yearbook 2010

Infrastructure Association of Queensland

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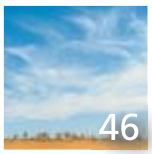
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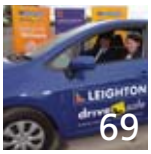
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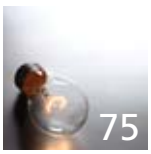
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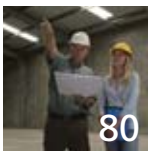
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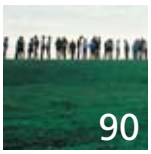
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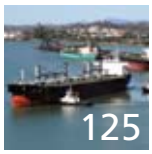
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Lend Lease on the redevelopment of the RNA showground site
Queensland Government on the Sunshine Coast University Hospital project

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Welcome to the 2010 IAQ Yearbook

The year 2009 was a challenging one for infrastructure in Queensland, nonetheless IAQ continued to focus on its three key areas – engagement with government on infrastructure policy and delivery, respected academic research, and our event program. We look forward in 2010 to our Association working with governments and industry to better meet the challenges of continual infrastructure pressure caused by economic activity, population growth and constrained public sector funding.

Engagement

The IAQ's relationship with all spheres of government has continued to strengthen over the last 12 months, with governments now actively looking to IAQ as a valuable source of informed opinion on matters affecting our industry and the processes surrounding project procurement, delivery, and operation. During the year, the IAQ board has held discussions with key decision-makers on current issues in the infrastructure industry and on policy considerations that can be applied to the benefit of the membership. We have continued to challenge government on new and innovative means of infrastructure planning and delivery to meet changing market circumstances. Workshops with government are an important avenue for highlighting issues, the exchange of ideas and for finding potential practical solutions to problems besetting both government and industry. IAQ is committed to such dialogue and is currently developing such a workshop with the Department of Transport and Main Roads to seek a better process for project delivery.

The level of engagement with government is recognised by our Association's ongoing discussions with the New Zealand central government on policy and experience surrounding the ramping up of infrastructure investment in New Zealand. Further, IAQ has been invited to participate in Bond University's Infrastructure Management Industry Advisory Committee and also to present to the Asia Development Bank.

Academic Research

Our program of investment in rigorous academic research continues to inform infrastructure debate:

- IAQ and Bond University Research Report "A Survey of Alternative Financing Mechanisms for Public Private Partnerships" by Associate Professor Michael Regan
- Queensland University of Technology ARC approved research project to be completed in late 2012 focussing on sustainable models for PPP procurement into the future
- Collaborative industry paper "Building Our Future" by Alan Morton and Alan Layton, supported by IAQ, Civil Contractors Federation, Australian Asphalt Paving Association, Queensland Major Contractors Association, and Engineers Australia.

Copies of each of these papers can be obtained from the Association.

Events

Our event program continues to benefit our members, and I would like to warmly thank our speakers, event sponsors, and members for their ongoing support. We have had over 1,000 attendees at events in 2009, with speakers such as the Premier Hon. Anna Bligh MP; Lord Mayor Campbell Newman; Minister for Transport, Hon. Rachel Nolan MP; Director General of the Department of Transport and Main Roads, Dave Stewart; and the CEO of Gladstone Ports Corporation, Leo Zussino. Our Association depends on the success of these events to enable activities in other areas such as engagement and academic research to develop and prosper.

Thanks and Congratulations

We are fortunate to have a highly skilled and enthusiastic board, and I thank each of them for their contributions during the year. The executive members of our Board (Deputy Chair John Corbett, Secretary Renaye Peters, Treasurer Leon Allen, and Immediate Past Chair Jeremy Prentice) have provided further support by their active involvement as an Executive Committee.

Paul Clauson, our Executive Director, is the public face of the IAQ and continues to maintain high-quality networks for the Association's benefit. I offer the Association's congratulations to Paul on his appointment as Adjunct Professor, School of Sustainable Development in the Faculty of Business, Technology and Sustainable Development at Bond University, in recognition of his very significant contribution to infrastructure in Queensland. David Broadbent of Agenda Management has continued his excellent service as IAQ's trusted secretariat.

Mark Fairweather
Chairman

Infrastructure Associ

Background

The Infrastructure Association of QLD (IAQ) Inc was formed in 1994 by a number of interested parties to allow private sector participants involved in the development, ownership or operation of infrastructure projects the opportunity to meet their counterparts and discuss and act upon infrastructure issues which affect the industry as a whole.

Major Research

From time to time, the IAQ commissions special research into topical infrastructure issues. 2009 was a particularly productive year for the IAQ in this regard with a number of influential research papers having been prepared. The IAQ acts cooperatively with other industry bodies to develop information and research papers relevant to infrastructure needs.

Relationship with Government

Since its establishment, the IAQ has developed a reputation as the pivotal private sector infrastructure body in Queensland. The IAQ consults widely with the Queensland Government and the various local governments throughout Queensland on critical infrastructure policy issues. The IAQ meets with government on a regular basis to address industry and project specific issues.

Objectives

The objectives of the IAQ are to:

- be a body which is representative of private sector participants in the lifecycle of infrastructure and to provide positive interaction with Government;
- consult with Government in relation to its guidelines and policies on private sector involvement in the provision of public infrastructure;
- provide a forum for the dissemination and promotion of developments relating to infrastructure amongst members, Government and the community; and
- facilitate networking amongst industry participants.

ation of Queensland

Membership

The IAQ's membership is sourced from a cross-section of infrastructure related industries committed to improving the process of infrastructure provision in Queensland. A number of members are firms that have national representation. The following industries and professions are represented within the membership:

- Engineering
- Construction
- Project Management
- Surveying
- Law
- Accounting
- Architecture
- Banking and Finance
- Stockbroking
- Public Relations and Communications
- Environmental
- Health
- Mining and Resources
- Human Resource Recruitment
- Government Owned Corporations
- Statutory Bodies

Organisations and businesses with a major interest in infrastructure or infrastructure support are invited to become members.

Structure

A Board, elected by the members, controls the IAQ. The Board meets on a monthly basis, and comprises:

- Chair
- Deputy Chair
- Immediate Past Chair
- Secretary
- Treasurer
- Committee Members

The Association employs a part time Executive Director and the Secretariat attends to the administrative needs of the Association.

Guest Speaker Events

Regular special networking breakfasts, with guest speakers addressing infrastructure related topics, are held regularly to ensure that the membership is kept up to date with the latest information on government policy, projects and financing and delivery options. During the 2009 calendar year, IAQ members enjoyed hearing the views of key industry speakers including:

- Hon Anna Bligh MP – Premier of Queensland and Minister for the Arts
- Campbell Newman – Lord Mayor of Brisbane
- Hon Rachel Nolan MP – Minister for Transport
- David Stewart – Director-General, Department of Transport & Main Roads
- Leo Zussino – Chief Executive Officer, Gladstone Ports Corporation
- Pat O'Dwyer - Director & Global Leader, Energy & Resources, GHD
- Professor Ian Plimer - Professor of Mining Geology, University of Adelaide & Emeritus Professor of Earth Sciences, University of Melbourne
- Dr Ray Wilson – CEO & Managing Director, BrisConnections
- Dr Michael Regan - Associate Professor of Infrastructure, Mirvac School of Sustainable Development, Bond University

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IAQ BOARD MEMBERS

Chair
Mark Fairweather - AECOM

Mark is a Technical Director who leads the Highways, Structures and Geotechnical sections at AECOM, and specialises in the planning and design of transport infrastructure. He has previously been involved in business operations, project delivery, environmental approvals processes, asset management, construction and procurement. Mark's current focus is the delivery of transport solutions along the western corridor of Brisbane, including Ipswich Motorway, Centenary Motorway, and public transport. He sees the development of sustainable and affordable infrastructure solutions as one of the key challenges facing government and industry over the next 20 years.

Deputy Chair
John Corbett - Coffey Commercial Advisory

John is Queensland Managing Principal at Coffey Commercial Advisory, a recently merged entity of the Peron Group (a leading infrastructure advisory consultancy) and Stratcorp Consulting. Prior to joining Peron at the beginning of 2009, John was National Manager, Project & Structured Finance at Suncorp for 5 years. In this role, John led the establishment of Suncorp's Project and Structured Finance business with key responsibility for the development and execution of strategy and market positioning as well as the origination, structuring and execution of infrastructure finance transactions. Over this time, the Suncorp Project Finance team collected 3 Project Finance Deal of the Year awards for transactions across the power, renewable energy and port sectors. John has 22 years experience in corporate and institutional banking and project financing and has held a variety of senior roles over the past decade. Prior to joining Suncorp, John spent 18 years with ANZ Banking Group and occupied senior corporate banking and institutional banking roles in Sydney and Brisbane. Over the past ten years, John has arranged the financing for a variety of major infrastructure and development projects across the mining, transport, agriculture, health, energy and education sectors.

Immediate Past Chair
Jeremy Prentice - Freehills

Jeremy Prentice is a lawyer in Freehills' Banking and Projects Group. He is a projects and infrastructure specialist with extensive domestic and international PPP/PFI experience. Jeremy has advised domestic and international government agencies as well as sponsors and funders. He also has extensive involvement with large-scale traditionally procured projects. He has particular expertise in the ports, airports, aviation and defence sectors. Jeremy has been on the Board of the IAQ since returning to Brisbane from London in early 2005.

Secretary
Renaye Peters - Leighton Contractors

Renaye Peters is a key player in more than $4 billion worth of Queensland projects. With more than 18 years experience in construction, Renaye has the ideal credentials to meet her job requirements - to establish future business opportunities on major infrastructure projects for Leighton Contractors. Renaye also manages the business development, communications, marketing and community and stakeholder liaison teams for Leighton Contractors Northern Region. Leading bid teams on major infrastructure projects including the Inner Northern Busway Alliance, Renaye works with the private and public sectors to develop long term strategic relationships. Her ultimate aim is to deliver exceptional outcomes legacies that we will be proud of. It is this commitment to long term goals which has seen Renaye also involved with Alliance Contracting and collaborative arrangements and included as a Board Member of Infrastructure Association of Queensland and the Construction Institute of Australia.

Treasurer
Leon Allen - Commonwealth Bank

Leon Allen is Head of Institutional Banking Queensland for the Commonwealth Bank which provides financial services to large Queensland corporates and institutions. He is a former senior officer of the Queensland Treasury and has also worked as Senior Economic Adviser in the Office of the Premier and the Office of the Treasurer. He has a range of policy and program experience including economic policy and State Budget formulation.

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Members

Shaun Drabsch - Rowland

Shaun Drabsch is Director Government Relations at Rowland. He has served as a Ministerial Adviser to State and Federal Cabinet Ministers in the Transport and Primary Industry portfolios. He was Economic Adviser to the Beattie Opposition, and was Senior Economic Advisor for Premier Beattie until the end of 2001. As Executive Director, PPP and Infrastructure Delivery in the Department of State Development, Shaun led the implementation of the Public Private Partnerships policy in Queensland. In 2005 Shaun established the South East Queensland Infrastructure Program Management Office as Assistant Coordinator General, and oversaw the initiation of major pipeline, recycling, desalination and other water projects to deal with the SEQ drought.

Christopher Edwards - Hatch

Christopher joined the Board of the IAQ as a Non-Executive Director in March 2009. For more than 20 years he has been involved at senior and Board level management in Australia and abroad for large multinational resource companies. Major project development experience has been focused in the oil and gas industry, resource mining and water infrastructure development. Christopher started his career with the portfolios of Treasury and Trade at senior departmental and ministerial advisory levels. He is currently project manager for a large engineering firm located in Brisbane with a portfolio of key infrastructure projects throughout Australia, Africa and Asia. He is also a member of the firm's strategy and project development group. He holds an MBA from the Queensland University of Technology, specialising in strategy and international business. He is also a graduate of the Australian Institute of Company Directors. Christopher brings to the Association a strong background in project management, governance and strategy development including experience in major project development in Queensland.

Craig Fenton - PricewaterhouseCoopers

Craig is a Partner with PricewaterhouseCooper's Project Finance and Economics practice. Specialising in water and ports, Craig has been significantly involved in many of the headline infrastructure and reform programs for the water and ports sectors, particularly in Queensland but also nationally. Craig has a Bachelor of Economics from the University of Queensland. Prior to joining PwC in early 2000, Craig worked with a number of Queensland Government agencies and also with the Commonwealth Government's (then) Industry Commission.

Peter Hain - GHD

Peter is the Manager of the Marketing and Business Development group for GHD's South Queensland Operations. He has a strong focus on improving strategic client relationships, marketing, growth and commercial success of GHD across the market sectors of infrastructure, property & buildings, defence, mining & industry and environment. Peter joined GHD in 2002, having previously worked for 10 years with three local government organisations in New South Wales. From 2003 to 2006, Peter was the Manager of the Water Planning Group in GHD's Brisbane Office.

Steven Johnston - Deloitte Touche Tohmatsu

Steven is a Director with Deloitte's Corporate Finance practice specialising in Infrastructure and Project Finance. Steven's professional focus is on the commercial preparation, negotiation and delivery of infrastructure within the rail, health, and defence sectors. Prior to joining Deloitte in late 2007, Steven was based in London and worked on a number of high profile projects including the London Underground PPP, London's King's Cross Station redevelopment, Kingston Hospital NHS Trust Phase 5 Development (PFI) and the Department of Health's (UK) Independent Sector Treatment Centre (ISTC) Programme.

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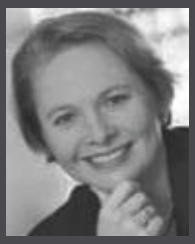

Wendy McMillan - John Holland Group

Wendy is Manager of Strategic Development for John Holland's Northern Region. The company is one of Australia's largest and most diverse engineering, contracting and services businesses with over $3.6 billion in turnover and more than 5,500 staff. The Northern Region includes both Queensland and the Northern Territory, has over 2,800 staff and represents over 40% of the group's turnover. Wendy is responsible for setting strategic direction for the Region as well as various other business divisions operating in the Region, government relations, stakeholder planning and management, communications and has a role in Airport Link Northern Busway, Australia's largest Public Private Partnership at $4.8 Billion. Previously Wendy held senior positions at Australia TradeCoast, the Port of Brisbane Corporation, Carter and Spencer International and Gambaro's Seafood and Exports. Wendy is Chair of the Industrial Committee, Property Council of Australia (Queensland).

Ren Neimann - Allens Arthur Robinson

Ren specialises in the area of construction and infrastructure and is a member of the Projects practice group. Ren has a wide range of experience in drafting, negotiating and advising governments, financiers, principals and contractors on construction, engineering and infrastructure agreements and related documents. Ren advises across a number of industries and sectors, including the transport, water and resources sectors, and has acted on various infrastructure projects, including PPPs, in Australia and Asia.

Doug O'Brien - Watpac Civil Infrastructure

Doug O'Brien has recently been appointed as State Manager, Qld and NT with the Watpac Group's Civil Infrastructure division. Doug has held Operational, Project based, and Business Development roles in the Queensland civil construction market over the past 18 years working with Tier 1 contractor and major supplier organisations within the region. He has been involved in the development and delivery of major infrastructure opportunities across all major civil infrastructure sectors. Doug has a Degree in civil engineering and an MBA.

Ken Oldfield - Aurecon

Ken is a Brisbane based Executive of Aurecon Australia (formerly known as Connell Wagner) and operates within the Transport Market. Ken has over 35 years experience in highway planning, design, construction and maintenance. He joined Aurecon in 2002 after 30 years with the NSW Roads and Traffic Authority. Ken leads Aurecon's Australia/New Zealand Construction Management group and also has Queensland based project and people management roles.

Jay Palmos

Jay is the principal of Palmos Consulting, a firm which specialises in project risk analysis, contract management and back-end construction disputes. His first 10 years in the industry were spent in the field, on three multi-billion dollar "mega" projects. He controlled increasingly senior project management positions culminating as the project controls manager of the Inland Feeder project (A$5.8 Billion dam and pipeline). In all, Mr. Palmos has served on five mega-projects, most recently the DBXT7 Coal Terminal Expansion project in Mackay, and Newmont's Boddington Gold mine in WA. To complement his 16 years field experience, he holds legal and engineering credentials as well as a Masters in Business Administration. He is licensed to practice both law and engineering in multiple countries, is a registered BCIPA adjudicator, and Project Management Professional (PMP). He has represented developers, lenders, design professionals, general contractors, subcontractors, insurance companies and suppliers. These cases covered a wide range of matters relating to construction failures, latent defects, general contract and bidding disputes, and professional liability. His specialty lies in time-related disputes including delays, acceleration, and disruption. He lectures on these topics and has been appointed as an expert witness on over 30 occasions in a broad variety of cases involving such diverse projects as bridges, housing, road, rail, and commercial construction.

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- Woondooma Reservoir
- Royal Brisbane Hospital

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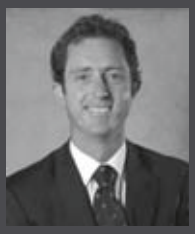
Tony Roccisano - McCullough Robertson

Tony is a lawyer in the Infrastructure, Energy and Government Group of McCullough Robertson Lawyers, and primarily advises private and public sector participants on infrastructure procurement and construction. He has experience in water projects, rail, mining infrastructure and property development.



Jonathon Williams - Minter Ellison

Jonathon is a Special Counsel in the Finance and Projects team in Minter Ellison's Brisbane office. He advises both Government and private sector clients on major project undertakings and specialises in particular in the funding and delivery of infrastructure related to health, education, rail and other transport developments. Recent projects in Queensland include the Port of Brisbane Motorway Upgrade Project, Gold Coast University Hospital Project, Queensland Children's Hospital Project and the Surat Basin Rail Project. Jonathon provides expertise on various forms of partnership between public and private sectors. He has been involved in a range of PPP and BOOT transactions in Australia and overseas including the London Underground PPP, Nottingham Express Transit PFI, Railcorp Rolling Stock PPP, UNSW, Southern Cross University and Bond University Student Accommodation Projects, Orange and Associated Health Services PPP, Northern Link Tunnel Project and the Gold Coast University Hospital Car Parks BOOT project. Jonathon previously held senior positions in the UK rail industry with Bombardier Transportation UK and as Head of Legal for specialist UK rail financier, Porterbrook. He conducted negotiations with transport groups and UK Government in the refranchising of the majority of the UK's 24 train operating businesses and the finance, procurement and whole of life maintenance arrangements for over A$3.5 billion worth of new and refurbished rolling stock. He is admitted to practice in Australia and in England and Wales.

Executive Director
Paul Clauson

Paul Clauson has practised for the past nine years as a Senior Executive Contractor in government relations and policy. Paul is a former Queensland Government Minister, Lawyer and Company Director and maintains strong relationships with key political, industry and special interest groups. Paul uses these links to assist clients to develop effective strategies and tactics to understand and deal with government on a broad range of issues.

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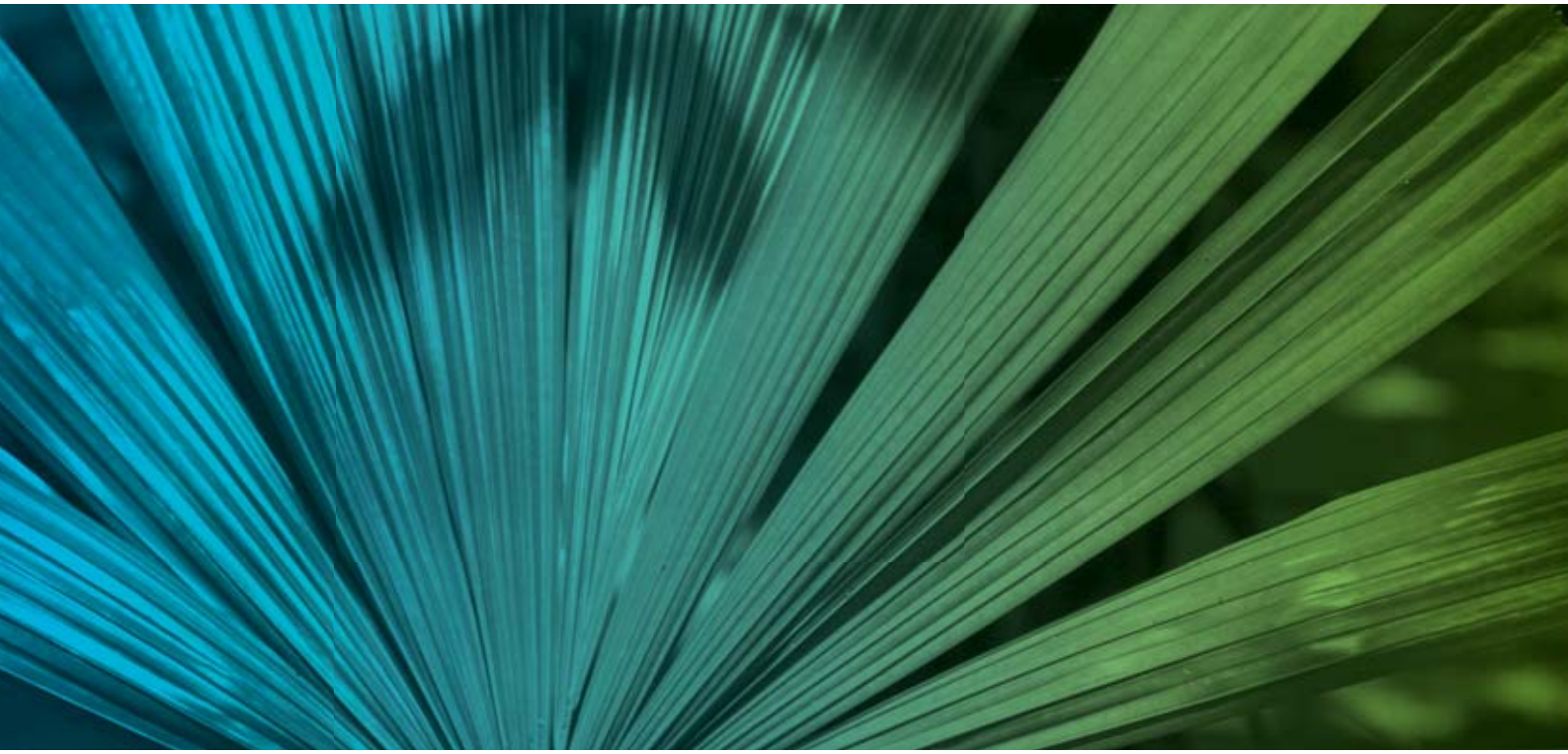

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Brisbane's engineering marvel: CLEM7 opens for business

CLEM7 is an engineering marvel, the first major tunnel toll road designed and constructed in Brisbane, and the first to encounter and manage all the diverse engineering challenges associated with such a behemoth project.

Brisbane City Council's Clem Jones Tunnel (CLEM7) is expected to open to traffic by March of 2010. This major Australian tunnel toll road, which began life as the North-South Bypass Tunnel, is a significant engineering feat that will deliver many benefits for Queenslanders.

The $2.1 billion CLEM7 was designed and constructed by the Leighton Contractors and Baulderstone Hornibrook Bilfinger Berger Joint Venture (LBB JV), with works starting in September 2006. It has been delivered close to seven months ahead of schedule and on budget for RiverCity Motorway (RCM) in a Public-Private Partnership with Brisbane City Council. Major subcontractors on CLEM7 were AECOM, Parsons Brinckerhoff; United Group (Alstom) and Golder Associates.

CLEM7 is 6.8 kilometres in length and includes two twin-lane 4.8 kilometre bored tunnels (each 12.4 metres in diameter) with a range of urban enhancements. It is the longest and most technically advanced tunnel toll road of its kind in Australia and will provide a direct north-south link without travelling through Brisbane city or Fortitude Valley, thereby reducing congestion on the road network.

The approach taken was 'fast track construction' with design and construction occurring simultaneously, rather than the traditional method of design first, then construct. This was the most complex construction project in Brisbane with dozens of risks and issues to be considered at every turn. This included safety, geological issues, construction water and groundwater, traffic, regulatory, utilities, quality, cost, community and environmental considerations, among others, all to be weighed and balanced.

The sheer scale of this engineering marvel can be appreciated in some of the construction statistics. The tunnels needed 38,000 concrete segments which were pre-cast to form the wall lining, with the factory operating 24 hours a day, seven days a week to make an average of 100 segments each day to meet demand. Each segment is 40cm thick and weighs 8.5 tonnes. The Tunnel Boring Machines (TBMs) were able to install up to 90 of these segments every day. The tunnels also have 60 cross passages and substation passages, with one cross passage every 120 metres. Surface works included 18 bridges and 155,000m² of roads.

Darren Weir, General Manager of Leighton Contractors Northern Region said the company had learned a great deal from working on the mammoth project in some of the busiest inner suburbs of Brisbane.

"We are very proud of being part of the team that delivered this major project well ahead of schedule. It has many firsts to its credit, for example it was the first in Australia to use two large Tunnel Boring Machines (TBMs) driving simultaneously through hard rock, with a compressive strength of over 100MPa," Mr Weir said.

A double shield TBM was used as it had the advantage of being faster in the circumstances and ground conditions on this project. The project team chose to install cable tunnels during the TBM operation for mechanical and electrical services because this also aided speed in delivery.

"We are very proud of being part of the team that delivered this major project well ahead of schedule. It has many firsts to its credit, for example it was the first in Australia to use two large Tunnel Boring Machines (TBMs) driving simultaneously through hard rock, with a compressive strength of over 100MPa," Mr Weir said.

Personnel figures give some indication of the great size of the project. At the peak of construction, CLEM7 employed more than 2,000 people and completed some 530,000 man-hours in a month. Over the life of the project, more than 12,000 people were inducted to the project and another 3,800 undertook recognised training programs. The peak workforce was 1,570 people in February 2009. Owing to good industrial relations planning and management, there was no lost time on the project because of industrial action.

