# Queensland Government Submission

# Productivity Commission Issues Paper
# Public Infrastructure November 2013

**Name: Jamie Merrick**

**Name of organisation: Department of State Development, Infrastructure and Planning**

**Position in organisation: Deputy Director-General, State Development**

**Contents**

## Introduction

The Queensland Government is pleased to have the opportunity to respond to the Productivity Commission Issues Paper, entitled *Public Infrastructure* released in November 2013.

The Terms of Reference for the inquiry are supported by the Queensland Government, given they provide scope for the Productivity Commission to analyse and report on the following areas:

- current infrastructure funding and financing matters;
- alternative funding and financing mechanisms;
- infrastructure cost structures, particularly cost increases compared with other countries;
- public infrastructure decision-making and implementation processes; and
- relevant infrastructure policy measures that ensure effective delivery of infrastructure services.

Infrastructure plays a key role in the Queensland Government's reform agenda. In March 2012, the Queensland Government commenced a comprehensive suite of reforms aimed at growing the Queensland economy and increasing its efficiency. Centred on a four pillar economy, the focus is on the construction, agriculture, resources and tourism sectors. Major elements of the reform agenda, as outlined in the Queensland Government's *Governing for Growth: Economic Strategy and Action Plan*, released in February 2014, set out the Queensland Government's direction and priorities to steer economic growth in Queensland. The strategy provides an invaluable blueprint for industry about the government's way ahead. It details all the government's big economic initiatives and will provide the private sector with the certainty on government direction needed to make informed investment decisions.

Implementing the reform agenda, as outlined in the Queensland Government's *Governing for Growth – Economic Strategy and Action Plan* released in February 2014, include:

- simplifying business regulation;
- minimising impediments to business growth;
- fostering economic growth and resilience;
- enabling infrastructure for economic growth;
- driving productivity in the public sector; and
- communicating the importance of economic development.

The productivity performance of Queensland and Australia will need to improve to prevent a decline in general living standards as the economy transitions from investment to production in the resources sector. The Queensland Government has set an aim of reducing unemployment to 4% by 2018. This will require a multi-faceted response with the primary focus being on increased productivity.

Infrastructure plays a key role in the Queensland Government's reform agenda, including boosting economic opportunities and productivity by reforming the way infrastructure is planned, prioritised, funded and used. This is outlined in the Queensland Government's *Infrastructure for Economic Development* policy paper released in October 2013.

The Queensland Government recognises that it has the primary role in the provision of economic infrastructure, and to this end has introduced the following initiatives:

- preparing a State Infrastructure Plan that targets the development of key rail, port, road, energy, water supply and sewerage projects;
- revising its Project Assurance Framework to ensure only those options that offer the best value for money solutions are progressed; and
- improving its procurement and project management systems to ensure all projects meet both budget and timeframe.

Additionally, the Queensland Government has undertaken governance and legislative changes, and provided policy direction to promote the efficient provision of economic infrastructure. The Queensland Government has:

- established a dedicated Department of State Development, Infrastructure and Planning (DSDIP) to drive efficiency and ensure a coordinated approach to planning;
- established Infrastructure Queensland, comprising public and private sector members, to advise on infrastructure issues;
- established Projects Queensland within Queensland Treasury and Trade to enhance infrastructure delivery capability;
- restored the role of the Coordinator-General to cut project approval times; and
- made supporting and enabling legislative changes through the passage of the *Sustainable Planning and Other Legislation Amendment Act* (SPOLA), including creating a State Assessment and Referral Agency (SARA) for all State interest triggers in development and reformed the land use planning and development approvals system.

Policy changes to simplify infrastructure delivery include the single State Planning Policy (SPP), which provides a comprehensive set of principles that underpin Queensland's planning system, and guides both local and the State Government in land use planning and development assessment.

Economic Development Queensland (EDQ) commenced operations on 1 February 2013, and has a strategic planning function that, in consultation with local governments, will facilitate planning in areas to respond to gaps in the market, or to facilitate development of complex large sites. It will also work closely with local governments with planning in relevant areas. EDQ also provides three key development functions on a commercial basis:

- residential development: facilitates economic development through working with business and industry to develop land for residential purposes;
- industrial development - develops, sells and leases industrial real estate to help meet demand for industrial property for sale and industrial property for lease in Queensland; and
- urban development - takes on a master developer role to work with private developers to deliver urban development and renew urban parcels of land (e.g. Commonwealth Games Village).

The Queensland Government has also provided greater clarity and guidance to potential infrastructure providers and users by:

- developing clear policy preferences for infrastructure development for the Bowen, Galilee and Surat Basins;
- releasing the Economic Directions Statement Queensland Airports 2013-2023, which articulates the Queensland Government's view of the critical role of airports in supporting economic growth, to facilitate informed planning and investment decisions and to assist in strengthening collaboration between the private sector and governments;
- releasing the draft Queensland Ports Strategy for comment, which recommends establishing Priority Port Development Areas and the prohibition of capital dredging for the development of deep water port facilities outside of these areas, as well as providing guidance for leading practice master planning for Queensland ports; and
- using funding from the Australian Government's Regional Infrastructure Fund to establish the North Queensland Resources Supply Chain Steering Committee, to develop a strategy to improve the efficiency and productivity of the supply chain through better coordination of infrastructure owners, operators and current and future users.

Further actions underway include:

- development of Total Asset Management Plans (TAMPs) in accordance with the Queensland Government Commission of Audit (QCoA) recommendation, that each agency adopt a framework that provides a sound basis for decision making based on best-practice relating to investment, management and disposal of assets;
- development of a State Infrastructure Plan reflecting the collation of the investment decisions taken under agency TAMPs, into a whole-of-government framework;
- development of an infrastructure framework for the North West Minerals Province;
- finalisation of the 30 year electricity and water strategies and the Queensland Ports Strategy;
- creation of an Economic Infrastructure Prioritisation Framework (EIPF) to ensure scarce infrastructure dollars are spent in the best way possible across all economic infrastructure asset classes;
- revision of the Project Assurance Framework (PAF) to ensure application of the EIPF;
- consideration of fit-for-purpose financing and funding models
- assessment of asset lifecycle management options and greater supply chain integration; and
- a study (report is due in April 2014) of the rising transport infrastructure costs in Australia over the past two to three decades in conjunction with Simulation, Modelling, Analysis, Research and Teaching (SMART) from the Infrastructure Facility of the University of Wollongong, to unpack the drivers behind the increases in the costs of building and maintaining new roads, rail networks, and other transport infrastructure.

## Recommendation

To enhance effectiveness in timely and cost-effective provision of economic infrastructure, the Queensland Government recognises changes are needed in the following areas:

**Labour Markets**

- Industrial relations legislation must be amended or enacted to address changing market conditions and their impact on productivity. This will enable greater flexibility in Australian labour markets to ensure the right mix of skills is available at the appropriate time to ensure the infrastructure industry remains competitive.

**Approvals**

- Greater use of bi-lateral assessment and approvals processes are urgently needed to improve productivity by reducing project delays and costs caused by duplication of processes.

**Regulation**

- The Australian Government's regulation of the energy and rail markets needs revision to enable enhanced efficiency in costing and greater flexibility in infrastructure planning and provision through a lighter regulatory approach.

**Fiscal Federalism**

- Review the impact of the vertical fiscal imbalance within Australia and introduce changes to enable all tiers of government to optimise benefits flowing from investment in economic infrastructure.

- To provide certainty on the long-term availability of funding for infrastructure projects, consideration needs to be given to funding allocated among jurisdictions based on a pre-agreed formula. This devolves responsibility for prioritising projects within each state or territory to the respective state or territory based on need. The Australian Government would reserve direct project funding for nationally significant projects.

## The new approach

The Queensland Government recognises the increasing role of the private sector in delivering economic infrastructure. Accordingly, it has adopted a new approach, building on the respective strengths of the public and private sectors, where the public sector provides leadership, long-term planning and prioritisation, while the private sector undertakes financing, funding and lifecycle management.

This approach requires allocating risk between public and private partners according to who is best able to manage the risk. In accordance with Infrastructure Finance Working Group (Australian Government) recommendations that governments take a more flexible approach to risk allocation for high net public benefit projects, the Queensland Government will continue to work with private sector partners to optimise risk allocation.

A coordinated approach to infrastructure management is required to obtain greatest benefit from the combined public and private sector infrastructure funding. An example is the specific focus on supply chain corridors applied in the infrastructure framework developed for the Galilee Basin, containing a number of solutions encompassing rail, roads, water, ports, power and communities.

Key to optimising results is a hierarchical approach to selecting expenditure options, as follows:

- better use of existing infrastructure;
- improvement of existing infrastructure; and
- incremental delivery of new infrastructure.

## Key responses to Questions

### *Section 3: The scope of the inquiry*

***Question 3.1***

*Does the proposed definition of public infrastructure capture all forms of infrastructure that should be considered by this inquiry?*

***Answer***

The proposed definition of public infrastructure is considered sufficiently broad to capture forms of infrastructure that should be considered by the inquiry. The definition may need to be revisited should the Commission wish to consider infrastructure that delivers public benefits that may be provided or maintained by private entities, or for which investment decisions are primarily made by private entities (particularly entities that were previously government-owned).

For example, the definition in the paper states that public infrastructure "*encompasses infrastructure where the government has a primary role and responsibility for deciding on whether infrastructure is provided and/or the source of the revenue streams to pay for the infrastructure*".

Definitions in the paper should be amended to make it clear that public infrastructure need **not** be funded by government and can be funded partially (through public private partnership (PPP) arrangements), or wholly by the private sector. This is implicitly acknowledged later on page 7 of the Issues Paper which states that private provision of public infrastructure increased from 27% in 1990 to over 50% in 2012.

The Issues Paper also needs to articulate that although the primary responsibility for deciding whether a certain piece of infrastructure should be provided rests with Government, this decision can be at a proponent's request (e.g. through the issue of approvals) or on the Government's own initiative (e.g. public procurement processes).

Other than some notable exceptions (i.e. the Clem7 and Legacy Way tunnel projects in Brisbane), most Local Government infrastructure would not be captured in the definition of "*major infrastructure projects*" or "*nationally significant infrastructure*".

***Question 3.2***

*What types of nationally significant economic infrastructure should be within the scope of this inquiry?*

***Answer***

The definition should not exclude infrastructure that delivers a significant improvement in the productivity of a state or region, although the overall impact on a national scale may not be direct. This is particularly relevant where large regional infrastructure investment is needed and may not immediately translate to an increase in national productivity (e.g. transport infrastructure investment to connect sparse regional population hubs).

## *Section 4 The importance of public infrastructure*

***Question 4.1***
*What mechanisms are in place to identify and measure the infrastructure needs of the community? How effective are they and what other mechanisms could be used?*

***Answer***
The Queensland Government (through the Department of State Development, Infrastructure and Planning) has released a strategy for enabling infrastructure for economic growth (available at http://www.dsdip.qld.gov.au/resources/report/ifed-report.pdf ).

The report outlines the government's commitment to expand opportunities for the private sector to be part of delivering key infrastructure for the State.

Other initiatives in place to assist with identifying infrastructure needs include establishing Infrastructure Queensland and Projects Queensland, to enhance the Government's infrastructure delivery capability.

Strategic planning is a key element in identifying future road infrastructure requirements in Queensland. For example, the Queensland Department of Transport and Main Roads' (DTMR) planning processes are ongoing. This includes the identification of infrastructure needs in the short, medium and long-term.

***Question 4.2***
*What are the circumstances that might lead to Governments over-investing or under-investing in infrastructure?*

***Answer***
Circumstances that might lead to Governments over-investing or under-investing in infrastructure can be due to:

- lack of data, including data to inform trend analysis. This may make it difficult to determine the future need, and therefore identify the scale of infrastructure built, and to judge whether (under- or) over-provision exists;
- the intent to future proof a project, or cater for future demand can be undermined by inaccurate forecasting (e.g. due to too high or low growth assumptions);
- increased capital requirements due to project characteristics, such as geotechnical or flood mitigation requirements;
- favourable market conditions leading to additional infrastructure being delivered for little or no additional cost; and
- capital and/or maintenance funding restrictions.

Robust investment evaluation processes and approvals are needed that consider growth scenarios over the short, medium and longer term. In a financially-constrained environment, government investment decisions are based on priority decisions where the most benefit can be obtained. Due to competing demands on resources, it is often the case that interim solutions are implemented, until resources are made available that can deliver a more sustainable solution. This may also result in under investment.

***Question 4.3***
*What is the appropriate distinction between the funding and financing of public infrastructure?*

***Answer***
The definition given in the Issues Paper is considered appropriate.

***Question 4.4***
*How is public infrastructure currently funded and financed in Australia, including by the Australian Government, the States and the private sector? How has the composition of different forms of funding and financing of public infrastructure in Australia changed? In particular, how has the role of the private sector in the provision of public infrastructure changed?*

***Answer***
State and Local Governments account for the bulk of public infrastructure funding in Australia. Direct Federal Government infrastructure investment is typically low in comparison but stable as a percentage of Gross Domestic Product (GDP), and tends to be concentrated within the education and healthcare sectors. However, a large portion of State Government revenue comes from indirect federal transfer payments, which also includes payments to assist in financing specific infrastructure investments through programs such as the Regional Infrastructure Fund and the Nation Building Program.

Aside from federal grants, infrastructure investment by State Governments is financed through a combination of State tax revenue, debt issuance by State borrowing authorities and asset sales. Revenue bonds, where the debt is issued against a specific infrastructure project, are not currently used as a financing tool.

The share of private investment in infrastructure in Australia grew steadily from the mid-1980s, reaching just above 55 per cent in 2008, although it has fallen back below 50 per cent since the Global Financial Crisis (GFC). The increase in the share of private investment prior to 2008 was driven by both a decline in the level of infrastructure investment by Federal and State Governments, and an increase in private investment in infrastructure. These trends were driven by:

- significant privatisation of Government entities over the period, including Telstra, Qantas and a number of airports and state utilities; and
- the mining boom, which was associated with an increase in private transport infrastructure investment, such as ports and private roads.

