would you please arrange for the report to be tabled in the Legislative Assembly.

Yours sincerely

Andrew Greaves
Auditor-General

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Summary

Transport infrastructure connects places and supports the efficient movement of people and goods. In 2014–15, the Department of Transport and Main Roads (DTMR) provided 188 480 million passenger trips on bus, rail and ferry and managed 33 343 km of state-controlled roads. DTMR estimates that freight volumes will increase to 1 643– 1 741 million tons by 2026.

In October 2014, the Australian and state governments signed a National Partnership Agreement (NPA) setting out the priorities for transport infrastructure projects to 30 June 2019. Investments range from small ($1 million) to the very large (greater than $1 billion). These include road, busway and rail projects.

The NPA schedule of Queensland projects includes two major infrastructure programs — the Bruce Highway Upgrade Program (BHUP) and the Moreton Bay Rail Program (MBRP).

The Australian Government designed the BHUP through its Fix the Bruce Highway election policy. The policy is consistent with the Queensland Government's 2012 Bruce Highway Action Plan. The plan outlined the funding needed to bring the Bruce Highway up to an acceptable Australian standard for a strategic piece of infrastructure. The objective of the BHUP is to raise the standard of the national highway by improving safety, capacity and flood immunity.

The program began in 2013–14, with $8.5 billion committed over 10 years. It includes projects rolled over from the Bruce Highway improvement initiatives under the Nation Building Program.

Moreton Bay is one of the fastest growing regions in the country. The MBRP is building a heavy rail corridor between Petrie and Kippa-Ring. The aim of the program is to bring significant economic, social and environmental benefits to South East Queensland and the Moreton Bay Regional Council area. Work began on the $1.3 billion MBRP in January 2014 with a planned completion date of mid-2016.

This is the third in a series of Queensland Audit Office audits examining infrastructure planning and major projects. This audit focused on delivery of the BHUP and MBRP. Specifically, the audit examined the timeliness, cost and delivery performance of the BHUP and the MBRP programs and considered whether the intended benefits will be realised.

Conclusions

DTMR and Queensland Rail (QR) are effectively delivering the projects we reviewed in accordance with the required frameworks and standards, as per agreed time, cost and scope. DTMR has well established policies and procedures to manage projects from concept to finalisation. Across the examined projects, DTMR's Project Cost Estimating policy and its procurement processes do drive value for money.

While DTMR has developed a program management policy and methodology, it is not yet embedded in practice across the department. The department focuses predominantly on managing individual projects, rather than programs. This means it does not always reap the benefits that are available from a more holistic program management approach, such as efficiency gains through improved project delivery coordination and procurement activities. As a result, it may not achieve its program outcomes as efficiently or effectively as it could.

DTMR has developed a benefits management framework based on acknowledged better practices, but it is not applying it consistently. It has clearly defined the MBRP benefits and their value, with associated metrics, baseline data and targets. By contrast, it has not expressed benefits of the BHUP in measurable terms, which means they are not quantified. Also, the benefits realisation plan is incomplete.

This raises concerns that DTMR is not, as well placed as it should be, to maximise the potential benefits from its significant investments in infrastructure projects and programs.

While there are sufficient governance structures in place across the MBRP and the BHUP to oversee and direct project effort, DTMR does not clearly allocate responsibilities for risk management of the BHUP. Doing this will strengthen oversight of the program and reduce potential duplication of effort.

Governance

Good governance is critical to any organisation. It ensures it efficiently achieves its objectives and manages risk. It also helps an organisation to be accountable and make effective decisions. DTMR has developed a governance framework that outlines the key governance roles across all its projects (portfolio), projects that work together to achieve a service delivery outcome (programs) and individual projects.

Moreton Bay rail

In May 2014, the then Queensland Treasury and Trade requested that DTMR combine what was originally two projects in the MBRP into one program to clarify roles and responsibilities and improve integration between the projects.

This required minimal structural change to the governance arrangements, with the Moreton Bay Rail Link (MBRL) Steering Committee becoming the MBRP Steering Committee. DTMR and QR have clearly defined the roles and responsibilities across the MBRP.

Bruce Highway

DTMR established the Bruce Highway Program Board (the Board) in April 2014. The Bruce Highway Steering Committee, established in August 2015, will provide more operational and technical oversight over the BHUP. This will enable the Board to focus on strategic monitoring of the program.

The various BHUP governance documents that outline roles and responsibilities have gaps. The Bruce Highway Risk and Opportunity Management Plan identifies the risk management responsibilities of the Program Board, Steering Committee, the program sponsors, directors, managers and risk advisors. It also identifies the risk owners. However, the draft BHUP governance framework, the BHUP roles and responsibilities document and the draft Program Management Plan dated July 2015 do not mention these roles and their responsibilities.

While the Board monitors the BHUP's funding, requests for scope variations and the delivery of individual projects, it is not meeting its responsibilities around risk management. For example, there is no up-to-date documented risk and issues register for the agreed program. This means the Board is not actively managing delivery risks. The Board agreed on 2 June 2015 that a program risk register needed to be developed and be a standing agenda item in future Board meetings. It noted in its September 2015 meeting that DTMR would submit a risk log in December 2015.

The Board's ability to monitor how the BHUP is tracking against the overall commitment of $8.5 billion is limited because there is no consolidated report at the program level. The Board monitors the delivery of projects against milestones as reported in the monthly Program Implementation Plan. The characteristics of this plan are actually those of a project-by-project status update.

Various non-BHUP-specific reports also outline the progress of individual projects against milestones and budget. For example, DTMR submits a monthly progress report to the Australian Government for all federally funded projects, including the BHUP projects. This report contains the Australian Government agreed funding, the cost to date and the expected expenditure for the next two months.

Benefits

Benefits are the measurable improvements resulting from project and program outcomes that are perceived as an advantage by stakeholders. They must be measurable, clearly defined and have targets.

In March 2014, DTMR endorsed a benefits management framework that outlines its approach for realising benefits. Under the framework, the benefits management process has four distinct activities: identify and map the benefits; define and plan the benefits realisation; execute the benefits realisation; and review and evaluate the benefits.

Moreton Bay rail

The business cases for the two projects within the MBRP clearly outline the expected benefits. For example, benefits include fast and reliable travel times, increased connectivity between centres, increased access to public transport, increased capacity, and more sustainable cities. The executive business case for the MBRP does not identify additional benefits at the program level.

The MBRP demonstrates that DTMR has the required systems and skills to define and plan the realisation of measurable benefits with relevant metrics, baseline data and targets. DTMR has clearly explained the expected benefits of the MBRP, despite establishing the program after delivery of individual projects had started. Each benefit has an associated metric with a target and, where applicable, baseline data. The benefit plans allocate responsibility for benefit ownership to appropriate business areas.

In accordance with the department's benefits management framework, DTMR has assigned ownership of the MBRP benefits to the 'business', namely its TransLink division and the Moreton Bay Regional Council. As a result, the program is well positioned to measure its success through achievement of expected benefits.

Bruce Highway

The draft Bruce Highway Program Management Plan outlines broad objectives and outcomes in terms of improved safety, transport system efficiency, and economic opportunity such as travel timesaving and increased access and capacity.

DTMR has not however clearly defined measurable benefits for the BHUP. The draft benefits realisation plan developed in July 2015 identifies six benefits but is incomplete. The information in the supporting draft benefit profiles is inconsistent.

DTMR defines the outcomes of individual BHUP projects better than it does for the overall BHUP. For example, the 2014 project proposal report for the Bruce Highway Safety Package Tranche 1 outlines the expected benefits and provides baseline data. DTMR analysed and quantified the benefits over 30 years. Expected benefits include 433 fewer fatalities and 4597 fewer serious injury casualties requiring hospitalisation. However, DTMR is not setting targets and providing baseline data consistently across its projects.

The nature of DTMR's road operations means that the districts combine the roles of delivering the projects and operating the assets. To ensure there is appropriate focus on benefits, DTMR has assigned benefit ownership as follows:

- the regional directors own the project benefits
- the Program Management and Delivery (a section within the Program Delivery and Operations branch) manages the benefits realisation at the program level
- the General Manager, Program Delivery and Operations is the benefit owner for the BHUP.

Program and project delivery

DTMR has developed policies and procedures to manage programs, but program management is not an embedded practice in the department. There is a risk that DTMR does not set up programs commensurate with the project investment type and risk. As a result, it may either overcomplicate the structure or not reap the benefits of managing as a program.

DTMR and QR are generally managing the individual projects we reviewed well. DTMR's project management framework is sound and well established. There are adequate controls to ensure the quality of the project output and there are processes in place for seeking approvals when there is a change in scope. Overall, DTMR is managing projects according to its policies and procedures and the NPA requirements.

The procurement activities across the MBRP and the BHUP projects we examined are efficient, timely and achieving value for money. The procurement process is fair and transparent. For example, the tenders for the MBRP identified a new signalling system that provided QR with an alternative to its standard supplier. The new system offers modern technology at a lower price to standard designs. This saved $7 million and provided a diversification of supplier base.

Moreton Bay rail

DTMR has managed the MBRP effectively as a program. The program was set up with a delivery team with the required skills and experience in infrastructure project management. The integration of the delivery team, through managing the two projects as a program, improved communication and reporting at all levels.

The two projects in the MBRP are currently on budget and the variations remain within the allocated contingency. The MBRP is forecast for practical completion in line with the schedule in the executive business case. Individual project scopes have remained the same, with minor variations for more efficient outcomes.

There are robust processes in place to ensure each project is delivering against quality standards. Each element of the design and construction of the program follows TransLink and QR technical standards. QR and DTMR have an agreement to ensure QR’s technical capability is used in the delivery and approval phase.

Bruce Highway

DTMR is managing the BHUP as a collection of discrete projects. This is because it has not finalised its program management approach. DTMR has drafted a Program Management Plan, but there is no approved delivery plan or schedule showing how the department coordinates the projects to best achieve the goal of a safe, reliable and efficient Bruce Highway.

DTMR has started developing Scope Management and Design Guidelines to support the Program Management Plan. The Bruce Highway Steering Committee established in August 2015 is responsible for resolving program technical design issues.

A program management approach for the BHUP, and the coordination of project delivery, could result in greater efficiencies and better value for money outcomes than if DTMR undertakes each of the works separately.

Overall, the BHUP has an excess contingency of $792 million as at May 2015. This is because the escalation rate built into the initial cost estimates is higher than current market conditions. Escalation is the anticipated increase in project cost over time because of various factors such as inflation, market conditions, supply constraints and project complexity. The Board supported using the contingency to bring selected projects forward.

None of the 67 projects, initiated under the BHUP or earlier programs, that achieved practical completion at 30 June 2015 and incurred an expenditure over $100 000 in 2014-15, exceeded their approved budget. This demonstrates that DTMR's Approved Project Value process (regular review of total project cost) is driving value for money and efficient delivery of projects.

Recommendations

We recommend the Department of Transport and Main Roads:

1. clarifies the responsibilities of the Bruce Highway Upgrade Program (BHUP) governance bodies and key governance roles to ensure appropriate oversight, in particular over risk management
2. consolidates the existing reports on BHUP projects so that the Bruce Highway Program Board has access to key information that complements the current report on progress against milestones. This document should include, for each project in development and delivery:
    - total approved budget
    - expenditure to date
    - forecast cost from reporting date to completion
3. develops a summary report covering the full $8.5 billion commitment of the BHUP to enable the Board to monitor the commitment at the program level, including aggregated expenditure to date and funds committed
4. applies its benefits management framework consistently across its programs and projects, including the BHUP, to maximise benefits. In particular it should:
    - define clear, measurable benefits
    - quantify the expected benefits
    - set targets and provide baseline data
    - align variations in scope to program benefits
5. implements its program management approach for the BHUP to take advantage of improved project coordination and scheduling, consistent delivery and better value for money outcomes from procurement activities

Reference to comments

In accordance with s.64 of the *Auditor-General Act 2009*, we provided a copy of this report to the Department of Transport and Main Roads, Queensland Rail and the Moreton Bay Regional Council with a request for comments.

We considered their views in reaching our audit conclusions and are represented to the extent relevant and warranted in preparing this report.

The comments received are included in Appendix A of this report.

1. Context

The National Partnership Agreement

The Australian Government and state governments signed the National Partnership Agreement (NPA) on land transport infrastructure projects in October 2014. The NPA sets out the Australian Government investment priorities for transport infrastructure projects to 30 June 2019. This NPA follows an earlier agreement that expired on 30 June 2014.

The parties to the NPA will achieve its objectives and outcomes through the successful delivery of land transport infrastructure and planning projects funded under the program. These are set out in schedules under the NPA.

The NPA schedule of Queensland projects includes the Bruce Highway Upgrade Program (BHUP) and the Moreton Bay Rail Link (MBRL) project.

The *National Land Transport Act 2014* (the Act) outlines approval, funding and reporting requirements for eligible investment projects. The Act stipulates that:

> The funding payment must be wholly expended on approved purposes in relation to the funded project.

Queensland transport infrastructure plans

The Department of Transport and Main Roads (DTMR) outlines its 10-year portfolio investment in the Transport Infrastructure Portfolio Plan and Schedule (TIPPS). DTMR updates the TIPPS each year and uses it a key input into the Queensland Transport and Roads Investment Program (QTRIP).

The QTRIP 2015–16 to 2018–19 report details the transport and road infrastructure projects, and their indicative total cost, planned over the next four years. This program includes a total investment of $18.8 billion for roads and highways across local, state and national networks as well as heavy rail projects.

The QTRIP 2015–16 to 2018–19 report includes the two programs we reviewed:

- BHUP – total cost $8.5 billion over 10 years
- Moreton Bay Rail Program –total cost $1.3 billion.

Figure 1A lists some key project management terms used throughout this report.