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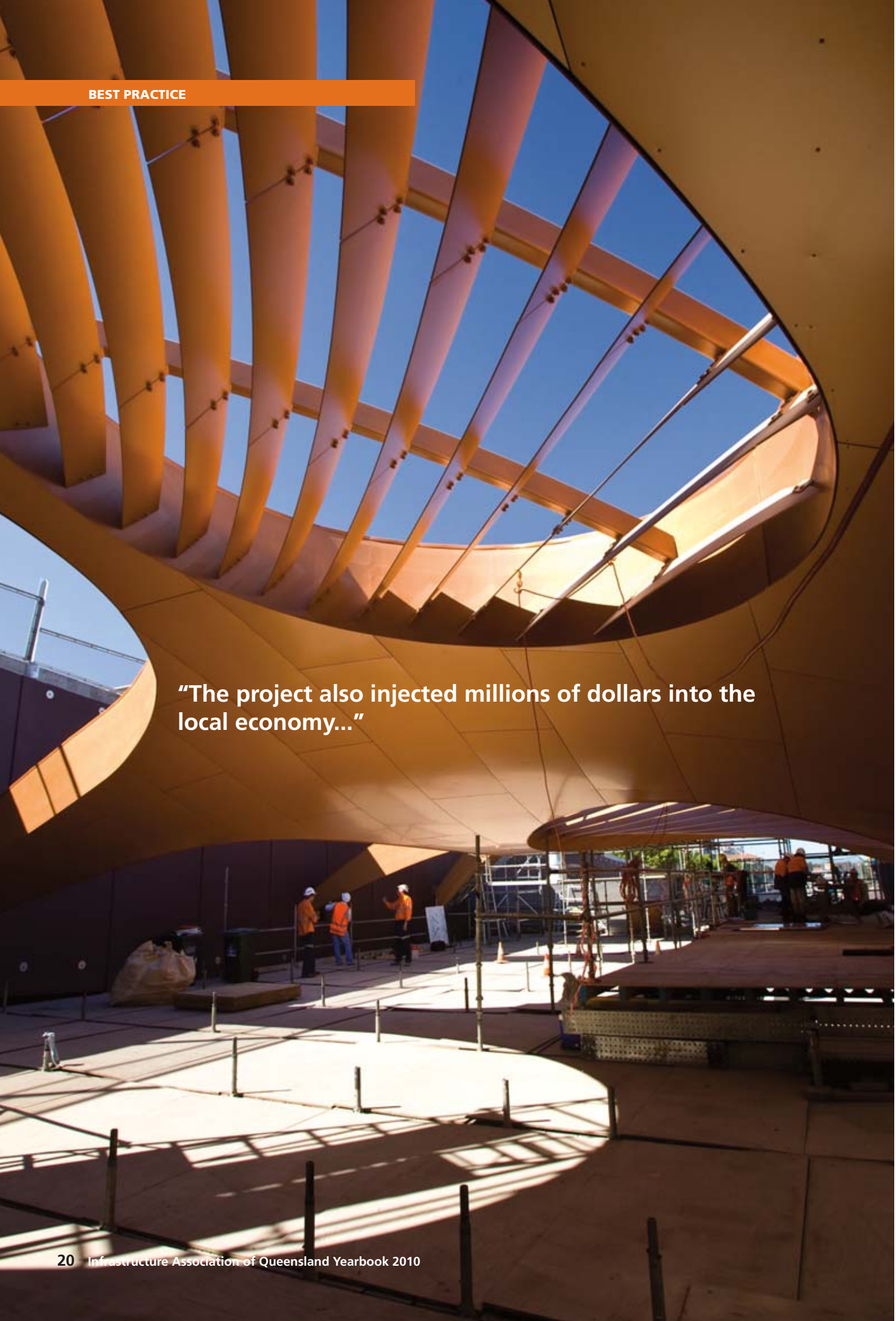

"The project also injected millions of dollars into the local economy..."

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The project also injected millions of dollars into the local economy through employment of local subcontractors and suppliers, for example around 110 project vehicles were leased from a dealer along the alignment.

The LBB JV made several improvements to the initial reference design during the tender and in delivery phase. These included enhanced connections to the south and west which improved traffic efficiency and construction time. The team liaised with a wide range of authorities from regulatory bodies to Queensland Fire and Rescue to ensure their requirements were met and designs approved.

One of the first priorities on the project was to establish a stringent safety culture. This was delivered through an easy to use 'Safety Roadmap' with rules, procedures and instructions for safety to build a positive culture. At its peak, the dedicated Safety Team included no fewer than 26 people, and all employees were expected to embrace safety as the highest priority.

The design and construction team aimed to minimise impacts on the local community and environment. Key strategies for this included:

- a self-sufficient water management strategy, using harvested roof water, ultra filtration techniques for recycled water and installation of a desalination plant

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Vibration from the TBMs was carefully managed, especially with the number of historic and heritage buildings along the tunnel alignment.

For example, the team ensured that the Story Bridge foundations and heritage stands at the Royal National Association grounds were not affected by the works. They undertook pre-inspections of all relevant buildings and in some cases bracing was used to avoid any impacts.

Brisbane's subtropical flowering trees, the Poinciana and Jacaranda, inspired the colourful urban design of the two tunnel ventilation stations. Located at Bowen Hills and Wooloongabba, the outlets are 36 metres and 43 metres high respectively. They ensure appropriate dispersion of vehicle emissions in all weather.

The unique, architecturally designed steel structures that make up the portal canopies draw inspiration from Queensland's expansive shade trees, and the dappled light they create allows drivers' eyes to adjust to the change in lighting on entry and exit from the tunnels.

The team identified sections of the community that were affected by works geographically, and linked them to construction timeframes to deliver timely notifications of works and identify and mitigate issues. People were informed about the works through face-to-face meetings, notifications, information sessions and Community Liaison Groups, the Visitors' Centre, website and communications for road users. All issues picked up on the 24 hour, 7 day a week hotline were responded to within set timeframes.

Throughout construction, the team provided regular site tours and presentations. During the assembly of the TBMs, they staged a public open day with Brisbane City Council that attracted 4000 people and provided an opportunity to access the work site and see the machines up close.

A number of urban enhancements have been developed to benefit local communities as part of the CLEM7 construction. For example, the Dibley Street pocket park in Wooloongabba now has a paved plaza, ornamental planting and seating so cyclists and pedestrians have a convenient, safe stopping place.

While Airport Link has now taken CLEM7's place as the largest construction project in Brisbane, CLEM7 will retain the honour of being the first major tunnel toll road designed and constructed in the city, and the first to encounter and manage well all the diverse engineering challenges associated with such a behemoth project.

ERM Power, Australia's largest privately-owned energy company, has enjoyed a year of successful and reliable project delivery.

In 2009, ERM completed three power stations and two gas pipelines across three Australian states. Together, this $1.87 billion investment represents a four per cent increase to Australia's generation capacity.

ERM started 2009 by completing the 640MW Uranquinty power station near Wagga Wagga in New South Wales. The power station started commercial operation in time for the summer peak period.

In June, ERM completed the 450MW Braemar 2 power station and 110km gas pipeline in Dalby, Queensland.

The project took less than a year from financial close to commissioning handover to ERM Power Generation operations' group.

This set a new benchmark for open-cycle power station construction in Australia.

The Neerabup power station project, located 30kms north of Perth, Western Australia was completed in October 2009. It consists of a 330MW gas-fired power station and 30km pipeline.

ERM retains controlling interest in three power stations. It manages operations & maintenance, commercial management, wholesale electricity trading and risk management, for a total of 1,100MW of generation.

ERM also retains interest in its first development, the 300MW Oakey power station now in its tenth year of operation.

ERM entered the top 10 in the Queensland Business Review (QBR) Q400 Report 2009, ranking seventh. This was a great achievement which we are very proud of; it is testament to a very successful year.

Positive Partnerships Building Dams, Building Communities

The first new dam in 20 years is being built in South East Queensland. The core philosophy for the Wyaralong Dam Project is that modern infrastructure should deliver more than just a major infrastructure project.

The heavy machinery has paused at the site of the $348 million Wyaralong Dam Project, just over an hour's drive south of Brisbane, as local firm Donnelly Blasting Services gets down to business. Under the hot afternoon sun, their workers are carrying out the final checks before setting off another carefully controlled explosion. Blast by blast, they're exposing the foundations for the dam wall, a task which requires the excavation of over 280,000 cubic metres of rock.

"We're a family business of 12 years and this is a significant project for us," said Donnelly Blasting Services owner Jason Donnelly. "We currently have 17 staff and about half of them can work on the dam at any one time while we're loading for a blast."

> **"We're a family business of 12 years and this is a significant project for us," said Donnelly Blasting Services owner Jason Donnelly.**

South East Queensland's first new dam in 20 years is being built near Beaudesert on the Teviot Brook, a tributary of the Logan River. Work started in late 2008 on the Project, which is being delivered in three separate packages.

Fulton Hogan's realignment of the Boonah-Beaudesert Road is now nearing completion, to provide drivers with a safer and more direct route around the lake. The Water Infrastructure Solutions Alliance has finished the 5.5 kilometre Dam Access Road, which is being used by construction traffic for work on the dam itself. The Wyaralong Dam Alliance is delivering the dam, bringing together leading construction, design and infrastructure specialists – Macmahon Contractors Pty Ltd, Queensland Water Infrastructure Pty Ltd, Wagners Quarries Pty Ltd, ASI Constructors Australia Pty Ltd, Hydro Tasmania, Rizzo Australia Pty Ltd and SMEC Australia Pty Ltd.

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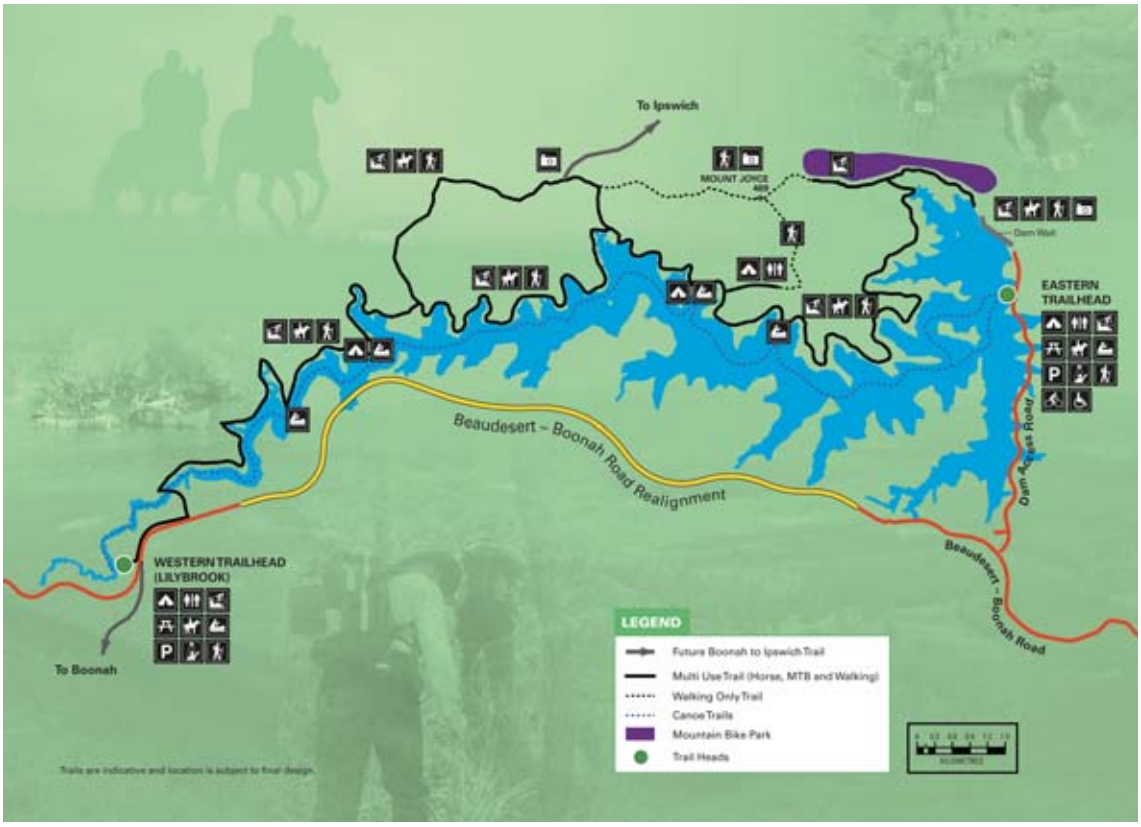

When the dam is built in mid 2011, it will feature a 500 metre long wall. The yield of 26,000 ML/a, working in conjunction with the nearby Cedar Grove Weir and Bromelton Off-stream Storage, will help meet the Beaudesert region's growing need for water and provide additional supply for the South East Queensland Water Grid. That's enough water for more than 300,000 people, but the Wyaralong Dam Project is about much more than building an important new water source.

"The core philosophy for the Wyaralong Dam Project is that modern infrastructure should deliver more than just the end product – be it a road, desalination plant or a dam," says Graeme Newton, CEO of proponent Queensland Water Infrastructure. "The Wyaralong Dam Project is focused on providing opportunities for the community, during construction and into the future. We want to leave a lasting legacy that everyone involved with the Project can be proud of, by building a true asset for the people of South East Queensland. Initiatives range from local employment programs and providing opportunities for local businesses, to being involved in community projects and the creation of world class outdoor recreation and tourism facilities."

The Project is creating 420 jobs, as part of the Queensland Government's $18.2 billion Building Queensland infrastructure program. In addition, Donnelly's Blasting Services is just one of more than 400 businesses to have already gained opportunities through the Project, even though major construction work on the dam wall has only just begun. The use of local businesses and employees is encouraged through an online database, which major contractors access when they source workers and suppliers. More than 2500 businesses and employees are currently registered for opportunities.

The focus on local employment will continue as the project moves into its next phase, with the laying of the roller compacted concrete dam wall from mid 2010. "The dam wall will be laid one layer at a time, timed so that the concrete is still wet and the layers bind together," explains Wyaralong Dam Alliance Manager Brenton Perry. "We're making the most of the site by using material quarried near the dam wall for the roller compacted concrete, which is efficient and reduces the number of trucks we have on local roads. In all, there will be 395,000 tonnes of materials in the wall, where the average water level will be around 28 metres when the dam is full."

To extend the creation of local opportunities even further the Wyaralong Dam Project has embraced Queensland's Green Army, a $57 million Queensland Government initiative to create 3000 jobs over 3 years. In all, more than 50 local jobseekers will have the opportunity to break the unemployment cycle through on the job training programs delivered as part of Queensland's Green Army.

Darrin Crabbe is one jobseeker who's already hard at work in the bush, helping with important environmental work to improve land around the dam site. "We've been clearing lantana on the water line of the dam and the pathways for the bikes and bushwalkers and I've really enjoyed it," Darrin says. "My partner was also in the Green Army and she got a job at Caterpillar Australia as head secretary."

The trails being cleared by the Queensland's Green Army recruits are part of a multi-million dollar network of outdoor recreation facilities. "Recreation facilities, in particular, are one of the flow-on benefits of building a dam you simply don't see with other infrastructure projects," said Queensland Water Infrastructure CEO Graeme Newton. "Wyaralong Dam will be a unique nature based recreation and tourist attraction that generates ongoing economic benefits for the region. The lake will cater for low impact water sports like canoeing, with access to remote camp sites. It will be surrounded by more than 40 kilometres of trails for bushwalking, horse-riding and mountain biking, focused around two trail heads. A real highlight will be the construction of an event standard mountain bike park that will see this area attract riders from across Australia."

Back out in the bush, the Queensland's Green Army recruits have taken a break from clearing the way for those trails to celebrate some very good news for Darrin Crabbe. He's about to follow his wife from Queensland's Green Army into the work force.

"I've been accepted for a full time job at the Scenic Rim Council as a road roller and labourer, so it's great," says Darrin.

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Taking a long term approach to Infrastructure

"The best preparation for the future, is the present well seen to, and the last duty done." – G Macdonald.

By Jay Palmos, Principal, Palmos Consulting

2010 will provide Queensland with the backbone of our future infrastructure. It is an opportunity for our State to invest in the future and develop world-class infrastructure procurement practices. It would be short sighted if this opportunity were lost with outdated contracting strategies. History has demonstrated the failures inherent in the traditional approach to adversarial contracting strategies.

In 2007 IAQ tasked Professor Michael Regan of Bond University's Mirvac School of Sustainable Development to begin researching the major impediments to strategic economic growth in Queensland with a particular focus on infrastructure development. Professor Regan's investigations revealed that "as a general rule, economic and social infrastructure contributes to productive capacity of an economy … [t]his evidence points to a positive and causal association between public investment in core or economic infrastructure and … output and growth, productivity, private firm operating costs, returns and profits, employment and incomes, [and] private sector investment".[1] Notwithstanding this fact, both state and federal government agencies have continued to reduce their infrastructure expenditure.[2]

In 2008, PricewaterhouseCoopers found that additional impediments to sustainable infrastructure growth was caused by the lack of "availability of skilled resources (technical and trade), higher direct costs stemming from increased demand for labour and materials, and under-investment in upfront project planning, definition and business case development (i.e. up to project approval)."[3] In combination with the decreasing public funding, these factors caused a bottleneck to the successful delivery of Queensland's infrastructure development plan.

The global financial crisis (GFC) has brought about sweeping changes to the economic landscape of Queensland. Unlike most industries, the GFC has delivered opportunity to the infrastructure community. It opened up capacity where there was previously a demand-based shortage as well as creating a windfall in public funding for strategic infrastructure development. Specifically, it has reduced pressure on the first two resource-based issues, identified by PricewaterhouseCoopers, and government stimulus packages have boosted public infrastructure spending to among the highest in recorded history.

While this confluence of opportunities has provided an obvious short-term benefit to the industry it is just as important to consider the long-term nature of infrastructure projects and their implications to the state. A holistic approach must be used when evaluating strategic state development. Environmental impacts, social issues and long-term growth all contribute to sound decision making. However, empirical evidence gained during IAQ discussions with public stakeholders throughout 2009 found that there is a decided 'swing of the pendulum' away from collaborative bidding practices towards hard-dollar low-cost awards. This renewed interest in traditional procurement methods flies in the face of data supporting new non-adversarial practices and is a step back to a period of time when substandard contract performance was the standard byproduct of the traditional bid practices.[4] In Egan's 1998 report on the construction industry he said:

"Too many clients are undiscriminating and still equate price with cost, selecting designers and constructors almost exclusively on the basis of tendered price. This tendency is widely seen as one of the greatest barriers to (industry) improvement. The public sector, because of its need to interpret accountability in a rather narrow sense, is often viewed as a major culprit in this respect. The industry needs to educate and help its clients to differentiate between best value and lowest price".[5]

Today's infrastructure policy and development decisions will set the stage for Queensland's future. It is for this reason that when deciding on how best to approach each particular project we are reminded that "[t]he effectiveness with which state infrastructure investment is directed and used is just as important as the amount of investment".[6] Therefore, it is critical at this juncture to revisit some of the particularly relevant research findings published by IAQ in recent years and to consider broadly all aspects of infrastructure investment, from bidding practices to maintenance and operation.

The purpose of this research has focused heavily upon best practices in bidding and newer procurement procedures, particularly the beneficial aspects of relationship contracting strategies such as public private partnerships and alliance-style contracts. These studies have uniformly highlighted the positive long-term benefits associated with relationship contracting strategies, and as such we should revisit and consider how best to promote sound approaches to the development of Queensland in this and the coming years.

Public Private Partnerships

Public private partnership (PPP) agreements are long-term contractual agreements between a government service and private business venture which is funded and operated through a partnership of government and one or more private sector companies.

PPP involves a contract between a public sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project. In some types of PPP, the cost of using the service is borne exclusively by the users of the service and not by the taxpayer. In other types (notably the private finance initiative), capital investment is made by the private sector on the strength of a contract with government to provide agreed services and the cost of providing the service is borne wholly or in part by the government.

Typically, a private sector consortium forms a special company called a "special purpose vehicle" (SPV) to develop, build, maintain and operate the asset for the contracted period. The consortium is usually made up of a building contractor, a maintenance company and bank lender(s). It is the SPV that signs the contract with the government and with subcontractors to build the facility and then maintain it.

Briefly stated, the proven benefits of public private partnership (PPP) agreements are:

1. The delivery of projects on time and on budget,
2. Reduced procurement costs and improved value for money outcomes,
3. Improved project management – integration of design and construction processes and full lifecycle costing,
4. Adoption of output specifications to encourage design and construction innovation and new technologies,
5. Improved public services and qualitative user outcomes.[7]

The benefits of PPP agreements have natural synergies with infrastructure projects because of their whole-of-life approach to costing. Maintenance and operation, which have been proven to be significant losers in traditional contracting strategies, are inherent and planned for risks on a PPP project. Further, innovation, both in design and construction phases, gives this option the highest possible opportunity for long-term interoperability and flexibility. These are the hallmarks of sound infrastructure planning.

Alliances

Alliance style contracts utilise a collaborative approach to project management, risk allocation and cost definition. By producing a single team to oversee the project from inception through to completion, alliance agreements have the advantage over traditional contracting strategies where projects are extremely large or complex. This makes them particularly favourable for social infrastructure projects.

"Evidence suggests that alliance contracts are delivering procurement cost savings in the range of 2-4% or in the case of large complex projects such as the new Terminal 5 at London's Heathrow airport, 24%."[8]

The mainstays of such an arrangement include pre-qualificaiton of bidders, pain-share and gain-share reward structures, internal dispute resolution methods, and collaborative design and construction. They are being seen as a value for money model on infrastructure projects because they:

1. Suit complex projects where risks are difficult to define;
2. Suit projects which require management of uncertain or changing scope;
3. Encourage innovation as a means to smarter solutions;
4. Have value-based solutions;
5. Facilitate incorporation of community;
6. Encompass both stakeholder and environmental drivers, as well as facilitating fast delivery through an integrated owner/design/construction team.[9]

Alliancing style agreements do not provide the same robust long-term benefits of the PPP, however their proven ability to encourage innovation throughout the design and construction phases provides a significant improvement over conventional contracting strategies, particularly so when the project is complex. These values will provide government agencies with the required flexibility to incorporate future infrastructure development plans and changing environmental regulations.

Early Contractor Involvement (ECI)

During the boom in engineering and infrastructure markets over the past decade principals became more creative with project delivery models in order to attract the best contractors and engineering resources available. ECI is one such innovative project delivery method. It combines some of the principles of alliancing and the traditional design and construct contract and has been aimed at developing superior long-term commercial relationships.

The usual ECI procedure includes engaging the construction contractor during the early phases of a project to assist in the evolution of the design and to promote a better understanding by the parties of a project and its potential risks. In contrast to traditional methods the ECI process involves the contractor working with the client during project development stages, aiding in the design and detailed project planning. Concurrently, the parties develop a 'risk adjusted price' (RAP) for the delivery phase. Although similar to a design and construct model, ECI has the added benefit that the RAP is not agreed until all the risks can be assessed.

Advantages often attributed to this method of procurement include:

1. Construction experience is harnessed early providing better integration of construction methods into the design process;
2. A team-based project approach;
3. The potential for shortened delivery time due to collaboration between the design and construction teams;
4. Increased opportunity for innovation;
5. Quicker decision making during the design phase;
6. Earlier procurement of critical or cost-sensitive materials;
7. Fewer design conflict variations during construction.

Similar to the above mentioned strategies the ECI framework provides for innovation and multiple stakeholder goal alignment. Again, this contracting method is well suited to the burgeoning infrastructure commitment provided by the recent stimulus packages.

Non-Conforming Tenders

Another, but less researched alternative to traditional bidding practice, is the inclusion of non-conforming bids in the selection process. A conforming tender is one which conforms with all of the requirements in the tender documentation. A non-conforming tender is one which is not an offer to perform the works precisely as specified but instead is an offer to execute the works which departs in some way or ways from the contract documents. The departure or departures may be extensive: the tenderer may suggest, for example, an alternative method of construction which is radically different from that proposed.[10]

The traditional compliance-based tender process can stifle the ability of contractors to promote innovative solutions. This is because an innovative tender will often be an alternative or non-conforming tender; the more innovative the tender, the higher the degree of non-conformance. Some of the demonstrated benefits of permitting non-conforming tenders include:

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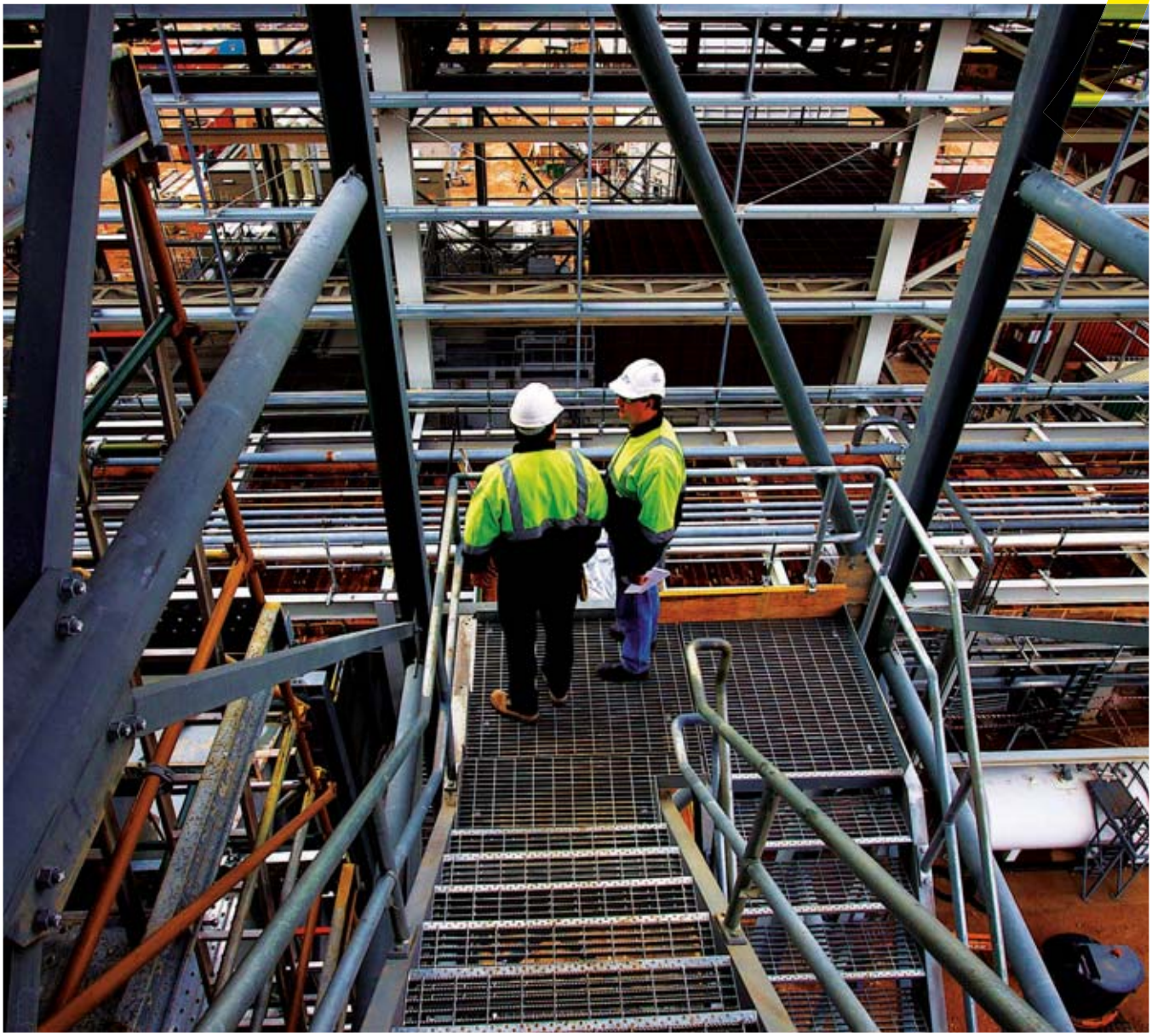

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1. Encouraging innovative proposals which reward experience and innovation by providing an appropriate pre-determined advantage which allows the principal to adopt innovations without constraint (other than the pre-determined advantage),
2. Providing a transparent process which minimises legal challenge by unsuccessful tenderers,
3. 'Big picture' thinking involving multiple stakeholder project preferences,
4. Better life-cycle warranties,
5. Favourable communication and quality of relationship.[11]

While most public bids are confined to conforming bids due to transparent quantitative selection criteria, it is possible to include in the framework an option for non-conforming bids either as an alternative to or an addition to a compliant bid. Client teams should encourage lateral thinking and expressly create the right of tenderers to submit alternative tenders. A policy can be formulated and documented in relation to non-conforming bids and be included in the invitation documentation. This would include scope and criteria for evaluating non-conforming bids.

The use of non-conforming bids as an alternative to traditional bid practices has many of the benefits of the other non-traditional approaches outlined above. Though this process may involve more time and effort in the bid analysis it promotes long term benefit analysis as part of the selection process, which is an important ingredient to successful long-term infrastructure project selection.