For example, the role of the private sector in road construction and maintenance projects within Australia has increased to 56.4 per cent, compared to 40.4 per cent in 1997. In Australia, the privatisation of infrastructure assets has played a significant role in increasing the share of private investment, whereas PPPs have played only a small, albeit highly publicised role. With regard to the role of the private sector in the provision of public infrastructure, the concept of road user charging has been an emerging trend, as an increasing number of major thoroughfares in capital cities are now tolled (Brisbane (5), Sydney (8) and Melbourne (2)).

In general, private sector appetite for risk, demand risk in particular, has diminished since the GFC, leading to an increased need for public sector support, or underwriting, to make projects 'viable'.

In Queensland, for the 10 years to 2006, non-dwelling capital investment increased from 17.7% to 19.3% of GSP. Reflecting a national trend over this period, public investment declined from 5.9% to 5.4% of Gross State Product (GSP) and private investment increased from 11.8% to 14%. In the same period, national public investment increased slightly from 3.6% of GDP to 3.9% and private investment increased from 12.2% to 13.2% (ABS 2006c). The data indicates that non-dwelling public investment in Queensland in this period was the highest of all the states. However, investment was declining in both monetary and per capital terms. An alternative measure of investment is the value of non-dwelling engineering construction activity. Queensland accounted for around 22% of expenditure in the 6 years to 2006 which compares with New South Wales 24%, Victoria 16.9% and Western Australia 26%.

***Question 4.5***
*What information is available to show trends in public infrastructure investment, funding and financing in Australia, including different levels of involvement by the public and private sectors, and different types of infrastructure?*

***Answer***
Information is available from Infrastructure Partnerships Australia (IPA), a national infrastructure forum which undertakes research in the interests of Australia's infrastructure industry.

State and Local Governments account for the bulk of public financing for infrastructure in Australia. *Direct* Federal Government infrastructure investment is typically low in comparison but stable as a percentage of GDP, and tends to be concentrated within the education and healthcare sectors. However, this masks the fact that a large portion of State Government revenue comes from *indirect* federal transfer payments, and also includes payments to assist in financing specific infrastructure investments through programs such as the Regional Infrastructure Fund and the Nation Building Program. For example, federal grants provided almost 13 per cent of funding for public infrastructure projects in New South Wales in 2012/13. The pick-up in infrastructure investment by State and local Governments from 2008/09 can be largely attributed to the stimulus payments for school building projects from the federal government.

Aside from federal grants, State Government's infrastructure investments are financed through a combination of state tax revenue, debt issuance by the State borrowing authorities and asset sales. Revenue bonds, where the debt is issued against a specific infrastructure project, are not currently in use as a financing tool (also refer to comments in Question 4.4 relating to the increase in the share of private investment prior to 2008).

## *Section 5: The provision of public infrastructure*

***Question 5.1***
*What models can be used to provide public infrastructure? How do alternative models vary in their ability to address real or perceived limitations compared with more standard forms of public sector procurement? How adaptable are the different models between types of infrastructure? How do different models influence the efficiency of provision, funding and financing of public infrastructure?*

***Answer***
The Queensland Government recently published the Infrastructure for Economic Development Report, October 2013 (available at http://www.dsdip.qld.gov.au/resources/report/ifed-report.pdf) which lists alternative financing strategies for public infrastructure.

Delivery models that can be used to provide public infrastructure include the variety of traditional delivery models (e.g. Design and Construction (D&C), Alliance, and Early Contractor Involvement) and PPPs (e.g. Availability Payment and Build Own Operate Transfer).

Typically, collaborative delivery models, such as alliances, have been identified as better suited high risk projects with uncertain scope as the potential benefits of collaboration (i.e. innovation and risk sharing) offset the relatively lengthy and costly procurement process. Other models of public sector procurement (e.g. D&C) have been identified when project risks are well understood and the proposed solution or service requirements are less complex.

PPP models must offset the (relatively) higher transaction, financing and ongoing management costs with savings potential in other areas, such as risk management, innovation or ongoing maintenance expenditure, to drive efficient infrastructure delivery. Typically, a PPP will not be considered for projects with a capital expenditure of less than $100 million, as the transaction costs will likely exceed any potential efficiency.

The Queensland Government's PAF Guidance Material – Procurement Options Analysis provides a comprehensive overview of the various traditional and PPP delivery models and their relative merits.

The procurement options analysis process, undertaken during the Preliminary Evaluation and Business Case phases of project evaluation, will determine the model most likely to facilitate efficient delivery of the infrastructure project being considered. This decision will involve balancing the potential for innovation, the need for cost effective and timely delivery, and effective risk mitigation and treatment.

***Question 5.2***
*What is the extent of the use of PPP models in Australia for different types of public infrastructure including in comparison to other countries and over time? What is the nature and scale of efficiency benefits from PPPs, including those arising from bundling the design, construction and operation phases? What are the costs or weaknesses of PPP models? Should the risks associated with PPPs be shared appropriately between governments and the private partner?*

***Answer***
Benefits from PPP occur where services can be well defined and the risks can be allocated to, and efficiently managed by, a private sector provider. PPPs require upfront investment in service design/specification, risk allocation and procurement to ensure effective capture of these benefits.

The benefits derived through a PPP vary depending on the project. However, for PPP delivery to be effective, the benefits need to exceed the transaction and financing costs incurred by the private sector in delivering and managing the project throughout the term of the concession. In accordance with the Queensland Government's Value for Money Framework and the PAF, a qualitative Value for Money assessment is undertaken during the project planning phase to determine whether potential value for money may be achieved through delivery as a PPP.

There are numerous considerations relating to PPP delivery. These include that:

- the process of developing, procuring and implementing a PPP arrangement is highly complex and resource intensive for both government and the private sector;
- there are high establishment costs for Government in developing a team with the core competencies and specialist knowledge required to procure PPP projects;
- the long-term relationships created by PPPs require Government to provide resources over many years to monitor performance and to enforce the terms of the contract;
- in some cases, given the difficulty in anticipating events over future years, many contracts are renegotiated over the concession term;
- contractual arrangements with Government need to be flexible so as to not limit future planning considerations by Government;
- availability of payment for PPPs commit Government to long term contingent liabilities that may constrain future budget flexibility;
- the basis of risk sharing undertaken through the Queensland Value for Money Framework is predicated on the principle of risk being transferred to the party best able to manage each individual risk. In this regard, Governments have typically assumed risks associated with project planning and approvals whilst the private sector has assumed risks associated with patronage, construction, operations, and maintenance; and
- risks should be allocated appropriately between Governments and the private sector in order to achieve optimal project outcomes.

***Question 5.3***
*What principles should guide the consideration of the most efficient model for delivery and operation of public infrastructure (by the public or private sectors)?*

***Answer***
The Queensland Government's PAF and PPP Guidelines contain appropriate principles to guide model selection. The decision regarding the most efficient delivery model for the delivery of public infrastructure typically occurs during the Preliminary Evaluation (pre business case) phase of project evaluation (as outlined in the Queensland Government's PAF).

The assessment is undertaken through the consideration of value for money drivers including:

- Output Based Service Requirements: The suitability of a project to an output based service requirements is an important component in allowing innovation by the private sector (i.e. prescriptive design brief will preclude innovation and restrict potential savings);
- Whole-of-life costing: Integration between design, construction, operations and maintenance can drive savings over the life of a project;
- Risk Allocation: The optimal allocation of risk is an important driver of value for money under a PPP delivery model (i.e. the allocation of risk to the party best able to manage them can reduce risk premiums and total project costs);
- Asset Utilisation: An assessment of the potential and scale of the private sector to achieve additional revenue and offset project costs; and
- Competitive Market: The project team needs to consider the market conditions and whether sufficient competition exists to drive innovation and ultimately value for money.

***Question 5.4***
*Are current systems for raising revenue for public infrastructure services providing appropriate signals for efficient use and for new investments? If not, what scope is there to improve these systems?*

***Answer***
The current systems for raising revenue vary significantly between infrastructure types and therefore the degree to which they provide appropriate price signalling also varies. Current revenue-raising systems include general taxes and charges such as registration fees, federal fuel excise, fare revenue and tolls.

The situation is further complicated by the existence of fiscal imbalance between State and Federal Governments, which creates disconnect between funding sources available to the State and the required investment in public infrastructure projects.

The 2006 Productivity Report into Road and Rail Infrastructure Pricing found that the current arrangements for provision and charging for the use of heavy vehicle infrastructure do not provide appropriate signals for efficient use and new investment. The *Heavy Vehicle Charging and Investment (HVCI) Reform* was established to address these shortcomings.

In general, there is a continuum between taxes and user charges with the choice for efficient price signalling best based on the degree of public versus private benefit. For example, the current system of using general taxation revenue for road use does not provide efficient price signalling, because motorists tend to think their registration charges and general taxation provide sufficient revenue for Government to fund road provision. A direct means of paying for road use, and thus sending price signals, can be through tolls.

Introduction of road pricing can be an option to raise additional revenue to pay for road construction and maintenance. Potential consumers tend to see tolls as 'another tax', and such a solution is therefore politically unpopular. Public education regarding these fiscal considerations would better inform decision-making. Federal fuel excise is directly linked to road usage and may encourage efficient use of road infrastructure if it is sufficiently visible to motorists.

In relation to rail infrastructure, access revenue from non-coal freight and passenger services does not cover the cost of providing services (including network infrastructure costs). These current arrangements do not send clear signals regarding new investment and value for money pricing, as the State historically covers the funding gap. A contestability issue exists regarding both above and below rail services as well as regarding the broader question of desirability of a 'user pays' framework for access. There is minimal scope to improve this as there is always choice regarding freight and transport options (i.e. road and car). If users had to pay the full cost of this access then they would most likely take other options. This would similarly be the case for public transport where other options exist.

In general, it is suggested Governments adopt an increased focus on the economic benefits of investment to support fiscal or user pays considerations, and particularly, in their public communications regarding infrastructure. The economic benefits of investment are considered in the technical evaluation but coverage absent in the communications and public discussion around the need for economic infrastructure development where a user pays approach may be adopted.

***Question 5.5***
*Are there any coordination issues between the different levels of Government and the private sector in the provision of public infrastructure? If so, what implications does this have for funding and financing decisions?*

***Answer***
Vertical Fiscal Imbalance is a major constraint on States' abilities to fund infrastructure development. Historically, the uncertainty caused by formal and informal processes for bidding for national funding for project planning, investigation and development impedes the States' ability to bring forward a pipeline of projects with any degree of certainty. The relatively short term nature of Australian Government funding arrangements does not provide adequate support to states and territories as infrastructure providers.

As reported in the QCoA Final Report – Part C Financial Management, there have been attempts at longer term Government infrastructure plans; however their usefulness has been diminished by a lack of assessment of available financial

capacity. The QCoA considered that this needs to be redressed through a better long-term financial planning framework to provide a more disciplined, rigorous and informed framework within which the State Government makes its decisions.

A major issue for Queensland in undertaking long-term financial planning is the uncertain nature of policy initiatives and funding from the Australian Government. It is important that the Council of Australian Governments work toward achieving a more consistent long-term policy and funding framework for the states.

This framework would facilitate the development of a State Infrastructure Plan that prioritises service delivery, and capital and maintenance requirements within an indicative funding capacity.

In addition, the grouping of National Infrastructure capital funding into programs typically results in a requirement to prepare submissions covering whole-of-State proposals covering a large number of infrastructure projects. Development of these submissions, their review and the awarding of funding, is a lengthy process that often results in a misalignment between funding availability and infrastructure requirements.

Coordination between the State Government and the private sector varies from project to project. However, DTMR for example, has a long history of partnering with the private sector to deliver infrastructure projects with a reasonably well-established and understood process. Typically, negotiation and transaction costs between Government and the private sector are higher when PPP delivery options are considered. These coordination issues must be considered and weighed up against the potential benefits of PPP delivery when the procurement model is being selected.

***Question 5.6***
*To what extent do coordination issues present barriers to efficient investment in public infrastructure?*

***Answer***
Infrastructure Australia (IA) publishes the 'National Infrastructure Priority List' which is a compilation of current infrastructure priorities amongst the various states. This annual list gives an indication of the importance or priority of infrastructure projects. However, what is required is a long term focus on future sequencing of infrastructure that acknowledges any complementarities or interdependence between infrastructure priorities in different States.

***Question 5.7***
*Does the scope for each level of Government to impose user charges or taxes and other charges affect the provision of public infrastructure, and/or the funding and financing mechanisms used?*

***Answer***
The scope of State and Local Governments to impose user charges depends in part on the purpose and users of particular items of infrastructure. For example, general road users perceive that roads are a good that has already been paid for in taxes and that additional road user charges (tolls, congestion charges, heavy vehicle charges) are

"double taxation" by Government or rent-seeking by motorway operators. Similar views have been expressed in relation to water charges and the introduction of pricing systems aimed at managing demand, and infrastructure needs. The imposition of new user charges on the general community must take into account social impacts and questions of equity.

Governments have more scope for user charges where infrastructure is primarily for economic purposes, users are primarily commercial operators and charges are determined through business case assessment rather than social impact analysis.

However, at the state level, investment decisions, including prioritisation of projects, financing mechanisms and funding sources are not closely linked to taxation decisions. State taxes contribute to consolidated revenue and are not hypothecated to particular infrastructure projects.

Other issues arise in relation to the ability to allocate charges to particular parts of an infrastructure network or where the number of users is limited or in some other way regulated. Examples include:

- **Heavy vehicle charging and investment** – a coordinated approach between all levels of government is essential, as such it is proposed that a national economic regulator will be responsible for approving prices;
- **Rail** – access to the network is predominately influenced by Queensland Competition Authority and Queensland Government policies on rail subsidies;
- **Port infrastructure** – is now primarily managed by Government Owned Corporations or the private sector, and charges and infrastructure decisions are subject to Government influence. Furthermore, critical connecting infrastructure is usually within the Government's decision making framework via planning and related instruments;
- **Energy infrastructure** – is largely in the hands of Government Owned Corporations and infrastructure decisions are undertaken with the national regulated framework, including the spreading of infrastructure costs across networks and regulated limits on the amount of capital costs charged to users; and
- **Water infrastructure** - decisions are made by State and Local Governments, Government Owned Corporations and private infrastructure providers. In this class of infrastructure, the scope of the type of provider to raise either taxes (rates) or user charges (water billing) or direct charges on developers (infrastructure charges) has a direct effect on the way water infrastructure is provided and the funding and financing mechanisms used.