Figure 1A
Definitions of key project management terms

Term	Definition and key characteristics
Project	Projects produce outputs leading to measurable operating benefits: improvement in performance or capacity, or provision of a new service.
Program	A program is a group of projects managed in a coordinated way to obtain benefits and control not available from managing the projects individually. This delivers measurable benefits that lead to outcomes and contribute to achieving strategic business objectives.
Portfolio	A portfolio is a collection of programs, projects and operations managed together to achieve strategic objectives.

Source: Queensland Audit Office

Bruce Highway

The Bruce Highway is Queensland's primary north-south road corridor and covers over 1 670 kilometres of road between Brisbane and Cairns. The highway connects the state's major urban centres along the eastern coastline and is a strategic corridor for passenger and freight movements.

The Australian and Queensland Governments fund upgrades to the Bruce Highway, which is part of the National Land Transport Network, a defined national network of important road and rail infrastructure links and their connections.

The 2011 Australian Roads Assessment Program (AusRAP) report gave a safety risk of medium–high or high to most of the Bruce Highway based on the total number of casualty crashes over a given stretch of road. The report stated:

> The Bruce Highway experienced the highest level of road trauma on the Queensland national network, accounting for 50 per cent of casualty crashes and 61 per cent of deaths during 2005–09. In fact, the Bruce Highway accounted for more than 17 per cent of deaths on the entire national network.

AusRAP uses a star rating system to analyse a road's safety features such as roadside barriers or shoulder rumble strips. It assigns a rating indicating how safe the road is.

The 2013 AusRAP report rated 45 per cent of the length of the Bruce Highway as two stars or below, out of a possible five stars score. By comparison, the entirety of the Pacific and Ipswich motorways are rated three stars or above.

The government's Safer Roads, Safer Queensland — Queensland's Road Safety Action Plan 2015–17 states that DTMR, in collaboration with the Royal Automobile Club of Queensland (RACQ) and the International Road Assessment Programme, will:

> … work towards a 2020 target of achieving 85 per cent of travel on the national network in Queensland on 3 star or better roads (as defined by AusRAP).

Various documents outline a program of works to improve the condition of the Bruce Highway. We examined the Bruce Highway Action Plan (BHAP), the Fix the Bruce Highway policy and the Bruce Highway Upgrade Program (BHUP). Figure 1B gives an overview of these improvement plans and programs.

Figure 1B
Overview of Bruce Highway improvement plans and programs

	BHAP	Fix the Bruce	BHUP
Cost	$16.8 billion	$8.5 billion	$8.5 billion
Project types	Capital and maintenance	Capital	Capital
Assessment of portfolio	This has a full complement of projects required to achieve vision standards for the Bruce Highway.	This is a sub-set of BHAP capital projects based on a cost constraint of $8.5 billion funding.	This matches the proposed program set in the Fix the Bruce policy.
Expected benefits	$33 billion	Not estimated	Not estimated
Time horizon	More than 10 years	10 years	10 years

Source: Queensland Audit Office

Bruce Highway Action Plan (2012)

In May 2012, the Queensland Government tasked a technical advisory group to develop a 10-year 'crisis action plan' to upgrade the Bruce Highway. A stakeholder group, made up of representatives from industry, RACQ, local government, the Australian Government and the Queensland Government, supported the technical advisory group.

The Queensland Government commissioned the BHAP in response to community alarm over the condition and operation of the Bruce Highway. Public concern included the significant number of crashes occurring along the full length of the highway, and hold-ups due to frequent flooding events.

The Queensland Government released the BHAP in October 2012 to show the funding needed to improve the Bruce Highway. The BHAP outlined a $16.8 billion program of capital and maintenance works focused on three improvement areas:

- safety improvements — implementing appropriate safety standards and specific treatments of sections with poor safety ratings, and undertaking critical maintenance
- flood immunity improvements — reducing flood impacts for highway sections and connections to cities
- capacity improvements — enhancing or making better use of infrastructure to overcome persistent congestion problems.

The BHAP grouped the projects in three levels of priority:

- priority 1 — years 1 to 4
- priority 2 — years 5 to 7
- priority 3 — years 8 and beyond.

The BHAP detailed the projects that will bring the Bruce Highway up to an acceptable engineering standard by employing:

- standards which are realistic in terms of community and industry needs and expectations
- solutions that address the most critical deficiencies and adopt cost-effective and innovative techniques.

As there are no funding commitments for the BHAP, it is essentially a strategy document based on DTMR's investment guidelines for the priority roads network. The guidelines include vision and infrastructure standards to deliver the desired performance.

Fix the Bruce Highway (2013)

In July 2013, the federal coalition's policy to Fix the Bruce Highway proposed an $8.5 billion program of capital works over 10 years in two stages:

- 2013–14 to 2016–17
- 2017–18 to 2022–23.

The policy drew from the Queensland Government's BHAP and included all priority 1 flood and capacity improvement projects and about half of the BHAP priority 1 safety improvement treatments.

Bruce Highway Upgrade Program (2014)

The NPA schedule of Queensland projects includes a commitment of $8.5 billion ($6.7 billion from the Australian Government and $1.8 billion from the Queensland Government) over 10 years from 2013–14 for the BHUP. Each year, with input from the Queensland Government, the Australian Government confirms the funding available over the next four years through the forward estimates. The projects funded under the BHUP are consistent with the BHAP and the Fix the Bruce Highway policy.

Treatments in the BHUP include:

- major upgrades and realignments
- strengthening and widening works
- safety works targeting crash sites.

The range of projects in the BHUP are intended to improve the safety, capacity constraints, and flood immunity issues currently experienced along the length of the Bruce Highway.

The Australian Department of Infrastructure and Regional Development and the Queensland Department of Transport and Main Roads govern the BHUP as a program.

While the BHUP does not have all the characteristics of a program as defined in accepted methodologies such as *Managing Successful Programmes*, it is a portfolio of related capital projects aimed at realising safety, capacity and flood immunity benefits.

Moreton Bay rail

Moreton Bay has the third largest local government population in Queensland. It is one of the fastest growing regions in the country, with the population projected to increase to 620 000 by 2036. More than half the region (57 per cent) depart the area every day to head to work with the vast majority (83 per cent) using a private vehicle.

The Queensland Government decided to build a heavy rail corridor between Petrie and Kippa-Ring to improve the connectivity, access and sustainability of the region.

The Moreton Bay Rail Program (MBRP) consists of two interdependent projects: the Moreton Bay Rail Link (MBRL) project delivered by DTMR and the Lawnton to Petrie (L2P) brownfield (developed site with existing infrastructure in place) project delivered by Queensland Rail (QR).

The MBRL is a new line extending eastward from Petrie railway station connecting developing residential areas into the South East Queensland rail network. The project comprises approximately 12.6 kilometres of dual track railway connecting Petrie to Kippa-Ring and includes six new rail stations.

The L2P supports the MBRL operations through:

- a new rail bridge over the North Pine River delivered by DTMR
- greenfield (undeveloped site with few constraints) rail works associated with the bridge delivered by DTMR
- brownfield rail works delivered by QR.

The MBRL is funded through a collaboration of three tiers of government — the Australian Government ($742 million), the Queensland Government ($300 million) and Moreton Bay Regional Council ($105 million), totalling $1.147 billion. In addition, QR funds the L2P for $186.6 million.

In May 2014, the then Queensland Treasury and Trade (QTT) commissioned a review of the L2P project to identify any issues or concerns over its delivery in context with the MBRL. The review recommended:

> ... L2P and MBRL Projects should be governed as a single program with a single Senior Responsible Owner provided by TMR.
>
> TMR should establish a program governance framework that includes: a Program Board, Terms of Reference for all committees, key roles and responsibilities across the program, and clear decision rights for all roles and committees.
>
> An 'executive business case' should be developed for the program with a focus on the key defining parameters to be used by the Program Board as a tool for governing this program…

As a result of the QTT review, DTMR took responsibility for the delivery of the North Pine River bridge and associated greenfield works in July 2014.

Other relevant reviews of Moreton Bay rail

The Queensland Government engaged SMEC Australia Pty Ltd to undertake an independent hydraulic review of the severe rain event that occurred on 1 May 2015. The review, released in August 2015, found that:

> The 1st May 2015 rainfall and consequent flood therefore was an extreme event, larger than the 1 per cent Annual Exceedance Probability (AEP) event normally used for planning and infrastructure design.

It concluded that:

> … 85 residential properties are located in the area where flood levels were increased by Moreton Bay Rail works during the 1st May 2015 storm event and of these 49 were located in the area affected in the 1 per cent AEP storm event. All of these properties would have experienced flooding on the 1st May 2015 even without the influence of the MBR project works.

Roles and responsibilities

Figure 1C outlines the key roles and responsibilities of entities involved in the major transport infrastructure projects and programs.

Figure 1C
Roles and responsibilities

Entity	Roles and responsibility
Australian Government	Assess and determine which projects are funded under the NPA. Fund projects in the NPA according to the level of contribution agreed with the states and territories. Monitor and assess performance of delivery of projects to ensure outputs are delivered and outcomes are achieved in the agreed timeframe. Approve project proposals and amendments to the program (scope, funding and timing).
Queensland Government (through DTMR)	Provide financial contribution to support implementation of the NPA. Explore potential for financial contribution from the private sector on relevant projects. Deliver infrastructure projects to meet the objectives and outcomes in the NPA. Monitor, assess and report on performance of project delivery. Plan, manage and deliver Queensland's integrated transport environment to achieve sustainable transport solutions for road, rail, air and sea.
Queensland Rail	Operate suburban and long-distance passenger services in Queensland. Own and maintain approximately 6 500 kilometres of track.

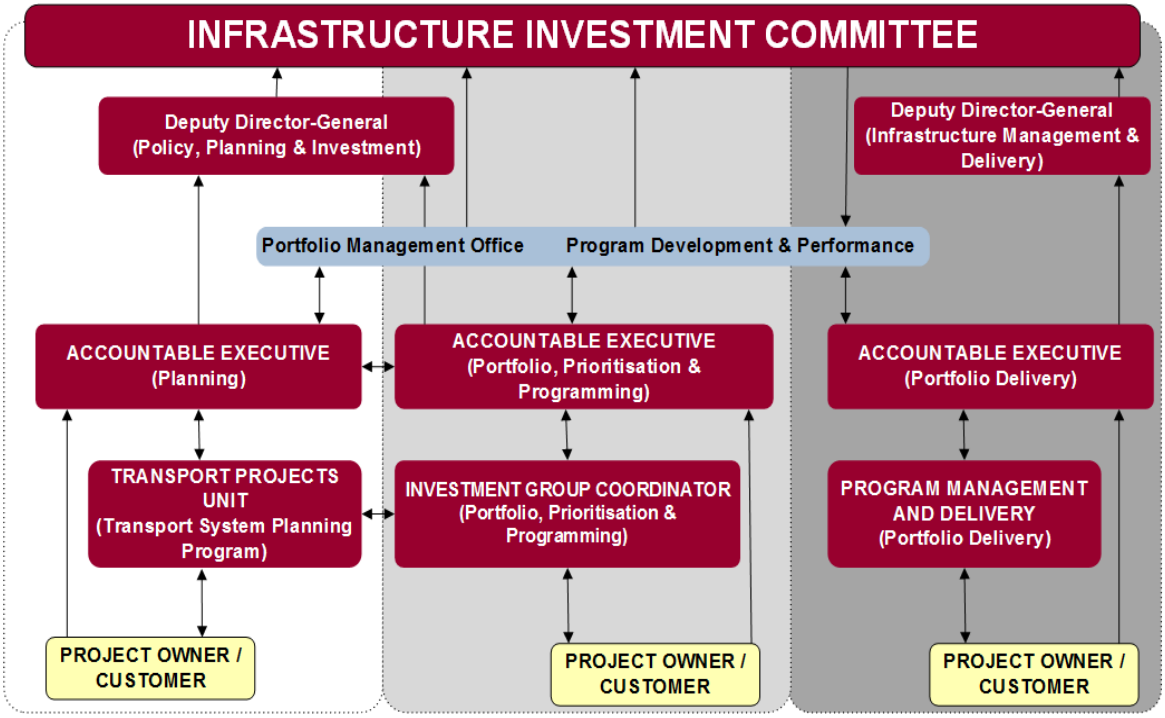
Source: Queensland Audit Office

Governance framework

DTMR's Transport Infrastructure Portfolio Governance Framework outlines the key governance roles at portfolio, program and project level and the principles behind the framework.

Figure 1D shows the generic governance structure with the key lines of accountabilities across the portfolio, program and project life cycles.

Figure 1D
Governance structure



Source: Queensland Audit Office adapted from Department of Transport and Main Roads

The Infrastructure Investment Committee (IIC) is DTMR's peak infrastructure investment decision-making body. Its members are from the department's executive management.

The IIC provides strategic direction, approves investment priorities and oversees the performance of the portfolio. It receives submissions and reports on all major projects at key stages of the project life cycle. This includes the MBRP and major projects in the BHUP.

The Deputy Director-General, Policy, Planning and Investment chairs the IIC. The IIC meets fortnightly and communicates its investment decisions to submission owners, the senior leadership team and regional directors. The IIC also receives monthly portfolio reports on the expenditure and status of current projects.