In conclusion, I would like to thank Michael Regan and Bond University's Mirvac School of Sustainable Development for their exceptional research on Australia's infrastructure procurement processes. The reports demonstrate the natural alignment between alternative contracting strategies and public infrastructure development. The benefits of these strategies all have the common thread of holistic life-cycle approach to contracting as well as promoting non-adversarial relationships between traditionally conflicting stakeholders and definitely shed light on how Queensland will prosper with their use.

References

[1] Regan, M. "What impact will current capital market conditions have on public private partnerships?" A report for the Infrastructure Association of Queensland, Research Report 121, Mirvac School of Sustainable Development, Bond University, Robina, p 11.

[2] Ibid, p 6.

"Public investment in infrastructure has declined as a share of gross domestic product (GDP) from around 6% in the 1960s to 3.8% in 2007. The average age of infrastructure is increasing and in 2007, 54% of all new investment was accounted for by depreciation and capital retirements. In Queensland, real infrastructure investment between 1996 and 2004 fell in both per capita and gross state product (GSP) terms."

[3] Ingham, M. "Selecting the Best Procurement and Project Delivery Strategy in the Current Market", *IAQYearbook 2008*, pp 59-60.

[4] Table 5 Procurement Outcomes 1999 – 2008

	On budget	On time	Positive user benefit
Traditional Procurement 1999	25%	34%	27%
Traditional Procurement 2000 -1	27%	30%	35%
Traditional Procurement 2004	55%	63%	55%
Alliance Contracting 1999	77%	78%	N/A
PPP (Australia) 2005	79%	82%	74%

[5] Egan, J. 1998, "Rethinking Construction", the Report of the Construction Task Force to the Deputy Prime Minister, John Prescott, London.

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Kurilpa a Striking Addition to Baulderstone Bridge History

The unique design of the $63.3 million Kurilpa Bridge, the world's first tensegrity pedestrian and cycle bridge, has generated worldwide interest since its completion in October 2009.

The Kurilpa bridge deck was completed over Queensland's busiest road, the Riverside Expressway in Brisbane.

It seems everyone has an opinion on the bold geometric design with its array of masts and cables yet all agree it has become an iconic Brisbane landmark.

Thousands turned out to see Premier Anna Bligh open the Bridge and be among the first to walk or cycle across it. Its popularity continues to grow and as Kurilpa Point undergoes further urban renewal, the bridge will become a vital link.

When the Queensland Government Department of Public Works commissioned Baulderstone to deliver the Kurilpa Bridge it was investing in a company with a proud tradition of Brisbane River crossings.

The design is a striking addition to Baulderstone's portfolio which includes the William Jolly, the Story and the Victoria Bridges.

The design, developed by Cox Rayner and ARUP addressed the difficulty of minimising the length of the approach ramps at each end and Project Manager Paul Stathis said it demanded a collaborative and innovative approach to make the vision a reality.

"The bridge's tensegrity design is a world-first for a pedestrian bridge. As part of the "tensegrity" structure the members (ties) and cables work in tension and shift continually in angle, length and dimension. No two parts of the bridge are alike, yet they all form part of a single cohesive structural system.

"Our engineers wanted the challenge of building something very lightweight and efficient and our architects were interested in building something that wasn't a run-of-the-mill concrete bridge –

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Braemar 2 Gas Fired Power Station, Dalby

it's not just unique in appearance, it's unique in design and engineering," he said.

He said 10 years ago building such a structure would not have been possible because the design software used to create it did not exist.

While each of the 12.8 metre segments that form the bridge deck is uniform, Mr Stathis said each of the cables supporting the bridge differed in length, angle and load, creating engineering challenges.

"Every element that's installed is random, with the exception of the deck and the crossbeams – but the work is definitely not speculative or random."

Baulderstone's Queensland General Manager Stephen Green said the project team overcame multiple construction challenges to deliver the bridge on budget and ahead of time.

"Building the first bridge of its kind, working in the centre of the CBD, over a thriving commercial and recreational river and across Queensland's busiest road corridor presented many logistical and construction challenges which we conquered with minimum disruption and zero obstruction," Mr Green said.

The design is reminiscent of the ropes and spars of old sailing ships. The tension ties and cables used form a three dimensional array that appears different from every angle.

The site's close proximity to the Gallery of Modern Art required worldwide research to ensure the vibration induced by pile driving would not have detrimental effects on the internationally acclaimed Picasso Exhibition.

The design and construction of the bridge was undertaken to maximise sustainable solutions and encourage active recreation in the heart of the city.

The Kurilpa Bridge promotes healthy lifestyles by encouraging pedestrian and cycling traffic by completing a pedestrian and cycle loop between the city and South Bank via the Goodwill Bridge.

Not only does the bridge encourage active lifestyles, it is extremely environmentally friendly with 75 per cent of the power required to run the LED lighting in the fully lit mode provided by solar energy.

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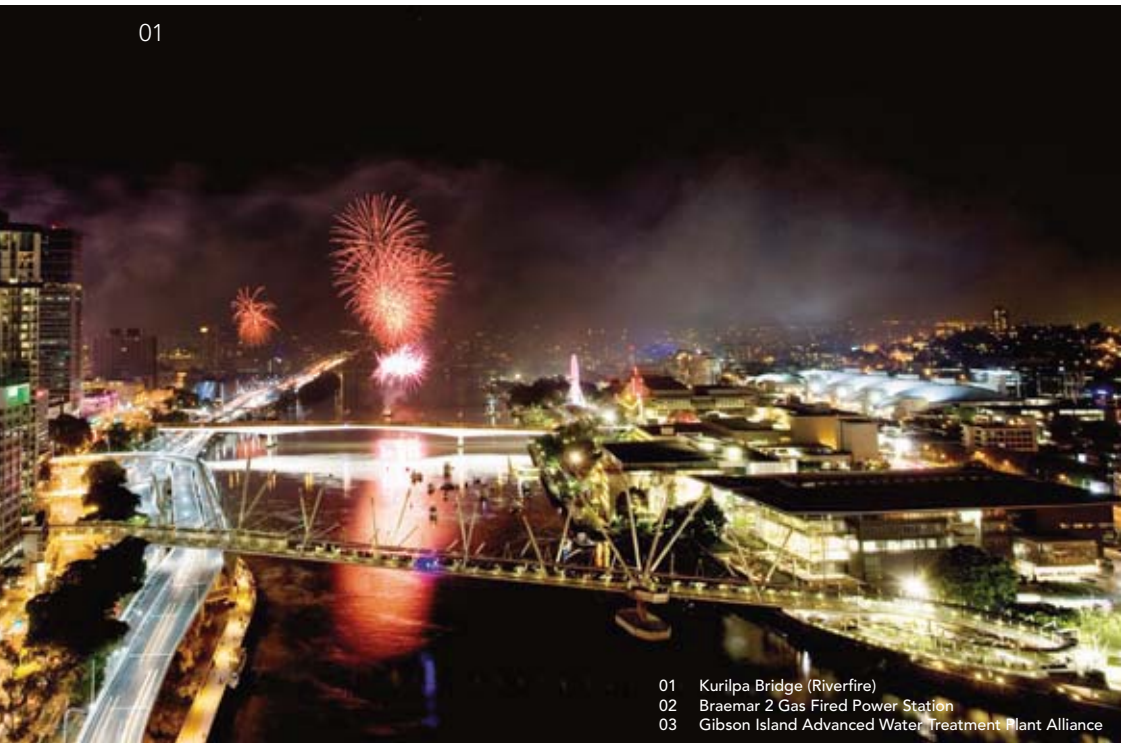

01 Kurilpa Bridge (Riverfire)
02 Braemar 2 Gas Fired Power Station
03 Gibson Island Advanced Water Treatment Plant Alliance

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Queensland projects completed in 2009:
Kurilpa Bridge, Braemar 2 Gas Fired Power Station, Gibson Island Advanced Water Treatment Plant Alliance, Wesley Hospital East Wing, The Prince Charles Hospital Upgrade, Allisee Apartments Stage 2, Pharmacy Australia Centre of Excellence, Townsville Correctional Centre, RAAF Base Townsville Multi-Role Helicopter Facility, RAAF Base Amberley Stage 3 Package 4.

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In most lighting configurations, 100 percent of the power will be provided by solar with any surplus power returned to the main grid. This will amount to savings of around 37.8 tonnes of carbon emissions each year.

The Kurilpa Bridge was one of many significant projects for Baulderstone in 2009.

In addition to the bridge, in 2009 in a joint venture with Bilfinger Berger Services Australia and in partnership with ERM Power and Siemens, Baulderstone delivered the $112 million Braemar 2 Gas Fired Power Station in Dalby.

The multiple turbine gas-fired power station delivers 450MW peaking power, totalling three percent of the combined electricity needs of New South Wales and Queensland.

The $84 million Wesley Hospital East Wing was also completed with Baulderstone as the Managing Contractor on the design and construction of a new nine-storey complex which includes a new day surgery and coronary care unit as well as refurbishment of the main hospital's Ward B.

In October 2009 Baulderstone's Townsville office completed the $14 million renovation and construction of new infrastructure and buildings in the 5th Aviation Regiment precinct at the RAAF Base Townsville Multi Role Helicopter Facilities.

The Townsville office also successfully completed the $115 million and $140 million Townsville Women's and Men's Correctional Centres. All work was carried out in a working prison with no security breaches or unplanned service disruptions occurred.

Stage Two of the $123 million design and construct Stockland's Allisee Apartments on the Gold Coast was also completed.

In 2010 Baulderstone is on schedule to complete several projects, including the Western Corridor Recycled Water Project (WCRWP), $313 million Gibson Island Advanced Water Treatment Plant (AWTP) and the $2.1 billion Clem Jones Tunnel (CLEM7).

Once complete the Gibson Island AWTP will have the capacity to produce 100 mega-litres per day of purified recycled water, alleviating the pressure on South East Queensland's dams and waterways by providing an alternative water supply.

The WCRWP is Australia's only plant using the combination of micro-filtration and reverse osmosis membrane technologies to ensure water of the highest standard. This project is being delivered as part of an alliance between MWH, Worely Parsons, United Group and Baulderstone.

CLEM7, the 6.8 kilometre tollway, with 4.8 kilometre tunnel, will, once complete, be Australia's longest road tunnel. The tunnel links five existing major motorways and arterial roads on the north and south sides of Brisbane, bypassing up to 23 sets of traffic lights, reducing travel time and wear and tear costs on vehicles.

To complete this Brisbane-shaping project two tunnel boring machines, each weighing four thousand tonnes and valued at A$50 million each were used to excavate the 3.5 million tonnes of rock.

Baulderstone is delivering the CLEM7 as part of the RiverCity Motorway partnership of companies made up of Leighton Contractors and Baulderstone Bilfinger Berger joint venture.

Gibson Island Advanced Water Treatment Plant

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Cadet engineers cut their teeth on the landmark Kurilpa Bridge

Stuart Curnow – Cadet Engineer

While completing his Civil Engineering degree Stuart spent 18 months working on the Kurilpa Bridge as a Cadet Engineer with the Main Span team on the main structure, bridge piles and pier pile caps.

"With the bridge now complete I am proud of the complex geometric design and I believe Brisbane will grow into the Kurilpa Bridge.

"Working on such an iconic landmark project helped me develop skills which I will transfer onto future Baulderstone projects," Mr Curnow said.

Stuart is currently working on the $2 billion Queensland schools project and is enjoying working across a range of locations between Brisbane and Bundaberg.

Will Richards – Cadet Engineer

A key motivator for Will Richards pursuing a career in Civil Engineering was the opportunity to build bridges and working as a Cadet Engineer on the Kurilpa Bridge has helped steer his career in the right direction.

"Working on this significant, first of its kind bridge has further enhanced my passion for bridge construction," Mr Richards said.

Will was part of the approaches team and while on the project advanced his people management skills and broadened his relationships with subcontractors.

As part of the Baulderstone Cadetship Program Will previously worked on the $96 million Prince Charles Hospital Upgrade project and is currently working on the $2 billion Queensland Schools project for the Queensland Government.

Other projects Baulderstone is continuing in 2010 include the $118 Townsville Wastewater Upgrade Program, the $367 million South-East Queensland Correctional Precinct in Gatton and the $206 million Robina Hospital expansion.

In addition, Baulderstone, in joint venture with Bilfinger Berger Services Australia, has been awarded the contract to supply engineering, procurement and construction services for the upstream segment of Australia Pacific LNG's coal seam gas (CSM) to liquefied natural gas (LNG) project.

The JV will undertake early works for the gas field facility in Queensland, prior to a final investment decision in late 2010 and Baulderstone General Manager Stephen Green said the project team is looking forward to working on this significant project.

"Our team is excited to work on a gas project of this magnitude. This significant and diverse contract will further expand our gas expertise," Mr Green said.

'Our team is excited to work on a gas project of this magnitude. This significant and diverse contract will further expand our gas expertise,' Mr Green said.

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Climate Change and Infrastructure Projects – Managing the Risk

Ren Niemann (Partner) and Nicholas Ng (Senior Associate), Allens Arthur Robinson

In the *Summary for Policy Makers of its Climate Change 2007 Synthesis Report*, the Intergovernmental Panel on Climate Change declared:

> **[w]arming of the climate system is unequivocal, as it is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level. [1]**

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The scientific community's views upon the ultimate ferocity and ramifications of climate change are divided, but there is widespread consensus that climate change is occurring to some extent, and may have long-lasting and significant environmental impacts. The infrastructure sector is one of the areas most at risk from these environmental movements. The effective operation of major infrastructure often relies upon capturing and processing natural materials or the effect of environmental events to effectively and efficiently operate (eg. harnessing water or wind power to generate electricity).

The effects of climate change therefore cannot be ignored in planning or delivering a major infrastructure project; associated risks must be identified and allocated, and the allocation must be accurately reflected in project documentation. The risk allocation must both provide value for money for the principal, and be bankable for the contractor or concessionaire.

A by-product of government's current focus on climate change has been a flow of discussion papers and regulatory responses. The Australian Government's ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, implementation of greenhouse gas reporting obligations, development of the proposed Carbon Pollution Reduction Scheme (CPRS) and future potential developments mean that not only the physical effects, but also the legal response, to climate change must be at the forefront of every principal's, contractor's and financier's mind.

Some may argue that it is best to leave the climate change discussion until there is greater scientific and legal certainty. In the meantime, contractual mechanisms (such as force majeure regimes and change in law clauses) exist to deal with risks outside of each party's control. The downside of this approach, however, is that it effectively leaves as a matter of chance who ends up bearing the risk of the physical and legal issues associated with climate change. Whilst the uncertainty surrounding climate change means that it is inevitable that there will be some 'residual' risk which cannot be precisely defined, there are clear benefits to allocating those risks which are known or predictable, and clarifying where possible the extent of risk each party is willing to take.

Dealing with uncertainty

The key problem with comprehending and addressing the physical effects of climate change is that no one really knows what they will be. The Garnaut Report even suggests that current modelling cannot produce any meaningful or reliable data on the effect of climate change past 2100.[2] The first step in being able to sensibly consider the matter is therefore to adopt a climate change model for the project.

Which model a project adopts will depend largely upon the susceptibility of the particular project to changes in the physical environment. If a project is either physically vulnerable (eg a road being built in an area expected to receive heavily increased rainfall events) or economically vulnerable (eg a PPP concession to build and operate a hydro-electric power project where there may be a reduction in river flow), a moderate or worst-case model may be appropriate. In other cases, it may be sufficient to adopt a more balanced model. Of course, the risk of the model being inaccurate will need to be considered in the risk assessment process.

From the model, the project team can assess the impact of each of the predicted climate change events described in the model. Once the preferred risk allocation is settled, it can then be reflected in the project documentation.

Other contractual issues

The potential physical effects of climate change also impact on a number of 'standard' or 'boilerplate' clauses in project documents, including:

- **Change in codes and standards:** By their nature, changes in mandatory and industry standards to reflect scientific developments trail those developments, sometimes after a considerable time lag. Contract and performance specification drafters need to be forward-looking when considering which performance specifications to mandate (including anticipating future changes). This is particularly important if the principal generally bears the risk of cost and time consequences of changes in codes and standards – a principal may unwittingly be caught bearing the cost of changes in codes and standards which were able to be easily anticipated at the time of contract.

- **Warranties:** To give sufficient certainty, design warranties (and particularly design life warranties) need to be drafted to specifically take account of the impact of climate change. At one extreme, a blanket warranty that the design life will be achieved despite the effect of climate change has clear benefits to a principal, but is unlikely to be accepted by the private sector or their financiers - at best, the cost of accepting the risk will be high and at worst, it may make the project unbankable. The ultimate reference point for these warranties may end up being the climate change model chosen for the project.
- **Price escalation:** Long term contracts typically have some method of indexation applicable to certain costs. It is unknown how and to what extent the relevant indices regularly used will take account of the future cost impact of compliance with CPRS regulations (once in force). The parties may need to adjust such escalation formulas, adopt a new index or reach some other agreement on escalation to ensure that there is no over-recovery of the cost impact of the CPRS regime.

These and other more subtle issues need to be addressed before project documentation is closed out.

The legal response

Quite apart from addressing the physical effects of climate change (and ensuring contractual drafting is sufficiently robust to respond to such effects), government's legal response to climate change must be considered and addressed in its own right. To date, the main pillar of the Australian Government's response to climate change is the proposal of the CPRS, a cap-and-trade system under which significant producers of greenhouse depleting gases are required to surrender 'units' equivalent to their greenhouse gas emissions. 'Units' are issued by auction and able to be bought and sold. Some units are issued free of charge to entities who are significantly impacted by the CPRS (such as those in high-emissions sectors).

Whilst the CPRS does not have bipartisan support, and does not form part of the Federal Opposition's climate change strategy, should the current Federal Government be re-elected it seems all but inevitable that a cap-and-trade system will ultimately be introduced in the medium term. If contracting parties do not turn their minds to the operation of the CPRS (or another similar system) when negotiating project documentation, it may ultimately be left to a court to decide, with the full benefit of hindsight, which party bears the cost of compliance and which party may have the benefit of units or other by-products (eg RECs) generated by the project. This is clearly an unsatisfactory outcome.

To mitigate this risk, contract documentation needs to describe clearly which party is responsible for direct compliance with the emissions trading regime and to what extent. This may be a difficult risk to place upon the private sector, as it is difficult before the secondary market stabilises to determine

accurately the cost of emissions units. (Some comfort may be drawn however from a price ceiling in the first years of the scheme if the Australian Government's current proposals are accepted). Of course, once the scheme and the secondary market for units is established, the cost of compliance will be much easier to calculate and the private sector may develop more appetite for the risk.

In addition, the various changes in law which will be required to implement the scheme need to be addressed. Whilst many standard change in law clauses may respond to CPRS and similar legislation as a change in law, difficult questions arise where a change in law clause is, as is common, subject to the qualification that the contractor cannot claim relief for a change in law which it knew about or ought reasonably to have known about before entering into the contract. To what extent can this be said about CPRS at present? Specifically addressing the matter removes the risk of a court ultimately determining the question in a manner contrary to that which the parties originally intended.

Quite separate from the direct costs of compliance with the scheme will be the indirect cost of doing so. That is, the cost of compliance with the scheme is likely to be passed down to the ultimate purchaser of goods or services in the form of an increase in overall cost. These increased costs will, in turn, increase the cost to the contractor of delivering a project. Ultimately this cost will need to either be absorbed by the contractor, borne by the principal, or shared in a pre-agreed way. Of course, a straight allocation one way or the other is unlikely to be beneficial in the long term, and the contractor must also be encouraged to engage in low-emissions behaviour (a matter which is discouraged by allocation of the risk to the principal). Additionally, a sensible mechanism has to be put in place to calculate the effective increase in indirect cost. This is also a potentially difficult exercise, given that a number of factors impact upon the cost of goods and services.

The Federal Opposition has released a climate change policy which focuses more upon encouraging low-emissions behaviour through incentives, rather than mandating such behaviour. At the time of writing, it was unclear as to whether the implementation of the Opposition's policy will involve similar considerations as those relevant to CPRS.

The future

For now, the best that contractors and principals can do is turn their minds in a concerted sense to both the likely physical effects and government's likely legal response to climate change. These matters cannot be ignored, and must be at the forefront of the parties' minds in performing risk assessments and allocations, as well as in drafting and negotiating project documentation.

Moreover, parties need to be diligent in keeping up to date with the latest scientific and legal developments on climate change, to identify at an early stage potential issues which need to be addressed.

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[1] Intergovernmental Panel on Climate Change, "Climate Change 2007: Synthesis Report – Summary for Policy Makers (2007)" (http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf) (as at 28 January 2010).

[2] Ross Garnaut, "The Garnaut Climate Review – Final Report" (2008) XXIII, 84.

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Copenhagen to Queensland: International climate-change negotiations and their impact on Queensland infrastructure

Dr Greg Picker

In the lead-up to the UN Climate Change Conference in Copenhagen in December 2009, the public had a high expectation of what would happen in these negotiations. Many anticipated that the meeting would provide the details for how the world would solve the problem of climate change. Infrastructure owners and operators could be forgiven for thinking that this meeting would provide certainty regarding how they had to consider climate-change issues in their decision-making. This was always an unrealistic expectation, and it has subsequently coloured interpretations of the significance of what actually occurred in Copenhagen.

At the conference, countries negotiated the Copenhagen Accord (http://www.unfccc.int), which seeks to provide the outline of an international approach on climate change. In it — among other things — developed countries committed to emission reduction targets and to the provision of A$32 billion from 2010 to 2012 to support action to reduce the effects of climate change, to provide assistance to reduce deforestation, and to introduce measures to assist developing countries to reduce emissions. In addition, major developing countries agreed to reduce their emissions.

Many pundits perceive that the Copenhagen conference failed. Agreement was not reached on a comprehensive approach to climate change. Indeed, countries made only voluntary commitments in the Accord, and there is no requirement or compulsion that they meet their promises, nor are there penalties if they fail. Further, at the end of the meeting, after almost every leader had departed, a small number of countries blocked formal agreement to the Accord. Instead, the meeting agreed to note the Accord, which means that its existence is recognised but that it has no standing.

Although there is strong evidence to support a pessimistic interpretation of the Copenhagen outcomes, this view doesn't take into account how the Accord usefully diverted the longer-term trends in these negotiations. Firstly, leaders of all major emitters — and leaders of more than 100 countries in total — agreed to take collective action on climate change. For the first time, leaders from key developing countries (such as China, India, Brazil, and South Africa) formally recognised the need for them to reduce emissions. The few words that contain this idea do seem bland and administrative; but the consequences of this commitment, even if voluntary and not binding, are profound.

Additionally, progress was made on the more technical and detailed negotiations necessary for a binding treaty. These negotiations did not end in December 2009 but will continue for another year, with the aim to agree a treaty towards the end of 2010. This is an achievable goal, and officials from a range of countries, including Australia, are already meeting informally to ensure a real outcome.

The first genuine test of the Copenhagen Accord comes in the first few months of 2010, as countries nominate actions to which they are committed. If many countries make (or at least come close to making) the deadline and if their commitments are substantial, there will be a positive message on the outcomes of Copenhagen and on international climate-change negotiations. In particular, this deadline relates to developing countries nominating the actions they will take rather than emissions cuts being offered by developed countries, as these were put on the table in Copenhagen and are already known.

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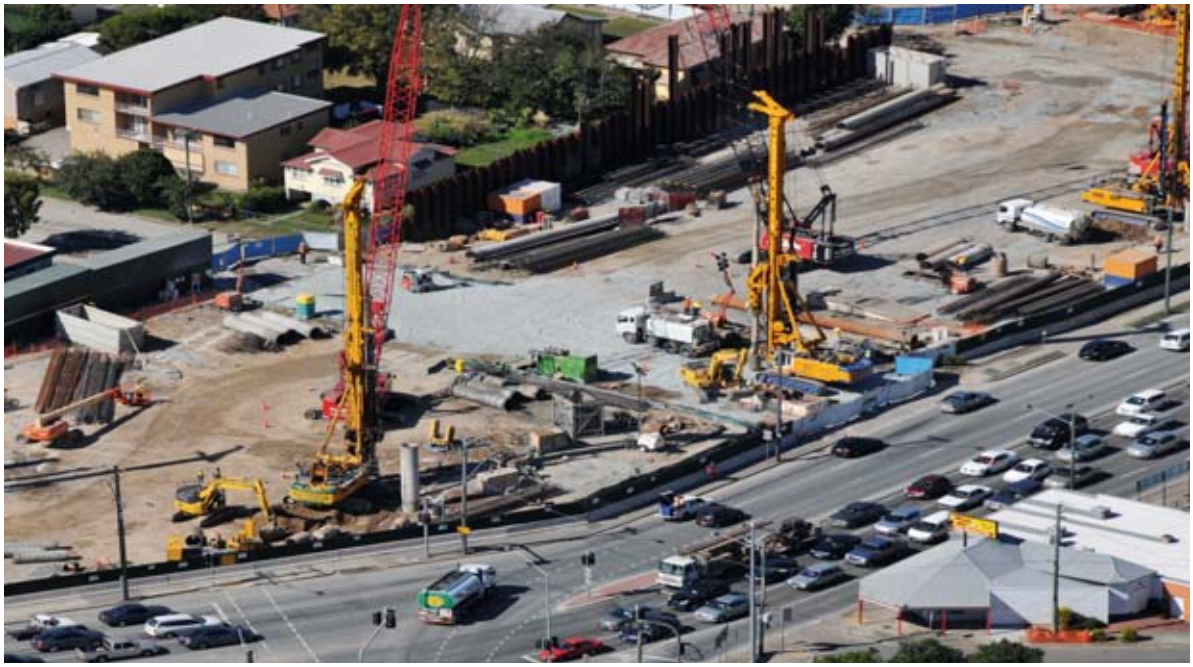

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So, how do the Copenhagen outcomes affect infrastructure owners and operators in Queensland? At the most basic level — in terms of direct cause and effect — they do not. There is nothing explicitly within the Copenhagen Accord that either provides a blueprint for future Australian Government policy or compels a change in behaviour. However, this should not come as a surprise: international agreements almost never directly and unambiguously translate into national domestic policy.

Indeed, as a result of the Accord being noted rather than being accepted (and because it is not binding), an infrastructure owner could postulate that its most profound impact is to extend a period of uncertainty regarding international — and hence domestic — action on climate change. However, a decision by infrastructure owners to focus on a lack of international clarity regarding climate change would be to misread the policy signals.

One can read the Copenhagen tea leaves. As mentioned before, Copenhagen provides both a list of the central issues the most influential countries in the world think are important and the outline of what is likely to be agreed as a binding treaty in Mexico City at the end of 2010. So, the messages for infrastructure owners in Queensland can be determined by looking at the themes from the Accord. Here are three examples:

1. At the most fundamental, the Accord makes clear that there is a need to reduce greenhouse gas emissions. "We agree that deep cuts in global emissions are required according to science." Whatever happens in relation to emissions trading in Australia, prudent infrastructure owners in Queensland recognise that there will be requirements to reduce emissions from the construction and operation of infrastructure. Measures to reduce emissions not only make good economic sense but also meet increasing societal and governmental demands. There is no benefit in delaying action.
2. The Copenhagen Accord clearly enunciates the challenges presented by climate change; it states that "Adaptation to the adverse effects of climate change...is a challenge faced by all countries." The concern about the effects of climate change on countries — and particularly on crucial infrastructure — is increasingly coming into focus through regional and domestic initiatives. The Asian Development Bank, for example, requires that its US$1 billion expenditure per year on infrastructure in our region is climate resilient, and the Australian Government is looking at what it needs to do to protect our infrastructure. All new infrastructure should be considered, located, and designed in a way that ensures it will continue to operate profitably, even in a changed environment. Again, there is no advantage in delaying consideration of climate-change impacts.
3. The need to accelerate the development and transfer of technology was emphasised in the Accord. Agreement was reached to establish a "Technology Mechanism to accelerate technology development and transfer in support of action on adaptation and mitigation". For those companies with technologies that either improve energy efficiency or increase climate resilience, there will be an increasing demand for their innovations for new ways to export products and services, particularly in the rapidly growing markets in our region.