***Question 5.8***
*What factors affect a Government's capacity to effectively contract with the private sector for the delivery of public infrastructure, including the expertise required to enter into complex and lengthy contracts?*

***Answer***
A significant factor in the past that has reduced the government's capacity to contract with the private sector for public infrastructure has been the limited number of staff with the necessary skill and experience to manage this type of arrangement.

Additionally, current legislation (or its interpretation) sometimes precludes or constrains certain infrastructure being delivered by private entities, either due to licensing requirements, community service obligations or exemptions that only apply to public sector activities.

Projects Queensland has been established in Queensland Treasury and Trade to ensure procurement processes, including contract development, are delivered both efficiently and effectively. The objectives of Projects Queensland are:

- Enhanced focus on time-effective infrastructure delivery;
- Encouraging private investment in infrastructure;
- Enhancing the infrastructure assessment and procurement processes within government;
- Enhancing the approach to capital prioritisation by government;
- Development and retention of commercial skills within government; and
- Removing duplication of effort across agencies.

***Question 5.9***
*What are the roles of the different levels of Government in the implementation of different funding and financing mechanisms for public infrastructure?*

***Answer***
The Government roles can include: advocacy for projects, and aligning views across local, state and national priorities. However, the capacity to pay for and responsibility for provision of infrastructure are not equal across levels of government or between jurisdictions. The State Governments have responsibility and capability to deliver infrastructure, the Australian Government has generally a greater capacity to fund infrastructure. The Australian Government has the opportunity to take a more strategic role in long-term funding support for significant infrastructure projects. This could assist State Governments to establish a pipeline of projects.

The implementation of a public infrastructure project is typically championed by the Government that has jurisdiction over the investment. For example, the Queensland Government will champion major infrastructure projects in consultation with relevant councils, and the Australian Government, if the project influences issues under their jurisdiction, or if a funding commitment is required. As a major capital funder, the Australian Government works closely with the Queensland Government to determine investment priorities and funding allocations.

***Question 5.10***
*What are the strengths and weaknesses associated with the current arrangements by which different levels of Governments interact? Do these arrangements create any perverse incentives or influence the choice of different funding and financing mechanisms?*

***Answer***
There is a lack of consistent and formal exchange of planning priorities between government levels. The Queensland and Australian Governments generally interact on a cyclical basis as part of preparation of funding submissions and subsequent negotiations (e.g. annual IA processes and five-year Nation Building Programs).

Interaction between the State and Local Government is ongoing through regional-level meetings such as Regional Road Groups, of which DTMR officers and Councils are both represented. The Queensland Government is also giving back to the communities that support resource projects through its Royalties for the Regions initiative. Over a four year period that started in 2012, the program will invest $495 million in new and improved community infrastructure, roads and floodplain security projects that benefit those who live, work, and invest in our regions.

***Question 5.11***
*What are the strengths and weaknesses of the current institutional environment within which decisions about the provision of public infrastructure are made? How does this differ for different types of public infrastructure? How does this influence the extent to which efficient investments are prioritised?*

***Answer***
A major strength of the current institutional environment is that the prioritisation process is based on responding to existing needs. Prioritisation is achieved through targeted economic analysis and is subject to available funds.

A major weakness is the tension between annual Government budget cycles and longer term infrastructure planning. The Queensland Government is currently developing a rolling State Infrastructure Plan. Other weaknesses of current approaches include negative impacts on business investment due to infrastructure shortfalls; paying higher costs for land by not preserving for land requirements in advance and failure to consider whole-of-life costs.

Weaknesses of current approaches include:

- Business investment in the region can weaken by not addressing congestion, and transport network reliability;
- Paying higher costs for land due to a lack of land reservation;
- Whole-of-life cost not always being considered; and
- Cost of solutions influencing prioritisation.

***Question 5.12***
*What decision-making and policy frameworks do Governments and the private sector use to determine whether to invest in public infrastructure, and in particular, to evaluate the risks associated with infrastructure investment?*

***Answer***
The Queensland Government has established the PAF as the minimum standard in evaluating major infrastructure projects with a whole of life cost exceeding $100 million.

## *Section 6 Funding mechanisms*

***Question 6.1***
*What alternative funding mechanisms for public infrastructure should be considered in this inquiry? What are the strengths and weaknesses of each, trade-offs to consider, and what principles should guide their use?*

***Answer***
Alternative funding models include:

- PPP – including both demand based (e.g. user charging) and availability payment based mechanisms;
- capital recycling (e.g. government investments in financially viable infrastructure projects may be sold with the proceeds reinvested in future projects thereby maximising the impact of public sector capital);
- value capture – including the application of levies, developer contributions, tax earn back; and
- sale and leaseback.

The applicability of each funding option is dependent upon project:

- complexity and risk profile;
- construction duration and cash flow profile;
- nature, whether economic or social; and
- position within the prevailing market.

The Queensland Infrastructure Finance Working Group identified various methods for maximising the pool of potential infrastructure capital including: superannuation; creation of an infrastructure bond market; an infrastructure bank concept; government equity and debt assistance; demand risk insurance; sale of brownfield assets and taxation treatment of infrastructure investments.

While there are some challenges in bringing together the needs of infrastructure financing with the investment aims of superannuation funds, appropriately structured infrastructure projects could be an attractive option for superannuation funds. Superannuation funds, due to their desire for long-term investment performance, are looking for a long-term (20 year) pipeline of projects.

***Question 6.2***
*What are the different types of revenue streams that can be created to attract private sector finance for public infrastructure projects, such as user charges, availability payments and any other mechanisms? How widely are these currently used for different types of public infrastructure?*

***Answer***

- *User charges* (tolls) are widely used on road infrastructure PPP projects in Australia. User charges are under consideration for heavy vehicle charging. In this case, the direct revenue stream related to direct user charges will provide the type of revenue stream over time that has the potential to attract private investment. AustRoads is investigating the potential for direct private investment in specific infrastructure projects such as a bridge or section of road to allow for heavy vehicle access. There is resistance (community and political) to road pricing. It is important to ensure predicted usage rates – and revenue generation – are realistic.

- *Third Party Revenue* is additional revenue that can be leveraged through use of land or facilities by third parties that does not impact on the primary service provision. Such revenue sources have been used in Queensland.

- *Value Capture Mechanisms* (sometimes known as *Tax increment financing* (*TIF*) whereby Government levels a tax surcharge on land owners and/or businesses which benefit from the development of a piece of infrastructure in a designated TIF district. Alternatively, the increase in real estate taxes which a Government can expect over time through the revaluation of land in a TIF district can be set aside from general tax receipt funds and used to pay for infrastructure debt servicing). Value capture mechanisms have been considered in several business cases but have not yet been implemented.

- *Availability PPPs* whereby the private sector develops, finances, operates and maintains the infrastructure asset over a concession term. Periodical payments are made by government for the availability of the infrastructure asset. Payments commence once the infrastructure is operational and are reduced if it is not available in its contractually agreed condition. Government does not need to raise debt in the short-term but needs to be able to fund availability payments over the term of the concession, to meet availability payments over the term of the concession, and it is also insulated from D&C risk. Examples where availability PPPs are able to be used in Queensland include New Generation Rollingstock and Gold Coast Rapid Transit.

- *Revenue sharing PPPs* - a mix of fare and/or access charge revenue.

- *User levies* (i.e. similar to the ambulance levy) could be applied to a public transport infrastructure fund.

- *Joint development* of revenue-producing commercial enterprises adjoining required infrastructure, to offset the cost of that infrastructure.

- direct revenue stream related to direct user charges will provide the type of revenue stream over time that has the potential to attract private investment. AustRoads is investigating to potential for direct private investment in specific infrastructure projects such as a bridge or section of road to allow heavy vehicle access.

***Rail***

- Mechanisms could include: user pays; availability PPPs; revenue sharing PPPs (mix of fare and/or access charge revenue); user levy (i.e. similar to the ambulance levy); a levy that could be put in to a public transport infrastructure fund
- New Generation Rolling stock and Gold Coast Rapid Transit are examples of transport availability PPPs in Queensland.

***Roads***

- Tolling is used for new road infrastructure in limited cases.

***Question 6.3***

*What costs and benefits should be taken into account when considering the suitability of user charging for public infrastructure? What impediments exist to the wider application of user-pay funding arrangements for public infrastructure, and how does this differ for different infrastructure types? How could such impediments be addressed?*

***Answer***

Government decisions regarding tolling in Queensland are informed by the *Transport Infrastructure Act 1994* and the Queensland Government's Value for Money and PAF. Furthermore, the Queensland Government has established Projects Queensland, a specialist unit within Queensland Treasury and Trade, to drive innovative, cooperative funding models to maximise private sector investment in Queensland's infrastructure.

User charging costs:

- potentially unintended outcomes to the wider transport network due to the diversion of traffic away from the proposed toll road (for example)
- community resistance based on the perception that the infrastructure has been "paid for" previously through vehicle registration charges and general taxation, and as a result, additional charges should not be applied.

User charging benefits:

- accelerating the provision of much needed infrastructure to the community
- providing for private sector investment with associated innovation and whole of life cost savings
- linking the cost of infrastructure with the users who will receive the project benefits
- providing transparency on the true cost of delivering and maintaining transport infrastructure
- providing the opportunity to maximise transport network efficiency and effectiveness by managing demand, particularly during peak periods.

Specific costs and benefits for particular types of transport infrastructure include:

- costs and benefits analysis related to Heavy Vehicle Charging and Investment has been undertaken indicates that the reform has the potential to deliver significant benefits even though it is only a partial market reform that does not include the provision of light vehicle infrastructure;
- from a rail perspective, the cost/benefit trade-off between recovering the full cost of service provided versus the costs/benefits of other options such as cars/trucks and the key impediment is the relative cost and reliability to the users versus the costs and reliability of other options; and
- the key impediment from a rail perspective is the relative cost and reliability to the users versus the cost and reliability of other options. For example, is the cost of driving to work each day and parking less (both money and time) than the cost of public transport?

***Roads***

- Wider implementation of road pricing would necessitate a complete rethink of: roads funding, and the existing regime of taxes and charges levied by the different levels of Government. This would need to take into account equity issues among other things.

***Question 6.4***

*What are the interrelationships between project-specific risks (such as construction or demand risk) and funding and financing decisions? How are these inter-relationships different for greenfields development as opposed to projects that augment existing facilities or networks?*

***Answer***

Project specific risks and risk allocation are key drivers of the value for money that can be leveraged under a PPP delivery model. The project risk profile and the ability to allocate risks to the party(s) best able to manage them, will be one of the key issues to be considered when determining the delivery model to be utilised.

The greater the project risk, the more funding 'headroom is' required to provide capacity to manage those risks. This has impact on the terms of finance available. This increases the cost to finance the project.

The nature of the risks for greenfield and brownfield site projects differ considerably, but the inter-relationship between funding/financing decisions and project specific risks remains the same. If the private sector cannot effectively manage project risks, a risk premium will be allocated to the project cost, or this risk may need to be allocated to the State to manage. The application of risk premiums may reduce the value for money achievable through PPP delivery, and will influence the financing decision.

***Question 6.5***

*What is the scope for further privatisation or 'capital recycling' of existing government assets to fund new public infrastructure? What principles and processes should guide these decisions, and what trade-offs need to be taken into account? To what extent could widespread use of this approach create incentives for governments to over-invest in infrastructure irrespective of efficiency considerations?*

***Answer***

It is Queensland Government policy that recycling of assets will only be undertaken with a mandate from the broad community.

## *Section 7 Financing mechanisms*

***Question 7.1***
*What are the different types of private financing models? What are the advantages and disadvantages of these models?*

***Answer***
Some of the key forms of private financing models include:

- infrastructure bonds
- indexed bonds
- primary, subordinated and mezzanine debt; and
- equity injections.

The advantages and disadvantages of each model, and the ability to fund infrastructure projects depend on specific project characteristics and the prevailing market conditions at the time. Projects Queensland is currently developing a paper which looks at the respective merits of a number of financing and funding proposals.

***Question 7.2***
*To what extent is unavailability or cost of private financing for public infrastructure projects an impediment to efficient investments taking place?*

***Answer***
Typically, Government can borrow at a lower rate but the private sector is often able to manage specific risks better through lowering costs.

Compared with most other countries, Australia has a high proportion of private infrastructure financing supplied by institutional investors, notably superannuation funds. This has resulted from Australia's compulsory superannuation program creating a large pool of private savings and Australia's superannuation funds generally investing a higher share in infrastructure assets than average.

***Question 7.3***
*What are the relevant costs and benefits that should be taken into account in weighing up the choice between public and private sector financing mechanisms?*

***Answer***
Potential issues to be considered are:

- will private sector involvement allow possible savings through incentive alignment such as construction cost savings, innovation and whole-of-life costs savings
- how critical is the value of on-time or early delivery to the project
- The sharing of risk to the party most able to deal with it can lower project delivery cost, and the potential contingent liabilities of the Government
    - what is the potential to allocate risk to the parties best able to deal with them?
    - what are the potential gains of risk diversification?
- what are the costs of administration and transaction costs involved in undertaking private sector financing

- is there sufficient competition and market appetite for private financing of this type of project
- will any allowances made by Governments be needed in order to attract finance (e.g. 'non-compete' clauses)
- will private sector financing lead to any implicit liabilities for the Government
- what are long term impacts on the Government's budget due to the commitment to pay service payments into the future? How does this compare to the cost of the repayment of government debt; and
- how will transparency and accountability be impacted by the involvement of private sector financing?

Private sector financing of projects can provide a number of potential benefits to the delivery of public infrastructure projects. It can allow projects to proceed where there are public financing constraints and can potentially provide lower cost delivery of the project. Private financing (usually through PPP) is only suitable under certain conditions. There are a number of considerations to take into account when making the choice between public and private financing of a project.