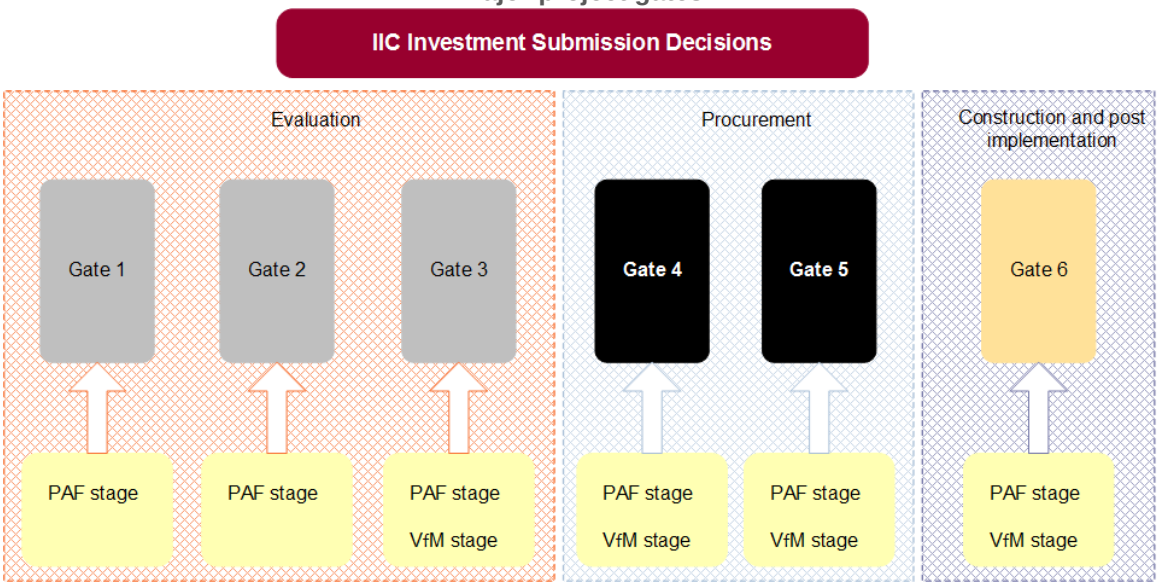
In the context of the BHUP, the IIC is responsible for directing the appropriate state financial contribution to the program within available funding.

DTMR has adopted a gateway review process aligned to the Queensland Government's Project Assessment Framework (PAF) and Value for Money (VfM) framework to examine the projects at key decision points in their life cycle.

This provides independent assessment and confirmation that the program as a whole or any of its aspects are on track, applying relevant practices and procedures, and that the projects, activities and business rationale remain aligned to the program's objectives. The gateway review process applies to significant road or infrastructure projects that are complex, high risk or expensive and thus require more rigour and control.

The process uses six project gates, as shown in Figure 1E, that align to the PAF to provide assurance that projects can progress successfully to the next stage.

Figure 1E
Major project gates



Source: Queensland Audit Office adapted from Department of Transport and Main Roads

Figure 1F shows the submission requirements for different types of projects.

Figure 1F
Submission requirements

Estimated project cost	IIC submission requirement	Project proposal report requirement for federally funded project
$100 million or more, or those of significant risk and/or complexity	IIC Gates 1 to 6 submissions required	Yes
Between $50 and $100 million, or those of significant risk and/or complexity below this financial threshold	IIC Gate 1 submission with an options analysis report required	Yes
Less than $50 million and determined low risk	No	Yes

Source: Queensland Audit Office

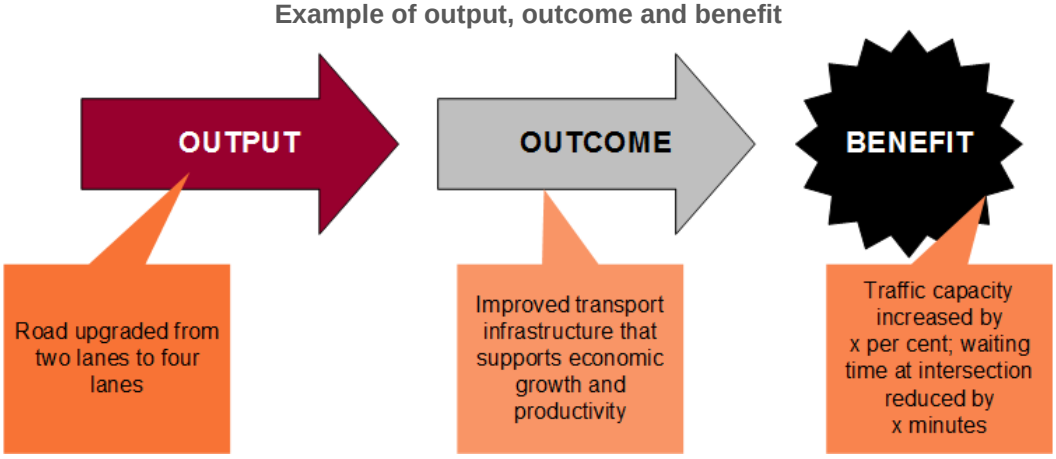
Benefits management framework

Effective program delivery means the program is achieving its objectives and realising the intended benefits. A benefit is:

> A measurable improvement resulting from the changes and outcomes introduced by the program. A benefit must be perceived as a positive by one or more stakeholders.

Projects produce outputs that lead into outcomes. Benefits are the measurable improvements resulting from, and enabled by the outcomes. Figure 1G shows how these apply to transport infrastructure projects.

Figure 1G
Example of output, outcome and benefit

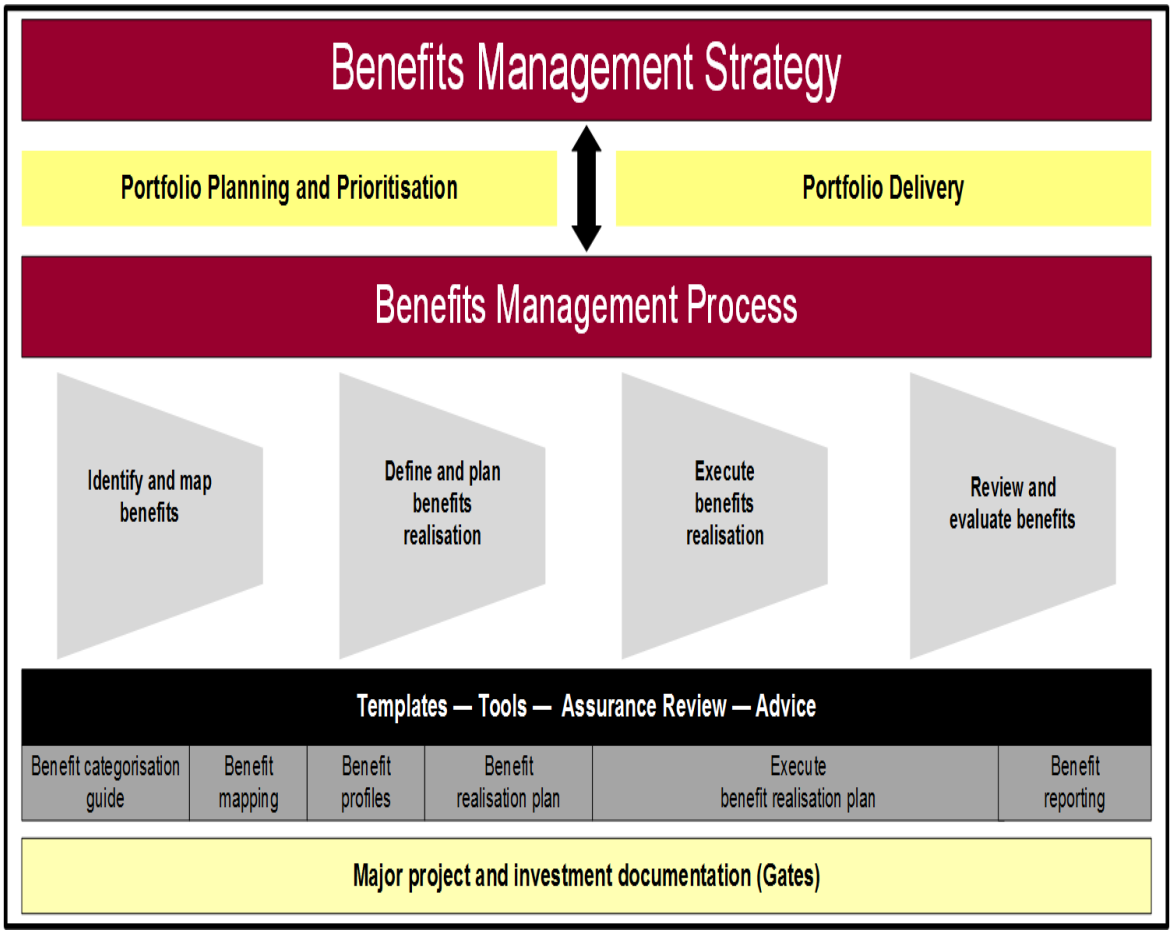


Source: Queensland Audit Office

In March 2014, DTMR endorsed a benefits management framework (shown in Figure1H) that outlines its approach for realising benefits. The principles used to develop the framework include:

- benefits are identified at initial investment decision phases
- benefits must be measurable and the cost of doing measurements must be realistic.

Figure 1H
Benefits management framework



Source: Queensland Audit Office adapted from Department of Transport and Main Roads

The Benefits Management Strategy and the Benefits Categorisation Guide support the Benefits Management Policy. The categorisation guide shows how operational benefits realised through projects contribute to strategic benefits.

The strategy states that the full implementation of a benefits management framework across DTMR infrastructure programs and projects will be incremental as departmental capability in the concept, methodology and tools develop.

Program and project management framework

A robust project management framework supports efficient delivery as per agreed budget, time, quality and scope.

DTMR uses the OnQ framework to manage its projects. The OnQ project management methodology focuses on achieving results through managing opportunities, risks and efficient use of resources. Generally, projects produce outputs to achieve outcomes. The intent of the OnQ framework is to ensure the outputs from each project collectively will deliver outcomes aligned with departmental objectives and government policy.

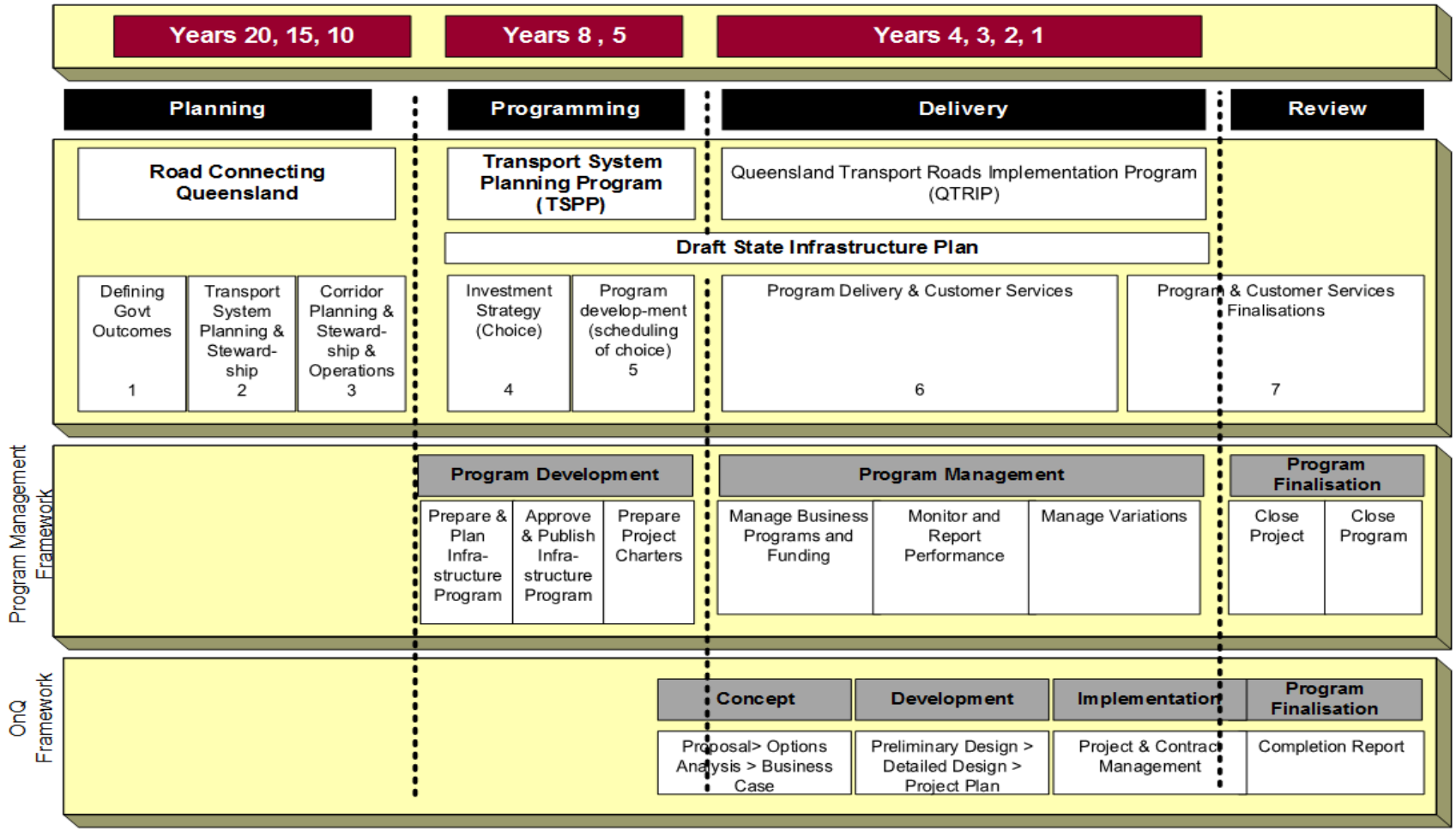
The aims of the OnQ project management methodology are to:

- promote communication between and with project stakeholders
- plan the total project life cycle before committing resources
- understand the bigger picture and the project's part in it
- develop solutions that maximise stakeholder satisfaction
- identify and manage opportunities and risks
- improve reliability in estimating costs and benefits.

DTMR endorsed an organisational policy on program management in June 2015. The DTMR Program Management Methodology Overview (dated March 2014) supports the policy. The methodology overview is based on the *Managing Successful Programmes* and the *Portfolio, Programme and Project Offices* methodologies.

Figure 1I shows conceptually how DTMR's project and program management frameworks fit together.

Figure 1I
Project and program management frameworks



Source: Queensland Audit Office adapted from Department of Transport and Main Roads

In 2012, the then government required agencies to find budget savings and reduce non-front line staff. To contribute to the savings, DTMR decided to cease the operations of the Portfolio Management Office on 1 June 2012. This affected the department's capacity to identify, plan, manage, report and deliver at a program level.