As 2010 progresses, savvy companies will start both strategic and practical planning to respond to the next phase of policy development around climate change. Although the details are not yet clear, there is enough direction for companies to respond to the next phase of policy development from governments, in line with what is happening in international negotiations.

Dr Greg Picker: Greg has over 12 years' experience in climate change and environmental policy, including senior executive roles in the Federal Government and extensive interaction with politicians and stakeholders. Greg served as an Assistant Secretary in the Department of Climate Change and has led and participated in dozens of international negotiations representing the Australian Government. Greg is currently Associate Director – Sustainability and Climate Change at AECOM, where he works on a range of carbon- and climate-related projects. He is also an Honorary Research Consultant for the Institute for Social Science Research at the University of Queensland.

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How to turn a $27,000 Consultancy into a $53 million Judgment Debt

The Story of a Contract Debacle

Scott Lambert, Partner, Holding Redlich[1]

At the Goonyella Riverside Mine near Moranbah (an open cut mine coal was reached by various machines, including a bucketwhe excavator. One bucketwheel operated from 1982 until suddenly, March 2000, it collapsed.

A consultant (Krupp) by its engineer (Mr Thiel) inspected the machine in March 1999 but did not see the crack that caused the collapse. This led to a claim being made against both of them.

The contract debacle

In outline:

- BHP (on behalf of the plaintiffs) sent a fax to Krupp on 19 February 1999 attaching the BHP purchase order which described the required work as "*Krupp …. to carry out a complete inspection of the bucketwheel, …forwarding a report on all repairs required*".
- The fax said BHP's general on-site conditions and its general order terms and conditions (**BHP Conditions**) applied. These contained a boilerplate "entire agreement clause".
- On 22 February 2009, Krupp sent a fax to BHP which stated a price of $27,000 for *"on-site inspection, induction, travel time, report preparation, accommodation, airfare and car hire,"* and noted the annexures. The annexures were the *"Scope Document"* and the *"General Conditions for Service Contracts"* (the **Service Conditions**).
- However, the Scope Document (which was part of the contract) stated that *"All conditions … shall be as our standard conditions of sale and contract for inspections and servicing of machinery and equipment"*. These conditions are different to the Service Conditions.
- The next day, Krupp sent another fax to BHP with a different set of conditions. Instead of the Service Conditions, it attached "General Conditions for Supply Contracts" conditions.
- BHP did not respond to these faxes.

The Service Conditions included the following clauses:

12. Warranty

Krupp's liability for the Services shall be limited to the rectification of deficiencies in the Service. Krupp shall make good by repair within a reasonable time after notification by the purchaser, defects which appear in the Services, arising from Krupp's faulty design, material or workmanship…

13. Limitation of Liability

… Krupp shall not be under any liability whether in Contract, tort or otherwise from any cause whatsoever, whether occasioned by negligence or otherwise, for any injury, damage or loss, including interest and/or consequential damages or losses whether to persons or property, arising out of this Contract or the Services performed pursuant hereto including any defects therein or anything connected therewith or any other work related thereto.

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18. *…the Purchaser's right to sue Krupp shall expire at the latest six months after expiration of the warranty period."*

In summary, the parties failed to get their house in order when arranging and documenting the engagement – a far too common occurrence in the construction industry.

The findings

The Court found that, as the terms of clause 12 of the Service Conditions appeared to only apply to services in the nature of something to be done to equipment, rather than merely inspection of it, *"It does not follow that clause 12 could be interpreted so as to have any effect on the Contract"*[2].

Consequently, clauses 13 and 18 of the Service Conditions were also found to not apply, as the clauses were intended to operate together with clause 12. For example, without clause 12, clause 13 would absolve Krupp from any responsibility for not performing the contract.

It was also found that, on an objective view, the parties had not agreed to include the Service Conditions.

The implied warranties, negligence and the TPA

The Court considered whether, even if the Service Conditions did apply, did they exclude the implied warranties under the TPA.

It was held that the exclusion clauses in the Service Conditions would be void by section 68, as an attempt to exclude, restrict or modify the implied warranties in section 74 of the TPA .

Krupp's services were found to be not rendered with due care and skill, contrary to any implied warranty because Mr Thiel knew that he had not inspected parts of the structure which he was to inspect. Krupp had failed to provide a report of a "complete" inspection which the contract required. Krupp was also found negligent and Mr Thiel was found to be personally liable.

Krupp was found to have contravened section 52 of the TPA as the report contained an express statement of opinion that the machine did not have any major defects. However, Mr Thiel was not found to have personally been *"knowingly concerned in or a party to"* Krupp's contravention and therefore, was not liable in this regard.

The fitness for purpose warranty

The implied warranty of fitness for purpose under section 74(2) was found not to apply to the contract. That section does not apply where the services are of a professional nature provided by a qualified engineer, as was the case here.

While it was argued that the exception operated only where the services are carried out "by persons" and that Krupp was a company it was held that the exception applies according to the nature of the services and the qualifications of the natural person (Mr Thiel) who performs the services.

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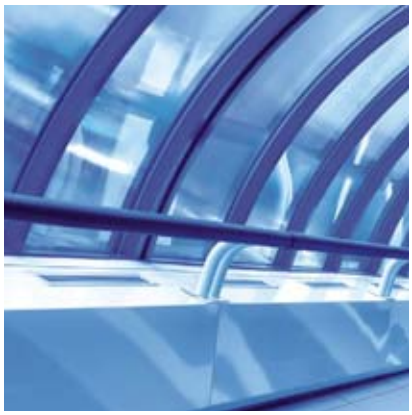

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The limitation of liability under section 68A

It is important that the findings in relation to the implied warranty of due care and skill were subject to section 68A.

Section 68A(1) of the TPA provides:

> *"Subject to this section, a term of a contract for the supply by a corporation of goods or services other than goods or services of a kind ordinarily acquired for personal, domestic or household use or consumption is not void under section 68 by reason only that the term limits the liability of the corporation for a breach of a condition or warranty (other than a condition or warranty implied by section 69) to:*
>
> …
>
> *(b) in the case of services:*
>
> *(i) the supplying of the services again; or*
>
> *(ii) the payment of the cost of having the services supplied again."*

Even if clause 12 of the Service Conditions applied, it would have no operation as clauses 13 and 18 would be void by section 68 because they would not engage section 68A.

What a significant commercial difference there would have been if it had only made sure that there was a clear contract which limited its liability in a way permitted by section 68A – that is the difference between the costs of supplying the services again (roughly $27,000), and the judgment amount (over $53 million).

Lessons to learn

Given the complexity of the legal and factual issues, it may seem simplistic to just say *"get the contract right"*.

A few simple steps would have saved millions.

Key Tips:

1 Ensure your contract terms properly reflect the nature of the engagement.
2 Avoid the *"scattergun approach"* of assuming that any of the company's standard terms will work.
3 As a consultant, if your price does not exceed $40,000, ensure that any limitation of liability clause adequately reflects section 68A.
4 Ensure there is a clear set of contract documents.

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[1] The author would like to recognise Andrew Mewing's (Lawyer) significant contribution in co-authoring this article and also Rebecca Norton's (Research Clerk) research assistance required in preparing this article.

[2] 2008 QSC 141, at [254].

[3] Note 2, at [266].

[4] Note 2, at [338].

Recovery under Contract Works Insurance for Major Road and Pavement Failures

Written by Patrick Mead, Partner, Carter Newell
LLB (Hons), LLM (QUT), MIAMA, Graded Arbitrator (IAMA),
Accredited Mediator (IAMA/ Qld Supreme Court),
Registered Adjudicator (BCIPA Qld)

Recovery under contract works policies can provide fertile ground for dispute, particularly when property is allegedly damaged in consequence of defective workmanship, material or design.

This is particularly so in relation to a seemingly increasing number of claims relating to road and pavement failures in major infrastructure projects.

The question which most commonly arises in the construction of exclusion clauses in relation to defective workmanship or design, is the extent to which the reference to Property Insured is a reference to the whole of the property in which the defect manifests or whether it is permissible to make a division between the "Property Insured" and "other Property Insured which is free of a defective condition", so as to enliven commonly encountered provisos or 'carve outs' to the exclusion.

The Australian Authorities

In Australia, there are two well known cases which consider this issue, but in the context of differing exclusions. The first is a case of *Graham Evans & Co (Qld) Pty Ltd v Vanguard Insurance Co Ltd* [1986] 4 ANZ Ins Cas 60-869. In that case the building required three coats of paint and, after a substantial part of its exterior had been painted with three coats, the paint work began to flake from it.

The plaintiff, as a responsible building company, had to strip a considerable amount of the paint work with a view to large areas being repainted. The evidence established that the primary cause of the problem was that the primer coat had been applied in too dilute a form and it had, therefore, failed to achieve adequate adhesion to the concrete surface of the walls and an adequate cohesion within itself.

In consequence, the other two coats were prevented from adhering to the walls of the building. The plaintiff claimed under the policy. In this case, noting that impugned workmanship could only relate to the preparation and/or application of the primer coat, Foster J held that the exclusion clause did not apply to the loss or damage claim in respect of loss or damage occurring to the second or third coats of paint.

In the subsequent Australian case which considered a similar issue, *Walker Civil Engineering v Sun Alliance & London Insurance Plc* [1996] 9 ANZ Ins Cas 61-311, Rolfe J interpreted Foster J's decision in the Graham Evans case to be based upon His Honour's findings that whilst the three coats of paint were necessary to establish a finished painted surface, only the first coat was defective and that lack of quality in it caused damage to the second and third coats. Rolfe J thought His Honour's reasoning to be that each of the second and third coats had a function to perform which was independent of that to be performed by the first coat, notwithstanding that all coats were necessary to bring about the finished result.

This enabled Rolfe J to distinguish the facts of that case from those in *Walker*, where the concrete (the subject of the claim) had no function to perform other than to stabilise fibreglass tanks which were found to be defective. The Court of Appeal in that case went on to find that the reference to *"part"* was not a reference to a part such as a tank or a gasket but rather a reference to that part of the work being carried out by the claimant, and that it was not appropriate to look separately at the tanks as a distinct item of loss but rather to look at the sewerage pumping stations as a whole.

The *Walker* line of reasoning seemed to be finding favour in the United Kingdom as evidenced by comments made by the Judge in the case of *Skanska Construction Ltd v Egger* [2003] EWCA Civ 310. That case considered a policy containing a DE3 exclusion clause, which is an increasingly common exclusion contained in policy wordings, particularly those emanating from the London Market. By way of background, the current DE clauses were introduced in 1995 by a committee of leading building and civil engineering underwriters which revised the originals. They provide different levels of cover from 1 to 5.

DE3 (1995): Limited defective condition exclusion provides:

"This policy excludes loss of or damage to and the cost necessary to replace repair or rectify:

(i) Property insured which is in a defective condition due to a defect in design plan specification materials or workmanship of such property insured or any part thereof;

(ii) Property insured lost or damaged to enable the replacement repair or rectification of Property insured excluded by (i) above.

Exclusion (i) above shall not apply to other Property insured which is free of the defective condition but is damaged in consequence thereof.

For the purpose of the Policy and not merely this Exclusion the Property insured shall not be regarded as lost or damaged solely by virtue of the existence of any defect in design plan specification materials or workmanship in the Property insured or any part thereof."

In general terms a DE3 exclusion permits cover for damage to other property which is free of the defective condition and is damaged in consequence of the defect, but excludes damage to the defective property itself and any other property which is damaged to enable the replacement/repair to take place.

It is also worth noting the *"clarifying rider"* which appears as a final paragraph of that clause, and which is sometimes not well understood.

It is provided in the Insurance Institute of London Construction Insurance Advanced Study Group Report 208B at page 164 as follows:

> *"Additionally, a clarifying rider has been added to the end of all clauses (other than DE1) to remove any question of contention that defective property is per se 'lost or damaged' property or that property which contains a defect is therefore 'lost or damaged'."*

In the case of *C A Blackwell (Contractors) Ltd v Gerling Allegeneie Verisherungsag* [2008] 1 All ER (Comm) 885, the Court was referred to the report by the Advanced Study Group of the Institute of Insurance (which gives a history of the defect exclusion clauses). While finding the report "instructive" as to the purpose of defect exclusion clauses and how they have evolved, the Court found that it could not be used as an aid to construction of the clause in question, which had to be construed according to its terms. The Court concluded that the intention of those who drafted it and other similar clauses is neither relevant nor admissible.

The UK Authorities

The case of Skanska Construction Ltd v Egger [2003] EWCA Civ 310 concerned a floor slab which was completed at the end of October 1997 and shortly thereafter cracks were noticed. Temporary repairs to the slab were made between October 1997 and November 1998, by which time it was clear that the slab would have to be completely replaced.

In that case the judge concluded that the DE3 Exclusion would exclude cover for damage to the floor. The judge concluded that the phrase "loss and damage" could not extend to rectification of the defects in themselves.

It is worthwhile to repeat verbatim what appears at paragraph 33 of the Court of Appeal judgment:

> *33. "It was, faintly, argued, before us for the first time, that one of the respondents pleaded particulars of causation would lend itself to an argument that one part of the Works collapsed and damaged another.... The argument relates to one plea....of failure by the appellants 'to sufficiently compact the sub-base material underneath the slab with the sub base having a typical air void content greater than 15%'. It was suggested, on that basis, that one part (the sub base) collapsed and damaged another part (the slab above it). That argument was not only not raised below, it attempts to divide the indivisible ...* ***I see no prospect of any court accepting that the sub-base 'damaged' the [rest of the] slab above it within the meaning of clause 22(2)".***
> [author emphasis]

Two more recent decisions in the UK have however, been determined very much in favour of the insured's position having regard to the operation of a DE3 exclusion.

The first case is that of *Seele Austria GMBH & Co KG v Tokio Marine Europe Insurance Ltd* [2008] All ER(D) 68. That case concerned a claim brought against a contract works insurer in relation to damage to windows. Comments made by the Court of Appeal in relation to the wording contained within the DE3 exclusion are significant and are repeated below:

> *50....The precise point at which a line is to be drawn between 'insured property (a)' which is in a defective condition and 'other Insured Property' which is free of the defective condition may be difficult to identify in some cases, particularly where the work being carried out by a single sub-contractor is of a complex nature. However, I think the intention behind the rider was to provide cover in respect of damage accidentally caused in consequence of the defects to parts of the work which in commercial terms are to be regarded as separate and distinct from that part in which the defect exists. For this reason it is not right, in my view, to regard the whole façade as a single item of property for this purpose. In commercial terms, the plasterboard ceilings and the external cladding are each to be regarded as separate items of property..."*.

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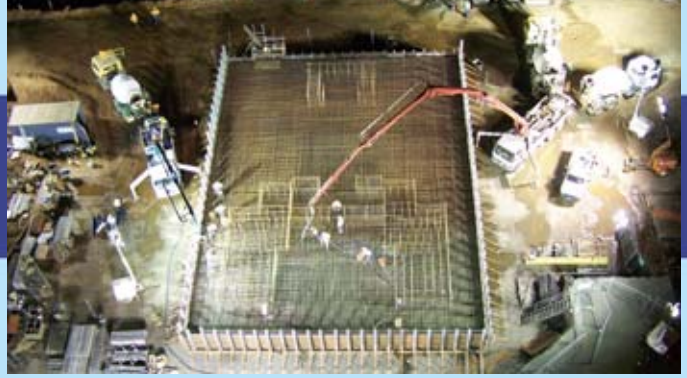

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While that case is instructive, and demonstrates a willingness of the courts to make a division between the *"Property Insured which is in a defective condition"* and *"other Property Insured which is free of the defective condition"*, it still does not answer the approach that a court would take in circumstances in the context of road or pavement construction where there are multiple layers, some of which are alleged to be defective and others which are said to have been damaged in consequence of that defect.

That position, in the UK at least, appears to now be largely settled by decision of the Court of Appeal in *C A Blackwell (Contractors) Ltd v Gerling Allegemeine Verischerungs AG* [2008] 1 All ER (Comm) 885.

That case considered the operation of the DE3 exclusion in the context of a contract to complete earthworks in the construction of part of a motorway.

After the initial earthworks comprising of basic cuttings or embankments, the road was to be constructed of three layers. These were:

(i) The sub-formation;

(ii) The formation, which involved the spreading of imported material known as "capping"; and

(iii) The laying of asphalt layers, which was the responsibility of the main contractor.

The Court of Appeal held that *"Property Insured"* meant that part of the works which had suffered damage. If that part was wholly or partly defective, the exclusion applied. In that case, the Court said that there was nothing defective about the sub-formation so that part of the works was not defective; nor was there anything intrinsically defective about the condition of the capping (save for a possible issue not herein relevant).

At paragraph 16 the Court of Appeal said:

"… it is I think important to construe the exclusion clause without regard to its application to the facts of this case. Its purpose is clear. It prevents the insurer from having to pay for the replacement, repair or rectification of property which was already in a defective condition at the time the fortuity covered by the policy occurred. If the defect is one of design, plan, specification, materials or workmanship the property would have to be repaired, etc by the contractor or others in any event."

17. *"What is important to note is that the exclusion is not of loss or damage caused by defect in workmanship, etc. The cause of the loss or damage is irrelevant. Provided the insurer can show that the property was in a defective condition the exclusion applies… All this is, I think, self-evident from the wording of the exclusion. What is more difficult is to discern how wide the words 'Property Insured' are intended to be."*

It was submitted by the insurer's counsel that that expression had a very wide meaning and that one should not attempt to *"divide the indivisible"*. That counsel also referred the Court to the two cases previously mentioned of *Walker Civil Engineering, and Skanska Construction*.

In relation to this the Court of Appeal said:

21. *"… [the Walker clause] … was a clause which, unlike the DE3 clause, excluded liability for damage caused by the defect. The Court held that 'part' did not refer to a part such as a tank, it referred to the part of the work being carried out by the contractor. I do not see how this aids the construction of the DE3 clause. Nor do I gain any assistance from the other case relied on … [Skanska Construction], which was concerned with the contractor's obligation to insured, assumed in its contract with the employer."*

The Court of Appeal continued:

22. *"So, returning to the wording of the clause in this case, the first thing to note is that it draws a distinction between 'Property Insured or any party thereof' and 'other Property Insured'. This suggests, and indeed requires, divisibility. Division is easy in some cases. The Institute report gives the example of a steel framed building with its roof, cladding and dwarf brick walls completed which collapses because the nuts and bolts used in the construction of the steel framework are defective. Under the DE3 wording, damage to the steel framework is excluded but damage to the roof, cladding and dwarf brick walls is covered. I agree that this is the effect of the clause in that sort of case. By analogy, one might argue in this case, that the Property Insured refers to the entirety of the earthworks. That cannot be what was intended by this wording. I think it must be restricted to that part of the works which has suffered damage. Defective the exclusion applies."*

The Court went on to conclude:

24. *"So how should one apply the exclusion construed in this way to the facts of this case? There was nothing defective about the sub-formation so that part of the works was not defective; nor was there anything intrinsically defective about the condition of the capping…"*

25. *"But the failure, if there was one, to implement other measures which were designed to protect the capping such as the use of punts and bowsers and the means to channel and dispose of the water on the verges, cannot be characterised as a defect in the condition of the capping… If I am wrong about this and one can characterise the works contemplated by these measures as Property Insured and the failure to carry them out made it defective, I would distinguish, as the Judge did, between this property and the capping and sub-formation (other property), so that the exclusion does not apply because of the limitation."*

Conclusion

If it is established that the contract works policy potentially responds to the damage sustained, then a DE3 exclusion may permit cover for damage to other property which is free of the defective condition and is damaged in consequence of the defect. On the basis of the English Court of Appeal authority, the Court is likely to regard as being divisible, the separate layers said to comprise the pavement, but will exclude damage to the defective property itself and any other property which is damaged to enable the replacement/repair to take place.

The writer considers that the distinction is more readily able to be made when the defect arises as a result of faulty construction rather than design, although the cases do not necessarily make that distinction.

The recent decisions in relation to the operation of an exclusion clause in the form of DE3, can be contrasted with the decision of the New South Wales Court of Appeal in *Rickard Constructions Pty Ltd v Rickard Hails Moretti Pty Ltd* [2006] NSWCA 356, which was an appeal from the decision of *McDougal J Rickard Constructions Pty Ltd v Rickard Hails Moretti Pty Ltd* [2004] 2 ALR 267.

In relation to the willingness of the courts to make a distinction between the separate layers of the pavement, the judge at first instance (McDougal J) said [at 223]:

> *"The present claim is, precisely, one for the cost of rectifying Insured Property* – **the pavement** *[author emphasis] in which there was, or that was affected by, defective workmanship."*

It can be seen from his Honour's comments, that he treated the pavement itself, rather than its constituent layers, as Insured Property for the purpose of construing the exclusion in that case.

The clause under consideration in that case was not in terms of the DE 3 exclusion which was considered by the English Court of Appeal in *Gerling* which drew a distinction between *"Property Insured"* or *"other Property Insured"* which the Court said *"suggested, and indeed required, divisibility"*

The claim against the insurer at first instance failed in Rickard because the Judge said that the onus was on the insured to prove:

1 what is the loss or damage caused directly by the defective workmanship;
2 what are the "costs" of that loss or damage;
3 what would have been necessary to rectify that defective workmanship immediately prior to the collapse of the pavement; and
4 what costs would have been incurred on that rectification.

The Judge found that there was no evidence of *"the costs of loss or damage caused directly"* by the defective workmanship and that the insured had not proved the other matters set out above.

It can therefore be observed that potential policy response may be largely determined by the precise nature and wording of the exclusion clause in relation to defective workmanship and design contained within the policy. A close consideration of those exclusions may therefore be essential to understand whether road or pavement failure in any given project is an insured or uninsured risk.

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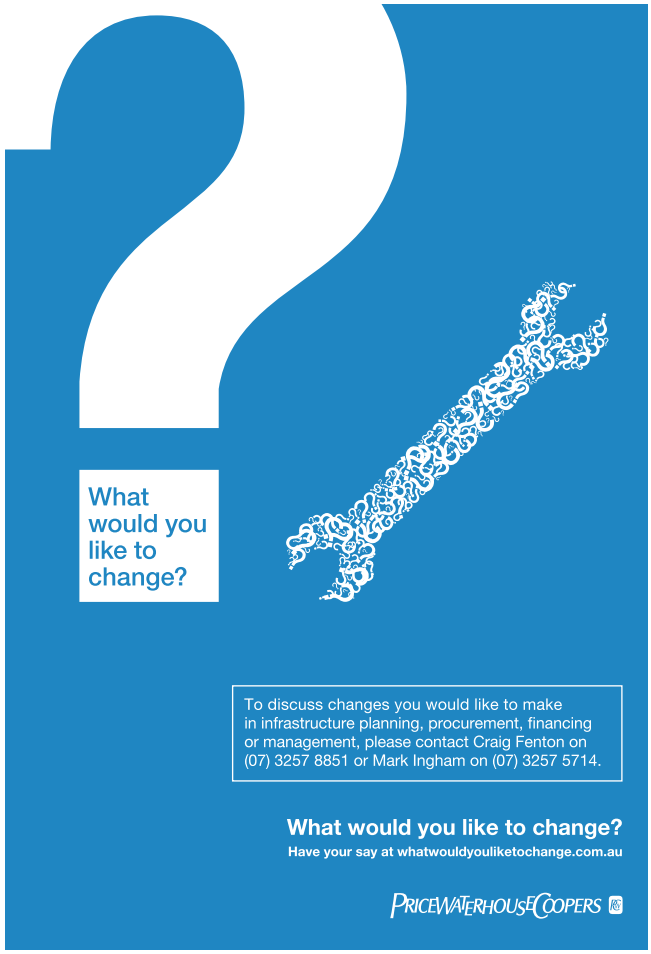

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Constructing a champion approach to youth road safety

Over the past four years Leighton Contractors Northern Region has developed and implemented an award winning corporate social responsibility approach aimed at reducing the road toll among young Queenslanders.

There are over a thousand Queensland secondary school students who had reason to thank Leighton Contractors Northern Region at the end of 2009. The company provided more than 5,000 hours of free, professional driving tuition to students from selected schools as part of a major community investment initiative over the past two years.

While the key outcome is straightforward – many more safe young drivers on our roads – the strategic thinking and partnering that went into developing the Leighton Contractors Youth Drive Safe approach was more than a year in development.

In 2006, Leighton Contractors' Northern Region General Manager Darren Weir and Strategic Development Manager Renaye Peters began researching and planning a corporate social responsibility initiative that would be an excellent fit with the company's values, and its core construction and infrastructure business.

The bottom line for the research was to find an approach that would align with the company's values, which prioritise safety and health above all else, and demonstrate respect for the community. The 18 months of research took the company's team into the complex world of road safety. They gleaned information from a number of quarters including the Queensland Department of Transport and Main Roads, Centre for Accident Research and Road Safety – Queensland (CARRS-Q) and the Queensland Police Service.

The research identified motor vehicle crashes as far and away the leading cause of death among young Australians aged 16–25 years. In fact the current road fatality rate for 17–20 year olds stands at two and a half times the fatality rate for the entire Queensland population. While there are many worthwhile programs working in diverse ways to address this significant issue, there is still much work to be done in this area.

From the research and thinking, in early 2008 the Leighton Contractors Youth Drive Safe Initiative was born, with a pilot launched to provide free instruction to 500 participants from 10 secondary schools. The company went further than providing instruction from an RACQ recommended driving school by purchasing four automatic vehicles to facilitate the training. These automatic vehicles were shown to provide the best environment for learning, since students could concentrate not just on the physical skills required to drive a vehicle, but on understanding common road hazards and the best ways to respond to them.

Mr Weir said identifying solutions to make the road network safer is a shared community responsibility, and as a leading construction company, Leighton Contractors recognises the pivotal role it plays in building safer roads and contributing to creating safer road users.

"Our long history in designing and constructing roads in partnership with the Department of Transport and Main Roads and other clients has made us more aware of the disproportion of young people killed on our roads and the need for improved road safety skills," Mr Weir said.

The company undertook an independent evaluation of the pilot at the end of 2008, which showed the initiative was a resounding success in its objective of improving responsible attitudes to road safety among young Queenslanders. Students commented that they felt more confident on the roads and had a greater understanding of what is needed to drive safely.

One of the greatest rewards the company has had from the program is reflected in the responses from parents, students and others involved:

'Good on you – good to see a big company giving back to the community'; 'Even if you save one life this program is worth it'; 'Fabulous initiative'; 'Chose the right way to do it – it ticked all our boxes'.

Following the success of the pilot, Leighton Contractors Northern Region expanded its initiative in 2009 in spite of the global economic downturn. The company offered free professional tuition to 625 students in 16 schools, and purchased a fifth car. Tuition was also offered for the first time outside the south east corner in Townsville, where it was highly appreciated.

The 2009 initiative has also proven highly successful, with students especially pleased that the five free hours of professional tuition from the company equates to 15 hours in their official learner logbooks; now that 100 hours of supervised driving is needed before they can sit their provisional licences. Many students have booked further hours of training after experiencing the professional difference and a few have chosen to sit their tests in the Leighton Contractors Youth Drive Safe cars.