***Question 7.4***
*How effective are existing arrangements and tools used to compare different financing mechanisms for public infrastructure?*

***Answer***
The Queensland Government has developed a comprehensive suite of tools and frameworks to compare different financing mechanisms for public infrastructure. All major infrastructure projects are progressed under the Queensland Government's PAF, which requires consideration of the different financing mechanisms for public infrastructure prior to progression to a Business Case. The PAF requires a comprehensive and effective assessment of different financing mechanisms, which although dependant on the characteristics of each project can include value capture mechanisms, imposition of user charging, or land use opportunities.

These frameworks are currently being reviewed and streamlined to incorporate recommendations from the Queensland Auditor-General, and the results of consultation with industry bodies. One of the key objectives of this review is to ensure consistency with the National Public Private Partnership guidelines.

***Question 7.5***
*To what extent does the early commitment of financing reduce or eliminate the potential development of efficient funding mechanisms (charges and taxes), particularly user charging systems?*

***Answer***
The extent to which the early commitment of financing to a project reduces or eliminates the development of efficient funding mechanisms will vary from project to project. In most cases the decision to undertake user charging or use some other funding mechanism will form part of the business case and the investment decision. The financing decision is usually considered separately to the investment decision, with decision points occurring along the project continuum.

The traditional model of Government grants, committing to financing a project early on, conceals the real cost of infrastructure to the community in the form of taxes. Here, users do not see the contribution they make, resulting in the tendency for infrastructure assets to be overused. The costs of such perceived 'free' access to roads are already being felt, particularly though congestion in our cities.

Long-term infrastructure strategies ensure a more transparent, robust and funded pipeline of infrastructure projects and if they include an early indication of the likely financing and funding sources, enable both the public and private sectors to efficiently deploy capital and resources.

Sustained turbulence in capital markets means the cost and availability of capital continues to be relatively high following the GFC. Governments may provide greater flexibility in the type of assistance to accommodate the financing needs to project proponent (e.g. absorbing greater financing or demand risks during the ramp-up stage of the project) notwithstanding the potentially negative impact on value for money.

***Question 7.6***
*To what extent do different types of project risks change across a project's lifecycle, how does this differ depending on the type of infrastructure, and what implications does this have for the funding and financing mechanisms used?*

***Answer***
There are significant changes in risk profile across a project's lifecycle. Risks during design differ from risks during construction and from those experienced during maintenance. Some risks continue through the project lifecycle from one phase to the next. The risk varies depending on the type of infrastructure e.g. road, bridge, rail, marine infrastructure, building and also vary with location and complexity of the project. Risks for an upgrade of a high speed motorway differ from risks of upgrading a rural road with low traffic volumes.

Using road construction as an example, the different types of project risk are outlined below.

Government utilises different procurement and delivery models. The appropriate models are chosen based on risk and include minor works, traditional design then construct, D&C, alliance and negotiated delivery.

The risk management approach may need to be tailored depending on:

- the complexity, size and duration of the project
- initial overall risk determination in the Concept Phase and subsequent project phases of Development, Implementation and Finalisation with periodical reviews of the context and environment within which the risk exists
- available resources and their skill levels for performing risk management; and
- available process inputs and their level of validation.

Tailoring of the risk management process also includes the selection of what risks to actively manage based on risk level, type of analysis required and type and frequency of reporting and monitoring. The immediate escalation of critical or extreme risks to senior managers is mandatory.

When estimating cost risks, planned risk on quantity is retained by Government for traditional design then construct contracts, but transferred to the contractor under D&C procurement. Other cost risks such as design development, project delay and policy and standards changes are retained by Government during development and delivery.

Each project has a unique risk profile. The risk profile has a significant impact on the funding and financial mechanism used and furthermore this mechanism needs to change to reflect the variation in risk profile and most efficient source of funding.

***Question 7.7***
*Under what circumstances are specific risks better left to Government to manage or bear (for example, due to the nature of the infrastructure service or the Government's greater ability to pool risks) or transferred to the private sector?*

***Answer***
Political risks and/or risks that cannot easily be assessed or quantified are better left to Government. If risks cannot easily or accurately be quantified, contractors tend to take a conservative approach to the risk allowance and the State may pay too much if the risk is not realised. Generally, most construction risks are better left with the contractor.

Some risks may not be able to be cost-effectively managed by the private sector (e.g. native title and patronage/demand risk). The risk appetite and mechanisms for management are in constant change and need to be tested for each project.

For example, in treating the risk, where the cost of transferring that risk outweighs the cost of retaining it, the commercial premium to the private sector to insure DTMR's road network against natural catastrophe would be significantly higher than the current Natural Disaster Relief and Recovery Arrangements funding policy, or Queensland Government Insurance Fund.

The party with the most to lose is typically best placed to manage risk. For this reason DTMR has a principle arranged insurance scheme (PAI), as DTMR considers itself best placed to manage insurable risks.

***Question 7.8***
*What has been the experience in Australia of risk allocation in public infrastructure projects for different infrastructure sectors? What is the capacity and willingness of private sector investors to take on and manage different types of risks?*

***Answer***
Prior to the 1980s most states retained risk by constructing works using direct labour organisations (DLOs) to deliver infrastructure, with major projects (e.g. Gateway Bridge) with a defined scope tendered to the private sector.

Through the 1980's and 1990's contractual arrangements saw the increasing transfer of risk to the private sector, increasing use of D&C delivery. This arguably led to an adversarial relationship between contractor and client in relation to contractual conditions.

The new millennium saw the establishment of collaborative contracting, such as Alliances (collaboration between client and contractor), originally developed for construction of the North Sea oil rig programmes. During the early 2000's, when demand was outstripping supply, alliances were used extensively to enable high risk projects to be delivered more rapidly. These projects were largely completed ahead of time and under budget.

Post GFC, with increasing supply and falling demand, DTMR, for example, reverted to a collaborative "front end" tender process involving the contractor. Alternatively, a D&C delivery enables the contractor to retain significant elements of risk (e.g. risk relating to quantities; rates; escalation; standards changes; inclement weather; and delay).

In 2003, DTMR adopted principal arranged insurance which transferred insurable risk from the contractor to DTMR. This was in response to the collapse of HIH Insurance (2001), but also to achieve cost savings, and other benefits such as certainty of cover. The PAI approach has now been adopted by all Australian state road authorities.

Where risks are known and easily quantified, traditional contract forms with risk allocation are used. For complex projects where risks cannot easily be defined or quantified, a shared risk approach is adopted. The private sector is generally willing to take on risks that they are in a position to effectively manage. They are more reluctant to take on risks that are beyond their control.

PPP proponents are increasingly unwilling to accept patronage risk following the completion of several projects which saw actual use significantly less than forecast at the commercial finalisation stage.

***Question 7.9***
*Do Governments have the capacity to resist accepting risks allocated to private providers, such as bailing out a private partner at risk of bankruptcy?*

***Answer***
Moral hazard and a view to political consequences can see Governments taking on cost or risk so that they are not legally exposed, thereby undermining the degree of effective risk transfer that has been achieved and the cost-effectiveness of a project. The potential for this form of step-in should be considered during the business case stage of a project to determine if the risks are able to be practically allocated to and managed by the private sector party (this includes a willingness for Government to 'let-go').

The risk allocation structure finalised in the project deed for a PPP project is heavily dependent on a number of factors which are project specific; these include:

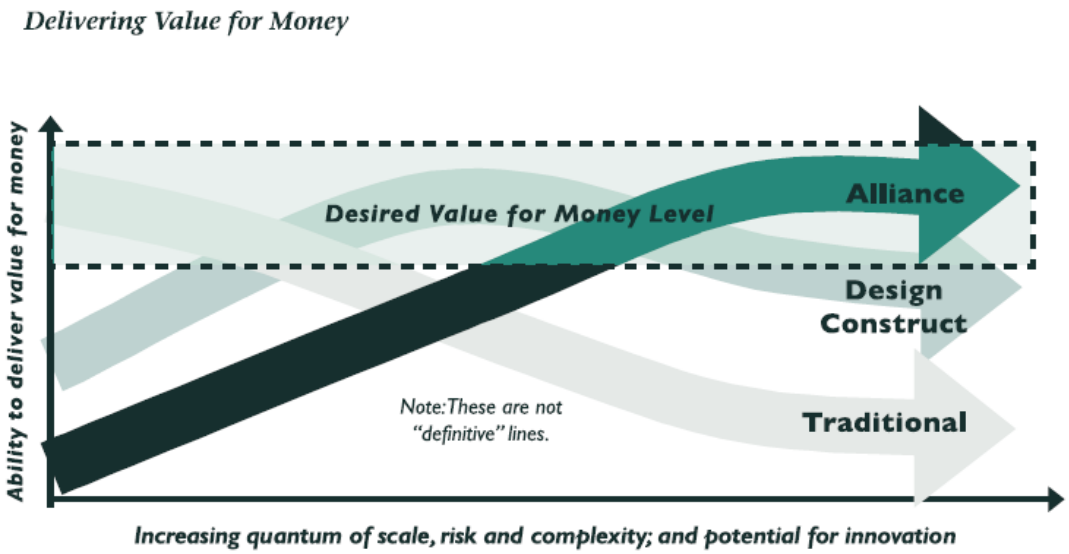
- the existence of a competitive supplier market;
- the availability of private finance; and

- the time allocated in the project program for negotiations and finalisation of the project deed.

If a risk is properly allocated to the private sector, the Project Deed will usually give significant powers to the State to resist ultimately accepting these risks. However, the consequences of exercising these powers may be sufficiently adverse to prompt a renegotiation (i.e. the PPP provider may be prepared to terminate the contract if a risk is sufficiently large, such as unknown geotechnical conditions).

***Question 7.10***
*What are some of the alternative risk allocation models that can be used for public infrastructure, both for publicly and privately financed projects? What principles should guide the allocation of different types of project risks in public infrastructure projects?*

***Answer***
Value for money is the overarching objective of any delivery model. The figure below illustrates how value for money changes with project scale, risk and complexity. Due to the inherent characteristics of the models and projects (i.e. implementation costs, incentive schemes and lump sum arrangements), the models are optimised to deliver value for money based on respective scale, risk and complexity of a project. Although these are quite separate procurement models, there is room within each to include aspects of the other methods, resulting in a hybrid method that best suits the complexity and risks associated with a particular project.




Source NZTA Long term Procurement Plan 2005
http://www.nzta.govt.nz/resources/long-term-procurement-plan/docs/long-term-procurement-plan.pdf (Page 17)

Some of the alternative risk allocation models include:

- Cost Reimbursement (100% risk retained by client in circumstances such as where the scope unable to be defined)

- Alliance (Risk transferred to Alliance, with risk of catastrophic cost overrun retained by the client such as where the scope is understood, but the extent of unknowns is still significant)
- Design then Construct (traditional delivery for the majority of standard projects, sees risk on rates transferred to the contractor, but risk on quantities retained by the client)
- D&C (used for less complex but large projects, where scope is well known, and risk on quantities and rate able to be transferred to the contractor)
- Early Contractor Involvement (utilises a collaborative tender process and a D&C delivery to drive efficiencies).

The risk characteristics of the delivery models have to be matched to the project's characteristics (including requirement for early start and completion; stakeholder involvement; construction environment, environmental and social requirements). More detail on the characteristics of the various project delivery models is provided in **Attachment 1**.

***Question 7.11***
*So-called 'Alliance' contracts are said to be effective risk-sharing mechanisms. Does experience bear this out?*

***Answer***
While DTMR report (see question 7.10) considerable success with 'Alliance' contracts when used in the correct application, the Office of the Coordinator-General has noted some negative experiences in relation to the effect of '*Alliance'* contracts on Coordinator-General projects, in particular for the SEQ Water Grid. In the latter case, the main issues observed centre around rehabilitation of properties following construction. This demonstrates that effectiveness of '*Alliance*' contracts as a whole is not dependent on the form of contract itself, but the processes used to implement the contracts. It is recommended that a greater focus is placed on the procurement process when entering into the contracts to ensure that the quality of outcome is as important as cost in appointing members of the *'Alliance'*.

If properly established and managed, particularly those procured through a dual Target Outturn Cost (TOC) process, 'Alliance' contracts can be a very effective risk sharing mechanism. The value with 'Alliance' contracts can be questionable when things go wrong and TOC exceeded under traditional "pain sharing" arrangements. More recent derivatives of 'Alliance' contracts have altered the "pain sharing" arrangements such that the contractor takes a higher proportion of the pain if the TOC is exceeded.

The merits of the cost impacts and degree of real risk sharing (i.e. subject to caps and collars) are highly dependent on the procurement mechanism, the detail of the commercial mechanism put in place, and the maturity of all the alliance partners working in a collaborative environment. A multi-jurisdictional group of government agencies lead by the Victorian Department of Treasury and Finance undertook a review of alliance contracts in 2010/2011 and developed a comprehensive suite of guidelines and contractual documentation for the deployment of 'Alliance' contracts. This material is available from the Federal Department of Infrastructure and Regional Development website.

***Question 7.12***
*Is there any evidence of Government policies or regulation impeding private sector participation in the provision and financing of infrastructure projects?*

***Answer***
Taxation, regulation of network assets and economic regulation can all constrain private investment (which may be appropriate in regard to the objectives of those mechanisms). Industrial Relations arrangements can also impact on the cost of labour (input costs).

Anecdotally, the private sector consistently raises the issues of transaction costs and Government approval processes as key impediments to the provision of infrastructure projects. This is particularly apparent with PPP delivery models as consortia will invest significant time and resources preparing bid documentation. The State has implemented reform processes to streamline the approval processes and reduce bid costs to address these issues.

***Question 7.13***
*What are the components, and the total size, of transaction costs associated with the use of private financing models such as PPPs?*

***Answer***
The transaction costs for Government in undertaking PPPs varies depending on the size and complexity of the project. From a Government perspective, project planning and evaluation (e.g. business cases), and procurement may cost up to $20 million, for example Cross River Rail.