Audit objective, method and cost

The objective of the audit was to assess the timeliness, cost and delivery performance of selected transport infrastructure programs.

The audit addressed the objective through the following sub-objectives:

- The program benefits are on track to be realised through effective and efficient program delivery.
- Procurement is achieving value for money.

The audit cost $610 000.

Report structure

The structure of the report is as follows:

Chapter	Description
Chapter 2	Assesses governance arrangements in place
Chapter 3	Evaluates whether intended benefits will be realised
Chapter 4	Examines program and project management and delivery
Appendix A	Contains responses received from audited entities
Appendix B	Outlines the audit method

2. Governance

In brief

Good governance helps entities to achieve their objectives and manage risks. It also assists them to use resources efficiently, with accountability and in line with business strategy and direction. A strong governance framework facilitates effective decision-making. The framework should include the governance structure, with clear roles and responsibilities for the people who populate the governance structure. It should also include the information that informs the decision makers.

The Department of Transport and Main Roads (DTMR) has developed a governance framework that outlines the key governance and management roles at portfolio, program and project levels.

Conclusions

The governance structures in place across the Moreton Bay Rail Program (MBRP) and the Bruce Highway Upgrade Program (BHUP) are sufficient to oversee and direct project effort.

In April 2014, DTMR established the Bruce Highway Program Board (the Board). In August 2015, it established the Bruce Highway Steering Committee. This will enable the Board to focus on strategic oversight functions, while the Steering Committee deals with operational delivery of projects, their coordination and any necessary technical advice.

However, the inconsistencies about BHUP roles and responsibilities, in particular around risk management, create the potential for gaps in oversight and / or duplication of effort.

The Board also cannot readily assess how the BHUP is tracking against the overall commitment of $8.5 billion over 10 years due to fragmented reporting which focuses on the progress of individual projects.

Findings

- The Board is actively monitoring the program's funding and contingency, however, it is not fully meeting its responsibilities around benefits realisation and risk management.
- The various BHUP governance documents outlining roles and responsibilities have gaps. The Bruce Highway Risk and Opportunity Management Plan assigns risk management to the program director and manager but no governance document defines these roles.
- There is no consolidated summary report at the program level for the BHUP, which limits the Board's ability to make decisions across the program. Various reports outline the progress of individual projects against milestones and budget.
- The MBRP Steering Committee receives relevant and timely information for making authorised decisions.

Recommendations

We recommend the Department of Transport and Main Roads:

1. clarifies the responsibilities of the Bruce Highway Upgrade Program (BHUP) governance bodies and key governance roles to ensure appropriate oversight, in particular over risk management
2. consolidates the existing reports on BHUP projects so that the Bruce Highway Program Board has access to key information that complements the current report on progress against milestones. This document should include, for each project in development and delivery:
    - total approved budget
    - expenditure to date
    - forecast cost from reporting date to completion
3. develops a summary report covering the full $8.5 billion commitment of the BHUP to enable the Board to monitor the commitment at the program level, including aggregated expenditure to date and funds committed.

Introduction

Good governance ensures an entity is achieving its objectives, managing risks and making effective decisions. It provides guidance in monitoring operations, making informed decisions, evaluating results, and using resources efficiently. It ensures it is operating with accountability, in line with business strategy and direction.

A strong governance framework will include:

- the governance structure and the role of decision making bodies
- the skills of the people in the governance structure
- the information that informs the decision makers.

The Department of Transport and Main Roads' (DTMR) governance framework outlines the key governance and management roles at portfolio, program and project levels. In examining the Moreton Bay Rail Program (MBRP) and the Bruce Highway Upgrade Program (BHUP), we expected to see governance arrangements consistent with DTMR's framework, especially the following principles:

- alignment with corporate governance framework and processes
- 'just enough' governance — commensurate with investment type and risk
- role clarity and clear lines of accountability across the portfolio, program and project life cycles
- transparent and phased decision making
- the right information and management processes to support decision making.

This chapter assesses the effectiveness of program governance in monitoring, reporting and evaluating program outcomes and project delivery.

Conclusions

The governance arrangements in place across the MBRP and the BHUP are sufficient to oversee and direct project effort. They are commensurate with the risk and significance of the programs. The people who populate the governance structures on both programs sufficiently represent the business and have the relevant competence and authority to make appropriate decisions.

DTMR established the Bruce Highway Program Board (the Board) in April 2014 and the Bruce Highway Steering Committee in August 2015.

The Steering Committee will deal with technical advice, operational delivery of projects and their coordination. This will free up the Board to focus on strategic oversight.

The Board monitors the BHUP's funding, contingency and the delivery of individual projects against milestones. However, it is not meeting its responsibilities around risk management.

The information about individual BHUP projects' progress against milestones and budget is presented in various, separate documents. There is no consolidated summary report at the program level. As a result, the Board cannot readily assess how the BHUP is tracking against the overall commitment of $8.5 billion over 10 years.

While DTMR has clearly defined the roles and responsibilities across the MBRP, there are gaps and possible overlap in the roles and responsibilities described in various BHUP governance documents, in particular around risk management. As a result, there may be insufficient oversight or potential duplication of effort.

The MBRP Steering Committee receives timely and comprehensive information on the performance delivery of the program.

Establishing governance

Moreton Bay rail

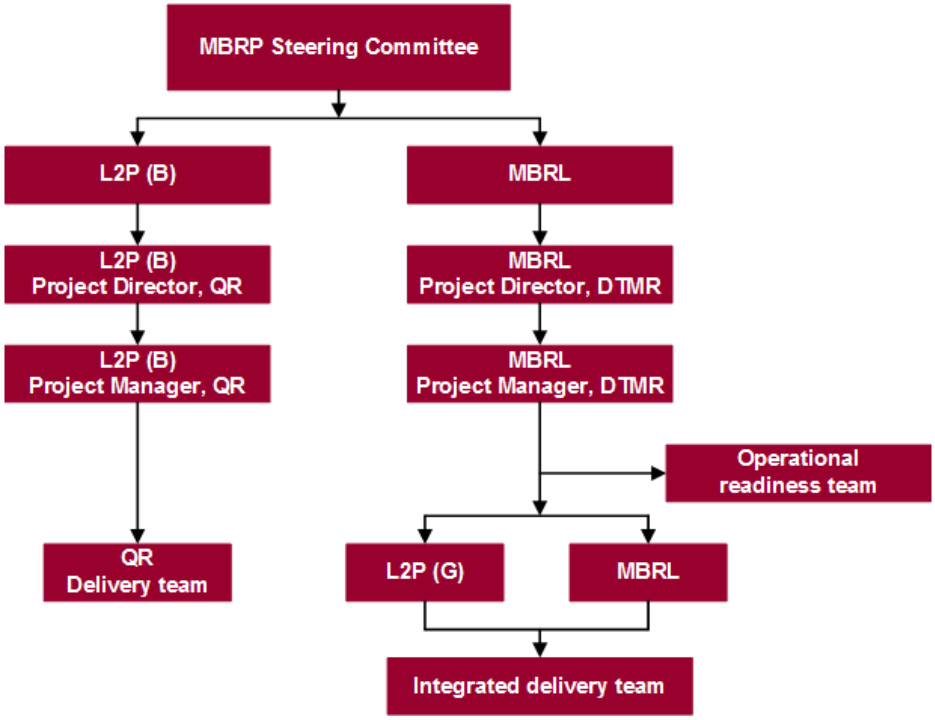
For the first six months of the two-year project timeframe, the Moreton Bay Rail Link (MBRL) and the Lawton to Petrie (L2P) projects were governed as single projects. The Queensland Treasury and Trade review in May 2014 recommended governing the two projects as a single program in order to:

- clarify the scope and delivery responsibility for each project or its components
- establish a more effective interface between the L2P and the MBRL projects.

Combining the original two projects into one program required minimal change to the governance structure, with the MBRL Steering Committee becoming the MBRP Steering Committee.

DTMR developed an executive business case for the MBRP and implemented new governance arrangements because of the review. Figure 2A outlines the program governance structure of the MBRP.

Figure 2A
Moreton Bay Rail Program governance structure



Notes: (G) = greenfield; (B) = brownfield

Source: Queensland Audit Office

The revised governance structure includes a program steering committee and clearly defined roles and responsibilities across the program. The establishment of an integrated delivery team (that includes officers from DTMR, Queensland Rail (QR), Moreton Bay Regional Council (MBRC) and the contractor) improved communication and reporting at all levels.

The Director-General, DTMR chairs the MBRP Steering Committee. The Steering Committee includes the Deputy Director-General, TransLink, as the program's Senior Responsible Owner, and key stakeholders from DTMR, QR, the Australian Government and MBRC. Other key delivery staff attend as observers or receive copies of minutes. The committee generally meets monthly.

The governance arrangements in place across the MBRP work effectively for the size and nature of the program.

Bruce Highway

DTMR formed the Bruce Highway Program Board (the Board) in April 2014 and established the Bruce Highway Steering Committee in August 2015.

Figure 2B provides an overview of the BHUP governance bodies.

Figure 2B
Bruce Highway Upgrade Program governance bodies

Body	Membership	Areas of responsibility	Role
Bruce Highway Upgrades Investment Group	DTMR general managers	Funded upgrades on the Bruce Highway, excluding items in other investment groups	Determine priorities towards achieving the investment group's purpose, outcomes and benefits. Develop investment scenarios to determine the 10-year indicative investment allocations.
Bruce Highway Program Board	Representatives from DTMR, Department of Infrastructure and Regional Development (Australian Government), Queensland Treasury, Department of, Infrastructure, Local Government and Planning	Bruce Highway Upgrade Program	Oversee: ▪ program funding and prioritisation ▪ programming and scheduling — variations to scope ▪ delivery progress ▪ risks and issues ▪ benefits realisation ▪ administration of financial arrangements between the state government and federal government
Bruce Highway Steering Committee	DTMR, business area representatives	Bruce Highway Upgrade Program	Oversee and provide direction for the delivery of the Bruce Highway upgrade projects to ensure outcomes and benefits align with the 10-year Bruce Highway commitment. Resolve technical design issues.

Note: Major projects within the BHUP can also have their own project steering committee.

Source: Queensland Audit Office

The terms of reference for the Board and the Bruce Highway Steering Committee indicate a potential duplication of effort in overseeing program delivery and the realisation of benefits. The Board was the primary governing body up to August 2015, when DTMR formed the Steering Committee. Now there is a need to clarify the separation of oversight responsibilities between the Board and the Steering Committee.

In October 2015, DTMR approved the Bruce Highway Risk and Opportunity Management Plan. This plan identifies the risk management responsibilities of the Program Board, Steering Committee, the program sponsors, directors, managers and risk advisors. It also identifies the risk owners. However, the draft BHUP governance framework, the BHUP roles and responsibilities document and the draft Program Management Plan dated July 2015 do not mention these roles and their responsibilities.

Bruce Highway Upgrades Investment Group

DTMR has 15 investment groups within its transport infrastructure portfolio to better govern, prioritise and manage the total portfolio. These groups are sub-committees of the Infrastructure Investment Committee (which is DTMR's peak infrastructure investment decision-making body). They consider the transport infrastructure outcome over a 10-year horizon.

The Bruce Highway Upgrades Investment Group (BHUIG) is one of these groups. It aims to deliver a safer national highway with improved capacity and flood immunity.

The BHUIG's area of responsibility includes federal and state funded upgrades on the Bruce Highway, excluding items in other investment groups such as maintenance, preservation and environment; road operations; and natural disaster programs.

Bruce Highway Program Board

The Board has been the key governing body for the BHUP so far. It focuses on delivering projects initiated under previous programs and funded under the BHUP. The Board is actively managing the contingency within the BHUP but it is not meeting its responsibilities around risk management.

The Board's terms of reference state that its purpose is to facilitate better management, delivery and monitoring of Bruce Highway projects and packages, commensurate with the strategic direction outlined in the Bruce Highway Action Plan and the subsequent Fix the Bruce Highway policy.

The Board’s functions are to oversee and resolve issues relating to:

- funding and prioritisation — proactively manage contingency and savings within the overall program; provide guidance and approval of prioritisation criteria; endorse a subsequent program of work
- programming and scheduling — agree on an implementation schedule; oversee and agree on proposed revised scope; agree on changes to project/package milestones; agree on delivery methods
- delivery of the program — oversee delivery progress against agreed milestones and deliverables; actively manage delivery risks and issues; benefits realisation
- administration of the program — be informed of the reports provided to other governance bodies and the administration of financial arrangements between the Australian and Queensland Governments.

Bruce Highway Steering Committee

DTMR established the Steering Committee on 17 August 2015. Members of the Steering Committee include senior representatives of the DTMR business areas that have direct accountabilities for planning, prioritising, funding, programming, scheduling, delivering, administering and reporting on the program.

The terms of reference state that the Steering Committee will:

- provide oversight and direction for the delivery of the BHUP to ensure outcomes and benefits align with the 10-year commitment
- ensure there is a total team approach to issues and opportunities management and communication
- review the status of Bruce Highway commitment projects and provide advice to the functional areas of DTMR to support the funding, prioritisation, programming, scheduling, delivery and reporting for the Bruce Highway upgrades
- make recommendations to the Board.

While it is too early to comment on the performance of the Steering Committee in meeting its responsibilities, DTMR informed us that the committee will focus on the delivery of projects, their coordination and technical advice.

The Bruce Highway Risk and Opportunity Management Plan identifies that the Steering Committee is responsible for managing program risks effectively in accordance with the department's risk management framework and approach. However, the terms of reference for the Steering Committee do not mention risk management as a specific responsibility of the committee. In fact, no other documents include the risk management responsibilities. Therefore, it is possible that the BHUP governance bodies will not adequately manage risk.