'Good on you – good to see a big company giving back to the community'; 'Even if you save one life this program is worth it'; 'Fabulous initiative'; 'Chose the right way to do it – it ticked all our boxes'.

The initiative and its achievements have been recognised in 2009 with Queensland awards from the Australian Marketing Institute and the Public Relations Institute of Australia (PRIA) both in their Corporate Social Responsibility categories, and a national PRIA award in the same category.

The Leighton Contractors Youth Drive Safe Initiative will continue in 2010, along with other work the company is undertaking as part of its broader Road Safety Program, which includes a proposed road safety research partnership and sponsorship of appropriate road safety events.

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Infrastructure Cost Management

A Renewed Focus On Cost

As with most types of construction project, infrastructure projects generally have a focus on quality, timely delivery, innovative design and construction, and cost.

Current Procedures

Current Infrastructure Project delivery is often plagued by initial budget cost overruns, resulting in ever increasing budget targets, embarrassment to Principals and severe funding complications to Principals' treasuries.

In recent years, there has been an increasing focus on "equitable outcomes for Principal, Contractor and all other stakeholders". This has resulted, amongst other things, in the use of Target Outturn Cost (TOC) Contracts and Alliance Contracts which share project risk and reward between Principal and Contractor and promote innovation. However, these types of contract can be open to abuse in the circumstances where either party to the contract is able to overpower the other.

Projects can also suffer when agreed contracts return large financial savings to the contracting parties, caused by an inappropriately high contract sum. These circumstances often cause disgruntled Principals to feel that they have paid too much if the Contractor has also received a share of the project "savings". Principals may also have reduced their desired scope of work in order to meet a TOC which turns out to be inflated.

Cost Management Another Way

RLB Infrastructure is working with the Infrastructure industry to identify other equitable ways to cost manage infrastructure project.s Through the development of initial cost plans and subsequent initial contract sums which more accurately reflect the scope and quality of the required works with a fair risk allocation, a final project outcome that is more satisfactory is achieved.

Contractual Arrangements

Contractual arrangements need to provide the necessary contractual strength to ensure that the final contract sum is not only equitable but also reflects the risk / reward scenario envisaged by the parties at project inception. Huge final profits to either party at the expense of the other ought not be a preferred outcome.

Where a significant portion of work can be well defined, or where the complexity is low, a lump sum or Design & Construct Lump Sum form of contract should be used. This places the majority of construction risk with the Contractor who is then encouraged to work efficiently in order to maximise its financial outcome with no additional cost to the Principal. This arrangement led to a successful project outcome on the Kurilpa Point Bridge project.

Projects and portions of projects which cannot be well defined may be more suitable for one of the "cost-plus" styles of contract. However, a project may be well served if inadequately defined portions of work are given further attention and are better defined so that a lump sum or a more accurate TOC can be achieved to avoid the imbalance of a cost plus style of contract. The following are some examples.

Requirements & Scope Definition

Project quality, size, complexity, constraints and special inclusions need to be clarified or developed in conjunction with the adoption of the project. Sometimes the available budget and wish-list scope are incompatible, and any such mismatch needs to be resolved prior to any project announcements which could cause political embarrassment if they subsequently prove to be inadequate.

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Site survey & Geotechnical Data

Subterranean material, level of water-table, site location, site access and topography can have an enormous effect on the cost outcome of any project, but civil engineering projects are particularly susceptible to variances in geotechnical and topographical data.

If, at project inception, insufficient geotechnical data is known, then:

- The Initial Project Cost plan will be inadequately based;
- Any TOC will probably include a risk provision in relation to "unknown geotechnical issues";
- Preliminary design work based on missing or misleading geotechnical data will lead to wasted design costs;
- If, during construction, geotechnical circumstances differ from those indicated pre-contract, then additional costs and time delays will follow; and
- More early geotechnical studies are invaluble.

Risk Identification & Allocation

Political, environmental, cultural, heritage and community requirements, and inclement weather risks need to be assessed for their adverse financial and time impacts on a proposed project. These types of risks have the potential to delay projects for long periods of time, and in some ways could be described as manageable but uncontrollable.

Risks allocated to the party least able to control the risk will produce an imbalance in pricing.

In some quarters, a view has developed that shifting the financial responsibility for some/all risks to the contractor will achieve a saving to the principal, but this is not always the case. Most prudent contractors negotiate a contract sum which makes due allowance for the risks, often a worst case allowance for uncontrollable risks.

Research over many years has confirmed that risks within the control of the Principal should be borne by the Principal and risks within the control of the Contractor should be borne by the Contractor. Uncontrollable risks should be borne by the Principal. In every case, risks need to be identified, quantified, valued and managed.

Contractor Selection Processes

Some Contractor selection methods fail to take account of previous company claims, management performance, relevant experience of proposed staff, relevant company experience, proposed construction methodology, program and price.

The worst example of this phenomenon is when price alone is used in a contractor selection evaluation. Important criteria in the Contractor selection process must include the previous behaviours as well as experience of the proposed staff and the company.

Rigour in Financial Contract Administration

Financial Contract Administration requires firm, fair and practical interpretation of contract clauses should provide the financial return to the contractor as envisaged under the contract. Conversion of a contract part way through the construction stage to a "cost plus" outcome should not be permitted under most circumstances.

Infrastructure is an unforgiving industry and once risks have been identified and allocated, quality, scope, programme and budgets set, contract terms and contract sums agreed, then contract administration should follow the contract in a fair and practical way, irrespective of the ongoing financial position of either party.

RLB Infrastructure, a division of the 225 year old Rider Levett Bucknall construction cost management group of companies, was established in 2007 in Brisbane to provide professional cost management services to the infrastructure industry, with a focus on providing certainty of cost outcome.

Our services have been provided on road, rail, bridge, tunnel, marine and water treatment projects using lump sum, design and contract, cost plus and alliance forms of contract.

Ken Brownjohn ARICS, FAIQS is the director responsible for RLB Infrastructure. Ken has had 40 years experience in the cost management of major construction projects. Most recently RLB Infrastructure completed its cost management role on the technically challenging Kurilpa Point Bridge which was completed for the originally approved budget.

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Energy in Queensland: a bright future

From Darren Weir, General Manager, Leighton Contractors Northern Region

Leighton Contractors Northern Region has been positioning itself to take up diverse opportunities in the energy sector through strategic partnerships and by drawing on its national and local expertise in energy projects.

At Leighton Contractors, we have been very active in the energy sector in 2008 and 2009, investigating industry opportunities for infrastructure support, negotiating strategic partnerships to capitalise on anticipated opportunities, improving energy sustainability in buildings, and delivering energy-related projects both locally and nationally.

Some of the highlights for us this year from an energy perspective in Queensland include completing construction works for the installation of a 126-megawatt gas turbine generator at the Mt Stuart Power Station in Townsville for Origin Energy. We are also the managing contractor role for Stage One of the Queensland University of Technology's (QUT's) Science and Technology Precinct in which energy saving initiatives will be a priority and we can build on our learnings from Green Square Corporate Office Park.

Leighton Contractors in Queensland has been developing strategic relationships with technology providers, including General Electric (GE), Osmoflo and Rolls Royce, to prepare for anticipated opportunities in the coal seam gas (CSG) to liquid natural gas (LNG) industry. Queensland has some of the richest CSG resources in the world, while renewable energy is also seen as a major industry, especially in North Queensland. In 2009 we reviewed our Northern Region leadership team to ensure a strong focus on the industry.

We recognise this is a very exciting time for Queensland, with a likely welcome boost in construction jobs related to the sector. However, there are some high risks and new challenges in these relatively new endeavours, including ensuring the environment and community are looked after, and working effectively and efficiently in remote areas. We have robust experience in effectively managing community relations and the environment from our values-based culture and years of applying our knowledge on multiple projects.

Owing to the infrastructure-intense requirements of CSG-LNG, Leighton Contractors is well positioned to participate in the industry start-up. Our experience in regional areas means we have the people, systems and supplier networks which are central to infrastructure success in remote areas.

So how large is the CSG-LNG industry likely to be in the state? At the end of 2009, there were eight CSG-LNG projects on the table, and while there may be some consolidation in the market, the industry is still estimated to be worth more than $40 billion, with the capacity to generate around 18,000 jobs.

The State Government is driving its Climate Smart 2050 policy to increase gas fired electricity generation from current levels of 15 percent to 18 percent by 2020. This policy is leading to a significant increase for CSG in the domestic market, together with the worldwide demand for LNG as a cleaner alternative to traditional fossil fuels.

We recognise this is a very exciting time for Queensland, with a likely welcome boost in construction jobs related to the sector.

Global supply for LNG is forecast to increase from current levels by 25 percent by 2012, with Queensland ideally placed to meet the ongoing demands for this expanding market.

LNG is not the only energy area of interest. With domestic power requirements ever expanding, and costs increasing, our Building Group identified an increased need for energy sustainability and generation as part of building design some years ago, utilising initiatives such as cogeneration plants to produce a large percentage of the power required through a gas reciprocating engine. Brisbane's multi award-winning Green Square North Tower is generating 75 to 85 percent of power requirements on site for tenants.

We are also building four major developments which will deliver more sustainable energy options for owners and tenants: the HQ development for Leighton Properties and ourselves in joint venture; One One One Eagle Street for the GPT Group in Brisbane's CBD; The Australian Broadcasting Corporation's new accommodation at South Bank; and Stage One of QUT's Science and Technology Precinct and Community Hub.

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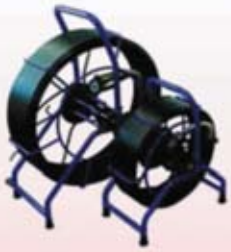

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Moving from power sources within buildings to the renewable energy sector, this is a very exciting and rapidly growing part of the industry. The push for an enhanced renewable energy sector in Queensland has stemmed from a number of initiatives including Federal Government funding. In May 2009, the Federal Government launched the Solar Flagship Programme, with funding of $1.36 billion to build four generation plants on the national grid. Then in June, the Queensland Government announced its Renewable Energy Plan. Several renewable energy projects have now been proposed at townships between Mount Isa and Townsville, with the potential to generate as much as 1000 megawatts of green power.

Nationally we have been winning work and developing further expertise in the sector. In May our company signed an agreement with Energy Australia to create the Energy2U Alliance to support the delivery of the proposed $8 billion electricity network upgrade and renewal program for Sydney, the Hunter Valley and Central Coast regions between 2009 and 2014. In November, the Federal Government offered Victorian Wave Partners, of which Leighton Contractors is a partner, a $66.5 million grant under its Renewable Energy Demonstration Program. Meanwhile in Western Australia, with our partner Saipem, Leighton Contractors has won a $900 million contract to develop the Chevron Gorgon LNG Jetty and Marine Structures.

We look forward to 2010, when a number of the proposed new Queensland energy ventures will begin in earnest; and we plan to be part of this sector in its many forms well into the future.

Leighton Contractors' General Manager Northern Region Darren Weir is an engineer and manager with 20 years experience in the contracting industry. Darren is responsible for the company's construction business throughout Queensland and the Northern Territory. As General Manager, has has led and overseen a broadening of construction operations, a tripling of staff numbers and an impressive growth in work-in-hand. Darren was promoted to his current position in 2006, after previous success as the Engineering and Construction Manager for Leighton Contractors. His experience includes the role of Alliance Project Manager on the $112m Port Motorway Alliance and Construction Manager of the $140m Pacific Motorway upgrade (package 2).

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Managing Director Margo McLay of recruitment consultancy Executive People knows too well the consequences of a 'bad fit'. She sees candidates every day who leave jobs because they either aren't satisfied with the work, or they didn't 'gel' with the team.

"You don't have to look very far to find people who are trapped in the wrong job or profession. Bankers who should have been teachers, accountants who should have been in marketing and line managers who have all the qualities of a CEO…," says Margo.

In fact, almost half of Australia's workers say that if given the chance, they would have studied something totally different after leaving school. And regrettably, someone who discovers that they are in the wrong career is probably not as productive as they could be.

According to Margo, employees who always feel unsettled or employers who can never find the "right" person should consider psychometric testing to minimise hiring risk.

"Psychometrics can provide a valuable insight into character, intellectual ability, personal values and aptitude. Among the things it can provide are an understanding of an individual's strengths and weaknesses; a clear impression of their skills; an insight into their personality; an understanding of their interests; a robust foundation for making career decisions; an insight into the aptitudes needed to carry out a particular role; and the ability to help teams understand what each member contributes.

In choosing a psychometric product for her business, Margo searched the market for the ideal profiling tool and found Harrison Assessments' Talent Solutions (HATS) to be the most comprehensive and user friendly.

"HATS evaluates not only experiential factors but also soft skills – those things that cannot be shown on a CV such as energy, thinking patterns, limitations, motivations and potential as well as a host of other factors.

"The principle behind the HATS application is that people tend to be far better at things they actually enjoy. If you are able to match the person's preferred behavioural style with the rigours of the role, they are far more likely to excel. You end up with not only someone who can do the job, but someone who genuinely enjoys doing it," Margo says.

"You don't have to look very far to find people who are trapped in the wrong job or profession. Bankers who should have been teachers, accountants who should have been in marketing and line managers who have all the qualities of a CEO…,"

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Executive People is a certified distributor and trainer of the Harrison Assessments psychological profiling suite of tools. With years of HR and development experience behind us, we provide ongoing training and support to organisations and in-house managers by showing them how to more accurately screen, select, retain and develop staff at all levels and across all sectors.

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Margo McLay is founder and Director of Executive People, a Brisbane-based executive search and recruitment consultancy. As accredited agents of Harrison Assessments Talent Solution (HATS), Executive People utilise this unique and powerful online employment profiling system for:

- Screening and interviewing new job candidates to improve cultural fit
- Discovering hidden paradoxes or inconsistencies that can impact job performance and satisfaction; and
- Assisting employers in redefining roles and requirements for restructuring and organisational downsizing.

The HATS tool psychometric profile is designed for job and organisational contexts – covering the full spectrum of personality, interests, task preferences, interpersonal preferences, and work environment preferences.

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1 Kelly Services (2008). International Workplace Survey

For more information contact:
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Salary pressures in infrastructure – What does 2010 hold?

Based on the tumultuous nature of the market in 2009, where are we now positioned for 2010?

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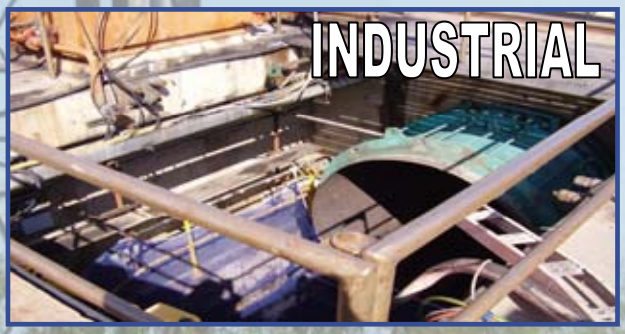

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2007 and 2008 were undoubtedly the most challenging years that the infrastructure industry faced from a remuneration perspective. Candidates' salary expectations were rising well out of line with actual capability and they were being offered substantial increases on existing remuneration packages to lure them into new environments. This unbalanced growth in salary expectations was clearly not sustainable and the market certainly demonstrated some significant shifts in 2009.

In late 2008 and early 2009, the redundancies started and many of the candidates who had been hired on overstated salary packages were the first to be released into the market. By mid-2009, the number of highly skilled candidates available within the infrastructure industry was higher than we had experienced since 2005 and salary expectations had changed significantly in line with market volatility. We saw candidates accept roles at significantly lower salaries than their previous positions but we also advised clients that hiring people below their perceived market worth was a dangerous strategy which would ultimately backfire once the market rebounded.

So, based on the tumultuous nature of the market in 2009, where are we now positioned for 2010? Where is the balance of power between employers and employees and what changes do we anticipate this year?

There is certainly still enough activity across Queensland to keep the infrastructure industry booming for the years ahead. Rail, water, roads and ports projects all feature significantly in the infrastructure plans for 2010 and demand has certainly returned for skilled candidates with experience in these sectors. Employers have indicated early this year that salary benchmarking is key to ensuring that they maintain their current workforce and plan effectively to grow and add to their headcount in a sustainable fashion. What most employers have learnt is that paying inflated salaries to secure talent is not the most beneficial way to build their business for the longer term and those candidates whose main motivation for moving is money are not always going to be the best long term options for the business.

Employers have also seen evidence that the uncertainties of 2009 have made candidates far more reticent to move for new opportunities so the employee value proposition has to be well thought out and relevant for candidates to consider changing employers. It also appears that

What most employers have learnt is that paying inflated salaries to secure talent is not the most beneficial way to build their business for the longer term

candidates are more attracted to the mid-size employers in this climate, with worries that the large employers are too quick to make wholesale redundancies to comply with shareholders demands and the smaller players struggle to secure financing in a risk averse financial market.

On the candidate side, many professionals who accepted lesser roles in the downturn in 2009 have returned to the market and are keenly considering opportunities. Employers that hired these candidates need to consider the strategies they can put in place to secure their top talent in a more buoyant market. Candidates also became less open to potential opportunities during the downturn, identifying security and stability as being more important than short term financial gains when making career decisions. However, candidates are now starting to negotiate more assertively with regard to remuneration packages and although the balance of power in the employment relationship is currently reasonably balanced, we see that the ongoing candidate shortages will most likely result in a return to a candidate driven market before 2010 is out.

Our advice to organisations and candidates alike is simple. Hold firm to your position with regard to what you perceive to be the value of any particular role. Although for employers this may mean missing out on an ideal candidate every now and then, it will ensure better levels of parity within the business and probably cause less problems in the longer term. For candidates, this may also mean missing out on a potential opportunity as the organisation is unwilling to meet your expectations. However, if you have done your research effectively and consulted with professionals to ensure that your expectations are reasonable, the right opportunity will be out there and your patience will eventually be rewarded.

Sinead Hourigan
Director, Robert Walters Brisbane



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10% Training Policy

The *10% Training Policy* aims to ensure at least 10 percent of the deemed on-site labour hours worked on State Government funded projects is structured training that contributes towards a formal qualification. It is designed to address skill shortages and create additional employment opportunities for the building and construction industry.

Construction Skills Queensland (CSQ) began administering the building and construction industry's *10% Training Policy* on behalf of the Department of Education and Training (DET) in 2008.

The construction industry's centre for excellence, CSQ, believes this is a critical initiative, investing in the future skills bank of the industry and maximising apprentice retention.

Compliance of the *10% Training Policy* by employers working on government funded projects over $250,000 (building) or $500,000 (civil) is obligatory and CSQ is working to make everyone aware of the policy and how to comply.

Letters are sent from CSQ to the Principal Contractors involved; notifying them that compliance has been achieved.

The registration of projects by contractors and the subsequent submission of compliance plans are significantly improving as the CSQ *10% Policy* team conduct more phone calls, email communication and onsite support to Principals and Sub Contractors.

Those who have not yet complied will be contacted by Construction Skills Queensland and offered assistance to help them in comply. You can find further information using the forms on the Construction Skills Queensland website at www.csq.org.au/10pc.

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Infrastructure for the region - The next priority for Queensland's Development

By Shaun Drabsch, General Manager – Government Relations, Rowland and IAQ Board Member

Since the launch of the SEQ Infrastructure Plan (SEQIP) in 2006, urban infrastructure has dominated the pattern of work undertaken by the civil engineering sector in Queensland. The PPP tunnels, Gateway Upgrade, Ipswich Motorway, Bruce Highway and Sunshine Coast road upgrades, the SEQ Water Grid and the urban busway and rail infrastructure upgrades have generated a huge increase in demand for technical professionals, equipment and construction material with a combined investment of $17 billion in south east Queensland over the last five years.

The cost and availability of these resources was complicated by the concurrent expansion of the mining sector until 2008, the birth of the coal seam methane energy sector and a sudden interest in infrastructure development in other states.

Many of these projects are now reaching completion. The severity of the Global Financial Crisis also introduced an unexpected scarcity of Government funds for subsequent projects to expand the networks that SEQIP helped establish.

Industry has had to scale back its workforce and production capability from historical peaks as the torrent of work that looked likely to continue for at least a decade, slowed considerably.

Where will the future projects come from, and how will they be funded and delivered?

The future is regional

Fortunately for the Queensland Government, the resources boom in this State appears to have only been paused by the financial crisis. A variety of proponents in the LNG industry are pushing hard to bring their projects to an investment decision point in 2010. Total investment in gas extraction, pipeline and processing plants is estimated to be around $40 billion over the next decade.

Medium to long term planning for a doubling of coal export capacity has been reignited. Over the next four years $12 billion of new transport infrastructure is being proposed in regional Queensland. The table on the previous page shows that much of this new investment activity is connecting the new thermal coal supply sources in the Surat and Galilee Basins to ports at Gladstone and Abbot Point.

Proposed Transport Infrastructure Projects in regional Queensland

Project	Sponsor	Value	Construction Period
Surat Basin Rail	Xstrata/APEC/Queensland Rail	$1.2bn	2010-2014
Moura Gladstone Line + New Rail Loop	Queensland Rail	$1.5bn	2011-2014
Wiggins Island Coal Terminal	18 coal companies T/M WICET	$2 bn	2010-2014
Galilee-Abbot Point Rail Link	Hancock/Waratah	$2.5bn	2011-2014
Abbot Point x 50	North Qld Ports Corporation	$650m	2010-2012
MCF (incorporating x 80 and x 110)	North Qld Ports Corporation	$1.25bn	2012-2020
Hay Point Expansion	BMA	$288m	2011-2013
Port Alma	Xstrata Coal	$1bn	2012-2014
Mt Isa – Townsville Rail Line	Queensland Rail	$100m	2010-2011
Northern Missing Link	Queensland Rail	$1bn	2009-2012
Bruce Highway – Part B Gympie Bypass	DTMR	$680m	2009-2013

Conveyor tunnel, Wilpinjong, NSW

Highway underpass, Dawson, QLD

Bridge-Plate arch, Yandi, WA

- Drainage culverts & stormwater systems
- Bridge-spans & underpasses
- Conveyor, personnel & stockpile tunnels
- Mine portals

Bridge-Plate arch, Yandi, WA

STILCOR 2.4m dia. CMP culverts, WA

ALUCOR 1.2m dia. CMP culverts, WA

Railway underpass, Wambo, NSW

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Medium to long term planning for a doubling of coal export capacity has been reignited. Over the next four years $12 billion of new transport infrastructure is being proposed in regional Queensland. The table on the previous page shows that much of this new investment activity is connecting the new thermal coal supply sources in the Surat and Galilee Basins to ports at Gladstone and Abbot Point.

These investments will represent just the core infrastructure of Queensland's expanded industrial base. Existing road, rail and energy infrastructure will need to be upgraded to support the much higher intensity of economic activity – from the south west to north Queensland. Funding for these important supporting projects is limited however, and innovative project delivery solutions will be needed to overcome the considerable weaknesses of existing regional networks.

Delivering the new priorities

The funding solution for the resource project related infrastructure is pretty clear. The Queensland Government does not want to expose its balance sheet to any further commercial investments at this stage. Private industry has the depth, maturity and inclination to be able to attract funding.

Less certain are the ownership and project delivery structures that will be adopted for these major undertakings. Separate joint venture holding companies are likely to own new rail track and port infrastructure, and an industry-based approach such as at Newcastle and Wiggins Island is gaining credibility. In some cases above and below rail ownership will be combined (for example in the Galilee solution, although the Surat link is likely to be track only).

The State is setting some parameters by placing into private ownership substantial assets in the State's rail and port systems. The Government is advocating integrated ownership of track and above rail services, arguing that this model should ensure the track provider has the interests of above rail service providers at heart. Rail users are not so sure.

The significant presence of resource companies in ownership structures suggests that contracting models from that sector could predominate. Fixed prices and risk transfer are likely to feature, but there may also be opportunities for long tail maintenance services as part of these contracts.

For the gas processing and pipeline projects, major international EPC contractors are being preferred by development companies. Local contractor opportunities under these circumstances are restricted to sub-contracting roles, although some nimble players are positioning themselves to assume substantial amounts of physical delivery.

For the transport infrastructure projects there is scope for combined financing and construction approaches. Many overseas infrastructure developers are expressing interest in financing and developing these projects. Similar to the WA Gas Fields, the potential for local industry to be closed out of major contract opportunities could create political heat, and developers would be wise to have effective strategies which promote inclusion of local suppliers at every reasonable opportunity.

Conclusion

As the infrastructure delivery challenge in Queensland shifts from the urban to the regional, different funding and delivery models come into play. Players in the infrastructure sector will need to adapt their practices to ensure they can successfully accommodate these different models and win new work in what looks to be the most fertile field for the foreseeable future.

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View Shaun's profile at: www.rowland.com.au

Rowland.

Leighton Contractors Investment & Facility Management

Queensland must continue to invest in infrastructure that supports growth according to Peter Hicks, Executive General Manager of Leighton Contractors Investment and Facility Management.

We sat down with Peter to talk about the projects that are currently underway in Queensland and asked him about some of the projects that he thinks need to be advanced in the year ahead.

Peter, how do you see Queensland doing, infrastructure wise, compared to other states in Australia?

A report released recently, marked Queensland's economic performance down because of a higher unemployment rate, the moth balling of major mining projects, and a higher Aussie dollar.

While exchange rates are difficult to control, the Queensland government could significantly improve Queensland's economic performance, deliver real growth and lower the unemployment rate by considering expediting to market a number of identified major infrastructure projects.

Has the Queensland government done enough to develop the kind of infrastructure Queensland needs?

To the State Government's credit they have overseen a number of important projects like the seven new schools that the Aspire Schools consortium will deliver over the next three years, the first two of which opened in January to students.

By the end of the year, the newly duplicated Gateway motorway will be finished and in just over a year after that, the Airport Link that will connect the city to the Airport and deliver an extended underground busway will open to traffic. To date, these projects alone have supported over 10,000 jobs for Queenslanders.

It's true too that Brisbane City Council has also played its part with the CLEM7 and Northern Link projects.

There is no doubt that the CLEM7, the Airport Link, Gateway Upgrade and other key projects are a great start, but the Queensland State Government can't afford to stop now. The economy needs major infrastructure projects to keep being delivered.

You mentioned the CLEM7, that will open before April this year. Why do you think the CLEM7 is so important to Brisbane and its future growth?

The CLEM7 tunnel will give the city a much needed additional river crossing. It will allow commuters to avoid up to 24 sets of traffic lights and save an average of 15 minutes each way in peak hour.