The Queensland Government has provided the unsuccessful tenderers for a number of projects a contribution of between $3 million to $5 million to reimburse bid costs. Anecdotal evidence suggests that the bid costs were greater than the reimbursement provided.

***Question 7.14***
*What is the extent of competition in the market for private financing of public infrastructure projects, what factors influence this and does this differ by the type of infrastructure?*

***Answer***
Market conditions for the delivery of road infrastructure projects remain robust. In the transport sector, DTMR requires fully underwritten binding bids and has always received at least two to three bankable bids ensuring the maintenance of competitive tension throughout the procurement process. In the context of financial market conditions from 2007 to 2012, this provides a strong indication of the demand for infrastructure projects.

Primary factors influencing the availability of private sector financing include the quality of the project (i.e. whether it is well defined and appropriately funded); and the degree of risk transfer. Risk adverse financial institutions have indicated that

demand risk is no longer acceptable in light of recent high profile road project toll-revenue shortfalls.

Demand for availability payment PPPs remains strong, and the superannuation industry has recently publicly expressed an interest in road and other economic infrastructure assets which align closely with their future liability streams, and are considered a stable investment in comparison with other capital market solutions available.

***Question 7.15***
*What are the impediments to greater private sector involvement and financing of public infrastructure by institutional investors, such as superannuation or pension funds (for example, taxation arrangements)? What is the scope for superannuation funds to benefit from financing more public infrastructure, and the reasons why they are not already doing so?*

***Answer***
Impediments to greater private sector involvement and financing of public infrastructure by institutional investors include risk profiles that do not match investment criteria.

***Question 7.16***
*What has been the effect of the National PPP framework and guidelines, endorsed by the COAG in 2008, in assisting the public and private sectors to improve delivery of public infrastructure assets? Is there scope for further reform to PPP processes, and if so what measures should be considered?*

***Answer***
The requirements of the National PPP framework and guidelines closely align with those of the State Government frameworks.

The Queensland Government recognises that there is potential to further reform PPP processes and is working with the private sector to improve risk allocation, streamline bidding processes and reduce bidding costs, and leverage reduced public sector financing costs.

***Question 7.17***
*What is the likely effect of recent changes to the taxation treatment of business losses made by eligible infrastructure project entities? What is the rationale for such concessional tax arrangements?*

***Answer***
The likely effect of recent changes to the taxation treatment of business losses made by eligible infrastructure project entities is that it should reduce the overall project cost of a privately-financed infrastructure project. This will make the project more financially attractive to the private sector but should also reduce Government availability payments to the PPP company.

## *Section 8 Financial risks to the Commonwealth*

***Question 8.1***
*What are the main factors that determine financial risks to the Commonwealth from the use of alternative funding and financing mechanisms? Do these risks to the Commonwealth differ from the financial risks faced by state and local governments and the private sector when they fund or finance infrastructure, and if so, how?*

***Answer***
The level of financial risk assumed by the Australian Government is dependent on the terms with which project funding is provided. The Commonwealth Government typically provides capped funding to implement major infrastructure projects, which minimises the financial risk to the Commonwealth and passes most of the project financial risks onto the State (such as escalation, cost overruns and ongoing maintenance risk).

Alternative funding models, such as an Availability Payment partnership, may increase the level of financial risk to the Commonwealth if an ongoing proportional funding commitment is agreed. Under such circumstances the Commonwealth may be obligated to fund on-going payments to a private sector proponent for the concession term of the PPP.

In most circumstances the Commonwealth tends not to take any equity or debt exposure and its commitment is usually one-off or short term. This can constrain a project that has a long life payback period (such as major economic infrastructure).

***Question 8.2***
*How are public infrastructure projects accounted for in Government budget statements under different funding and financing models, including those financed by the private sector? How does this differ between jurisdictions within Australia and internationally?*

***Answer***
For projects funded directly in whole or in part by the State, Australian Government and/or private sector for which a state-controlled asset is established, payments are accounted for in the budget capital statement and brought to account in the Balance Sheet under the general asset classification Property, Plant and Equipment.

For infrastructure projects that are funded in whole or in part by the State and/or the Australian Government and establish an asset that is not controlled by the State, payments are accounted for as grants and contributions expense in the budget Income Statement.

For example, for the Gold Cost Rapid Transit project, the arrangement is regarded as a lease, and therefore contributions by the State during the construction period are treated as a prepaid capital lease and accounted for under the capital budget statement.

***Question 8.3***
*What is the potential for mechanisms such as availability payments to impose limits on the Australian Government's total payment obligations and exposure to contingent liabilities? Are there alternative mechanisms for funding and financing that will minimise financial risks to the Commonwealth?*

***Answer***
All funding and financing mechanisms undertaken by the Commonwealth will carry some financial risk. The level of contingent liabilities absorbed by the Commonwealth Government under a Queensland Government availability payment PPP will be dependent upon the funding agreement reached on project approval.

If the Commonwealth is seeking to minimise its long-term financial exposure then mechanisms such as upfront equity injections to fund projects may be more palatable but these carry risks such as increasing government's net debt levels.

Other alternative funding or financing models that could minimise financial risks to the Commonwealth could include a capped ongoing contribution to an availability payment or traditional funding models.

However, it should be noted that any reduction in exposure for Commonwealth relies on another party being willing to take the risk (risk does not disappear, it is just reallocated).

***Question 8.4***
*Would more transparent budget treatment provide more certainty around financial risks to the Commonwealth?*

***Answer***
N/A

***Question 8.5***
*Do concessional taxation provisions for infrastructure projects present a financial risk to the Commonwealth?*

***Answer***
N/A

## *Section 9 Costs of infrastructure projects*

***Question 9.1***
*How does the cost of land vary in the provision of different infrastructure projects? How significant is this cost as a share of the total costs of infrastructure projects?*

***Answer***
Factors that can impact the cost of land on a project include:

- the amount of land and the type of tenure to be taken, for instance, the acquisition of a large freehold parcel will exceed the cost of taking an easement;
- planning issues, such as whether a property is industrial, commercial or rural;
- use of the land, for example if a business is being conducted on the land;
- consideration of the highest and best use for the land;
- impact of the project infrastructure on any remaining land;
- tenure of the land, for example whether it freehold or state land;
- Native Title and Cultural Heritage impacts; and
- environmental impacts.

These issues are closely linked with project location and whether the project is greenfield or brownfield site. Usually the cost of acquiring land in developed urban areas is significantly higher than in rural areas.

Typically, for urban based projects land costs will account for between 5% and 20% of the total project cost. In rural areas, the cost of land acquisition is generally between 1% and 5%. New or redeveloped linear infrastructure in built up areas may incur costs at the extremes of this range. If built within an existing corridor, retaining wall costs are likely to be high and property costs low. Alternatively, resumptions will be high in urban areas if property is purchased to facilitate project widening.

Notwithstanding the above issues, the cost of land acquisition and access for projects is considered minor when compared to that of the overall project costs. In the Office of the Coordinator-General's experience, these costs have formed on average less than 5% of the project costs.

***Question 9.2***
*What policies might be relevant to lowering the costs associated with land acquisition and access (including reducing delays)?*

***Answer***
In Queensland, the Coordinator-General facilitates many of the large-scale infrastructure projects that underpin Queensland's economic development. There are occasions when, the Coordinator-General needs to compulsorily acquire or take the land on which these projects are to be built.

The Queensland Government is working towards implementing several policies which are aimed to contribute to lowering costs for land acquisition and access including:

- Red Tape Reduction – The Queensland Government has established a whole-of-Government framework for measuring and reducing the burden of regulation and promoting a culture of reducing red tape across agencies. As a part of this process, the Coordinator-General is reviewing the *State Development and Public Works Organisation Act* 1977 (SDPWO Act) and its internal administrative processes to simplify and streamline requirements; including those associated with land acquisition processes to deliver cost and time savings where possible;
- Benchmarking Project – This project is complementary to and will inform further red tape reduction reforms by comparing land acquisition processes in other jurisdictions both within Australia and abroad and identifying best practice standards and opportunities to improve on current processes;
- Planning Policies – The Office of Coordinator-General is supportive of a robust planning approach to identify the most cost effective routes for projects and deliver the best use of land taken. Statutory planning tools or powers available to the Coordinator-General to achieve this include: State Development Areas and private infrastructure facility (PIF) provisions;
- Securing Land Access for Project Investigations – Accessing land for carrying out investigative work and studies necessary for seeking project approvals can be costly to proponents and take time. The Coordinator-General can grant an Investigator's Authority under the SDPWO Act to secure land access for investigating a site's potential for a PIF. The Coordinator-General's Office is investigating how to expand these powers to allow proponents to access land to more effectively undertake investigations for major projects (other than PIFs); and
- Project Planning / Management - Costs of land acquisition can be reduced through effective project planning, whereby the use of land can be maximised, or the most cost effective routes for projects identified. The Coordinator-General draws planning powers for projects from the SDPWO Act, for instance:
  - In accordance with section 82 of the SDPWO Act, the Coordinator-General can acquire land for multiple purposes within an SDA.
  - Under section 153B of the SDPWO Act, the Coordinator-General can register Critical Infrastructure Easements over existing public infrastructure corridors.

All of the existing legislative methods of acquisition of land and access to land can potentially reduce the costs to proponents of infrastructure projects by the delivery of timely access to land for investigation and construction purposes. However, use of legislative powers to acquire land are rightly subject to close control and a degree of public scrutiny to ensure it is being done for a legitimate purpose and that adequate compensation is paid.

For transport infrastructure projects managed by DTMR, the Queensland Government has well established processes and practices for the timely acquisition and payment for land required. When appropriate planning and consultation occurs for projects,

DTMR will generally acquire the required land within the required project timeframe, which is generally between 4 to 6 months. Speeding up this process would negatively affect property owner rights.

***Question 9.3***
*Are there lessons from the experiences of different Australian jurisdictions and overseas about how to best cater for the land use and acquisition requirements for major infrastructure projects?*

***Answer***
DTMR's Property group has an annual conference with representatives from other Australian states and New Zealand to discuss learnings and experiences associated with the acquisition of land for major infrastructure projects. Through these discussions, it is clear that Queensland's process and legislation is efficient and consistent with best practice within Australia.

The Office of the Coordinator-General will commence work on a Benchmarking Project to identify best practice in relation to the processes by which land acquisition and compensation are delivered. This project will include an evaluation of land acquisition processes across Australian jurisdictions and will recommend areas of performance improvement.

***Question 9.4***
*What factors have contributed to the recent productivity growth in the construction industry? Are there impediments that have dampened the potential productivity growth achievable? If so, what are they? How does Australia's productivity growth and levels compare with other countries?*

***Answer***
It is questionable as to whether productivity growth in the construction industry has occurred. Productivity reportedly grew during the 1990's, but has been falling since 2000. Factors contributing to this fall include sharply rising wages/salary costs, increased legislative requirements and codes of practice requirements.

***Question 9.5***
*What factors have contributed to the labour cost pressures in the construction industry, and how do these vary by type of activity, location, and occupation?*

***Answer***
A large increase in demand for both blue and white collar workers in the construction industry, fuelled by mining and gas developments on top of large public infrastructure programs has created increased demand for inputs and commensurately higher prices.

***Question 9.6***
*To what degree have demand pressures contributed to wage pressures? Are the effects of this localised, for example, to non-metropolitan locations where significant mining-related construction is taking place?*

***Answer***
Demand from mining and gas development has contributed e to labour and costs. Also, geographic location, and accessibility issues can contribute to labour costs.

***Question 9.7***
*To what extent has this occurred and for what types of equipment? Is it a transient phenomenon?*

***Answer***
N/A

***Question 9.8***
*To what degree are the trends in physical capital costs for the construction sector as a whole representative of those for infrastructure construction? If not, what factors explain any differences?*

***Answer***
The Department of Infrastructure and Regional Development's BITRE report quotes an increase in equipment costs as a percentage of total project costs from 26.5% in 1997 to 29.0% in 2013.

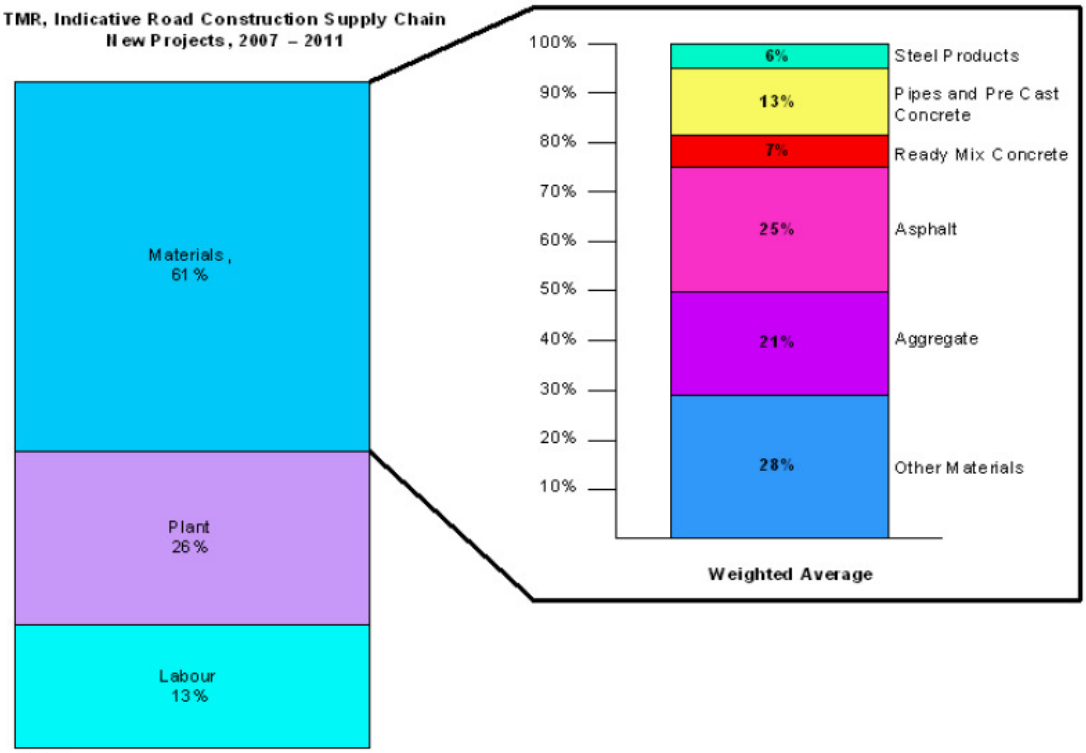
The following table is an extract from work undertaken for the UK Treasury, and illustrates the typical distribution of costs across the various components of infrastructure projects. Further discussion of the trends and contributing drivers is provided later in this section.