Setting program objectives

The OnQ framework requires that project proposals include the specific objectives of the project — the goals to be achieved, the issue to be resolved or the rationale for undertaking the project. The objectives should relate to the benefits desired by the program and portfolio.

Moreton Bay rail

All three levels of government identified the need for investing in public transport capacity because of significant traffic congestion on the region's major roads. The congestion is due to a combination of high population growth and a low level of employment opportunities within the region (which means residents have to commute).

DTMR analysed and assessed project priority and affordability of potential options. The preliminary evaluation, completed in 2010, considered a number of solutions to meet the identified service need, including road, heavy rail, light rail and busway options. Of the solutions assessed, the heavy rail option most effectively met the service need.

The preliminary evaluation concluded that:

- heavy rail is the most appropriate mode and it best delivers on government policy outcomes, particularly facilitating region-building objectives
- heavy rail has a positive net present value and benefit-cost ratio
- the heavy rail project is not appropriate for public private partnership delivery and the business case should be developed under a traditional delivery model.

The business case for the MBRL includes the vision, objectives and outcomes of the project. It also discusses the service requirements.

Bruce Highway

The draft Bruce Highway Program Management Plan states that the program's aim is to deliver a Bruce Highway that is safe, reliable and efficient. The program's objectives are to focus delivery on the three priority areas of safety, capacity and flood immunity improvements.

To understand how the program's aim translates into project objectives, we examined how DTMR described the Bruce Highway Action Plan (BHAP) projects.

The technical advisory group drove the overall development of the BHAP and DTMR developed one-page project descriptions for each BHAP project in the categories of capacity and flood improvement.

DTMR used its investment guidelines to assess the Bruce Highway and identify the work required to meet the desired vision performance. This means DTMR assessed the projects against a consistent set of standards covering economic, safety, environmental and social equity aspects.

These one-page descriptions outline for each project: the current situation; the proposed solution; engineering data (traffic volume); and project status. While the descriptions do not specifically articulate the projects' objectives, they include comments about the industry and community benefits, under the headings of improved capacity, improved efficiency and improved safety.

Overall, because the BHAP was not intended to be a detailed plan, the benefits identified in the project descriptions are broad and generally not quantified. Some examples are:

- congestion will be eliminated for many years
- passenger and freight throughput during peak period will be maximised
- the wider formation will reduce the risk of ‘run off road’ crashes
- driver frustration when overtaking, and at congested intersections, will be reduced, which will reduce risk taking and hence improve safety.

Few one-page descriptions for capacity improvement projects identify targets or baseline data for the industry and community benefits. The descriptions for the flood immunity improvement projects define the benefits better with clear metrics and targets.

- Maximum time of closure during a severe flood event (Q50) will reduce from 157 hours to 37 hours.
- Average annual time of closure will be reduced from 52 hours to 3.4 hours.

The Australian Government requires DTMR to produce Project Proposal Reports (PPRs) for all projects it funds. PPRs for the projects we examined give an overview of the options considered and their assessment. They set the projects' objectives and associated performance measures.

Monitoring and reporting

Good information allows program boards and steering committees to monitor and challenge the performance of project delivery, and identify and resolve issues and conflicts within and between projects.

Moreton Bay rail

DTMR prepares a monthly report for the MBRP Steering Committee. QR and MBRC have input into the report.

These monthly reports are comprehensive and include progress against major milestones and deliverables, performance against key indicators, quality non-conformance incidents, and updates on community engagement and traffic management. As a result, the MBRP Steering Committee has relevant and timely information to assist decision making.

Bruce Highway

The information provided to the Board consists of the Program Implementation Plan, updates on agreed actions, and submissions about specific items. These submissions include the proposed approach of the Bruce Highway Safety Package Tranche 1 or changes to project budgets following the Approved Project Value (APV) process. The APV process ensures a regular review of the total project cost. When undertaken at contract award stage, the APV is set as the revised project budget and reflects market conditions.

The characteristics of the Program Implementation Plan are actually those of a project-by-project status update. The plan focuses on individual projects in development or delivery phases and shows each project's estimated total cost. It does not include individual projects' costs to date or the forecast costs from reporting date to completion. This means the Board cannot readily identify projects that might exceed their approved budget.

Other, non-BHUP-specific reporting arrangements complement the Program Implementation Plan report. DTRM submits a monthly progress report to the Australian Government for all federally funded projects, including the BHUP projects. This report contains the Australian Government's agreed funding, the cost to date and the expected expenditure for the next two months. The report gives a brief status update or refers to separate reports on individual projects.

The separate reports outline the projects' milestones, both original and current, and provide further details on the works in progress or completed.

The Board's ability to monitor how the BHUP is tracking against the overall commitment is limited. This is because there is no consolidated report at the program level that outlines how much of the $8.5 billion DTMR has spent or committed to date and how this compares to the program delivery plan.

The Board monitors the delivery of projects against milestones as reported in the monthly Program Implementation Plan. The Board also monitors the program's contingency and can endorse the use of contingency funds to bring forward projects.

DTMR identified the projects to bring forward from the second stage of the BHUP. The Board endorsed this course of action and supported seeking ministerial approval. It also provided guidance and approval of prioritisation criteria, in particular for packages of safety works.

There is no up to date documented risk and issues register for the agreed program. This means the Board is not actively managing delivery risks. The Board agreed on 2 June 2015 that a program risk register needed to be developed and be a standing agenda item in future Board meetings. On 1 September 2015, the Board noted that DTMR will develop a Project Risk and Opportunity Log which will be tabled as a standing agenda item at future Board and Steering Committee meetings.

Evaluating projects

Post implementation reviews measure whether projects achieve their objectives. They also provide insights on how projects contribute to expected program benefits. Under the OnQ framework, projects worth more than $100 million must complete Gate 6 — post implementation review to evaluate the performance of the asset since completion. The purpose of the review is to:

- evaluate the performance of the asset since placed into service
- determine whether it has served the intended purpose
- determine the actual benefits to date
- determine whether the intended whole-of-life benefits are likely to be realised
- confirm/determine any changes to future network strategy
- identify any issues with organisational processes.

It can take some years to capture and analyse data on benefits such as safety improvements. Therefore, DTMR undertakes post implementation reviews some time after it completes the projects.

As the two projects within the MBRP have not reached practical completion, it is too early for a project evaluation.

More than 60 projects along the Bruce Highway achieved practical completion at 30 June 2015 and incurred an expenditure over $100 000 in 2014–15. These include projects funded through programs other than the BHUP, such as natural disaster programs.

The southern access to Cairns project achieved practical completion in April 2014 and the post implementation review was completed in November 2014. The review is a comparison of pre and post project traffic counts and travel time measures. It concluded the project achieved the forecast for eight of the nine benefits identified in the business case, although the business case set baseline data and target for one benefit only — reduced delay at specified intersections.

Recommendations

We recommend the Department of Transport and Main Roads:

1. clarifies the responsibilities of the Bruce Highway Upgrade Program (BHUP) governance bodies and key governance roles to ensure appropriate oversight, in particular over risk management
2. consolidates the existing reports on BHUP projects so that the Bruce Highway Program Board has access to key information that complements the current report on progress against milestones. This document should include, for each project in development and delivery:
   - total approved budget
   - expenditure to date
   - forecast cost from reporting date to completion
3. develops a summary report covering the full $8.5 billion commitment of the BHUP to enable the Board to monitor the commitment at the program level, including aggregated expenditure to date and funds committed.

3. Benefits

In brief

Benefits realisation management requires planned benefits to be measurable, clearly defined and to have targets.

The Department of Transport and Main Roads (DTMR) benefits management framework outlines its approach for realising benefits. Under the framework, the benefits management process has four distinct activities:

- identify and map the benefits
- define and plan the benefits realisation
- execute the benefits realisation
- review and evaluate the benefits.

One of the principles underpinning the framework is that business area sponsors and managers own the benefits, not the project or program manager, which is consistent with good practice.

Conclusions

DTMR has the required systems and skills to define and plan the realisation of measurable benefits with relevant metrics, baseline data and targets. This is evidenced in the Moreton Bay Rail Program (MBRP). However, because it is not applying its benefits management framework consistently, there is a risk that DTMR is not maximising the potential benefits from its infrastructure projects and programs.

DTMR defined the outcomes of individual projects in the Bruce Highway Upgrade Program (BHUP) better than for the program itself, although it is not setting targets and providing baseline data consistently.

Findings

- The business cases for the two MBRP projects clearly identify and document the intended benefits. They include targets and key performance indicators.
- The profiles for the MBRP benefits outline how and when the benefits will be measured. They define the baseline and the target.
- DTMR has assigned ownership of the MBRP benefits to business areas, namely TransLink and the Moreton Bay Regional Council.
- DTMR has not clearly defined the measurable benefits of the BHUP or quantified the benefits at the program level.
- The draft Benefits Realisation Plan for the BHUP, developed in July 2015, identifies six program benefits but is incomplete. DTMR has yet to develop a benefits realisation schedule for the BHUP. The information in the supporting draft benefits profiles is inconsistent.

Recommendations

We recommend the Department of Transport and Main Roads:

4. applies its benefits management framework consistently across its programs and projects, including the Bruce Highway Upgrade Program, to maximise benefits. In particular it should:
    - define clear, measurable benefits
    - quantify the expected benefits
    - set targets and provide baseline data
    - align variations in scope to program benefits.

Introduction

In March 2014, the Department of Transport and Main Roads (DTMR) endorsed a benefits management framework that outlines its approach for realising benefits.

Under the framework, the benefits management process has four distinct activities: identify and map the benefits; define and plan the benefits realisation; execute the benefits realisation; and review and evaluate the benefits.

In its project management methodology, OnQ, DTMR states that the principles of benefits realisation are as follows:

- benefits are dynamic — regularly reviewed and updated in response to changes in scope, objectives and delivery
- the 'business' needs to own the benefits — owned by sponsors and managers not project/program manager
- benefits are not automatic — they require active monitoring of progress and outcomes
- benefits need to be first understood as outcomes
- intermediate outcomes are needed to realise business benefits
- benefits are both financial and non-financial.

This chapter evaluates how well DTMR and Queensland Rail (QR) identify benefits and plan their realisation for the Moreton Bay Rail Program (MBRP) and the Bruce Highway Upgrade Program (BHUP).

Conclusions

DTMR has developed a benefits management framework but is not applying it consistently, thus potentially not maximising the benefits from its infrastructure projects and programs.

The MBRP demonstrates that DTMR has the required systems and skills to define and plan the realisation of measurable benefits with relevant metrics, baseline data and targets. However, the department has not clearly defined the BHUP benefits and the draft Benefits Realisation Plan is incomplete. DTMR is defining the outcomes of individual BHUP projects better than it has for the BHUP as a whole, but is not setting targets and providing baseline data consistently.

In accordance with the OnQ framework, DTMR has assigned ownership of the MBRP benefits to the 'business,' namely its TransLink division and the Moreton Bay Regional Council (MBRC). For the BHUP, DTMR's districts deliver the projects, and maintain and operate the roads. To ensure there is appropriate focus on realising the program benefits, DTMR has designated the General Manager, Program Delivery and Operations as the benefit owner.

Identifying and mapping the benefits

Moreton Bay rail

The business cases for the Moreton Bay Rail Link (MBRL) and Lawnton to Petrie (L2P) projects clearly identify and document the intended benefits. They include targets and key performance indicators.

The 2011 MBRL business case quantifies the project's expected net economic benefits, with a benefit-cost ratio of 1.34 and a net present value of $330 million. It describes the targets and baseline data used to identify and measure the benefits. Using the OnQ framework, the business case documents the steps to develop and achieve the benefits with clear performance metrics and baseline values.

Figure 3A outlines the benefits identified in the MBRL business case.

Figure 3A
MBRL benefits

Benefit	Metric	Baseline	Target
Fast and reliable travel times	Travel times in AM and PM peak	Existing travel times	Reduce travel time by 15 minutes
Increased connectivity between activity centres	Increased public transport services	Existing public transport services	Public transport meets patronage demands
Increased access to public transport	Increased mode share in Moreton Bay region	Existing mode share distributions	Targets from Connecting SEQ 2031, an integrated transport plan for South East Queensland issued in 2011
Development of sustainable cities and regions	Number of people living within 800m of stations	Existing population density	Connecting SEQ 2031 targets

Source: Queensland Audit Office from the MBRL business case

The MBRL business case also maps the links between the project's objectives, outcomes and benefits.

The 2013 L2P business case documents the benefits with their baseline and targets. The business case structure does not follow OnQ framework, as QR did not adopt it until 2014. This did not affect identification and measurement of benefits and it still provided sufficient information to justify the delivery of L2P.

Figure 3B outlines the benefits identified in the L2P business case.

Figure 3B
L2P benefits

Benefit	Metric	Baseline	Target
On time running	On time running performances	Caboolture line peak is 87.37%	On time running target of 94.53%
Capacity increase on the north coast line	Rail operations plan 2016	19 services for AM peak arriving at Central	Additional 10 services
Facilitation of MBRL services	Commission of L2P assets	n/a	2016

Source: Queensland Audit Office using data extracted from the L2P business case

The review conducted by the then Queensland Treasury and Trade in 2014 led to DTMR developing an executive business case for the MBRP. The Steering Committee approved the executive business case in October 2014.

The executive business case for the MBRP does not identify additional benefits at the program level. The program benefits, scheduling, and governance all come from the individual projects.

The program Steering Committee chose not to change the existing project benefits or identify the benefits of the program when DTMR was drafting the executive business case. This is because the MBRL business case identified the benefits assuming the line would operate effectively through the L2P connection to the network.

Bruce Highway

The draft Bruce Highway Program Management Plan and the draft Bruce Highway Benefits Realisation Plan outline the objectives and intended outcomes of the BHUP. Figure 3C outlines the objectives and intended outcomes of the program.