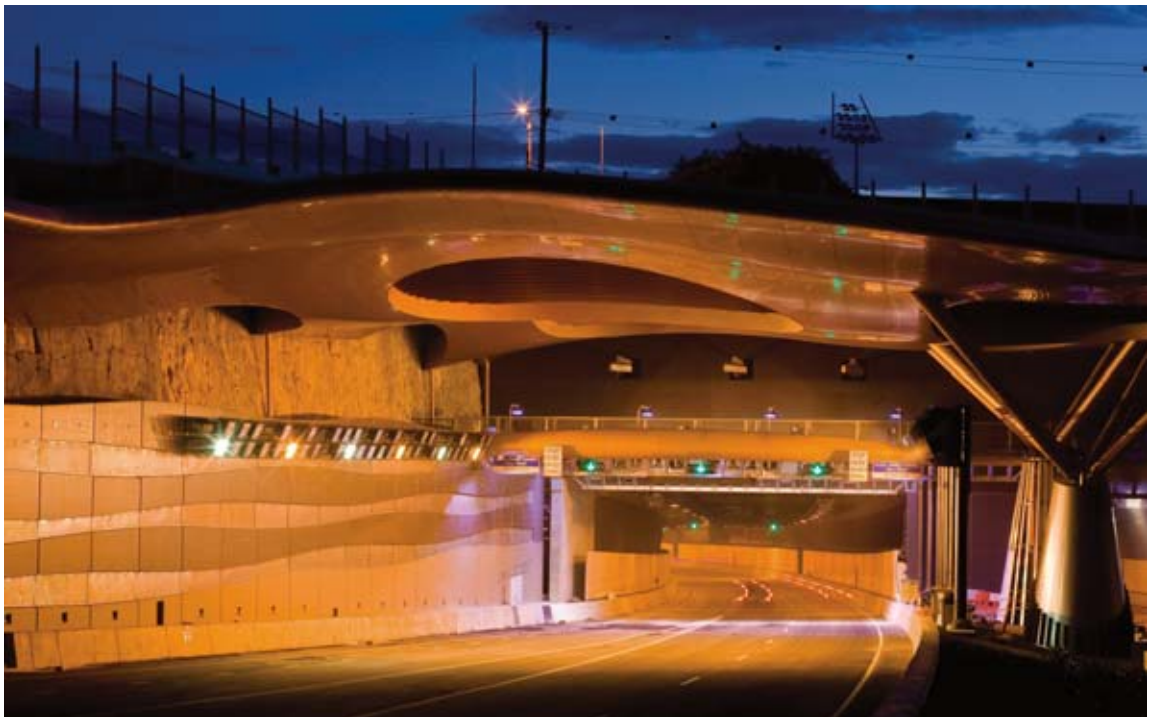
Motorists who travel across Brisbane to work, or drop the kids to schools will save about a half an hour each day in their average commute, but the real benefit of the CLEM7 will be the significant economic benefit it will provide to the city.

The CLEM7 gives commercial vehicles an alternative route through the city and is expected to take more than 50,000 truck movements off surface roads every week. In addition to having a positive impact on the amenity of inner city suburbs, these commercial vehicles saving time and money by using the CLEM7 will also have a significant positive impact on the economy.

In fact, economic modelling done when we bid for the project in 2005 estimated that the CLEM7 tunnel would add $2.4 billion to the Queensland economy in increased efficiency gains. This value to the economy will no doubt be reflected in the share price of the company that owns the CLEM7, RiverCity Motorway, over the coming months. Already, it has rallied as the road's opening draws nearer.

The CLEM7 is the first section of the new M7 motorway in Brisbane that is due to be completed in 2012 following the construction of the 6.7km Airport Link tunnel that provides a direct connection from the CLEM7 to the airport and the growing northern suburbs.

This will multiply the economic impact because improved transport routes to international markets (via the Brisbane International and Domestic Airports) as well as the Port of Brisbane and Trade Coast precinct improves the ability to sell Queensland produce and products into key overseas markets.



What projects do you think the Government needs to bring to market quicker in Queensland to maintain the momentum it has created?

It could bring to market the Sunshine Coast Hospital that it postponed in the last budget; more rapidly advance the Gold Coast Rapid Transit project whose journey to market has been slow; the Southeast Busway; new rail rollingstock; port projects in Brisbane, at Abbotts Point, Gladstone, Townsville and Wiggins Island; Bruce Highway upgrades; and implement more new school projects.

These and other projects can ensure that the economy not only gets the benefits of jobs and the flow-on economic development that major projects like these deliver but also the capacity that could constrain future economic development and growth if there is not the infrastructure to support that growth.

Do these projects need to be PPPs? And, given the GFC, are there companies out there to bid and finance them as PPPs?

Of course, the Government will need the private sector and private equity to deliver many of these projects.

And many will say this is impossible, given we are still recovering from the GFC and capital markets are still tight, right? Not so.

In fact, I am surprised by the number of people (in and out of Government) who wrongly believe that because capital markets are still tight, major infrastructure projects will not attract private sector investment. In fact, my team and I have found that equity and debt players are ready and willing to invest in major infrastructure projects that deliver stable and solid long-term returns.

Ultimately, continued investment in infrastructure in Queensland is the key to effectively managing Queensland's burgeoning population. Key projects will deliver the requisite capacity the economy requires to ensure the Sunshine State continues to grow. But, it's up to the State to bring these projects to the market as quickly as possible.

Many of these projects will be delivered with the help of the private sector, through direct delivery and some by public private partnerships that encourage long-term investment by major Australian and international infrastructure developers to deliver the jobs and capacity Queensland needs if it is going to lead the pack and rise above its state counterparts.

Peter Hicks
Executive General Manager,
Leighton Contractors Investment and Facility Mangement

Future challenges for the delivery of Infrastructure in Brisbane

Brisbane, like the rest of South East Queensland has seen strong population and employment growth over the past decade.

From 2001 to 2008, the resident local government area population of Brisbane has risen by nearly 15 per cent to over 1 million residents. Population projections from the State Government indicate that this will increase to approximately 1.2 million by 2026.

Employment is expected to grow significantly faster than population growth over the period to 2026, with nearly 265,000 new jobs expected (growth of approximately 45 per cent) over the period 2004 to 2026.

The extent of growth has prompted Brisbane City Council (BCC) and the Queensland State Government to address population settlement patterns through the South East Queensland Regional Plan firstly, then subsequently through the individual plans developed by BCC.

The plans have focussed on in-fill development within Brisbane, with approximately 90 per cent of new development to be delivered by in-fill and redevelopment.

This has placed increasing pressure on both the infrastructure and property developments (from residential housing to commercial and industrial) required to service the demands of future population and employment projections.

The impact of the global financial crisis on the delivery of infrastructure in Brisbane

With the collapse of Lehmann Brothers in September 2008 and the subsequent onset of the global financial crisis, the decline in economic growth domestically and for Australia's main trading partners has impacted heavily on the budgeted revenues of all levels of Government.

Globally, governments responded to the worsening economic conditions through a series of stimulus packages including continued support for infrastructure investment, aimed at stabilising the financial system and providing employment opportunities.

Governments around Australia have tackled this problem through a significant infrastructure spending program aimed at increasing Australia's productivity.

The Queensland State Government has sought to minimise the impact on unemployment levels by ensuring that its extensive infrastructure plan (totalling $124 billion) is still delivered. However, the deterioration in Queensland's financial position has resulted in a reduction of Queensland's credit rating of AAA from Standard & Poor's to AA+.

With the collapse of Lehmann Brothers in September 2008 and the subsequent onset of the global financial crisis, the decline in economic growth domestically and for Australia's main trading partners has impacted heavily on the budgeted revenues of all levels of Government.

Subsequently, QTC had significant problems in obtaining funding from the global market, given the majority of Government bonds being issued were rated AAA. The provision of the Commonwealth Government guarantee to the State and Territory Governments provided a mechanism to solve this issue; however it did highlight that State and Local Government's access to capital could not always be guaranteed.

For the TransApex projects, BCC's preferred procurement method was the project finance model which has been used extensively throughout Sydney and Melbourne and other major cities around the world to access private sector sources of funds. This provided significant savings for BCC. On CLEM7, the private sector raised approximately $2 billion based on a project structure involving the transfer of major project risks, especially patronage risk from government.

The global financial crisis reduced the number of active project finance parties in Australia. Coupled with the under-performance of the most recent toll roads in Australia (Cross City Tunnel, Lane Cove Tunnel, EastLink), projects with greenfield patronage risk have become exceedingly difficult to finance.

Hence, the availability of private sector finance for greenfield toll road projects has been significantly diminished. In the current environment this is likely to remain the case unless governments are prepared to consider revised risk sharing mechanisms such as a shared patronage risk or availability payment model, the latter being used on the recently awarded Peninsula Link project in Victoria.

BCC's largest infrastructure project still to be procured, the $2 billion Northern Link tunnel toll road, was deferred for nearly 12 months as the global financial crisis unfolded. However this did not deter BCC from deciding to tender for design, construction and operations of the project, similar to the procurement method adopted for the Go Between Bridge (previously known as the Hale Street Link).

BCC has taken advantage of its balance sheet capacity, borrowing for its contribution to CLEM7, Northern Link and the remaining 50 per cent of constructing Go Between Bridge. Whilst this addresses the immediate funding needs for TransApex, funding for other infrastructure projects will be more challenging given the additional borrowing capacity to be used for Northern Link.

Property – the "other" infrastructure

The property development sector in Queensland generally has a greater relative importance than other states, mostly driven by above average population, employment and economic growth over the past 25 years.

In addition to the significant infrastructure program conducted over the past decade, Brisbane saw a transformation in the depth and breadth of property development (especially to many of the inner industrial suburbs such as New Farm and Newstead) to meet the ever increasing needs of a growing city.

This transformation saw the emergence of significant property development activity and the creation of some of Australia's leading property companies with a large presence in Brisbane. This has been assisted by policies which have generally fostered development with acceptable planning parameters.

One of the major challenges for future planning is to address the dwelling targets articulated in the Queensland Government's South East Queensland Regional Plan. For Brisbane, this involves construction of some 156,000 additional dwellings, with a minimum of 138,000 or almost 90 per cent to be delivered through infill and redevelopment. This will require flexible, innovative and responsive planning processes if these ambitious targets are to be achieved within the planning horizon through to 2031.

In the short term, the property development sector in Brisbane and indeed across Australia faces immediate challenges in recovering from the devastating effects of the global financial crisis, and especially in terms of accessing finance to undertake new projects. It is no exaggeration to state that the sector has experienced its most difficult conditions for many years.

The onset of the global financial crisis in 2008 presented a significant shift in credit availability to property development companies which impacted property prices and asset valuations.

As assets have been re-valued, companies have been bolstering their balance sheets through substantial discounted capital raisings to retire debt and lower gearing.

Given the focus on balance sheet preservation, the downturn in the property cycle, and the short supply of credit, property developments that required external funding other than internal cash reserves/equity have effectively been put on hold.

Whilst this may have slowed investment in property, especially in urban density residential developments, this has not changed the long-term prospects for economic growth for Brisbane and therefore the requirement for housing to sufficiently cater for this population growth.

In the short term, the property development sector in Brisbane and indeed across Australia faces immediate challenges in recovering from the devastating effects of the global financial crisis, and especially in terms of accessing finance to undertake new projects.

Conclusion

Despite the advent of the global financial crisis and its impact upon economic growth in Brisbane and the broader South East Queensland region, there are still longer term demographic trends which have heightened pressures on both infrastructure and property demands in the area. Each of these respective sectors has had to re-examine sources of funding available and in some instances has had to resort to more traditional sources of funding and/or financing structures to meet these ongoing demand pressures.

RPS: Global knowledge, local experience

International consultancy RPS is poised to make a more significant contribution to Queensland's infrastructure sector, bolstered by the recent acquisition of local consultancy Conics.

RPS is the UK's leading planning and environment consultancy, and is listed on the London Stock Exchange. The acquisition of Conics in mid 2009 tripled its Australian presence from 300 to 900 staff, and significantly enhanced its infrastructure and urban growth credentials.

Reflecting this expansion, from 1 March, Conics will have a new name – RPS.

The expansion delivers significant benefits for clients.

Importantly, at the local level, clients will continue to receive the same quality technical advice and professional service from the teams they know and trust. The key difference is that, being a national operation and international network, RPS can now offer more.

RPS partners can now benefit from local knowledge backed up by the diverse experience and advice of a team of professionals across Australia and internationally who have delivered a comprehensive range of services to infrastructure projects, in all phases of RPS' development.

Significantly, RPS' growth means it is now uniquely positioned to meet client needs, and better able to support large infrastructure projects, across Australia and the Asia Pacific region, with its expanded range of services and capabilities and access to a broader range of resources.

RPS now has the size and strength to provide leading edge services either as the lead on a project or as a sub-consultant.

Local presence, global reach

RPS is an international consultancy providing world-class local solutions in energy and resources, infrastructure, environment and urban growth.

Founded in 1970 in the UK, RPS now employs 4500 people in 10 countries and provides a wide range of services to projects in many parts of the world. Australian operations commenced in 2003.

Its professionals across Australia and the Asia Pacific live and work in their local communities and are committed to delivering world-class infrastructure projects.

Their local knowledge and experience is supported by the expertise and resources of RPS' offices in the UK, Ireland, the Netherlands, the United States and Canada, providing clients access to an even broader level of advice.

RPS has an established reputation for delivering key aspects of some of the world's iconic projects including: the globe's largest offshore wind project, London Array; the 2012 Olympic Athletes Village and rail infrastructure; Heathrow Airport Terminal 5 as well as airports in China, Spain and Ireland.

RPS' growth means it is now uniquely positioned to meet client needs, and better able to support large infrastructure projects...

Emerging energy: *RPS is playing a lead role in the development of renewable energy in Australia.*

End to end capability

RPS has the expertise, capability and experience to provide services to all phases of infrastructure development, from feasibility and design through to delivery.

RPS' diverse team of experts comprises urban designers, planners, surveyors, landscape architects, project managers and specialists in environmental assessment and management, cultural heritage and climate change.

Now operating from 23 locations around the Asia Pacific region, including metropolitan and regional centres in resource rich and high growth areas, RPS is responsive to clients' needs and has the capacity to mobilise specialist teams to infrastructure projects in remote and regional areas.

RPS has more than 150 technical and professional surveyors and access to more than 75 survey systems including the latest model terrestrial scanner, which the company employed in the pre-design phase of one of the country's largest road infrastructure projects, Airport Link. As specialists in capture, analysis and management of spatial information, RPS is also one of the best resourced LiDAR, aerial mapping and satellite remote sensing companies in Australia, and offers the full spectrum of GIS services.

RPS' award-winning landscape architecture and urban design teams collaborate to achieve high quality design outcomes for hard infrastructure including tunnels, bridges, pedestrian connectivity and noise amelioration projects. They also have the capacity to undertake site supervision and contract administration of design in the delivery phase of projects.

Experts in investigating and assessing the indigenous and non-indigenous archaeology of sites, RPS' team is experienced in developing comprehensive cultural heritage management plans, and in large-scale and complex sub-surface archaeological excavations.

One of Australia's most experienced providers of environmental assessment and management programs, RPS' environmental scientists investigate and evaluate the potential environmental constraints and opportunities associated with projects and work with clients to propose appropriate and pragmatic mitigation and management measures. RPS has played a major role in conducting environmental studies and coordinating one of the largest EIAs ever undertaken in Australia for the Gorgon LNG project, the nation's biggest single resource project and one of the world's largest natural gas projects. We continue to play a significant role coordinating environmental and quarantine management planning and leading marine and terrestrial baseline work.

Through detailed consultation and participation in project planning, RPS develops customised planning and approvals strategies. It has the expertise to develop the full range of environmental management plans including:

- Nutrient, drainage and irrigation management plans
- Wetland management plans
- Foreshore management plans
- Site remediation management plans
- Construction management plans
- Groundwater and surface water catchment plans.
- Conservation management plans.
- Dust management plans
- Bushfire management plans

Gorgon LNG project: *RPS has conducted environmental studies and coordinated one of the largest EIAs ever undertaken in Australia for the Gorgon LNG project.*

Airport Link: *RPS provided pre-design survey, urban design and landscape architecture services to one of the nation's largest road infrastructure projects.*

Leading consultants in climate change, RPS' experts work with clients to identify and assess initiatives that will make projects more sustainable and to optimise economic, social and environmental outcomes.

Experience counts

RPS has successfully assisted a range of significant transport infrastructure projects including ports, airports, marinas, tunnels, roads, rail links, busways and bridges.

In addition, RPS has provided services to the public and private sectors to successfully deliver water and energy infrastructure projects, and embrace the challenges of complex projects. It has prepared surveys for gas pipelines, power projects, dams and major water supply initiatives and has undertaken water, sewer and recycled water designs, assessments and plans for statutory authorities.

RPS also has extensive experience in the delivery of community and social infrastructure, particularly in relation to health and education projects, correctional centres, community/ recreation facilities and parks and has a good appreciation of the requirements and controls involved in working in the defence industry through working on several upgrades at various defence sites.

Renewable Energy

The renewable energy industry may be emerging in Australia, but RPS is already playing a lead role in its development.

RPS has assisted the development of several on-shore wind farm projects and has expertise in the areas of tidal and bio mass generation.

RPS is recognised as one of the leading consultancies by the renewable energy industry, having provided expertise relevant to the growing sector globally for almost a decade.

RPS infrastructure services

- Surveying and Mapping
- Landscape Architecture
- Urban Design
- Environmental Impact Assessments
- Environmental Planning and Approvals
- Contaminated Land
- Terrestrial and Marine Ecology
- Cultural Heritage
- Project Management
- Urban Planning
- Climate Change and Sustainability
- Economics
- Water
- Quantity Surveying
- Oceanography and Meteorology

S&N Civil Constructions

S&N Civil Constructions (S&N) is an Australian owned and operated company performing civil works and specialising in heavy structural concrete construction throughout Australia. S&N's Queensland branch has been operating in Townsville since November 2005. The Queensland branch has grown substantially providing quality services efficiently to all areas of Queensland's infrastructure and mining and resources sector including, Far North Queensland, North West Queensland and more recently the Bowen Basin.

S&N have extensive experience in the mining and resources sector completing major projects Australia-wide. With current operations in Mt Isa, Townsville, Moranbah in Queensland, Orange in New South Wales, the Pilbara and Ravensthorpe in Western Australia, S&N have become renowned for their quality, efficiency and effective project management in all areas of construction.

Locations

S&N have reshaped the company in most facets of its business operation with the opening of three new offices in 2009. The Queensland division now rivals the home state of Western Australia in size. Due to Queensland and Western Australia's division's ever growing capacity, and the need to service the expanding client base, S&N now have bases in Darwin, Northern Territory, Adelaide, South Australia and in New South Wales.

S&N has project sites and offices Australia-wide and are in the process of registering our first international office in Papua New Guinea, to be in full operation by February 2010. With our registered office in Townsville and due to business growth, S&N now have new offices in Mackay, servicing the Mackay, Bowen Basin and Central Queensland regions and Mt. Isa, servicing the North West Queensland area. This enables S&N to be locally accessed in all areas of Queensland.

Completed Projects

After extensive ongoing works in the Bowen Basin, S&N have just completed works for the Carborough Downs Expansion Project. The project was completed on time and on budget. A big thank you was awarded to our project employees by the client, Ausenco, for a job well done.

S&N have also completed works at the newly upgraded Mt. Stuart Power Station in Townsville. The ongoing works continued since 2008 working with Leighton Contractors and Origin Energy to expand the power facility. The work continued through torrential rains, floods and winds to be completed on time and is a credit to all who participated.

S&N have also completed the Ridgeway Deeps Project with Newcrest Mining in New South Wales. This project was also completed on time and on budget with great praise given to the S&N team from Newcrest Mining. S&N look forward to working with Newcrest and Ausenco on their future projects.

S&N recently completed the Nelson Point Fuel Upgrade in regional Western Australia. This project took twelve months to complete. Again, S&N's reputation of delivering project works on time and on budget continued on the project. S&N were highly recommended by BHP Billiton for future works of this calibre.

Logistics Base Infrastructure

Stockpile Conveyor Tower.

New Projects

S&N are commencing 2010 in a number of areas in Queensland. The new Mackay Office is busy with upcoming projects developing in the Bowen Basin while the new Mt. Isa office is completing ongoing works for the Mt. Isa Mines and Xstrata. In Central Queensland, also, S&N are completing works for the Crinum North Mine Expansion in Emerald.

Services

S&N Civil Constructions was formerly known as S&N Concreting and Constructions prior to August 2009 when the company went through a complete review of systems and services which brought about the new name change and logo change. The name was changed to more correctly reflect the range of services S&N provided and were experienced in, with knowledgeable staff and the expanded company owned plant and equipment. S&N are able to deliver quality results in these ranges of services not only limited to concrete construction as the previous name could suggest;

- Civil Concrete Construction (also underground)
- Infrastructure Development
- Headworks
- Water Treatment Plants and Dams
- Sewage Treatment Plants and Dams
- Residue Dams
- Civil Earthworks
- Roads
- Bridges
- Structural Steelworks
- Building Construction works
- Ready Mixed concrete production and delivery (limited)
- Piping
- HDPE Supply & Installation

S&N Win Queensland Safety Award

2009 saw S&N become National Finalists for their workplace health and safety system by being awarded a Queensland Safety Award in this category. A summary of S&N's submission can be viewed by visiting the Workplace Health and Safety Queensland website at: http://www.deir.qld.gov.auworkplace/training/events/worksafeawards/finalists/sncivil/index.htm

S&N have recently integrated their management systems to create a high standard of quality, health, safety and environmental systems. The finalised systems have generated an amount of praise by winning the Queensland Safety Award in this category and also becoming National finalists in SAI Global's 2009 Business Excellence Awards.

S&N are proud to be able to offer Clients a service that is backed by advanced business systems certification in:

- Quality Management System to AS/NZS ISO 9001:2000,
- Environment Management System to AS/NZS ISO 14001:2004 and
- Occupational Health & Safety Management System to AS/NZS 4801:2001

The finalised systems have generated an amount of praise by winning the Queensland Safety Award in this category and also becoming National finalists in SAI Global's 2009 Business Excellence Awards.

Your vision – Our capabilities

Queenslanders have a vision to keep our state moving forward. Thiess' capabilities are making this possible by providing the skills and experience to complete major infrastructure using a whole of project approach – from design to construction and operation and maintenance.

Beerburrum Station.

"Our aim is to bring our client's vision to reality – creating improved transport networks, helping to secure the State's water future and delivering much needed resources infrastructure."

This is the challenge for Thiess' Managing Director Dave Saxelby and his team, who partner with clients and communities to realise their goals.

In 2007, a request by the Townsville community to reduce congestion on its busy streets has become a 7km single carriageway – the Townsville Ring Road. Coupled with the Woodlands to Veales Upgrade on the Bruce Highway, this project has greatly improved safety on the road network in Townsville.

Also in Townsville, the city's $66 million Hospital Upgrade will be completed in 2011 incorporating a new North Block with an extra 40 beds and the biggest emergency department in Queensland.

What were in 2006 images in the minds of engineers trying to find solutions to South East Queensland's water shortage is now a facility that is part of the largest recycled water project in the Southern Hemisphere – the Bundamba Advanced Water Treatment Plant.

In 2005, a challenge by the Queensland Government to deliver rail infrastructure more efficiently in a tight resources market has developed into part of QR's largest rail upgrade in South East Queensland to date with work totalling more than $700 million – TrackStar Alliance.

Tunnelling on the Airport Link Project.

From tunnels to bridges, railways to hospitals and water treatment plants to remediation works, Thiess is working with its clients to ensure that the State has the essential services to meet the needs of a fast growing population.

"We are taking our client's ideas and bringing them forward as challenging but rewarding projects – using our capabilities to achieve a vision," Mr Saxelby said.

"The challenge is also not just to construct a road or railway but to do it in a way that creates a positive impact."

One of the keys to the success of the recently completed Townsville Ring Road was a long-term strategy which provided continuity of community engagement during the course of the two-and-a-half year project, from the concept design through to post-construction feedback. Team ambassadors attended 90 community meetings, provided 45 site tours, hosted a community open day, provided 10 public displays, attended to more than 500 queries on a dedicated Infoline, achieved more than 10,000 visits on the project website and maintained the number one ranking for level of interest in local projects, and delivered more than 55,000 newsletters.

Estimates indicate that an additional 42,500 people will relocate to the Townsville region during the next 10 years. The Townsville Ring Road Project has provided a long-term, improved road network which will sustain this growth.

A whole of project approach

"Queensland's development will be centred on the growth of its towns and cities, the wealth of natural resources and the skills of its people," Mr Saxelby said.

To meet the challenge, Thiess has developed its business to focus on the three core markets of construction, mining and services.

"As a proud Queensland-based business for the past 75 years, our long-term investments in education and training in partnership with leading Queensland institutions allow us to bring expertise in a range of disciplines," Mr Saxelby said.

"Using a 'whole of project approach', we are able to manage all stages of a project from design and construction through to operations and long-term maintenance.

"This promotes the smooth transfer of knowledge and innovation throughout the project, reduces the number of interfaces and reduces the overall cost."

With our joint venture partners, we are constructing Australia's largest desalination plant, which will secure Victoria's water supply independent of rainfall by the end of 2011.

Thiess Services is a leading provider of infrastructure operations and maintenance, including power, water, gas and telecommunications. Thiess Services will operate and maintain the Airport Link Project in Brisbane once it is open to traffic and, in a joint venture, it will also operate and maintain the Victorian Desalination Plant for the remainder of the 30-year concession period.

The Thiess team has helped reduce congestion on Townsville's busy streets through the Townsville Ring Road Project.

The Hinze Dam Stage 3 Project will increase water supply form the dam to 225 million litres a day.

Airport Link workers raise money for breast cancer by wearing pink hard hats.

Water security is an area in which Thiess has extensive experience. In 2008, the Bundamba Advanced Water Treatment Plant was named Water Project of the Year at the Global Water Awards with Stage 1A completed two-and-a-half times faster than the normal industry construction rate.

Thiess' experience in water infrastructure includes 83 dams since 1954. At the Gold Coast, the Hinze Dam Stage 3 Project will see the wall raised from 93.5 metres to 108.5 metres. It will reduce flooding in the lower Nerang River catchment and increase water supply from Hinze Dam to 225 million litres per day.

These essential projects allow Thiess to develop a relationship with the client and the communities in which it works to achieve the most sustainable and effective outcomes.

Airport Link is Australia's largest infrastructure project.

Mr Saxelby said one of the major challenges Thiess had been tasked with was to create an integrated transport network.

What in 2008 was a 3D model of Australia's longest road tunnel is now the country's largest infrastructure project – Airport Link, Northern Busway (Windsor to Kedron) and Airport Roundabout Upgrade. A project that is generating 10,000 direct and indirect jobs and when completed will be the first major motorway linking Brisbane city to the northern suburbs and airport precinct.

"Our designs mean that the Airport Link Project will create new urban space and re-energise existing areas," Mr Saxelby said.

"By locating the Lutwyche Busway Station under the road corridor, we will reduce the station's footprint, provide new pedestrian connections and retain the developable land for future urban regrowth opportunities.

"At Airport Link, more than one million new plants and more than 5000 trees will be planted as part of the project, which includes the creation of new parks and upgrading of existing parkland."

Forming strong partnerships

Thiess' Acting Queensland Business Unit General Manager Greg Sparkman said one of the company's strengths was its success in working with governments, clients and the community to form strong relationships.

As the constructor in the TrackStar Alliance, Thiess has delivered a number of complex rail infrastructure projects as part of the Queensland Government's $30 billion commitment to plan and build a better rail network for South East Queensland. TrackStar Alliance is also delivering a number of power strengthening works on QR's Brisbane metro rail system and for QR COALRAIL in Central Queensland.

"We recently delivered the new $300 million Robina to Varsity Lakes rail extension at the Gold Coast six months ahead of schedule," Mr Sparkman said.

The 4.1km of new track includes a 300 metre tunnel, three new road-over-rail bridges and 3.2km of new roads in and around the station.

Thiess Services removed more than one million tonnes of waste from the former landfill site to create the Varsity Lakes Station, which is partially powered by solar energy and features natural lighting and ventilation.

Social infrastructure is a key part of Thiess' business.

In healthcare, Thiess has almost 20 years continuous experience designing and constructing state-of-the-art hospitals in Australia.

"We have assembled a core team of experienced professionals who work in association with multiple partners in the health arena to investigate and develop new models of healthcare. Our aim is to provide flexible, cost effective and efficient services to meet the needs of the community," Mr Sparkman said.