**Major Cost Elements and Indicative Share of Total Cost for Seven Infrastructure Types**

| | Motorway Dual (1 km) Rural Area | Motorway Dual (1 km) Urban Area | Sewage Treatment Plant 50,000 people | Water Supply Network (1) 50,000 people | Public Building (2) 15,000 $m^2$ | Energy 1 (3) CCGT Power Station | Energy 2 (4) City Gas Distribution Network |
|---|---|---|---|---|---|---|---|
| Planning/Design Fees | 3-5% | 3-4% | 3-5% | 5-7.5% | 10-15% | 5-10% | 5-10% |
| Land Purchase | 3-5% | 20-30% | 0-1% | 1-2% | 5-15% | 0-10% | 0-10% |
| Building & Construction | 75-80% | 60-65% | 40-41% | 75-80% | 25-38% | 15-30% | 20-35% |
| Plant & Machinery | na | na | 40-41% | na | 10-18% | 50-60% | 40-50% |
| Contingencies | 10% | 10% | 10% | 10% | 10-15% | 10-20% | 10-20% |

***Question 9.9***
*How important are the prices of physical capital inputs for total construction costs?*

***Answer***
Physical capital inputs are an extremely important component of the total construction costs. The following table presents the analysis of inputs to construction value for 29 recent Queensland Government road projects, and illustrates that material inputs represents about 61% of total construction cost recorded.




Notes:
Weighted Average = based on construction value of 29 projects with combine construction cost of $3.8 BN
Estimated between 2007 – 2011

Source MIP, TMR, I. Gray 15.03.2012

***Question 9.10***
*What are the main sources of intermediate input cost pressures and what factors lay behind these pressures?*

***Answer***
Input cost pressure is due to direct input cost of items used in constructing the works. The main factors which lie behind these pressures include market influences including competition from imports and strength of global construction activity. For road construction and maintenance, key input cost drivers include labour, concrete, cement and sand, steel, oil products (fuel, bitumen and asphalt), and steel.

Construction input cost factors that affect cost pressures include:

- labour – total construction activity;
- concrete, cement and sand - total construction activity,
- steel - price of raw material, transport costs, exchange rates;

- oil price and oil products – exchange rate, stable international supply chain, global demand, highly volatile at times; and
- bitumen/asphalt – oil price, and total road and bridge construction activity.

Market influence cost factors affecting cost pressures include:

- market conditions, such as those experienced 2006 to 2009 will have a major impact on costs. BIS Shrapnel in their current long term (15 year) outlook are forecasting a return to a heated market from 2015/16, led by the private sector;
- cyclical government investment policy. Current funding cycles often result in Government tendering works at the same time as the private sector, which can result in inflation of infrastructure costs. It is believed that better value for money could be achieved through Federal commitment to a stable funding program, and timing of infrastructure investment to enable the State Government to obtain value by minimising conflict with private sector investment cycles;
- energy and resources sectors investment in infrastructure will continue to impact on Queensland, as public sector entities compete for labour, plant and materials with the private sector;
- changes to technical standards which might reduce the number and type of approved goods and service providers will also put upward pressure on costs
- changes to state and federal legislation, regulation and policies which impact costs;
- changes to work practices leading to reduced productivity (e.g. minimising disruption to the road user, rather than increasing efficiency of the contractor, resulting in increased night works, or reduced working space, and less efficient operations);
- delays in funding capacity improvement projects: requiring additional temporary works, or revised delivery strategy as roads, for example, are at or beyond design capacity before capacity is increased; and
- value of construction work done: BIS Shrapnel have estimated the value of work delivered by private and public sectors, this illustrates the relative importance of both public and private markets to driving demand cost pressures[1].

These cost pressures may ease in the near future. BIS Shrapnel forecast nationally that construction activity is forecast to fall a cumulative 12.9 per cent over the next two years, to $15.6 billion in 2014/15. Weakening construction activity over the next year is expected to continue[2]. **Attachment 2** (graphs from BIS Shrapnel's Road Construction in Australia 2013 to 2028) illustrates Queensland's forecast road construction expenditure from 2013 to 2018. The forecast expenditure will be a key tool in understanding medium term market influence cost factors for this sector in particular.

[1] Source BIS ShrapnelRoad Construction in Australia 2013 to 2028 report page ii
[2] Source BIS ShrapnelRoad Construction in Australia 2013 to 2028 report

***Question 9.11***
*To what extent has increased intermediate input costs placed pressure on total infrastructure construction costs?*

***Answer***
By way of illustration, the following table summarises increases in input costs for road projects from 2006 to 2013. Rates are derived from DTMR's estimating resource library. Refer question 9.9 for typical project splits.

Whilst the rates for materials and plant fluctuate annually due to market conditions, labour costs rise steadily, independent of market conditions, generally due to enterprise bargaining agreements in place with agreed rises which are negotiated for several years.

| Element | Unit | Jul 08 | Jul 09 | Jul 10 | Jul 11 | Jul 12 | Jul 13 |
|---|---|---|---|---|---|---|---|
| **Labour** | Hour | 50.00 | 51.50 | 54.10 | 57.12 | 60.01 | 62.74 |
| **Concrete** | M3 | 163.77 | 136.22 | 170.00 | 174.00 | 179.51 | 198.98 |
| **Asphalt** | tonne | 142.00 | 140.00 | 117.00 | 116.12 | 120.23 | 130.23 |
| **Steel** | tonne | 1,650 | 1,450 | 1,200 | 1,380 | 1,401 | 1,401 |
| **Excavator** | hour | 178.00 | 144.00 | 139.38 | 140.77 | 144.43 | 189.60 |

***Question 9.12***
*To what extent have changes in the international market supply of intermediate inputs created cost pressures?*

***Answer***
The price of steel prior to the GFC was causing significant upwards pressure on costs. However, now with falling commodity prices and a drop in global demand, this is becoming less of an issue.

The global market place means internationally-sourced high cost products such as light rail vehicles ($5 million each) and tunnel boring machines (over $20 million each) may take three or more years between placing the order, and delivery. Specialist materials (e.g. some types of bearings, and I Intelligent Transport Systems (ITS)) may also be subject to long lead times due to international market supply conditions.

With respect to the AUD/US exchange rate, the strong Australian dollar, and weak international demand has, for the last couple of years, cushioned Australia from recent cost pressures. However, if the Australian dollar continues to drop relative to the US dollar, this will place additional cost pressure on infrastructure construction costs.

During the previous construction boom (2006 to 2009), infrastructure in Queensland was susceptible to world demand and price volatility. For example, steel rates spiked rapidly due to demand from China, but fell back to pre-boom levels rapidly following the GFC. Cement was increasingly sourced offshore (e.g. Indonesia) which saw increased pressure on the domestic supply market.

In road infrastructure, bitumen pricing is subject to the international price of crude oil, however long term supply contacts between DTMR and oil companies helps level out price volatility. Most other materials used in road construction are sourced from within Australia, so are susceptible to local pricing pressures, including supply and demand more than international market supply issues.

***Question 9.13***
*What are the major drivers of overall infrastructure construction costs in Australia?*

***Answer***
The primary cost driver of overall infrastructure cost increase in Queensland, over the past several years, has been the mining construction boom. Future drivers are expected to include growth in the energy sector, particularly in the Liquefied Natural Gas industry. Question 9.10 provides a detailed discussion in relation to major cost drivers.

***Question 9.14***
*What factors have kept aggregate infrastructure construction output price rises to similar levels observed for all goods and services in the economy, and how can this be reconciled with the micro-evidence on rising construction costs for major projects?*

***Answer***
The premise of this statement is open to debate. Aggregate infrastructure cost output price appear not to have been similar to levels observed for all goods and services in the economy. As shown in the data illustrated in **Attachment 3**, construction input costs have risen around 5% per annum for the last 13 years, which differs from CPI trends observed during the corresponding period.

Queensland construction price increases pre-GFC were driven by a rapid increase in the volume of construction activity ($'s) and competition for resources as a result of the mining boom. In contrast in the five years from June 2003 to June 2008, CPI All Groups; Australia saw an increase of 16.49%. Post-GFC levels have been comparable with general goods and services, due to a drop in the volume of construction activity ($'s), falls in the price of selected inputs, an easing of wage pressure, and the mining boom winding back.

The data highlights price volatility with the infrastructure construction sector and how historically this market has compared with output prices for general goods and services. (Refer to question 9.75 for detailed discussion around the significant drivers for public infrastructure project cost).

Infrastructure construction output price rises are not consistently similar to levels observed for all goods and services in the economy. As CPI tends to flatten spikes in individual prices, so to the Australian Bureau of Statistics, Producer Price Index – Road and Bridge Construction Index (RBCI) flattens price movement if viewed as a trend. It should be noted that pre GFC there were year-on-year increases within the RBCI QLD of up to 14%, with a 39.42% increase in the index from June 2003 to June 2008.

***Question 9.15***
*What is the role of the demand pressures on costs associated with the resources boom, and what are the anticipated impacts as commodity prices and mining investment activity abates?*

***Answer***
The resources boom in Queensland resulted in significant upward pressure on costs as a result of increased competition for labour and materials.

In addition to labour and material costs, DTMR observed that the number of tenders submitted decreased, that is, competition for work within the construction industry was at very low levels and contracts were priced at a premium.

It is expected that as the boom subsides, the associated demand pressures should also subside. The effect of reduced mining investment will be less competition for construction resources.

The construction market is largely deregulated. Contractors will undertake work that offers them the best returns, which may be the private sector (pays more), or public sector (greater security of being paid, and on time), or a more collaborative contract delivery model (e.g. Alliance) resulting in reduced risk to shareholders.

***Question 9.16***
*The Commission seeks information on profitability along the supply chain and its importance for the total cost of projects.*

***Answer***
N/A

***Question 9.17***
*What is the typical distribution of costs across the various phases of infrastructure projects, and what are the key factors that affect these costs (such as planning and environmental approvals, delay, procurement problems, specification variations and industrial action)?*

***Answer***
With respect to roads projects, DTMR's analysis of completed project costs indicates the following cost ranges for the stages of project delivery:

- Concept Phase typical range 1.3 - 6.5%, average 2.5%;
- Development Phase typical range 4.7 - 13.5 %, average 7%;
- Implementation Phase typical range 15.6 - 22.4 %, average 16%;
- Property Typical range 2.9 – 30%, average 12%;
- Finalisation Phase typical range 0.0 – 1.0%, average 0.8%; and
- Total Cost typical range 34 - 42 %, average 37% (Average excluding resumptions 26%).

Comparable international data is presented in **Attachment 4**.

In 2011, Transport NSW engaged Ernst and Young to compare the typical distribution of costs across the various phases of infrastructure projects, however the report was inconclusive. University of New South Wales (UNSW) is undertaking a similar study to identify opportunities for savings. UNSW results are due mid-2014.

***Question 9.18***
*To what extent can Government policy address any of these factors?* (The Commission has examined some of these issues in its inquiry into Major Project Development Assessment Processes, and only requests additional information to the extent that it shed greater light on the issues addressed by this inquiry.)

***Answer***
Poor project management - in Queensland, for example, DTMR has invested heavily in project management practices over the last 10 years, has trained over four hundred people in the elements of project management and developed OnQ to meet its specific needs. By adopting a project management approach DTMR is better able to efficiently manage project delivery. The DTMR Project Management Training and Certification program is aligned with industry best practice, with graduates obtaining a *Certificate IV in Project Management*.

Unexpected Ground Conditions - The Queensland Government attempts to eliminate the project risk of unknown geotechnical conditions through analysis conducted during the investigation phase. However, the funding allocated to geotechnical investigations must be carefully managed against other project priorities during this phase (i.e. cost estimating, preliminary design development and cost benefit analysis). This risk can be further managed through greater project seed funding to facilitate improve geotechnical investigations.

Inflation/ Relative Price Increases - Price adjustments due to inflation are often related to construction delays. Timely awarding of construction funding and early construction start dates can minimise these costs.

The Queensland Government utilises collaborative delivery models where possible to minimise contractor conflict.

This is also addressed in the response to question 9.2.

***Question 9.19***
*What significant changes, if any, have occurred in the cost structures of major infrastructure projects over the last ten years? Are these changes specific to Australia or part of broader international trends?*

***Answer***
BITRE[3] have updated the percentage share of labour/plant/material costs for Australian road projects from those published in 1993 to 2013:

- labour increased to 33.9% of total costs in 2013, from 25.8% of total costs in 1997;
- materials decreased to 37.1% in 2013, from 47.7% in 1997; and
- plant increased to 29.0% in 2013, from 26.5% in 1997.

It should be noted that these changes analysis are observed despite the fact that the methodology to deliver the analysis of basic construction elements has remained largely unchanged (e.g. earthworks, drainage, retaining walls, structures, and pavement) over the previous decade. Some of the other factors driving these changes are discussed below.

Anecdotal evidence indicates a significant increase in traffic management, environmental management, communications and community liaison costs, WHS related compliance costs, Intelligent Transport Systems (e.g. gantries and managed motorways), and other compliance costs.

Specific legislation related costs (e.g. WHS harmonisation, Resource rent tax, Carbon tax, environmental offset planting, Industrial Relations legislation) are specific to Australia. There is a move across OECD countries to increase community engagement and value the environment etc. Technical specification changes may be both Australia specific, and part of broader international trends.

Australian labour costs are high by international standards. Anecdotal evidence from engineering consultants indicates that in recent years Australian engineers are paid significantly more than their international counterparts, including the United Kingdom, North America and much of the European Union.