Figure 3C
Program objectives and intended outcomes

	BHUP
Program objectives	▪ safety improvements ▪ flood immunity improvements ▪ capacity improvements
Program intended outcomes	▪ improved safety, reduced fatalities and serious injuries ▪ transport system efficiency — reliable travel times for freight transport ▪ economic opportunity — travel time savings, increased access and capacity

Source: Queensland Audit Office

The plan does not specifically refer back to the original program outcome — meeting acceptable Australian standards — mentioned in the Bruce Highway Action Plan (BHAP).

While DTMR has not clearly defined the measurable benefits of the BHUP or quantified the benefits at the program level, it estimated the expected benefits of the BHAP.

DTMR estimated the BHAP improvement in safety, capacity and flood immunity would contribute to reducing the road toll by about 35 per cent and significantly save travel time over 30 years. This would be demonstrated in:

- savings in human lives for an estimated value of $3 billion
- $30 billion in travel time saving for both industry and passenger travel.

The BHAP does not outline interim benefits expected at various points in time over the 30-year period.

Defining and planning the benefits realisation

Moreton Bay rail

In July 2015, the Steering Committee and stakeholders developed a draft Benefits Realisation Plan and a benefits dependency map based on DTMR's approach to benefits realisation.

They agreed on five benefits linked to the department's strategic goal to deliver an efficient and reliable transport system:

- reduce travel time using car/public transport in peak hours to travel to the CBD
- reliable travel time for trains originating from the Moreton Bay Rail Link
- a compact and connected community — enabling dwelling growth adjacent to existing public services
- percentage of the local population within 800m of a public transport node for work, education and leisure travel
- ease with which passengers can access a public transport service along the MBRP corridor.

There is a profile for each benefit, outlining how and when the benefit will be measured. The profile also defines the baseline and the target.

For example, reduced travel time measures the travel time saving of catching a bus from Kippa-Ring to the Shorncliffe train to the CBD compared to travelling on the train from Kippa-Ring. DTMR will measure the travel time six months after the train services commence on the Moreton Bay line, at both AM and PM peak hours. The target is to save on average 15 minutes of travel time.

The Deputy Director-General, TransLink, owns four benefits. Moreton Bay Regional Council owns the benefit about a compact and connected community.

As the transport-related benefits will only start to be realised when train services begin, neither DTMR nor QR have monitored them during the delivery phase of the program.

The MBRC has released a Draft Planning Scheme with a focus on active and public transport. It supports increased residential density and commercial development along the transport corridor. Development approvals have increased significantly in areas around the stations and the MBRC is planning to deliver a new university to capitalise on the MBRP.

Bruce Highway

So far, DTMR has focused on delivering and realising the benefits of carry-over projects initiated under previous programs and included in the BHUP.

Benefits have not driven the program management of the BHUP to date. When DTMR identified projects to bring forward from the last six years of the program to the first four years, it did not explain in the submission to the Bruce Highway Program Board (the Board) how it considered the benefits.

The department has begun planning and designing activities to deliver new projects under the BHUP. As part of this, DTMR has developed a draft Benefits Realisation Plan in July 2015. This will be a tool for tracking, managing and maximising program benefits.

It identifies six program benefits. They are:

- improved road standard — national standard
- reduce road closure times following natural disasters
- improved travel time
- increase transport system capacity
- reduced road toll — saved lives
- reduced serious road crash incidents.

We identified gaps in the draft Benefits Realisation Plan for the BHUP. The benefits dependency map in the draft plan shows the alignment between the 'enablers' required to change the transport system and the program's benefits but there is no information on performance measurement, benefits review, evaluation and reporting. In addition, the plan does not explain how DTMR intends to measure these benefits.

DTMR has yet to develop a benefits realisation schedule. Also, the information in the supporting draft Benefits Profiles is inconsistent. Five profiles describe what will be measured, but only three explain how it will be measured and how often. None of the six profiles indicate the quantified value of the benefits, the benefit's baseline value or target, or the cost of measurement.

Best practice is to clearly differentiate the entity delivering the project or program from the entity benefiting from it. This is to ensure there is a healthy tension between the delivery drivers — cost, time, quality — and the benefits to be realised. The draft BHUP Benefits Profiles attribute the benefit ownership to the Program Delivery and Operations (PD&O) branch within the Infrastructure Management and Delivery division. Due to the nature of roads projects, the districts and regions are responsible for delivering projects and realising their benefits. To ensure clear accountability for benefit realisation, the General Manager PD&O is responsible for the overall benefits for the state-wide roads programs, including the BHUP. This arrangement means there is appropriate focus on realising the BHUP benefits.

In the Project Proposal Reports (PPR) submitted to the Australian Government for funding approval, DTMR defines the outcomes of individual projects better than it does for the whole BHUP. This is demonstrated in the Bruce Highway Safety Package (BHSP) Tranche 1 and the Cooroy to Curra Section A project. However, DTMR does not consistently provide relevant targets and/or baseline data to measure whether projects achieve the outcomes that lead into benefits.

Bruce Highway Safety Package Tranche 1

The BHSP Tranche 1 will deliver a $350 million package of high priority safety works over five years from 2014–15. The objective of the BHSP Tranche 1 is to reduce the number of fatal injury crashes on the highway through selected safety treatments aligned to the four most fatal and serious crash types. One of the possible treatments is the wide centre line treatment that provides greater separation between oncoming vehicles. This safety treatment is relatively low cost and quick to roll out because it integrates the design without necessarily having to widen the existing sealed width.

The 2014 project proposal report for BHSP Tranche 1 outlines the expected benefits and provides baseline data. DTMR analysed and quantified the benefits over 30 years. Benefits include 433 fewer fatalities and 4 597 fewer serious injury casualties requiring hospitalisation.

Cooroy to Curra Section A project

The business case for the Cooroy to Curra Section A project sets out five outcomes and their associated metrics, as listed in Figure 3D. Three outcomes have targets and baseline data in the PPR.

Figure 3D
Project outcomes — Cooroy to Curra Section A

Business case	Business case metric	Project Proposal Report
Improved road user safety through reducing the number of crashes on the Bruce Highway between Cooroy and Curra by reducing fatalities by 71 per cent and injury incidences by 57 per cent.	Number of road deaths in the study area (killed or seriously injured rate/crash costs).	The project improves safety by reducing crash risks. The average annual crash rate along this section of highway (per 100 million vehicle kilometre travelled), between January 2000 and December 2008 is 1.4 fatalities, 12.2 injury incidences and 17.5 property damage accidents. After construction, the crash rate is forecast to decrease to 0.4 fatalities, 5.3 injury incidences and 14.2 property damage accidents. This represents a reduction in fatalities of 71 per cent and injury incidences of 57 per cent.
Improved transport system efficiency through better network quality between Cooroy and Curra.	Confirm level of service has improved from pre to post project.	Not discussed.
Improved direct economic opportunity through reduced passenger and freight travel times between Cooroy and Curra by 18 per cent.	Travel time assessment (pre–post).	The project reduces travel time from an average travel time of 9.3 minutes along this section of highway to an anticipated 7.6 minutes after construction — a forecasted reduction of 18 per cent.
Improved asset sustainability by reducing routine regional maintenance costs by 50 per cent per annum.	Monitor routine maintenance costs for identified section.	After construction, the project will result in maintenance cost savings of approximately 50 per cent annually relative to the base case.
Improved accessibility to local destinations through a more compatible transport mix.	Conduct origin and destination surveys pre and post project.	Not discussed.

Source: Queensland Audit Office

Recommendations

We recommend the Department of Transport and Main Roads:

4. applies its benefits management framework consistently across its programs and projects, including the Bruce Highway Upgrade Program, to maximise benefits. In particular it should:
    - define clear, measurable benefits
    - quantify the expected benefits
    - set targets and provide baseline data
    - align variations in scope to program benefits.

4. Program and project delivery

In brief

Robust program management helps identify interdependencies between projects to ensure they are planned, scheduled, executed, monitored and controlled to deliver the best results.

Three areas of project delivery — cost, time and quality — significantly affect a program's success. A robust and mature project management framework ensures a project is well planned at the onset, with clear deliverables and performance measures. Established monitoring procedures that track the project's progress against agreed budget and milestones support the framework.

Conclusions

Generally, the Department of Transport and Main Roads (DTMR) and Queensland Rail are managing the projects we reviewed in line with established policies and procedures. DTMR has a sound, well-established project management framework. It has a Project Cost Estimating Policy and an Approved Project Value process, which drive value for money. There are also adequate output quality controls in place and established approvals processes for changes in scope.

DTMR manages the Moreton Bay Rail Program (MBRP) effectively as a program, but it is far less complex than the Bruce Highway Upgrade Program (BHUP), with only two interrelated projects and a short time frame of two years. The program management approach for the BHUP is not yet in place, with governing documents either in draft or not developed.

This means that DTMR may not always reap the benefits of managing projects as a program, such as efficiency gains through improved project delivery coordination and procurement activities for packages of projects.

The procurement activities for the individual projects we reviewed are generally efficient, timely and achieving value for money.

Findings

- Despite defining BHUP as a program and DTMR having a defined program management approach, it is managing the BHUP as a portfolio of projects.
- DTMR is generally managing individual projects in line with approved budget, scope and time and according to relevant frameworks and requirements.
- The MBRP is forecast for practical completion in line with the schedule in the executive business case.
- Projects across the BHUP and the MBRP are either on budget or have not exceeded their approved budget.
- The BHUP has a budget contingency at the program level of $792 million at May 2015 because the escalation rate built into the initial project cost estimates is higher than current market conditions.
- In consultation with the Australian Government, DTMR has applied the contingency to bring forward projects initially scheduled for the later part of the BHUP.
- DTMR follows established approval processes when there is a change in project scope but does not systematically consider how changes align with the program's objectives.
- The MBRP contractor identified a new signalling system that saved $7 million and provided a diversification of supplier base.

Recommendations

We recommend the Department of Transport and Main Roads:

5. implements its program management approach for the Bruce Highway Upgrade Program to take advantage of improved project coordination and scheduling, consistent delivery and better value for money outcomes from procurement activities.

Introduction

Programs are established to coordinate and integrate a set of related projects in order to realise greater efficiencies than would be available from managing the projects individually. Projects may be interdependent because of the collective capability they deliver, or they may share a common attribute such as customer, supplier, technology or resources.

Program delivery plans document key program decisions, including how an entity will manage and deliver the outcomes. The Department of Transport and Main Roads' (DTMR) OnQ methodology requires a delivery plan in some form for all programs.

Three areas of project delivery — cost, time and quality — significantly affect the success of each project. A robust and mature project management framework covers all phases in the project life cycle. It ensures there is appropriate planning, with clear deliverables and performance measures. Established monitoring procedures track each project's progress against agreed budget and milestones and identify emerging risks.

The Bruce Highway Upgrade Program (BHUP) is relatively complex. The $8.5 billion program comprises individual projects or packages of safety treatments that DTMR will deliver over a 10-year period. By comparison, the $1.3 billion Moreton Bay Rail Program (MBRP) comprises two projects to be delivered over two years.

This chapter examines DTMR's program management. We look at how well DTMR and Queensland Rail (QR) manage the selected projects in terms of time, budget, quality and scope.

We selected two projects from the BHUP for detailed examination — the Cabbage Tree Creek to Carmans Road project and the Cooroy to Curra Section A project.

Conclusion

DTMR and QR manage the delivery of the individual projects we reviewed generally well and in line with approved time, budget and scope. DTMR's project management framework is sound and well established. Its Project Cost Estimating Policy and its Approved Project Value (APV) process drive value for money. There are adequate controls to ensure the quality of the project output and there are established processes to seek approvals when there is a change in scope.

The procurement activities across the projects we examined are generally efficient, timely and achieving value for money. For example, the MBRP contractor identified a new signalling system that saved $7 million and provided a diversification of supplier base.

DTMR has developed policies and procedures to manage programs, but program management is not an embedded practice in the department. The program management approach for the BHUP is not yet in place. Some governing documents are in draft or not developed. As a result, DTMR is managing the BHUP as a collection of discrete projects. A program management approach for the BHUP could result in better value for money outcomes and achieving the intended outcomes efficiently.

DTMR is managing the MBRP more effectively as a program, but it is considerably less complex than the BHUP.

Managing the program

Moreton Bay rail

DTMR and QR combined the Moreton Bay Rail Link (MBRL) and the Lawton to Petrie projects in response to a Queensland Treasury and Trade review in May 2014. This led to improved reporting and communication at all levels. The integrated delivery team has the required skills and experience in infrastructure project management.

Bruce Highway

The BHUP is complex. It includes a large number of related projects and activities, involves a range of stakeholders, spans 10 years, and is subject to external events such as changes in Australian Government funding and natural disasters.

DTMR endorsed an organisational policy on Program Management in June 2015, supported by a Program Management Methodology Overview. The overview states that projects and business programs may apply the methodology principles and elements in a scalable fashion if appropriate and where it can provide rigor, consistency and value. As a result, DTMR began drafting the governance documents necessary for a program approach for the BHUP.

The aim of the draft Program Management Plan is to ensure the funded BHUP projects are considered and delivered as a program to achieve:

- consistent and coordinated delivery
- strengthened program management accountability
- transparent decision making
- consolidated reporting
- planned outcomes.

A further advantage of a program management approach for the BHUP is that coordination and integration of project delivery could result in greater efficiencies and benefits and better value for money outcomes than if DTMR undertakes the works separately.

DTMR has started developing BHUP scope management and design guidelines to support the Program Management Plan. The guidelines apply to all projects along the Bruce Highway but focus on safety, capacity and flood immunity improvements. The intentions of the guidelines are to supplement current DTMR design documents and deliver the vision standards for the Bruce Highway.

DTMR has yet to develop an approved delivery plan or schedule showing how it will coordinate the projects over the life of the program to achieve the goal of a safe, reliable and efficient Bruce Highway. The delivery plan or schedule should consider the projects' status, benefits, interdependencies, and risk.