Thiess' projects are located in both South East Queensland and in the major regional centres and the company is playing an active role in delivering Queensland's vision for the future.

Thiess has an enviable history in the program management of significant infrastructure projects. It has the strength to deliver on major projects and the financial capacity to carry administrative costs for long term programs.

"It takes a contractor with experience and confidence in the abilities of its people to be able to complete projects such as this," Mr Saxelby said.

"We are realising Queensland's vision through world class infrastructure."

Horizontal Directional Drilling carves out success for Jemena

Jemena is a unique infrastructure company in Australia that builds, owns and services a combination of major electricity, gas and water assets. It manages more than $9 billion worth of electricity, gas and water assets and specialises in both the transmission and distribution of electricity and gas.

Formed from the sale of Alinta Ltd in 2007, Jemena is known for its industry leadership, great people and delivering the best results for clients and communities across Australia. Jemena combines the heritage, skills, experience and assets of some of this country's most successful energy companies, including Alinta, United Energy, Agility, AGL and NPS.

Well placed to meet the growing infrastructure needs of the 21st Century, Jemena is now entering into new water markets including wastewater and recycled water projects, while continuing to provide high quality electricity and gas network management and services to asset owners.

Jemena's service capacity includes access to a horizontal directional drilling (HDD) capability that boasts a total of five HDD machines available to its CLM Infrastructure business, to undertake the installation of all underground services or utilities.

HDD is an innovative, highly controlled method of drilling a hole underground that avoids the intrusive process of excavating the surface. HDD allows Jemena to run electrical, water, gas or telecommunication infrastructure under roads, trees, swamps and other objects on the surface that should remain undisturbed. Importantly, it allows for maximum preservation of the immediate environment.

David Sinclair, CLM's General Manager said the HDD capability has saved Jemena's clients time and money compared to traditional trenching techniques.

"By using HDD, we are able to avoid having to dig up roads or manually dig around existing pipes and infrastructure. This saves a lot of time and money and also means we don't have to disrupt traffic or vital community infrastructure when we undertake the work.

"The reinstatement costs and rates in some circumstances are also more competitive for horizontal directional drilling compared to trenching. Our clients are seeing significant cost, time, environmental and community benefits" David said.

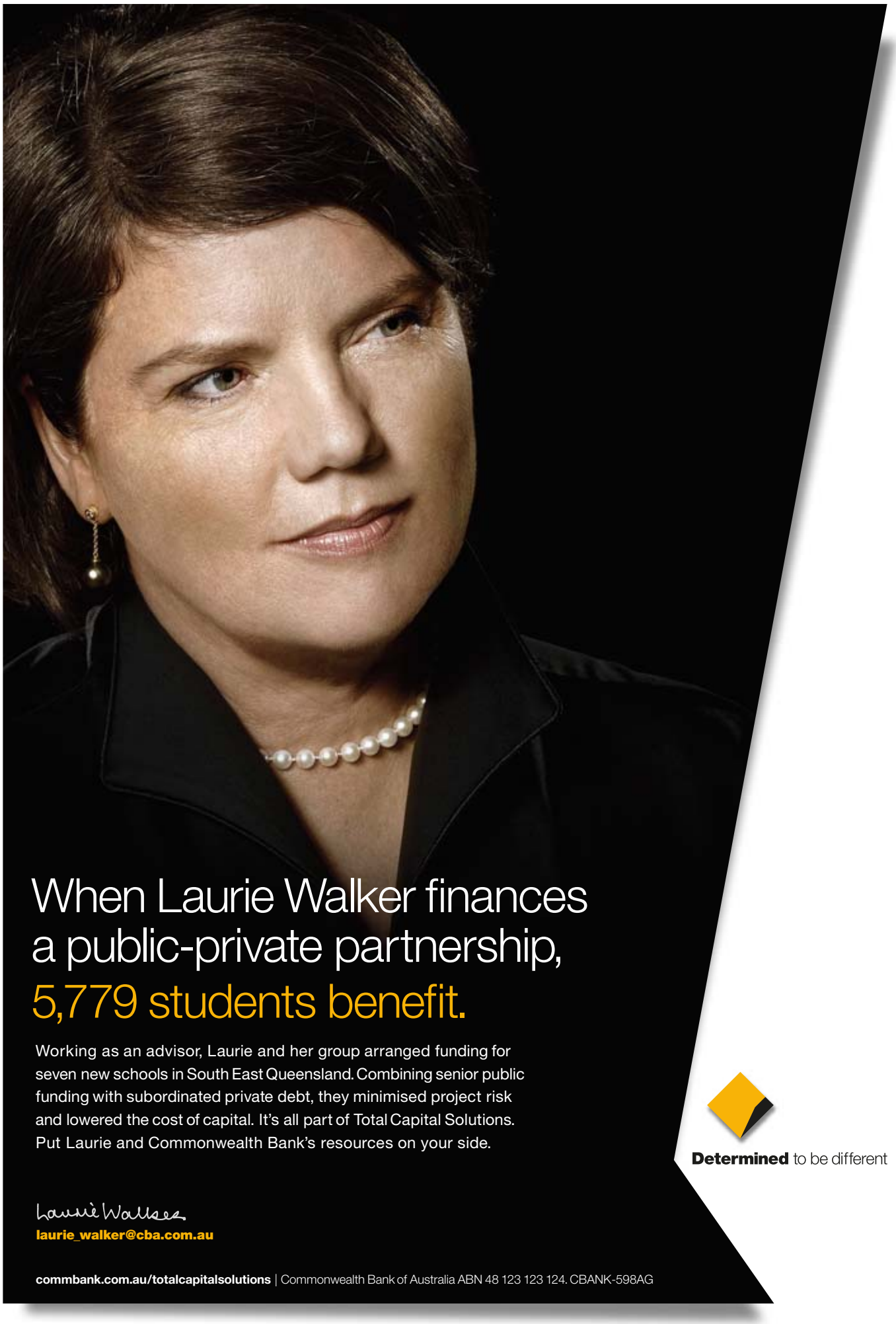
Over the past year, Jemena has used HDD technology for clients including:

- Country Energy in New South Wales, where power cables had to be run under environmentally significant swamps.
- Queensland Rail to drill under platforms
- Moreton Bay Water for installation of large runs of water pipe.
- Energex for installing both conduit for distribution and transmission works and many other clients.

Both Jemena and CLM Infrastructure provide complete infrastructure relocation capabilities from project management through to construction and maintenance services, to water customers throughout Queensland.

Jemena's Queensland based teams offer several decades of experience and great expertise across a range of specialist fields including engineering, design, project management and civil construction. Drawing on the support of national specialists when required, the company remains committed to always delivering quality products for clients and communities safely, on time and on budget.

For more information visit www.jemena.com.au



When Laurie Walker finances a public-private partnership, 5,779 students benefit.

Working as an advisor, Laurie and her group arranged funding for seven new schools in South East Queensland. Combining senior public funding with subordinated private debt, they minimised project risk and lowered the cost of capital. It's all part of Total Capital Solutions. Put Laurie and Commonwealth Bank's resources on your side.

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The trillion dollar question: Can superannuation boost investment in Australia's infrastructure?

By Bill Banks, Infrastructure leader and partner, Ernst & Young Australia

As Australia's aging population reduces the taxation pool, governments will need to find new sources of funds for long-term infrastructure projects. While such projects appear to be an excellent fit with the investment appetite of Australia's trillion-dollar superannuation industry, the Ernst & Young survey, "The trillion dollar question," reveals superannuation funds are unlikely to increase infrastructure investment while projects are offered in their current form.

Hurdles to superannuation infrastructure investment

At first glance, the superannuation industry seems the obvious answer to financing Australia's infrastructure. Superannuation funds should be natural infrastructure investors, given their capacity to become involved in patient capital and their limited need for immediate cash flow.

Despite strong arguments for funneling Australia's savings into economic development projects, our survey showed superannuation funds are wary of investing further in local infrastructure assets – and not just in the short-term. They are likely to remain cautious until the infrastructure investment process and/or value proposition changes.

Where is the value?

Many superannuation funds have a pessimistic perception of infrastructure value. In the short-term, interviewees believe asset values remain volatile, with some expressing concerns over the number of distressed sellers in the infrastructure market.

Longer-term, getting transparency on the value of infrastructure deals is a common challenge. Many interviewees believe investment banks have sold infrastructure assets at inflated prices, stripping the real value from the deal before it gets to the final buyer. Not surprisingly, they are only interested in deals where the value will flow to the long-term owner.

Problems with liquidity

The post-GFC environment is creating liquidity issues for superannuation funds, with fewer discretionary superannuation contributions, an increasing proportion of pensioners in every fund and increased switching between investment options. At the same time, the banks are demanding more equity in existing assets.

There is a risk that funds may be exposed to a heavy concentration of infrastructure assets they cannot reduce at the same pace as a member can move in and out of funds. This could affect their cash position – as could the extra complication or challenge around daily unit pricing and valuations.

Poor alignment with investment strategies

The Ernst & Young survey showed superannuation funds choose infrastructure deals based on a number of factors, each of which contribute to the 'go/no go' decision. Such factors include:

- How is it structured?
- How is the deal being financed?
- Who's providing the debt?
- What sector is it in?
- Who else is in the consortium?

As a long-term equity owner, funds want to be sure their partners are like-minded investors, focused on the long-term rather than merely being interested in short-term transaction fees or construction profits.

In addition, some superannuation funds refuse to invest in certain classes of infrastructure assets. For example, one fund interviewed will not invest in social infrastructure assets such as hospitals and nursing homes, since their membership is predominantly funded by self-funded retirees – the end users of these types of asset classes.

Greenfield projects are less attractive

Australia's major call for infrastructure funding is greenfield or new build projects, which most funds view as a higher risk than investing in existing assets. By contrast, brownfield projects have no construction risk and an easily identifiable operating record. So a key consideration for governments is where the changing risk allocation will attract greater superannuation investment in the greenfield space.

Complex, expensive bidding process

Greenfield Public to Private Partnerships (PPP) bids projects are often expensive and risky to participate in due to the length, complexity and cost of upfront bidding.

While the bidding nature of these projects is widely accepted as "part of the game", it is an expensive process for many superannuation funds to be a part of. Where the builders and / or investment banks are leading the consortium, the fund managers often feel they are the passive provider.

To further attract superannuation investment in Greenfield projects, superannuation funds need a cheaper, faster method of investment with a greater likelihood of success. Alternatively, funds need to look at whether they can step up into sponsor roles in bidding consortia.

Infrastructure as an asset class is highly complex, requiring specialised skills to carry out commercial due diligence on the deals. Although superannuation funds... still require a certain level of commercial understanding at all levels – from fund managers to trustees.

Lack of a clear project pipeline

Without sight of a committed pipeline of infrastructure projects in Australia, superannuation funds find it difficult to include these projects into their long-term investment strategy.

Currently, projects are brought to market in a piecemeal fashion, usually at the last minute. This does not dovetail with the highly strategic, long-term planning process engaged in by superannuation investors.

Interviewees are also concerned that, without a clear view of the deal pipeline, players start to significantly drop their price to be the successful bidder. It seems a competitive landscape driven on price alone is not a sustainable or long-term investment option for superannuation funds, which require a certain level of risk versus return for their members.

Lack of specialist expertise

Infrastructure as an asset class is highly complex, requiring specialised skills to carry out commercial due diligence on the deals. Although superannuation funds often address this issue by using specialist asset consultants, and due diligence consultants, funds still require a certain level of commercial understanding at all levels – from fund managers to trustees. Some interviewees acknowledge their fund managers are ill-equipped to properly assess infrastructure assets. This skills gap will become more pronounced if superannuation funds decide to move up the value chain and play a more active role in greenfield projects.

To address this gap, we have observed a number of superannuation funds up-skilling or hiring (or intending to hire) investment professionals with infrastructure expertise.

Over time, this will allow them to move more towards direct investment and restore confidence with their boards that infrastructure is a sustainable long-term asset class. However, careful consideration to buy infrastructure investments must be given to ensure appropriate alignment to the superannuation funds' risk appetite in unlisted assets. As a result the industry will remain highly dependent on external advisors regarding infrastructure investment.

Way forward

At many levels, the superannuation industry is a natural solution to Australia's increasing need to find private sector funding for infrastructure development projects. However, the risk/return profile of many of these investment opportunities, the lack of a national pipeline of infrastructure projects and the complexity and disparate nature of bid processes, are preventing the nation's savings from being channelled into economic development.

Governments have opportunities to attract superannuation as a long term infrastructure player by looking at other credit instruments, reducing risk, increasing transparency, standardising processes and clarifying regulation. However, one thing remains clear, government needs to truly understand the real agenda for superannuation funds is investment returns for their members. Above all else, capturing investment return will ultimately lead to greater investment from funds. Unless they do so, superannuation will continue to channel much of its infrastructure investment overseas.

This is an excerpt from the Ernst & Young report. "The trillion dollar question: Can superannuation boost investment in Australia's infrastructure?" is available online at www.ey.com/au.

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Pathways for Investing in Infrastructure

By John Corbett, Managing Principal - Queensland, Coffey Comercial Advisory

Much of the focus regarding infrastructure in recent times has been on the poor equity performance of some high-profile listed trusts – but what about the debt side of transactions? This article will review the development of infrastructure ownership and financing in Australia over its initial phases (ie from the mid 1990s until 2007) and the changes now occurring due to the impacts of the Global Financial Crisis. It will also consider the future pathways for investment by commenting on:

1. Future trends in infrastructure transactional structuring; and
2. The increasing potential of the debt component of the infrastructure asset to become an accepted investment class.

The underlying key themes that we will develop are:

1. The need for simplicity when structuring an infrastructure transaction, with transparency being the overriding essential element; and
2. The capacity for the superannuation fund industry to invest in the senior secured debt funding portion of the infrastructure asset class.

Infrastructure Characteristics

The often quoted attractive feature regarding the infrastructure asset class is its ability to deliver consistent returns to investors. Infrastructure generally has a stable to increasing demand profile throughout economic cycles or otherwise has long-term offtake arrangements with highly rated counterparties. Therefore, these assets should be well positioned to deliver this consistency of returns. So, why has this not been the case in practice?

For appropriately-structured infrastructure assets (in most instances, this being characterised by conservative gearing), the defensive characteristics of the asset have remained evident through the continued stability of returns. We continue to see many examples of this with the underlying asset performing to expectations despite the current external economic impacts. The problems arise when aggressive leverage, aggressive patronage growth forecasts, engineered dividend policies, complex entity structures, complex performance fee structures and other forms of financial structuring are introduced into the equation.

Equity has been substantially impacted by this aggressive approach to asset structuring – but what about the performance of senior debt into these transactions? There has been some interesting global analysis on this of late, together with local supporting evidence.

Debt Characteristics

The experience of the global project finance banks has demonstrated that the asset class carries lower risks than was earlier thought. This was borne out by a 2004 study undertaken by Standard & Poor's in collaboration with some 30 global banks active in project finance as part of the Basel Capital Accord 2004-2005 (Basel II) regulatory process. This study demonstrated that project finance loans are not only safer than generic corporate finance loans, they also have much higher recovery rates on defaulted loans. The historical median recovery rate quoted in the study for project finance loans was 100 per cent whilst it was only 38.3 per cent for senior unsecured debt (source: Standard & Poor's Risk Solutions, January 2005). Tellingly, most infrastructure transactions are financed through project finance lending.

These global results appear to have carried through to the Australian market. Our research over the past few years has yet to identify a single project financed infrastructure transaction where the senior secured lenders have lost money when the asset goes into default. Even Sydney's Cross City Tunnel, where patronage was only about 40 per cent of forecast, saw the senior project finance lenders receive all their principal, interest and fees repaid from the asset sale. Whilst there are some current highly geared infrastructure transactions that may yet deliver some element of principal loss to the lenders, the stability of invested capital and consistency of returns compares very favourably to the recent track record of equity.

2007 – The End of the Beginning for the Infrastructure Asset Class?

The infrastructure asset class in Australia really became established in the mid-1990s with the early toll roads, the privatisation of the capital city airports and the sale of electricity assets by the Victorian and South Australian Governments. The approach of investors and bankers to these early transactions was generally conservative but this noticeably changed with the increasing attention of local and overseas investment banks to participation in the infrastructure space.

As the market evolved, competition drove ever increasing innovation which often coincided with increasing levels of complexity in transaction structures. This drive for innovation saw the advent of:

- Credit-wrapped bond issues to fund infrastructure assets, whereby the issuer (borrower) would pay a fee to utilise the rating of a higher rated entity (such as an insurance company with a AAA rating). These products first appeared in 1999 with Brisbane Airport Corporation being one of the early adopters.
- Listed vehicles to access a mixture of institutional and retail investors and provide liquidity to the equity investment;
- CPI (inflation) swaps to hedge future receipts, reducing future income volatility and so allowing for higher levels of debt to be applied to the asset funding structure;
- Stepped interest rate swaps to hedge interest rate risk – the twist here being a lower than market starting rate with the differential being made up by higher rates in the back end of the deal. Again the incentive was to allow for higher levels of debt to be applied in the asset funding structure and/or to allow a higher price to paid for an asset (in bidding scenarios);
- Increased banking competition (and hence acceptance of higher levels of leverage and lower interest coverage ratios) as more banks entered the project financing market in Australia and also as banks individually sought to compete against credit wrapped bonds;
- Significant upfront and ongoing fees accruing to the (usually investment bank) promoters of infrastructure funds; and
- Aggressive use of gearing, regular asset revaluations and elaborate financial structuring to drive shareholder returns and dividend payments.

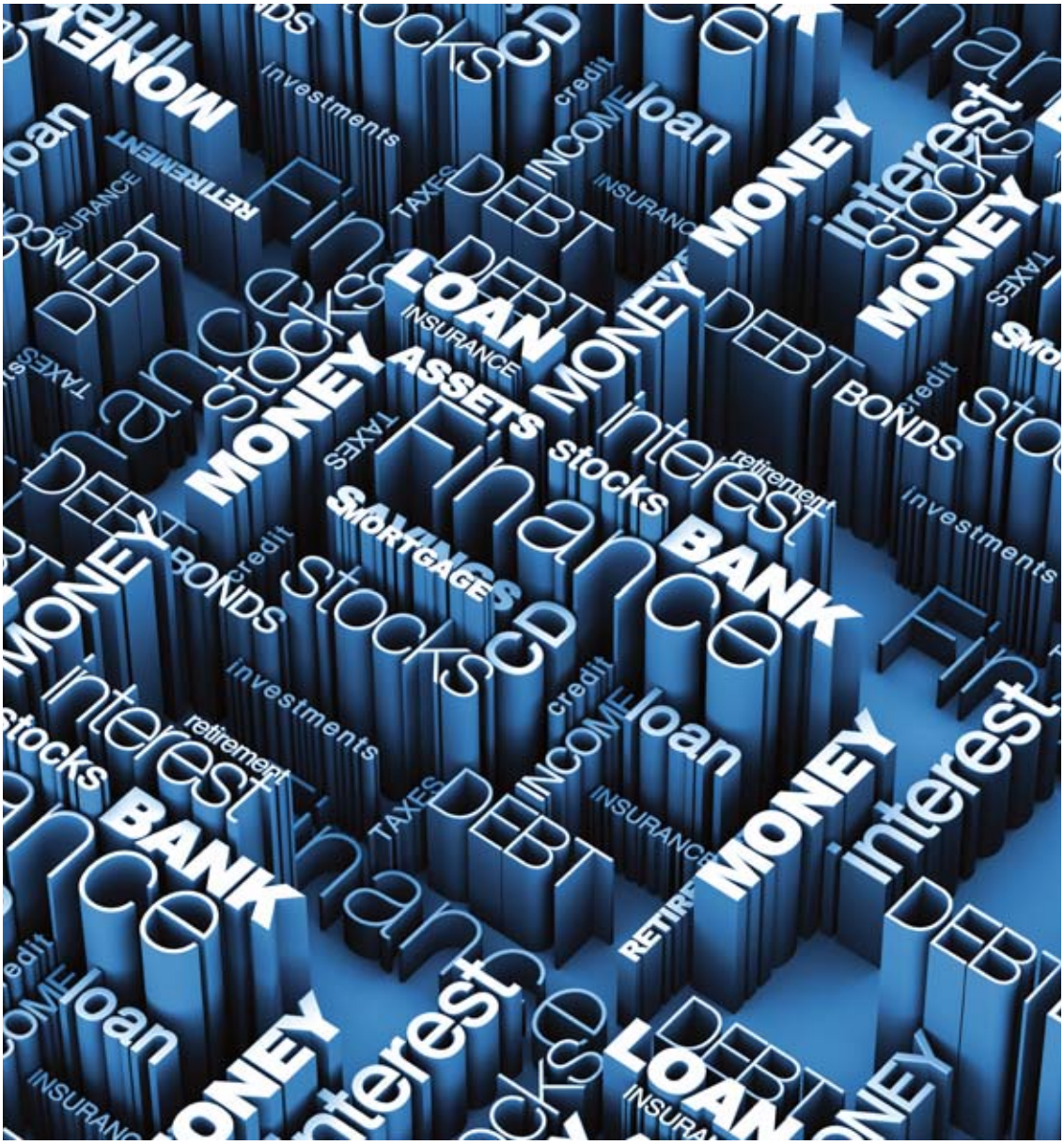
As we rolled into 2007, the new infrastructure transactions then being promoted had reached a zenith in terms of complexity with listed equity vehicles the norm, the use of partially paid units to defer the investment and enhance underlying returns and the regular use of increased borrowings (usually against increased asset valuations) to maintain dividend flows. The large established infrastructure arrangers such as Macquarie, Babcock & Brown, ABN Amro and Plenary were aggressive in sourcing assets and other parties such as Commonwealth Bank, Challenger Financial Services, Allco and Westpac Specialised Capital / Hastings Funds Management were also rapidly building their scope and capability.

Enter at this point the Global Financial Crisis which began with falling house prices in early 2007. The associated credit crunch brought this sector to a rapid halt, saw the collapse or near collapse of a number of major financial participants and is now causing a major rethink on how infrastructure is structured and financed.

2009 – New Opportunities

The Global Financial Crisis has seen a renewed emphasis across financial markets on risk allocation, transaction gearing, pricing of risk, transparency of structures and overall simplicity. These themes are now playing out across the infrastructure landscape and we are witnessing the reinvention of how to appropriately structure assets and entities. There have been some seismic shifts already with a number of listed infrastructure entities reducing their gearing levels, signaling future dividend payments will only be made from free cashflows and contractually gaining independence from their previously allied financial promoters. Additionally, the volatility of recent times has created an enhanced demand by investors for "boring" assets that deliver "boring" but consistent returns year in and year out.

These seismic shifts are also creating a new opportunity for funds to invest into the infrastructure asset class. Besides the equity component of an asset displaying much more transparency around cashflows and distributions, there are emerging opportunities to invest in the debt funding of an infrastructure asset. Typically



in an infrastructure transaction, for every $1 of equity there is about $2 of debt – and debt servicing has priority to any distributions, whilst holding security over the assets as well.

Reflecting upon our earlier comments regarding the financial stability of the senior secured debt (i.e. project finance debt), investing in the debt component in appropriately structured transactions represents a strongly defensive asset class which delivers returns similar to investment grade corporate or RMBS paper. In fact in our experience, most senior secured debt into infrastructure transactions is structured to achieve an equivalency to an investment grade rating.

The capacity of funds to either participate "pari passu" directly alongside bank financiers in a syndicate arrangement or otherwise participate via a rated bond instrument (the potential to issue within Australia bonds rated solely against the infrastructure asset is presently being investigated by different parties) opens up new investment opportunities. In addition, there exists in the market the capacity to engage appropriately qualified and structured external parties to assist in the analysis and management of these debt instruments.

The following table illustrates the relative positioning of the infrastructure (secured senior debt) asset class. It can be generally described as:

- Low risk
- Medium volatility
- Long duration

Proposed Transport Infrastructure Projects in regional Queensland

	Cash	Fixed Interest Govt. Bonds	Secured Infrastructure Debt	Fixed interest Corp Bonds	Propery	Shares
Duration	Short	Medium/ Long	Medium/ Long	Medium Medium	Medium Medium	Short Short
Capital Risk	A1+	AAA	Investment Grade	Investment Grade	Medium	High
Cash Flow Risk	Low	Low	Low	Low / Medium	Medium	Medium
Capital Risk	Low	Low	Low	Medium	Medium	High
Cash Flow Volatility	Low	Low	Low	Low	Low/ Medium	Medium

Conclusions

Infrastructure to date has been marginalised in many portfolios due in part to the perceived complexity of the asset class. In fact, many of the sub-sectors of the asset class (such as the regulated assets, the brownfield patronage assets and those assets with long term "take or pay" arrangements) are relatively straightforward when properly structured. The overriding words here being "when properly structured".

When engaging in developing ever more complex structures, instead of making the asset class more attractive, it has arguably had the opposite effect – but times are now changing and this is only for the better. In presenting assets which are transparent in their structure, the arrangers of transactions will find a more positive reception to their offering. In addition, this structural simplicity will also assist funds in considering investing in the senior debt component of a transaction as well as the equity.

Over the next twelve months we expect to see the first of these infrastructure-backed bond issues come to market, offering long dated investment alternatives to government bonds backed by the underlying security of the asset. This will be an important step forward to achieving the often stated "holy grail" of having the superannuation funds comprehensively investing in Australian infrastructure.

About the Author

John Corbett is the Managing Principal - Queensland for Coffey Commercial Advisory, a leading commercial advisory consultancy specialising in the planning, financing, procurement and governance of infrastructure and service delivery projects. Coffey Commercial Advisory is part of Coffey International Limited, a publicly listed company comprising a range of diverse professional consultancy services with a strong focus on global delivery of social and physical infrastructure.

John has over 23 years experience in corporate and institutional banking and project financing and has held a variety of senior roles over the past decade with major Australian financial institutions. For the past 5 years up until joining Coffey in 2009, John led a specialist Project Finance team for Suncorp Metway and transacted projects across the energy, power generation, renewables energy, ports, airports and social infrastructure areas.

Using innovative solutions to fast-track Townsville success

The Townsville V8 Supercars Project presented a unique design and construction challenge. By using innovative and creative solutions, Leighton Contractors was able to successfully deliver a world-class community and commercial precinct on time and on budget in a major Queensland regional centre.

In December 2008, the former Department of Sport and Recreation Queensland (DSRQ), Townsville City Council (TCC) and V8 Supercars appointed Leighton Contractors as Managing Contractor to design and construct a permanent multi-purpose precinct at Townsville's Reid Park, with the primary purpose of staging the inaugural Dunlop Townsville 400 in July 2009.

During January and February 2009, Townsville recorded its heaviest wet season in recorded history. The project site received 1.7 metres of rainfall and was effectively closed for a six-week period. This unavoidable delay placed extreme pressure on what was already an ambitious construction program of six months. To overcome this, extensive design reviews were undertaken to develop the most innovative and efficient design and construction program to manage the timeframe and conditions, and deliver a successful project.

Work on the high profile project involved construction of approximately 1.6 kilometres of track, a 49-metre span bridge over Ross Creek, landscape presentation and a 185-metre long, two-story Multi-Event Facility that converts to the Pit Building during V8 Supercars events.

Working with a range of local consultants, including Flanagan Consulting Group, Brazier Motti, Planpac, Coffey Geotechnical and Parsons Brinkerhoff, the project team developed a range of innovative solutions to ensure the project was delivered on time and under budget.