***Question 9.20***
*To what extent does reliable and methodologically sound data exist on construction cost differentials across countries, and what cost differentials and trends do these reveal? What does the available evidence show about Australia's ranking with regard to the cost of major construction projects?*

***Answer***
There is no known reliable peer reviewed study into construction cost differentials across countries. Several benchmarking studies have been commenced within Australia, but the "range" of rates is large due to site specific variables thus making the comparison of limited use.

A recent benchmarking study by DTMR found the 60th percentile of new road construction cost is \$600/$m^2$ to \$1,600/$m^2$, with an average under \$1,000/$m^2$ (i.e. 40% of projects were outside this range).

[3] Information Sheet 49 - BITRE Road Construction and Maintenance Price Index and Sub-Indexes-2013 update http://www.bitre.gov.au/publications/2013/is_049.aspx

The cost capture systems of different countries, exchange rate issues, differing workforce skill levels, and Australia's issues of remoteness make it extremely difficult to identify similar projects to benchmark.

***Question 9.21***
*Which countries are the best comparators for Australia in regard to major project construction costs?*

***Answer***
With respect to road construction, best comparators for Australia include:

- New Zealand, which also uses AustRoads -based technical standards, and works collaboratively with Australian States in developing technical standards;
- OECD countries which are typically used for comparison purposes as their markets and standards are considered more mature than those of developing countries; and
- for major projects (such as tunnels) European countries, USA (scale and language comparison) and Asia (regional market, and similar economic conditions) can be useful comparators for Australian construction costs.

***Question 9.22***
*What is different unions' coverage across major public infrastructure projects? How does this vary across jurisdictions and project types?*

***Answer***
Queensland Government employees are under the Queensland industrial relations jurisdiction, and the unions involved in major DTMR sponsored public infrastructure projects include:

- The Association of Professional Engineers, Scientists and Managers of Australia, Queensland Branch (APESMA);
- The Australian Workers' Union Queensland (AWU);
- Automotive, Metals, Engineering, Printing and Kindred Industries Queensland (AMEPKU);
- Federated Ironworkers Association of Australia Queensland (FIA);
- The Construction, Forestry, Mining and Energy, Union of Employees, Queensland (CFMEU);
- The Electrical Trades Union Queensland (ETU);
- Together Queensland (TQ); and
- Transport Workers' Union of Australia, Queensland Branch (TWU).

***Question 9.23***
*What is 'best practice' in the bargaining process between employers and employees, and are there 'win-win' options that have not been fully exploited? How can these opportunities be exploited?*

***Answer***
Best practice in the bargaining process is one that promotes productivity, fairness and cooperation through an emphasis on enterprise-level collective bargaining, underpinned by simple good faith bargaining obligations and clear rules regulating industrial action.

Interest-based-bargaining (IBB) as an approach offers a greater chance of win-win outcomes compared to more traditional positional bargaining. However, the viability of the IBB approach is precarious because it depends, amongst other things, on a high level of trust and a continued commitment by parties.

The Queensland Department of Justice and Attorney-General has a dedicated Building and Construction Compliance Branch within the Office of Fair and Safe Work Queensland. This Office has developed a comprehensive Workplace Relations Management Plan for publicly funded infrastructure projects in the building industry. The Office has developed the Queensland Code of Practice for the Building and Construction Industry with implementation guidelines which promote effective workforce management at all levels of the building and construction industry.

In particular, these Guidelines support:

- proactive management of workplace relations - Workplace relations practices shall ensure the strict rule of law applies so all parties are protected from unlawful conduct
- cost efficiency and productivity - Projects are to be delivered on time and within budget with real value for money for the Government and the Queensland taxpayer
- workplace Health and Safety and Rehabilitation - Parties shall achieve and maintain high standards in workplace health and safety and rehabilitation management and practices; and
- innovation and continuous improvement - Parties are to demonstrate a commitment to innovation and continuous improvement in workplace and workforce management practices at the enterprise and project levels, and in the industry generally.

The Office also provides model tender and contract documentation, model workplace relations management plans, practice directions and a variety of compliance related fact sheets for subcontractors, site managers, head contractors and other parties within the industry.

The resources available from this office offer a best practice approach to managing workplace relations in the public infrastructure projects industry.

***Question 9.24***
*What is the quality of training for negotiations (for both employers and employee representatives)?*

***Answer***
This information is provided in relation to DTMR employees involved in enterprise bargaining. No information is available on contractors.

DTMR recognises employees who attain accredited qualifications through training and assessment of competencies by providing financial recompense to certain groups of employee. These accredited qualifications may include courses in negotiation. Prior to the *Industrial Relations (Transparency and Accountability of Industrial Organisations) and Other Acts Amendment Act 2013* coming into force on 1 July 2013, employees had access to five days of paid industrial relations education leave to acquire knowledge and competencies in industrial relations. This could include enterprise bargaining.

Some DTMR employer representatives are graduates from the whole-of-Government Industrial and Employee Relations Graduate Program. This program included specific training on workplace and enterprise bargaining negotiations.

DTMR employer representatives who have not previously had negotiation experience are mentored/trained in negotiations on-the-job by more experienced officers who have extensive skills and knowledge in negotiations.

All DTMR employer representatives have access to a training budget which they may utilise for training in negotiation.

***Question 9.25***
*To what extent have bargaining arrangements (or their breakdown) between employees (and their nominated representatives) and management:*

- *reduced innovation and flexibility*
- *increased wages above levels of comparable employees in other sectors*
- *resulted in inefficient input choices*
- *led to project delay, and lower labour and capital utilisation*
- *led to industrial disputes, 'work-to-rules', go-slows, bans (such as on overtime), and employer 'lock-outs'?*

***Answer***
N/A

***Question 9.26***
*What has been the associated impact on costs, and how do they compare with other factors creating cost pressures? Have such costs changed over time, and if so, why?*

***Answer***
The Commonwealth Department of Regional Development has identified that labour costs in road construction and maintenance have risen from 28.5% of project cost in 1997 to 39.9% of project cost in 2013 (source Department of Regional Development – Bureau of Infrastructure, Transport and Regional Development - BITRE Road Construction and Maintenance Price Index and Sub-Indexes – 2013 update – Information Sheet 49). However, as illustrated in the response to question 9.9, labour represents 13% of DTMR road project costs, considerably less than the BITRE figures.

***Question 9.27***
*How do work practice and industrial relations affect the costs of different types of construction:*

- *by the area of infrastructure (rail, roads, ports, airports etc.)*
- *by the value of the project*
- *by the project duration*
- *between different jurisdictions*
- *greenfield versus brownfield projects.*

***Answer***
Larger projects (>$100 million) incur higher wage impacts arising from the need to attract highly skilled professional workers.

Civil construction has not been significantly affected by industrial relations, as this is more of an issue for the building sector.

***Question 9.28***
*Why do these differences arise?*

***Answer***
As above; and also the building sector uses more subcontractors and relies more heavily on trades than does the civil sector.

***Question 9.29***
*What have been the primary causes of industrial unrest?*

***Answer***
N/A

***Question 9.30***
*How quickly have matters been resolved, and by what mechanism (consensus between parties, actions suspended by the Fair Work Commission, intervention by the former Australian Building and Construction Commission, or in cases of unprotected actions, through civil litigation)?*

***Answer***
With respect to the road sector projects, minor matters are generally resolved within a week by management at the local level with employees or employee representatives. Major matters may take a number of months to resolve by DTMR's Employee Relations team with the employees or employees representatives.

In a limited number of cases, matters have been resolved through the assistance of the Queensland Industrial Relations Commission (QIRC). This can take a week or a number of months and attendances before matters are resolved.

The above information is in relation to industrial disputes involving DTMR employees. No contractor information is available.

***Question 9.31***
*To what extent do employee-employer relations vary with the characteristics of construction contractors, such as their size, profitability, cash flow risks, and position in the subcontractor chain? How do any such variations directly or indirectly affect construction costs?*

***Answer***
Smaller contractors tend to have better and more long standing relationships with employees and subcontractors although industrial relations issues generally do not occur on civil construction projects.

***Question 9.32***
*More broadly, to what extent does the market structure of the construction industry — and in particular, the relatively small number of prime contractors — affect employer/employee bargaining arrangements, and with what effects on costs?*

***Answer***
Civil construction is not characterised by a low number of prime contractors, the market is not concentrated. There are a reasonable number of major (prime) contractors in the civil sector and there is healthy competition for the major players either from other major contractors or through joint venture arrangements between smaller contractors. A number of international firms have recently entered the Queensland market.

***Question 9.33***
*To what extent has there been unprotected industrial action (actions not covered by a Fair Work Commission protected action ballot), or the threat of such actions?*

***Answer***
On 6 August 2012, a dispute at the Queensland Children's Hospital (QCH) project resulted in construction work ceasing on the site for several weeks as a result of what is understood to have been unprotected industrial action. A six month stop order on unprotected industrial action from Fair Work Australia (FWA) was secured, and an injunction in the Federal Magistrates' Court was also obtained.

The presence of picket lines established at the entrances to the QCH construction site impacted on the return to work order.

***Question 9.34***
*Is there any evidence that the abolition of the Australian Building and Construction Commission affected workplace outcomes in the construction of major infrastructure?*

***Answer***
The abolition of the Australian Building and Construction Commission (ABCC) has arguably seen an increase unlawful industrial action.

***Question 9.35***
*To what extent have there been union rivalries and demarcation issues, and what have been the impacts?*

***Answer***
The Queensland Government is aware of current challenges in the industrial relations environment for private sector contractors delivering major infrastructure projects in the building and construction industry, specifically union rivalries and demarcation issues.

There are also, on occasions, demarcation issues with respect to the difference in pay and conditions of employment for State Government departmental employees and employees of contractors.

***Question 9.36***
*To what extent are such flexibilities used by parties to an agreement, and with what impacts on costs?*

***Answer***
The Queensland Government acknowledges the impact of problems caused by Greenfields Agreements in Queensland, with a third of all such agreements being made in Queensland, and recognises the need for reform. The Queensland Government provided a response to the 2012 Fair Work Act Review with respect to Greenfields Agreements (**Attachment 5**).

***Question 9.39***
*What have the roles been of governments and employer organisations, and any effects on the outcomes in the relevant part of the construction industry?*

***Answer***
A model Workplace Relations Management Plan (WRMP) is required under Section 5 of the *Implementation Guidelines to the Queensland Code of Practice for the Building and Construction Industry* (the Guidelines). The Guidelines reflect the Queensland Government's commitment to greater flexibility, innovation and productivity within the state's building and construction industry to ensure that the Queensland Government maximises taxpayer value-for-money on publicly funded building and construction projects.

The purpose of the model WRMP is to give an overall framework to contractors and an indication of what is being sought by the Building Construction Compliance Branch (BCCB) to ensure the expectations of the Queensland Government can be achieved. The model WRMP is designed to cover a wide range of projects.

A WRMP is required for:

- building construction projects exceeding $10 m in value that are the subject to an expression of interest or request for tender and shall include those projects assessed to be High Risk/Significant projects under the PQC System, or other building construction projects involving State Government funding exceeding $10 m; and
- road and rail transport infrastructure, bridgework and other civil engineering construction projects exceeding $20 million in value that are the subject of an expression of interest or request for tender and shall include those projects assessed by the DTMR to be High Risk/Significant projects, or other civil

construction projects involving State Government funding exceeding $20 million.

***Question 9.40***
*What is the overall role played by the work practices, the industrial relations system and its institutions in increasing costs in the construction industry? What specific features of that system are at fault, and how could they be corrected? What other associated reforms or cultural changes may be required for effective employee/employer relationships? How can such changes be best implemented?*

***Answer***
N/A

***Question 9.41***
*Is there any scope to reduce labour shortages by using less skilled labour or by using technologies that substitute for labour?*

***Answer***
At the moment, labour skills shortages are not an issue for the civil construction sector, and it is expected that technology and use of less skilled labour is employed to the extent possible during peak times.

***Question 9.42***
*To what extent have skill shortages contributed to the cost pressures for public infrastructure construction projects? What evidence is there for current shortages among specific occupations? Are skill shortages likely to be persistent?*

***Answer***
The recent trend in major energy projects in the region (e.g. in Central Queensland) has negatively impacted the cost of other construction activity.

Skill shortages within Queensland Government-led public infrastructure construction projects largely occur during peak scheduling periods. Skills shortages are currently not an issue.

Where there is capacity to ensure a steady workflow of project scheduling, skills shortages are minimised. More steady funding cycles to avoid boom/bust situations would reduce the impacts on skills shortages and associated cost pressures.

***Question 9.43***
*How have 457 visas (and their underpinning arrangements) remedied skill shortages, and with what impacts on costs?*

***Answer***
The following information is in relation to DTMR employees. No contractor information is available. DTMR currently has a very small number of employees who are subclass 457 visa holders. The 457 visa holders within DTMR have a range of critical skills which are listed on the Department of Immigration and Border Protection's Critical Skills list or Skilled Occupation List.

***Question 9.44***
*What are the appropriate policies to address skill shortages?*

***Answer***
In the long-term, Government policy can assist in addressing skill shortages by aligning the expected skills needed by industry with education and training incentives. In the short-term, we have recently experienced that multiple organisations direct, and/or try to respond to shortages, but largely duplicate each other's efforts (including in coordination). An agreed lead- agency might assist. In the absence of a single point of contact, project proponents may typically seek the lowest cost or most expeditious solution which can often adversely impact local/regional communities (e.g. drawing skilled labour away from existing roles or importing labour through 457 visas).

***Question 9.45***
*Does whether the client is public or privately owned have implications for the cost of the project? If so, why, and what is the evidence for this? If not, do other client characteristics affect the cost of the project?*

***Answer***
N/A

***Question 9.46***
*Are there differences in contracting arrangements across firms?*

***Answer***
Contracting arrangements used depend on the nature of the project and market conditions. In this context contract arrangements do vary, particularly between major contractors and smaller contractors.

***Question 9.47***
*Is it possible to identify 'best practice' contracting arrangements?*

***Answer***
This is possible using a risk based approach, however best practice varies from case to case and no one size fits all.