Procuring construction contracts

The Queensland Government procurement policy applies to all departments. Its principles include driving value for money and undertaking procurement activities with integrity. Value for money is broader than just the price. The policy includes three factors to consider when assessing value for money:

- overall objective of the procurement, and outcome being sought
- cost related factors including up-front price, whole-of-life costs and transaction costs
- on-cost factors such as fit for purpose, quality, delivery and service.

To evaluate the procurement for the programs, we assessed whether the contractual arrangements achieved value for money and whether the procurement process was efficient, transparent and fair and followed government guidelines. We reviewed the MBRL and two Bruce Highway projects: a major project — Cooroy to Curra Section A — and a small project — Cabbage Creek to Carmans Road.

We found the procurement activities across the two programs are generally efficient, timely and achieving value for money. The procurement processes are fair and transparent.

The MBRL project business case assessed a number of procurement models. The project appointed a probity advisor for the duration of the procurement phase to ensure a fair and transparent process. This included consideration of options for delivery, procurement practices, and consultation with industry.

The delivery strategy for Cooroy to Curra Section A outlines the procurement strategy. It covers the key elements required under the State Purchasing Policy, including the level of expenditure and timing, procurement objectives and options, and the preferred procurement strategy.

While there is no specific procurement strategy or plan for the Cabbage Creek to Carmans Road project, the contract assessment tool from the Main Roads Project Delivery System documents the decision on the chosen procurement process.

Procurement models

For both the BHUP and MBRP, DTMR assessed a number of procurement models. In both cases, it considered whether private sector involvement under a public private partnership-style arrangement was suitable for the projects. DTMR concluded that it would use design and contract procurement options, based on ratings against innovation, risk, whole-of-life costs, asset utilisation and competitive market. However, neither the delivery strategies nor the tender analysis and recommendation reports explain why DTMR adopted different procurement models.

The delivery strategy for Cooroy to Curra Section A project proposed to package the work originally into five contracts, to allow for cost-effective staging and flexibility in funding. Following a project risk workshop, DTMR amalgamated the five contracts into three, allowing for further cost and time savings.

The projects we examined used two types of tender contracts. The Cabbage Tree Creek project and two of the contracts for the Cooroy to Curra Section A project used open market tender contracts. The third contract for Cooroy to Curra Section A, and the MBRL, used a two-stage early tender involvement (ETI) process.

The benefit of using the ETI model is to leverage the contractors' technical knowledge, expertise and innovative ideas. This is to help develop more realistic and reliable operating schedules and cost estimates — especially for large and complex projects. ETIs are often used in a tight technical skills market and where there is a need to reduce development and delivery time.

The delivery model for each contract was design and construct. Each contract defined the scope, timing, cost and benefits, and stipulated compliance with relevant building codes.

Tender selection process

The tender selection process for the projects we reviewed used price and non-price criteria, ensuring cost was not the only driving factor for selection. The invitations to offer detailed the evaluation criteria and their weightings.

Tender assessment panels assessed and analysed all tenders, reporting their findings and recommendation on the preferred supplier.

Both the MBRL and Cooroy to Curra Section A project had in place a tender evaluation plan prior to tender close, while the Cabbage Tree Creek to Carmans Road project did not. In addition, the panel for the Cabbage Tree Creek project did not document conflicts of interest.

DTMR's guidance for the procurement of work — the Transport Infrastructure Project Delivery System —specifies the appointment of a probity advisor for a project with a construction value greater than $100 million. An independent probity advisor reviewed each stage of the procurement processes for the MBRL and the Cooroy to Curra Section A project to ensure transparency and fairness. The probity advisors concluded that the tender processes complied with the Queensland Procurement Policy and were secure and confidential. There was no probity advisor appointed for the Cabbage Tree Creek project because its construction value was under the threshold.

The MBRP delivery team clearly documents all variations and maintains an innovations register for sharing best practices from the program. The innovations register contains details of savings made through procurement decisions.

DTMR manages contractor performance on the MBRP and the two BHUP projects we examined, through quality checks, informal and formal meetings and the completion of contractor performance assessment forms.

Managing the projects

DTMR states that its project management framework, OnQ, focuses on achieving results through managing opportunities and risks, managing stakeholders and making the best use of resources. It seeks to ensure that each project will deliver outcomes that are consistent with organisational policy and strategic objectives.

We examined whether DTMR complied with relevant requirements set out in its OnQ project management framework.

DTMR is generally managing the projects we reviewed according to its policies and procedures and the National Partnership Agreement requirements. This ensures a consistent approach to assessing the projects at critical stages in their life cycle.

DTMR submits a Project Proposal Report (PPR) to the Australian Department of Infrastructure and Regional Development for each project or package of projects. A PPR outlines the objectives of the project, options considered, scope of works, funding required, financial analysis, milestones, risks and delivery method. The Australian Government approves the PPRs individually.

Depending on the estimated cost, risk and complexity of the project, DTMR also requires a submission to its Infrastructure Investment Committee.

Moreton Bay rail

Cost

The two projects in the MBRP are currently on budget and the variations remain within the allocated contingency. The following entities fund the MBRP:

- Australian Government
- Queensland Government
- Moreton Bay Regional Council (MBRC)
- Queensland Rail (QR).

Figure 4A outlines the funds committed and the delivery entity.

Figure 4A
Funding and delivery arrangements

Project	MBRL			L2P (G)	L2P(NPB)	L2P(B)
Funding source	Australian Government	Queensland Government	MBRC	QR	QR	QR
Funding commitment	$742 mil. capped	$300 mil. plus land	$105 mil. capped	$120.9 mil.	$18.4 mil.	$47.7 mil.
Total per project	**$1 147 mil.**			**$186.6 mil.**		
Work delivered by	DTMR (via Contractor)					QR

Notes: MBRL = Moreton Bay Rail Link; L2P = Lawton to Petrie; (G) = greenfield (NPB) = North Pine bridge; (B) = brownfield

Source: Queensland Audit Office

The funds from the Australian Government and MBRC are capped, which means that the Queensland Government bears the risk of any budget overruns. The funding parties will receive any savings realised as part of the MBRL project commensurate with their financial contribution to the estimated budget.

The tenders for the MBRL identified value for money opportunities. For example, the contractor identified a new signalling system that provided QR with an alternative to its standard supplier. The new system offers modern technology at a lower price to standard designs. This saved $7 million and provided a diversification of supplier base.

Time

Following a competitive tender process, DTMR awarded the contract for MBRL in July 2013 and preconstruction work on the project began in August 2013. Construction began on 24 January 2014. The MBRP is on track for practical completion of all rail components mid-2016, in line with the schedule in the business case.

The MBRL business case included the following assumptions:

- L2P link will be completed
- New Generation Rollingstock (NGR) will be delivered in line with rail completion in 2016 to provide expected service capabilities.

As the MBRP will be completed before the NGR units are in operation, DTMR and QR are currently exploring a range of options, and their associated risks, to deliver adequate train services when the MBRP opens.

DTMR and QR have identified and planned the activities they need to complete to ensure the rail link is ready for operations. These activities include commissioning the rail corridor, instructing train drivers, engaging with bus operators, coordinating the timetables and updating the ticket vending machines.

Quality

There are robust processes in place to ensure each project is delivering against quality standards. Each element of the design and construction of the program follows TransLink and QR technical standards. QR and DTMR have an agreement to ensure QR's technical capability is used in the delivery and approval phase. QR undertakes technical reviews of work delivered by DTMR to mitigate its risk as the eventual rail infrastructure manager and rolling stock operator.

DTMR has contracted technical rail designers for all stages of the design work and QR reviews all designs prior to approval. QR undertakes site acceptance testing prior to commissioning for all the work DTMR delivers. QR has developed and is implementing a testing commissioning plan. DTMR produces a monthly quality report and circulates it to all stakeholders. This means the delivery against the quality standards is transparent.

Scope

Individual project scopes have remained the same, with minor variations for more efficient outcomes. The delivery team expects to deliver the infrastructure (rail track and stations) as stated in the business case. While minor in impact, there are over 100 approved variations across the program with a value exceeding $63 million. This excludes the $51.8 million variation that occurred on the L2P project due to the North Pine River bridge change of scope from a double to a quad track bridge.

The variation documentation is sound and provides background, basis and the benefits of the variation. The Steering Committee endorses variations in scope that result in changes to the approved budget of $20 million or greater and have a significant material effect on the works. Each variation has followed the DTMR internal approval variation process which considers the expected impact. The variations to date have had no impact on time, quality or benefits and the financial implication is within the program's contingency.

Bruce Highway

In the initial years of the BHUP, DTMR focused on delivering funded projects carried over from previous programs (e.g. the Nation Building Program) and included in the BHUP. It is now shifting its focus to delivering new projects funded under the BHUP.

Cost

Overall, the BHUP has a budget contingency of $792 million as at May 2015. This is because the initial project cost estimates include an escalation rate higher than current market conditions. Escalation is the anticipated increase in project cost over time because of various factors such as inflation, market conditions, supply constraints and project complexity.

DTMR outlines its cost estimation practice in its Project Cost Estimating Policy and the associated manual. Five principles underpin the policy, including the following key principles:

> All estimates are prepared on an "unlikely to be exceeded but not excessively conservative" basis for various stages of the project life cycle to provide confidence in project priority, affordability and strategic fit.
>
> Estimates are subject to a review and approval process to ensure accountability, responsibility, costing standards and control applied to any budget that is to be released.
>
> Estimate performance will be ascertained at all funding approval points.

The policy requires project business case estimates to have a P90 estimate. This means that there is a 90 per cent chance the final project cost will not exceed the estimate.

Cost estimates can change over time for a variety of reasons, such as changes to scope and assumptions, pricing adjustments, contingencies and escalations. DTMR's Project Cost Estimating Policy and APV process ensures a regular review of the total project cost. This provides opportunities to identify potential savings early and drive value for money in project delivery.

At 30 June 2015, 67 projects achieved practical completion and incurred an expenditure over $100 000 in 2014–15. These projects relate to the BHUP and earlier programs. None exceeded their approved budget. This demonstrates the APV process is effective in driving value for money and efficient delivery of projects.

DTMR undertakes the APV process at contract award stage, taking into account completed items of work, forecast cost to complete the project and a change to the risk profile. The APV reflects market conditions and includes escalation, contingency and DTMR's costs.

The APV is set as the revised project budget. Once DTMR has declared the variance between the original estimated cost and the APV, the Australian Government seeks ministerial approval to reduce its contribution to the project and reallocates the variance to the program's contingency.

Figure 4B shows the variance between the original estimates and the revised budget for four projects.

Figure 4B
Variance for selected projects

Project	Original estimated cost ($'000)	Revised budget ($'000)	Variance (contingency) ($'000)
Cooroy to Curra (Section A)	790 000	490 000	300 000
Yeppen South Project	296 000	170 000	126 000
Calliope Crossroads	150 000	87 045	62 955
Cabbage Tree Creek — Carmans Road and Back Creek Range upgrade	125 000	58 750	66 250

Source: Queensland Audit Office

DTMR cannot redirect the Australian Government contingency to other projects, whether they are included in the $8.5 billion program or not, without securing an approval from the Australian Government.

In consultation with the Australian Government, DTMR has applied the program's contingency to 'accelerate' or bring forward projects initially scheduled for Tranche 2 — the last six years of the program.

DTMR is considering the highest unfunded priorities on the Bruce Highway and whether to use the program's contingency to fund them. The department's Portfolio Investment and Programming branch intends to provide advice to the Bruce Highway Program Board on this matter in December 2015.

Time

The Program Implementation Plan report shows the projects' progress against their next milestone.

Fourteen of 87 (16 per cent) BHUP projects, in development or delivery phase at April 2015, were tracking over 90 days late to their next milestones. Comments indicated DTMR would complete 11 of these 14 projects as per their current schedule.

DTMR reviews all project schedules and resets their baselines as part of the annual Queensland Transport and Roads Investment Program (QTRIP) process. The Program Implementation Plan at 31 July 2015 reflects the reset baselines.

Figure 4C summarises the timeliness status of the projects at 30 April 2015 and 31 July 2015.

Figure 4C
Project status against next milestone

	Early or on schedule	Up to 90 days late	Over 90 days late	In development but missing next milestone or value	Not started
At 30 April 2015					
Number of projects	56	11	14	2	4
Total value of projects	**$3.355 bil.**	**$152 mil.**	**$1.295 bil.**		
At 31 July 2015					
Number of projects	80	15	0	0	8
Total value of projects	**$3.058 bil**	**$2.037 bil.**			

Source: Queensland Audit Office

As major projects can take years from concept to completion, a delay of up to 90 days is not overly concerning. Of the 15 projects up to 90 days late at 31 July, eight are less than one month late.

Project milestones become firmer as the project progresses through its life cycle of concept, planning, design and construction. It may be impractical to measure progress against original milestones set at an early concept phase, but revising the milestones and adjusting the schedule when the project is in delivery phase, or post contract award, obscures the delivery performance.

Quality

DTMR has a number of controls in place to ensure the projects deliver quality outputs. There are design documents such as the Road Planning and Design manual and the guidelines on Rest Areas and Stopping Places–location, design and facilities.

The Wide Centre Line Treatment (WCLT) is a change to engineering standards aimed at reducing cross centreline crashes. DTMR produced a Design Exception Report to support the implementation of the WCLT and justified the widening of roads only when less than 10 metres wide. This means that DTMR has been able to roll out the WCLT quickly and cheaply without the need for costly and time consuming pavement widening.

DTMR's technical reviewers review the reports, drawings, specifications and other documentation relevant to the design and construction of a project. DTMR also conducts pre-opening road safety audits.

Scope

The scope of a project can change for a number of reasons, including additional work required to meet the required standard, change in the projected demand, change in market conditions or extreme weather events.

DTMR follows established processes to seek approval when there is a project scope change or cost variation, including submitting an updated PPR to the Australian Government. However, it does not systematically consider how the scope change contributes to the objectives of the program. While many scope revisions are consistent with the desired outcomes, some do not explain how they link to the objectives of the BHUP to increase the safety, flood immunity and capacity of the highway.

As project development phases progress, DTMR identifies savings in the design in some cases. It can then consider whether to add items to the project scope up to the approved budget or to revise the budget down.

In some instances where the committed amount exceeded the APV, DTMR has considered broadening the scope to match the committed amount. For example, extending the length of the duplicated section of the Townsville Ring Road aligns with the desired outcomes.

However, scope additions are not always consistent with the program's objectives or service requirements. While within the election funding commitment for the southern access to Cairns project and the approved PPR, the golf course wetlands basin delivers benefits such as increased flora area, which are unrelated to the program’s objectives of improving safety, capacity and flood immunity of the Bruce Highway.

Recommendations

We recommend the Department of Transport and Main Roads:

5. implements its program management approach for the Bruce Highway Upgrade Program to take advantage of improved project coordination and scheduling, consistent delivery and better value for money outcomes from procurement activities.

Appendices

Appendix A—Comments

In accordance with s.64 of the *Auditor-General Act 2009*, a copy of this report was provided to the Department of Transport and Main Roads, Queensland Rail and the Moreton Bay Regional Council with a request for comment.

Responsibility for the accuracy, fairness and balance of the comments rests with the head of these agencies.

Comments received from Chief Executive Officer, Queensland Rail

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Our ref: MCR-15-762

Mr Andrew Greaves
Auditor-General
Queensland Audit Office
Level 14, 53 Albert Street
Brisbane QLD 4002

Dear Mr Greaves

Thank you for your letter dated 9 November 2015 seeking comment on the preliminary report for the Moreton Bay Rail performance audit.

I can confirm that at this stage, Queensland Rail do not have any further comments to make.

Yours sincerely

Helen Gluer
Chief Executive Officer

26 November 2015

Comments received from Director-General, Department of Transport and Main Roads

Queensland Government

Our ref: DG30600

Your ref: 2015-9122P

Office of the
Director-General

Department of
Transport and Main Roads

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Mr Andrew Greaves
Auditor-General
Queensland Audit Office
PO Box 15396
CITY EAST QLD 4002

Dear Mr Greaves

Thank you for the opportunity to comment on the proposed report to the Queensland Parliament on the Performance Audit on Transport Infrastructure Projects for the Moreton Bay Rail Link and the Bruce Highway Upgrade programs (BHUP).

The Department of Transport and Main Roads (TMR) is committed to continuously improving program governance, systems and process and has been responsive to feedback during this audit process.

It is reassuring the report concluded TMR is effectively delivering the projects reviewed, has well established policies and procedures to manage projects and, across the projects examined, TMR's project cost estimating policy and procurement activities drive value for money.

As at 31 October 2015 TMR is currently managing the delivery of 108 projects under the $8.5 billion BHUP as part of the current National Partnership Agreement (NPA). Over the life of the 10-year NPA, TMR estimates well over 200 projects will be delivered under BHUP.

With regard to TMR's framework for program and benefits management, the report recognises these have been developed by the department. TMR in turn acknowledges further improvement is required and is crucial to the success of project and program management in any organisation. TMR is progressing work to increase capability in these areas.

Beyond the usual governance practices required under the *National Land Transport Act 2014, National Partnership Agreement for Land Transport Projects* and associated *Notes on Administration* for BHUP, TMR has established two additional executive layers:

- the Bruce Highway Program Board (board) comprising senior executives from the federal Department of Infrastructure and Regional Development, TMR and other state government departments to facilitate better management, delivery and monitoring of Bruce Highway projects and packages
- the Bruce Highway Steering Committee (steering committee) comprises representatives of the business areas that have direct accountabilities for planning, prioritising, funding, programming, scheduling, delivering, administering and reporting of the program.

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Comments received from Director-General, Department of Transport and Main Roads

The report recommends improvement in several key areas and TMR accepts all the suggested recommendations. Please find enclosed the completed agency response to recommendations.

The Queensland Audit Office (QAO) advised fieldwork for this audit extended from February to August 2015. Since this fieldwork concluded, please note the progress that has been made by TMR in the key recommended areas for improvement:

Governance

- at the 1 September 2015 meeting, the board noted TMR would develop a Program Risk and Opportunity Log and the log would be tabled as a standing agenda item at future board and steering committee meetings
- the Bruce Highway Risk and Opportunity Management Plan was approved in October 2015 and the Program Risk and Opportunity Log is well advanced to be presented at the 1 December 2015 board meeting
- in addition, the Terms of Reference for the board are currently being reviewed for discussion at the 1 December 2015 meeting
- the Terms of Reference for the steering committee are also proposed to be regularly reviewed, with the next review due in early 2016.

Program management

- as indicated previously, TMR's Program Management Organisational Policy sets the direction for program management and the TMR Program Management Methodology outlines processes and templates for program management purposes. The Program Management Organisational Policy was recently revised in June 2015. In addition:
  - work on embedding program management in TMR is continuing
  - the Program Management Plan (PMP) has been developed and expected to be approved in December 2015
  - the PMP, which is being tested with delivery areas and regions to confirm understanding and approach, will:
    - outline processes required to achieve program goals
    - provide direction regarding program development, governance, management, delivery and reporting
    - be an overarching plan that guides all other subordinate documents.

Benefits management

- TMR's incremental application of benefits management was established in late 2009 with the department being at the forefront of benefit implementation in the Queensland Public Service. In order to test and refine the concept, methodology and tools developed, the methodology focused on the projects with an estimated capital expenditure of greater than $100 million. This has allowed the Benefits Management Policy, Benefits Management Strategy and Benefits Categorisation Guide to be refined in February 2013 and March 2014. With improved practices and initial capability established, greater consistency of benefits application is expected and the emphasis is to expand to programs and other projects

Comments received from Director-General, Department of Transport and Main Roads

- the Benefits Realisation Plan, which clearly outlines defined measurable benefits, will be finalised in December 2015. Annual reporting against baseline targets is expected to commence in 2016
- all BHUP projects with a capital value of greater than $100 million develop a benefits profile and quantify realised benefits against baseline data
- all BHUP projects with a capital value between $50–$100 million will develop benefits profile
- All other projects and sub-program benefits profile will be captured at the program level (BHUP) and annually reported to the board.

I appreciate the opportunity to comment on the proposed report to Parliament and can assure the QAO and Parliament that TMR will continue to develop and improve capabilities in all areas of program delivery.

Yours sincerely

Neil Scales
Director-General
Department of Transport and Main Roads

Enc (1)

Response to recommendations

Queensland Audit Office

Department of Transport and Main Roads, Transport Infrastructure Projects (Report 8: 2015–16)

Response to recommendations provided buy Director-General, Department of Transport and Main Roads.

Recommendation	Agree / Disagree	Timeframe for Implementation (Quarter and Year)	Additional Comments
1. Clarifies the responsibilities of the Bruce Highway Upgrade Program (BHUP) governance bodies and key governance roles to ensure appropriate oversight, in particular over risk management.	Agree	Q2, 2016	Department of Transport and Main Roads (TMR) is committed to continual development and improvement of capabilities in all areas of project and program management, including risk management. The Terms of Reference for the Bruce Highway Program Board (Board) are currently being reviewed for discussion at the 1 December 2015 meeting. The Terms of Reference for the Bruce Highway Steering Committee is also proposed to be regularly reviewed, with the next review due Q1, 2016. Risk management roles and responsibilities are defined in the Bruce Highway Risk and Opportunity Management Plan, finalised in October 2015. Existing related governance documents for the BHUP will be reviewed for inclusion of these role definitions (if appropriate). In addition, TMR will present the draft risk register/log at the 1 December 2015 meeting of the Board. Please note Risk Management is a standing agenda item for the Board and has been since the 1 June 2015 meeting.
2. Consolidates the existing reports on BHUP projects so that the Bruce Highway Program Board has access to key information that complements the current report on progress against milestones. This document should include, for each project in development and delivery:	Agree	Q1, 2016	Additional information recommended in this report for inclusion into a consolidated Program Implementation Plan will be outlined to the Board at its 1 December 2015 meeting. Implementation will occur as per indicated timeframe.

Response to recommendations

Queensland Audit Office

Recommendation	Agree / Disagree	Timeframe for Implementation (Quarter and Year)	Additional Comments
– total approved budget – expenditure to date – forecast cost from reporting date to completion.			
3. Develops a summary report covering the full $8.5 billion commitment of the BHUP to enable the Board to monitor the monitor the commitment at the program level, including aggregated expenditure to date and funds committed.	Agree	Q4, 2016	To improve reporting at program and project level, TMR are developing reports including dashboard and periodic type reports for the BHUP to report project performance, financial performance, delivery performance and program delivery risks of the current funded program. Dashboard reporting has been drafted for consideration at the next Board meeting in December 2015. TMR is also investing extensively on systems and processes which will not only improve program management capabilities, but also improve reporting capability as well. Given the size of the BHUP (with over 100 current projects as at 31 October 2015) and an estimated 200 plus projects across a 10 year program (annual federal cash flows for final four years of the program to be confirmed) – this QAO recommendation will need time to be fully developed.
4. Applies its benefits management framework consistently across its programs and projects, including the BHUP, to maximise benefits. In particular it should – define clear, measurable benefits – quantify the expected benefits – set targets and provide baseline data – align variations in scope to program benefits.	Agree	Q2 2016	The BHUP draft Benefits Realisation Plan will be finalised in December 2015. Annual reporting against baseline targets will commence in 2016. All BHUP projects with a capital value of greater than $100m develop a benefits profile and quantify realised benefits against baseline data. All BHUP projects with a capital value between $50 – $100 million will develop benefits profile. All other projects and sub-program benefits profile will be captured at the program level

Response to recommendations

Queensland Audit Office

Recommendation	Agree / Disagree	Timeframe for Implementation (Quarter and Year)	Additional Comments
			(BHUP) and annually reported to the Board.
5. Implements its program management approach for the BHUP to take advantage of improved project coordination and scheduling, consistent delivery and better value for money outcomes from procurement activities.	Agree	Q4 2016	TMR Program Management Methodology sets the direction for program management with the BHUP recently implementing: • Risk and Opportunity Management Plan (finalised in October 2015) • Benefits Realisation Plan (to be completed December 2015) and to be annually quantified • Draft Program Management Plan to be completed December 2015 • Refined dashboard reporting including project performance, financial performance, delivery performance and program delivery risks at a program-level will commence the presentation of a Draft report to the Board in December 2015. Other end-to-end Program Management functions to be progressively rolled out in 2016 by Program Management and Delivery, Program Delivery and Operations Branch.

Comments received from Chief Executive Officer, Moreton Bay Regional Council

Office of the CEO

Moreton Bay Regional Council

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Enquiries Lindsay McLeod
Phone (07) 3205 0555
Our Ref A12871195 (A12828108) LMcL
Your Ref 2015-9122P
Date 1 December 2015

Mr Andrew Greaves
Auditor-General
Queensland Audit Office
PO BOX 15396
CITY EAST OLD 4002

Dear Mr Greaves

PERFORMANCE AUDIT ON TRANSPORT INFRASTRUCTURE PROJECTS

I refer to your letter dated 9 November 2015 and thank you for the opportunity for Council to contribute to and provide comments on the draft audit report.

I am advised that the audit team have had regard to and included the comments provided by Council's Manager Major Projects (Moreton Bay Rail Link) Mr Lindsay McLeod in the drafting of the audit report.

As indicated in the draft audit report, Council notes and is prepared to assist the Department of Transport and Main Roads with information necessary for the measurement of benefits under the Department's Benefits Management Framework as applicable to the Moreton Bay Rail project.

Thank you again for the opportunity to provide input to the draft audit report and should you have any further queries, please do not hesitate to contact Lindsay McLeod as referenced above.

Yours sincerely

Daryl Hitzman
Chief Executive Officer

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Appendix B—Audit methodology

Audit objective

The objective of the audit was to assess the timeliness, cost and delivery performance of selected transport infrastructure programs.

To determine this we focused on:

- whether expected program benefits are clearly articulated and monitored throughout program delivery
- the efficiency and effectiveness of the program management to realise intended benefits
- the efficacy of governance arrangements and controls in place
- whether procurement methods are fair and transparent and achieve value for money.

Reasons for the audit

The Queensland Transport and Roads Investment Program 2013–14 to 2016–17 details transport and road infrastructure projects that the Department of Transport and Main Roads (DTMR) plans to deliver over four years. It includes a total investment of $18.8 billion for roads and highways across local, state and national networks.

The Bruce Highway Upgrade Program is a significant program of work, covering a 10-year period from 2013–14. This $8.5 billion program includes safety, capacity and flood immunity improvement.

The Moreton Bay Rail Program (MBRP) consists of two interdependent projects: the Moreton Bay Rail Link (MBRL) project delivered by DTMR and the Lawnton to Petrie (L2P) brownfield project delivered by Queensland Rail.

Performance audit approach

We conducted this audit in accordance with the Auditor-General of Queensland Auditing standards, which incorporate Australian Auditing, and Assurance Standards.

We conducted it between April and August 2015. The audit consisted of:

- interviews with officials from
  - Department of Main Roads and Transport
  - Queensland Rail
  - Moreton Bay Regional Council
- analysis of documentations including briefs to Directors-General and Ministers, policies, plans, guidelines, strategies and evaluation reports.

Auditor-General Reports to Parliament

Reports tabled in 2015–16

Number	Title	Date tabled in Legislative Assembly
1.	Results of audit: Internal control systems 2014-15	July 2015
2.	Road safety – traffic cameras	October 2015
3.	Agricultural research, development and extension programs and projects	November 2015
4.	Royalties for the regions	December 2015
5.	Hospital and Health Services: 2014-15 financial statements	December 2015
6.	State public sector entities: 2014-15 financial statements	December 2015
7.	Public non-financial corporations: 2014-15 financial statements	December 2015
8.	Transport infrastructure projects	December 2015

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