***Question 9.48***
*Is the market for major infrastructure projects efficient? If not, what is the source of the inefficiency and how can it be remedied?*

***Answer***
The efficiency of the major infrastructure projects market could be improved with:

- consideration of supply-chain reform as when collaboration between supply chain parties is weak, delivery of desired levels of service and innovation is compromised;
- realistic work planning and operational schedules are needed to ensure project tasks are completed when intended, and this also benefits integrated supply chains;
- consideration of risk management reforms to ensure that risks cannot be passed down to a level where it cannot be effectively managed or mitigated.

- improvement in sharing lessons learnt and better practice to drive innovation and reduce error-repetition across jurisdictions;
- consideration of project pipelines, including funding allocations (so to facilitate better management of surges and gaps); and
- consideration of procurement and delivery models, for example bearing in mind packaging, staging, and spread of projects, in light of current market conditions.

***Question 9.49***

*Does the current market structure lend itself to the efficient provision of infrastructure?*

***Answer***

The current major infrastructure projects market varies in efficiency. For example, in some locations, there is perhaps a good spread of contractors ranging from major contractors with high capability, to smaller contractors with lower capability; thereby providing a healthy level of competition to drive efficiency. However, this is not the case across all locations where one contractor is perhaps dominating the market thereby reducing competition and efficiency. Governments, as discussed in Question 9.48, have a significant role to play in ensuring the market can operate as efficiently as possible.

***Question 9.50***

*What is the combined market share of the major Australian construction groups?*

***Answer***

Major Australian construction groups including Boral, Fulton Hogan, Downer EDI, Lend Lease and Leighton Holding hold approximately 25% market share. Major players and market share for Road and Bridge Construction in Australia are illustrated in the figure below.


***Question 9.51***

*How profitable have the major Australian constructions groups been in recent years, with particular regard to the domestic market? How does this compare with the profitability of smaller construction groups?*

***Answer***

Profitability for both smaller and major construction groups has been trending downward. Profitability for major construction groups is currently around 2-3% (from gross revenue after tax) while profitability for smaller contractors is around 2-6%.

***Question 9.52***
*Do the divisions of the bigger market players effectively compete against each other?*

***Answer***
N/A

***Question 9.53***
*Does either the client or the supplier of the infrastructure possess market power? If so, what is the extent of the market power and how does it manifest itself?*

***Answer***
This depends on the market 'heat'. The client holds the power in tight market conditions, while industry holds the power in an overheated market.

***Question 9.54***
*How significant are any obstacles to gaining market share for smaller Australian firms or locally-based international firms?*

***Answer***
N/A

***Question 9.55***
*Why have there not been more international firms entering the market? Do local firms, particularly the big two suppliers, have an advantage? If so, what is the nature of this advantage?*

***Answer***
There are an increasing number of international firms entering the market. Local firms have the advantage of local knowledge including local conditions, technical standards, engagement with subcontractors and suppliers and already established plant and equipment.

***Question 9.56***
*Does the Australian market have any appreciable barriers to entry? If so, does this barrier apply to both domestic and foreign firms?*

***Answer***
Professional registration (Registered Professional Engineers Queensland), licensing requirements, accreditations (e.g. Workplace Health & Safety), and compliance with code requirements are all requirements apply to both domestic and foreign firms. Some barriers that exist for foreign firms are language barriers, lack of knowledge of local conditions and standards, and distance barriers to mobilising locally.

***Question 9.57***
*To what extent does market structure or any conservative procurement cultures affect the optimal uptake of new cost-reducing technologies?*

***Answer***
Conservative and highly prescriptive specifications will reduce uptake of new technologies. Enhanced procurement arrangements are increasingly being used to drive innovation (e.g. early contractor involvement and early tenderer involvement in procurement arrangements).

***Question 9.58***
*To what extent does 'project' risk affect the cost of a project?*

***Answer***
Risk management is one aspect of project management and is integrated into project governance. It is not separated as a discrete cost. It depends on the nature, scale, phase and scope of the project, and risk treatments may not have a "cost risk" component.

In relation to the roads sector, the following table from the DTMR Project Cost Estimating Manual summarises typical cost contingency risk ranges for different project stages. As a project progresses through development and delivery phases, project risk (unknown costs) reduce and schedule of quantities (known costs) increase. In theory, DTMR *Project Cost Estimating Manual*, the total project cost remains constant, or may even fall slightly

*Table 3.3 – Expected Contingency Range*

| Estimate Stage | Typical Contingency Range for P90 |
|---|---|
| Strategic Estimate | 40% to 70% |
| Project Proposal Estimate | 40% to 70% |
| Options Analysis Estimate | N/A |
| Business Case Estimate | 30% to 40% |
| Preliminary Design Estimate | 20% to 30% |
| Detailed Design Estimate | 10% to 20% |

***Question 9.59***
*What are the major 'project' risks? How are the risks managed, and who bears these risks?*

***Answer***
Risks on transport projects are managed using the DTMR Risk Management Framework providing the structure for designing, implementing, monitoring, reviewing and continually improving risk management practices across the department. The framework is aligned to the international risk management standard, AS/NZS ISO 31000:2009. DTMR assesses and rates risks through eight Risk

Dimensions: Workplace Health & Safety; Time or Schedule Delay; Legal and Compliance; Asset Management; Performance and Capability; Environment and Cultural; Media and Reputation; and Financial.

Quantification of risks is evaluated based on experience and professional judgement and categorised into costing items including Design Development Changes, Standards and Policy Changes, Third party Influences, Project Delay, Property/Land Acquisition and others.

The person, or organisation best suited to manage the risk will own the risk, and this will vary depending on the contract delivery model (question 7.10 refers)

In relation to the roads sector, DTMR does insure its open tender road construction contract activities for both material damage and product liability under the Principal Arranged Insurance Program. The program provides certainty of adequate cover and value for money. As well as providing cover for DTMR and its employees, it also covers the other parties to open tender construction contracts such as contractors, superintendents and sub-contractors.

***Question 9.60***
*Is there scope for improved management of project risk to alleviate cost pressures?*

***Answer***
In relation to the roads sector, DTMR is continually looking for opportunities to improve its Risk Management Framework and operational risk management.

Evans and Peck in their 2007 report[4] into DTMR's estimating practices recommended the Australian Government invest in concept design earlier to enable a more reliable estimate be prepared and reduce the likelihood of continuing overruns. Other recommendations that would improve the management of project cost risk included Australian Government requirements to be better defined by: seeking out-turn cost estimates; seeking clear justification of changes; implementing a Gateway Process; independent estimate reviews; include appropriate risk assessment and contingency allowances; and understand market conditions.

***Question 9.61***
*Does the current market structure impose 'market discipline' on the delivery of major projects?*

***Answer***
While there are two very big players in the Australian market there are a number of medium sized contractors who, through the encouragement of joint venture arrangements, impose market discipline on the delivery of major projects.

[4] A Review of the reliability of Cost Estimation of Queensland Department of Main Roads Projects funded under AusLink; commissioned by Australian Government Department of Transport and Regional Services (DOTARS) page 41

***Question 9.62***
*Are there appropriate incentives for suppliers to deliver contracts on time and on schedule?*

***Answer***
Generally, the longer a job takes, the more it costs the contractor which impacts profit. Contracts usually have Liquidated Damages provisions which drive timely completion and some contracts have key performance indicators relating to timely completion.

Contractor performance is also monitored and repeated or significant time over-runs would impact upon contractors' prequalification. Poor quality tender documents or poor scoping of works by owners often gives contractors legitimate grounds for claiming an extension of time.

***Question 9.63***
*Is there scope for the greater use of incentives to curtail cost increases?*

***Answer***
Use of pain/gain share contract models incentivise the contractor to achieve cost savings and share in the gains. Poor scope management is a significant contributor to cost blow outs and could be better managed.

***Question 9.64***
*How prevalent is sub-contracting in the provision of major infrastructure?*

***Answer***
This varies from contractor to contractor. Some have minimal plant and labour and rely heavily on subcontracting while others do not.

***Question 9.65***
*Is there any difference in how the major construction companies, consortia and other smaller constructors sub-contract?*

***Answer***
Smaller constructors tend to have long standing relationships with suppliers and sub-contractors and repeatedly use them over time on projects. The larger construction contractors tend not to have these same long standing relationships and use different subcontractors and suppliers from one job to the next.

***Question 9.66***
*Is there market power in sub-contracting markets? If so, which markets and which parties exhibit this power?*

***Answer***
Some of the larger suppliers (e.g. in the asphalt supplier market) can apply market power to smaller contractors. Market power can also be applied by subcontractors and suppliers where there are a limited number of suppliers and a high demand (e.g. some lighting/electrical/intelligent transport system works).

***Question 9.67***
*What is the impact of sub-contracting on the overall cost of a project?*

***Answer***
Contractors will choose the most economical service delivery model when bidding for work. Subcontractors may offer greater flexibility or specialist skills. In most instances, if subcontractors are more cost effective they will be used.

On a major project subcontract work might be around 20% of construction costs. A specialist subcontractor's margin may typically be 20% (non-specialist, or large package, low risk subcontractor typically 10% margin), plus the head contractor's margin 10% of direct plus indirect costs. A client will pay a margin on the subcontractor's price, as well as the contractor's price.

With respect to road sector projects, industrial relations regulations requiring subcontractors to be paid the same award rate as a contractor's own staff reduce the cost advantage of subcontracted works for example where:

- traffic controllers are paid the same rate as the contractor's own labour, even though the traffic control subcontractor's award rate was lower
- there is a difference between a Enterprise Bargaining Agreement (EBA) and a Site agreement and the higher award will therefore apply; and
- 457 visa applicants are paid EBA rates and not their home country rates.

***Question 9.68***
*To what extent have poor contracting arrangements resulted in cost overruns for major projects? How can this be avoided in the future?*

***Answer***
As per the answer to question 7.8, poor contracting arrangements, (e.g. in the 1980's and 1990's) have resulted in more litigation and cost overruns.

Collaborative contracting such as alliances (in a supply-led economy) or Dual Early Contractor Involvement (DECI) (in a demand- led economic cycle) result in improved scope definition and risk allocation, leading to reduced instances of cost overruns.

Following the 2007 Evans and Peck review, DTMR implemented all ten recommendations, which has resulted in a significant reduction in cost overruns.

***Question 9.69***
*How do Australian procurement practices compare to equivalent overseas arrangements and private sector processes?*

***Answer***
N/A

***Question 9.70***
*To what extent does the current procurement design favour market incumbents and exclude potential market entrants?*

***Answer***
Prequalification arrangements allow market entry for new players at any time provided they have the appropriate financial and technical capability.

***Question 9.71***
*To what extent do Commonwealth and state local procurement policies and practices result in higher project development costs? Are these costs justified by increased competition in the supply chain or other possible benefits?*

***Answer***
Onerous reporting and administrative processes and procedures increase project management and overhead costs.

The fragmented nature of awarding small projects reduces the ability of a contractor to efficiently program their works.

The time it takes to obtain approvals and a lack of effective delegation of decision making, increase preconstruction time for projects.

***Question 9.72***
*Do the Government teams responsible for procuring major projects have the correct skill mix? If not, what measures are most likely to ameliorate these deficiencies?*

***Answer***
No. There are a limited number of people with very specialised infrastructure procurement skills in centralised governance type roles. However, the practitioners who undertake the day to day infrastructure procurement activities tend to have very limited skills. Up skilling becomes very challenging with the very small number of skilled personnel available to train and increase capability. A key role of Projects Queensland is enhancing the infrastructure assessment and procurement processes within the Queensland Government.

***Question 9.73***
*Are current regulatory requirements appropriate for businesses tendering for public infrastructure projects?*

***Answer***
Some of the regulatory controls and requirements are driven by practices in the building sector and are not always relevant or appropriate for the civil sector.

***Question 9.74***
*To what extent are major infrastructure projects coordinated in terms of location and timing? Should there be more such coordinating, and if so, how?*

***Answer***
Major infrastructure projects are not particularly coordinated in terms of location and timing. Better consideration of coordination could accrue additional benefits. For example, bundling and packaging of work could result in economies of scale, and maintaining an appropriate spread of project sizes to encourage competition across in the market.

***Question 9.75***
*What other significant cost drivers for public infrastructure construction projects have not been mentioned in this issues paper? What would be the appropriate role of policy in relation to these drivers?*

***Answer***
Rising costs of major road sector projects are due to many elements, including:

- cost of inputs (e.g. labour, aggregates, steel, bitumen), which have risen around 65% in 13 years;
- cost of changes in productivity including productivity of work involving heavy manual lifting (loads over 20 kilograms) have dropped significantly. Steel fixing estimators now assume 13 hours/tonne. In 1993, it was 10 hours per tonne; a 30% drop in productivity in 20 years. Anecdotal evidence suggests similar trends across all activities involving heavy lifting;
- daily toolbox talks on major projects typically take 30 minutes from the workday. With increased restrictions of private vehicles on site, the head contractor typically transports workers to the worksite (previously workers would be responsible for making their own way to the worksite), in buses, which can be less efficient;
- cost of policy and standards changes requiring additional quantum of works to be undertaken (e.g. more environmental monitoring or use of Intelligent Transport Systems, bike lanes, disability access legislative requirements) estimated at up to 5% per annum;
- cost of changed working methods such as traffic growth between business case and delivery resulting in changed construction methodology, more side tracks, more night work, reduced "off peak" time to work on site; and
- market pressure (supply and demand affect contractors' margins).

Inefficiencies introduced in a heated market caused by less skilled staff, and overtime payments, above regular hours worked (i.e. cost more /hour for the same productivity)

- regular compliance reporting adds an additional cost to industry;
- cost of policy and standards changes requiring additional work to be undertaken;
- cost of changed working methods, e.g. traffic growth between business case and delivery resulting in changed construction methodology, more side tracks, more night work, reduced "off peak" time to work on site;
- market pressure (supply and demand affect contractor's margins); and
- inefficiencies from heated markets caused by less skilled staff, and overtime payments, cost more /hour for the same productivity.