Leighton Contractors Northern Region General Manager Darren Weir said the company engaged a large group of Townsville companies to deliver the majority of the works. The project provided 230 jobs, with around 80 per cent of them local. The local team was very enthusiastic about delivering a top notch facility.

"The V8 Supercars project was a shining example of how we show respect and consideration for all stakeholders, and in terms of client requirements, there was not a single change to time or extensions of time claims within the contract," he said.

Before the development of the Multi-Event Precinct, the 21.8 hectare site was underutilised and contributed little to the community. Planning and urban design through the project transformed the space into an area which provides the wider community with multi-use recreational and social facilities, improved connectivity and gives the potential for a strong economic base for the Townsville region.

The Multi-Event Facility is very flexible and was created to act as both the Pit Building for the V8 Supercars event downstairs and upstairs as a multi functional space for local events including rehearsals and corporate training. The top floor also functions as a corporate space, media area and control room during the V8 Supercars event.

Developed to work well and look good in the local environment, the Multi-Event Facility is a distinctively tropical building which complements the landscape and blends well with surrounding buildings such as the adjacent Townsville Civic Theatre.

The project team had to ensure the track met the requirements of the client and international car racing standards.

Another challenge of the design was that one kilometre of the proposed race track was governed by the Department of Transport and Main Roads (DTMR) and used daily by the community. As a result, the project team had to ensure the entire circuit conformed to DTMR's DG14 standards rather than the lesser DG10 preferred for V8 Supercars racing.

Existing ground conditions on the site were extremely unpredictable, with very poor strength qualities. The project team had to accelerate the settlement of this unpredictable base, so settlement which would normally take several years would have to be achieved in a much shorter timeframe. A 12-tonne impact roller was used to treat the entire track reserve and footprint of the Pit Building. This treatment typically achieved 400mm of settlement which enabled the pavement to be constructed in an accelerated timeframe.

In further innovation to manage the short timeframe and constrained budget, the team constructed a fully precast concrete flooring system as the first floor of the Pit Building. This precast system eliminated the need for temporary formwork, and its structural strength meant that propping requirements were reduced, saving both time and money.

With the project completed in time for the Dunlop Townsville 400, the public acclaimed both the precinct and the event. The event drew a crowd of more than 168,000 people. This translated into a financial injection of $19.34 million into North Queensland and $17.26 million into the Townsville economy respectively.

Data collected by Townsville Enterprise indicated that 91 per cent of spectators rated both the organisation and standard of the event as 'above average' or 'excellent', while 81 per cent of those surveyed rated the facility as 'above average' or 'excellent'.

A major contributor to the success of this project was the great collaboration of the Leighton Contractors managing team and the independent and mostly local consultants. Solid teamwork on the project ensured that the Multi-Event Precinct was delivered on time and under budget. The facility itself is rapidly becoming an iconic Townsville feature which will serve the whole community and bring revenue into the regional economy for decades to come.

Port of Brisbane delivers record trade results

2009 marked a significant year in the Port of Brisbane's history. The port was exposed to the challenging economic conditions that affected the industry world wide, and the Queensland Government announced a restructure of their asset portfolio, which included the sale of PBC.

Port of Brisbane Corporation delivers $57 million new General Purpose berth handling bulk and break-bulk cargoes.

Despite these critical events, Port of Brisbane Corporation (PBC) has continued to deliver record trade and financial results, testimony to its diverse business and trade portfolio.

During 2008/2009, PBC achieved a total trade tonnage increase of 5.6 per cent, reaching a record 31.9 million tonnes due to strong performances in agricultural and coal exports.

Despite a decrease in container trade for the first time in 25 years, to 896,199 TEUs, down 4.9 per cent on 2007/2008, the port achieved a ten-year average growth rate of 9.9 per cent, which is a positive sign for the future.

Exports of empty containers were a major contributor to this result, dropping 16.7 per cent. However, due to better than expected performance from containerised agricultural products, full export containers were up 5.9 per cent.

Investment in port infrastructure continues to be a priority

During 2008/2009, PBC invested $156 million in new capital projects, including the completion of the $57 million General Purpose Berth, which will boost PBC's project and bulk cargo handling capacity through the port.

The facility is available for use by a range of customers and cargo types including, scrap metal, project cargo, appropriate dry-bulk cargoes and livestock; as well as providing the adjacent facility operated by Sunstate Cement with an alternative berth when the coal berth is unavailable. The wharf can also be used for naval and lay-up vessels. Patrick Terminals opened its new state-of-the-art Terminal 10 Autostrad® facility, following the early completion of Berth 10.

The Port of Brisbane provides world-class cargo handling and warehousing facilities, and an interface between rail, road and sea transport.

The extra trading capacity provided by the new berth means the port is well positioned to handle future trade growth, and will remain a competitive, commercially-focused entity for the benefit of the Queensland economy.

Berth 11 & 12, due for completion in 2012 and 2014 respectively, are under an Agreement for Lease with Hutchinson Port Holdings – making Brisbane the first major port to introduce a third container stevedore to Australia.

During 2008/2009, PBC completed a major ground-improvement trial at the Future Port Expansion area to help accelerate the consolidation process and make land available quickly.

The trials are critical to the future expansion of the port and provide a solid basis to confidently enter into commercial arrangements with service providers.

Heavy Corridor Plans for Port of Brisbane

As PBC continues to develop new facilities at Fisherman Islands, the need to balance public access with the increased need for connectivity between terminals and backup areas becomes increasingly important. To address this issue, during 2008 PBC completed a strategy to develop a heavy Transit Corridor at Fisherman Islands.

The proposed Heavy Transit Corridor will provide a potential rail and road corridor for container traffic movements between: future and existing terminal areas; container parks and depots within the island; and terminal areas and the BMT. Detailed design work is now progressing, and access restrictions will not come into place until alternative public access is available through a future road connection Terminal 11 to Lucinda Drive (approximately 2012).

Focus on 2010

PBC will continue to focus on servicing the port industry and developing infrastructure for the future. PBC are planning to invest $950 million in the port infrastructure projects over the next five years including the duplication of the Captain Bishop Bridge which will begin in early 2010. This project will include major road upgrades and improvements to the port's main entry point, and will lift weight limits for transport travelling on and off Fisherman Islands.

The Future Port Expansion area, where the award winning ground improvement trials were undertaken.

Throughput expected to double for Port of Gladstone over next decade

The Port of Gladstone, which lies 525km north of Brisbane, proudly wears the mantle of Queensland's largest multi-commodity port and the world's fourth largest coal export terminal by throughput.

With its deepwater harbour and vast state development area, the port is already a vital component of and contributor to the economy of the region, state and Australia.

The port, under the stewardship of Gladstone Ports Corporation (GPC), handles in excess of 29 per cent of Queensland's exports and 9 per cent of Australia's exports by volume, which equates to cargo valued at more than $5 billion. All this in a region of approximately 50,000 people.

Over 30 major products pass through GPC's facilities, with exports to over 35 countries. The major products include coal, alumina, aluminium and cement.

The port has very long-term strategic plans in place, and is focused on ensuring these plans are the right ones to take the company forward, so that growth and throughput of the port is maximised.

2009 proved a milestone year for the port with just over 80 million tonnes of export product shipped through the port.

With throughput expected to more than double over the next 15 years, the port has moved its focus for future growth to the Western Basin at the northern end of the harbour.

The Western Basin development will have a capacity to move over 300 Mt of product annually.

The development takes in Wiggins Island, Fisherman's Landing and the south-eastern side of Curtis Island.

Plans are in place for six new berths at Wiggins Island to cater for Cape size vessels with carrying capacity over 100,000 DWT. Coal and nickel will be loaded from this terminal.

At Fisherman's Landing, five extra berths are planned to cater for Panamax and Post Panamax ships, bringing the total number of berths at this terminal to 11.

Curtis Island is currently under consideration by a number of LNG proponents as the site for up to five LNG plants. GPC is working closely with the Queensland Government to facilitate the development of this industry in the region. Based on the current LNG project proposals, it is estimated the total LNG export capacity through the Port of Gladstone could exceed 40 Mtpa.

The potential growth associated with the LNG industry has added an increased focus on the development of the Western Basin area of the port.

A Master Planning Process has been initiated by the Queensland Government's Department of Infrastructure to provide a greater level of understanding of the planning and coordination involved with the provision of infrastructure for the Western Basin area. The process will assist us in streamlining the environmental approvals processes through all levels of government.

To cater for the future growth in vessel traffic within the port, investigative work is continuing on a detailed strategy and financial model for the ongoing development of the outer harbour channels.

This work will ensure that approvals and funding are in place to deliver the necessary infrastructure for the future development of the Port of Gladstone and associated increased shipping capacity.

To that end the port has released two Environmental Impact Statements governing the development of its Fisherman's Landing site and the dredging and disposal project in the Western Basin, to facilitate long-term access to the existing and proposed Western Basin port facilities.

The project incorporates the deepening and widening of existing channels and swing basins and the creation of new channels and swing basins. Material dredged during this project will be placed in a reclamation area to the north and immediately adjacent to the existing Fisherman's Landing reclamation area, which will create a land reserve used to service new port facilities.

GPC has also released its strategic plan for the development of its second port, Port Alma. Rights have been given to XStrata to build a coal terminal capable of exporting 30 Mtpa.

Feasibility studies are currently underway to determine the location of the new terminal.

In a surprise move early in 2009, the Queensland Government announced the ownership of the Port of Bundaberg would be transferred to GPC.

The official handover occurred later in the year and GPC is currently working with the Port of Bundaberg to develop a strategic business plan for the future growth of that port.

The PPP market - 2009 in review

David Lester, Partner, Clayton Utz

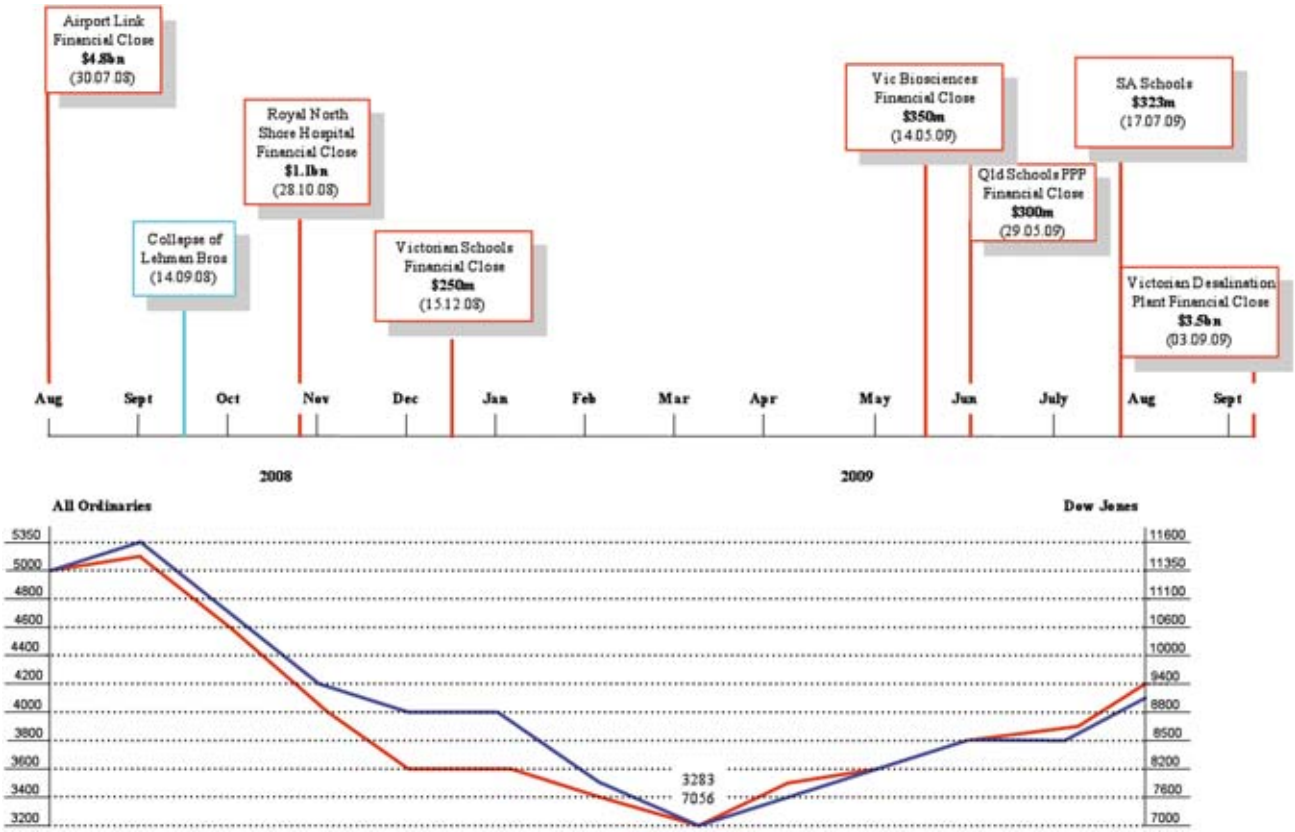
Key Point

- **Amidst a tumultuous and challenging time for financing infrastructure projects, we are seeing new and innovative models of delivery, which may assist market recovery with appropriate government support.**

The PPP market - 2009 in review

At the risk of stating the obvious, 2009 was a challenging year for financing infrastructure projects. Just how challenging is reflected in the huge reduction in the dollar value of project finance transactions worldwide last year. It totalled just US$176 billion which is just over 60 per cent of the volume in the previous year.[i]

PPPs have particularly been affected by the broader financial crisis. The graphs below show quite dramatically the impact the GFC has had on the market's ability to get PPP projects closed during the worst of the crisis.



The collapse of Lehman Bros on 14 September 2008 has widely been accepted as the tipping point for the GFC (i.e. the point at which the global interbank lending market dried up as banks stopped trusting each other). The impact on the Australian PPP market can be seen by the dearth of projects that were able to reach financial close in the first 6 months of 2009.

By overlaying the performance of the All Ordinaries and the Dow Jones indices you can see that this period corresponded with the free fall of the equity markets to their low point in March 2009.

At the height of the crisis banks were unable to fund themselves at the wholesale money market reference rates and there were suggestions that those rates had become unrepresentative. Foreign banks that had previously been very active in the Australian market began retreating back to their domestic markets. The syndication market closed and banks were only prepared to lend what they were willing to hold. The credit-wrapped bond market had effectively been shut since the end of 2007 which placed even greater reliance on bank debt for infrastructure projects. This constraint on liquidity meant:

- less debt available for any given project and the need for a club of banks for all but the smallest of projects;
- a higher price of debt, making it harder for privately financed deals to beat the public sector comparator;
- a shorter term for debt leading to refinancing risk and hedging issues; and
- greater conditionality relating to the debt during the procurement phase (e.g. market disruption and market flex provisions have again became the norm rather than the exception).

This constraint on liquidity in the debt markets led to the deferral or cancellation of a number of PPP projects (e.g. the Sunshine Coast hospital PPP and the South Australian prisons PPP). In January 2009, the Brisbane City Council suspended its EOI process in relation to delivery of Northern Link as a PPP.

Having said that, since May 2009 there has been a flurry of activity in the Australian PPP market.

The Victorian biosciences project was the first PPP to close in Australia in 2009, and while it was not a huge project it did show that PPP projects were still able to be closed and gave an indication of the terms upon which the banks were willing to lend.

The Queensland Schools PPP closed at the end of May 2009. This project was of great interest to the market given the innovative Supported Debt Model it used.

The South Australian schools PPP closed in July.

In September 2009, the Victorian government and AquaSure, reached financial close in relation to the country's largest desalination plant at Wonthaggi in Victoria. This project was hugely significant for the Australian market given its size ($3.5 billion) and the amount of debt that consequently had to be raised. The support of the Victorian government was critical to the successful debt-raising.

The pipeline

While the delivery of these projects is a testament to the resilience of the PPP model (and no doubt the political imperative driving the relevant procuring agencies), there remain significant challenges for the delivery of the infrastructure pipeline.

This has necessarily led to a re-examination of the PPP model and, in some cases, the use of other delivery models.

On Peninsula Link, the Victorian government is utilising an availability style design, build, finance and maintain delivery model which has the effect of eliminating traffic risk and increasing revenue certainty for the private sector. The Southern Way consortium – comprising Abigroup, Bilfinger Berger and the Royal Bank of Scotland – was awarded this $759 million PPP project on 15 January 2010.

In Queensland, the Brisbane City Council is now proposing to use public funds for the design, construction, operation and maintenance of the Northern Link toll road. The Council has shortlisted 3 consortia to lodge bids in May of this year.

Other procuring agencies have sought to break projects into publicly funded and privately funded pieces (e.g. the Gold Coast Rapid Transit project).

Other innovations like the use of debt funding competitions and the injection of government support (via direct grants, senior or mezzanine debt, equity or via a guarantee) to fill funding gaps will no doubt be a feature of PPP projects in the short to medium term. Tweaks to the risk allocation, particularly in relation to patronage risk, refinancing risk and market disruption, will also no doubt continue.

Conclusion

It has been a challenging period for financing infrastructure projects in the last 12 months, however, we are seeing some "green shoots" of recovery. Innovation in delivery in order to meet the changing market conditions will remain critical to the successful delivery of the infrastructure pipeline in the foreseeable future.

[i] Global Infrastructure Finance Review - 2009" - Infrastructure Journal, February 2010.

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Maximising value through effective regulatory due diligence in privatisation processes

The privatisation of key infrastructure assets represents an exciting opportunity for investors to enter new markets or to expand. However, cool heads are required to navigate through the privatisation process.

The Queensland Government's $15 billion privatisation of Queensland Rail, Abbot Point Coal Terminal, Port of Brisbane, Forestry Plantations Queensland and Queensland Motorways is the most recent privatisation opportunity for investors. For the Queensland Government, the sale of these entities presents an opportunity to reduce state debt, regain its AAA credit rating and focus its resources on essential public services.

As with most privatisation processes, the Queensland Government's announcement has met with mixed reactions. Some prominent economists and industry bodies have contested the Queensland Government's assessment of the net benefits to the State from the process. Key business groups have commended the Queensland Government's choice to privatise these assets rather than forego the budgeted $18 billion capital works program. Unions have continued to campaign against the asset sell-off.

Over the past fifteen years State and Federal Governments have successfully privatised key infrastructure assets. These sale processes were motivated by the same factors that are driving the Queensland Government. The Victorian Government's privatisation process in the 1990s raised $30 billion and refocused the public sector in that State.

Stakeholder reactions play a significant part in any sale process, particularly the sale of public assets, as they have the ability to materially impact the timeliness, conditions of sale and regulatory/legislative frameworks. They also have an enduring impact on the privatised business's operations, particularly for essential services (e.g. electricity and natural gas) or those essential to the economic prosperity of the State (e.g. rail and ports).

One way Governments have addressed stakeholder concerns has been to develop regulatory frameworks (licensing obligations and economic regulation) to ensure services are maintained at an appropriate standard and at a reasonable price. This occurred in Victoria, with the creation of the Office of the Regulator General (now the Essential Services Commission (ESC)) by the Kennett Government. In Queensland, the Queensland Competition Authority (QCA) performs a similar role to the ESC.

Stakeholder reactions play a significant part in any sale process, particularly the sale of public assets, as they have the ability to materially impact the timeliness, conditions of sale and regulatory/ legislative frameworks.

QR is the only entity to be privatised that is currently regulated by the QCA. Of the other entities, only Forestry Plantations Queensland currently operates in a competitive market. Therefore the remaining other assets are potential candidates for economic regulation in the short to medium term (although Queensland Motorways is unlikely to be subject to economic regulation because future toll pricing is determined as part of the construction tender to gain the right to build the toll roads).

The impact of regulation on the financial and operational performance of the newly acquired business will be a crucial driver of value. Any failure to adequately account for regulatory risk during due diligence can result in serious valuation errors. For example the Western Australian regulator (the then Office of Gas Access Regulation) set the initial Capital Base for the Dampier to Bunbury Natural Gas Pipeline (DBNGP) at $1.550 billion (as at 31 December 1999) despite Epic Energy paying over $2.4 billion for the asset in March 1998. This highlights that economic regulation is an invasive and risky process for any regulated business. This is due to the following factors:

A financial model is not a regulatory model

The financial model used by a prospective buyer to develop their bids should reflect actual and potential future regulatory values for parameters such as asset values, the rate of return, proposed capital expenditure and operational costs and foreshadowed efficiency gains (if any).

Regulatory discretion over key pricing parameters

The overarching objective of economic regulation is to replicate competitive market outcomes and to create incentives for firms to achieve efficiencies in providing regulated services. Under the 'building-blocks' model which is commonly applied by Australian regulators, the prices for regulated services are set on the basis of forecasts of the businesses' costs in the forthcoming regulatory period.

The regulator therefore has the power to set the regulatory asset base (RAB), which is the value of the asset base for pricing purposes. Regulators (including the QCA) have reduced the value of the RAB where it has considered that the asset or some part of it is 'gold plated' or is no longer essential for the provision of regulated services. It may also deem that future capital expenditure is not to be included in a regulated business's RAB - irrespective of whether the business (and its shareholders) have assessed that the investment is prudent.

Moreover, the Regulator sets a rate of return for the business. This return is applied to both the RAB and to approved capital expenditure but may be well below the levels required by the business to undertake the investment under normal business conditions. The regulated rate of return has been particularly contentious in regulatory decisions. Indeed, it was contention over the regulated rate of return that led to the delays in investment at the Dalrymple Bay Coal Terminal (discussed below).

Regulatory Risk

Because the regulator has discretion in setting the relevant pricing parameters (such as RAB, forecasts for capital and operating and maintenance expenditure, depreciation, and weighted average cost of capital) its decisions will be driven by the assessment of what costs are efficient, not those proposed by the business. Where there is limited legislative guidance to the Regulator about the factors it must take into account in reaching its decisions and where there is no avenue for aggrieved parties to seek merits review of regulatory decisions, there is considerable scope for the exercise of regulatory discretion and even error. It is therefore very important that purchasers of former public sector entities understand the potential for regulatory risk.

An example of this issue was the First Access Undertaking for the Dalrymple Bay Coal Terminal (DBCT) after it was privatised. In response to the QCA's draft decision on the draft Access Undertaking, DBCT Management refused to undertake any expansions at the port. According to DBCT Management this was due to:

- proposed terms and conditions that were uncommercial and inadequate;
- an understated opening RAB value and allowable corporate overheads; and
- a critically understated regulated rate of return.

It was only after this latter parameter was increased by the QCA that the investment in terminal expansions proceeded.

Regulatory Creep

The materiality and probability of regulatory risk varies significantly across industry sectors. Irrespective of the industry, the level of regulatory risk is a function of the:

- maturity of the economic regulatory regime (if applicable);
- operational performance of your peers (in local and national markets);
- maturity of the contestable market; and
- political sensitivities around constituent and key stakeholder concerns.

Based on the above factors, the regulatory environment can change dramatically and at times without an opportunity for market participants to influence regulatory, legislative and/or policy outcomes. These changes can have a significant impact on operational and financial performance. It is therefore essential to constantly monitor and actively participate in regulatory and policy mechanisms. This includes maintaining effective relationships with Regulators and Government representatives to maintain or enhance business value.

The potential for rapid and material changes in policy was recently seen in Queensland through the introduction of the Electricity Retail Billing Guaranteed Service Level Scheme in September 2008. In response to a number of electricity retailer billing errors, the Queensland Government introduced an obligation for all electricity retailers to give small customers a rebate of up to $40 in the event of issuing an incorrect bill. Not only did this represent an additional operational obligation for electricity retailers, it also created a significant financial risk as the maximum rebate exceeded the retail margin for a normal bill to a small franchise customer.

Change of Economic Regulator

Of the assets identified for sale by the Queensland Government, the regulatory frameworks (licensing and economic regulation) are currently Queensland based. However there are no guarantees these arrangements will prevail in the medium to long term.

For example in response to a considerable amount of media attention on the number of ships queuing at coal ports on the eastern seaboard, there were suggestions by the Commonwealth Government that a national regulator should be established to monitor all port infrastructure assets to ensure timely investment. The outcomes of the National Ports Strategy will also have to be considered in this context.

Conclusion

While regulation may be necessary to address constituent concerns about privatisation it also presents a material risk for unwary potential purchasers. Due to the level of risks involved to the financial future of the privatised entities, all due diligence processes should include an assessment of regulatory risks. Failure to do so could result in assets being purchased at a price that does not take account of current and future regulatory risks.

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Synergies Economic Consulting provides a broad range of economic and finance consulting services. These include:

- microeconomic analysis (including cost benefit and investment appraisal capability);
- regulation and network economics;
- regulation compliance and strategy;
- price, revenue and financial modelling;
- regional economic and economic impact analysis;
- public policy; and
- competition policy.

Synergies Economic Consulting has specialist skills in the areas of energy, transport, water, telecommunications and government services.

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Early Contractor Involvement as a procurement model

DLA Phillips Fox

The Global Financial Crisis has had a profound effect on the ways in which infrastructure projects will be procured in the future. With funding constrained, Principals are seeking assurances of the greatest level of value for money as early as possible in the procurement process.

Early Contractor Involvement (ECI) is a non-traditional collaborative and flexible procurement model with the potential to meet these requirements.

ECI departs from the comprehensive input specification and adversarial contractual framework of the procurement. Research for the IAQ shows the traditional Australian government procurement model has been significantly outperformed by other procurement models (see 'A Survey of Alternative Financing Mechanisms for Public Private Partnerships' Research Report 110, 31 August 2009 by Assoc Prof Michael Reagan published by Infrastructure Association of Queensland and Bond University).

The first and keenest promoter of ECI in Australia has been Queensland's Department of Main Roads (DMR).

Working from a UK model, DMR designed its ECI as a two stage procurement model that:

- is a flexible procurement model sensitive to market conditions where a variety of pricing mechanisms all need to be considered;
- integrates 'partnering' within the framework of the contract without the 'shared risks' philosophy of Australian Project Alliancing;
- is capable of application to a program of projects as well as individual projects;
- provides value for money to the Principal.

How ECI works

Stage 1 of ECI is performed prior to commencement of works and allows the Contractor to price and accept the identified risks and other project impacts in a transparent way.

Although ECI adopts greater relational contracting principles than most other procurement contract models, it does not incorporate the risk sharing, 'no dispute' and no liability aspects of Australian project alliancing. An ECI has been identified by other industry commentators as being particularly appropriate where the project is medium to large, complex and there are risks which the Principal wishes to closely manage.

In Stage 1:

- Planning and preliminary design is undertaken by the Principal, assisted by the Contractor and designers usually engaged by the Contractor in addition to planners and designers that the Principal may have retained for any prior planning work.
- The Principal, Contractor and designers undertake 'value engineering' to identify potential value-adding opportunities.
- The Principal's designers' agreements are novated to the contractor, or the Contractor engages either alternative or additional designers according to the price accepted by the Principal for Stage 2 work.
- Risk is negotiated and a risk register is developed.
- The parties work together to develop a Stage 2 price for the project.
- The Principal seeks an offer for Stage 2. The Contractor's offer will include a Stage 2 price which may be a lump sum (RAP) or a guaranteed maximum price (RAMP) or a combination of these, and includes open book information, rates and subcontract prices, and proposes key performance indicators and incentives.
- The Principal may accept or reject the offer. If it is rejected, under DMR's model the contract comes to an end.

In Stage 2 a construction contract is executed with a contract sum which reflects the identified risks:

- The Contractor and designers complete design and construction documentation.
- The Contractor and subcontractors construct the works.
- The form of contract and contract administration in Stage 2 are similar to the construction phase of a traditional design and construct contract, on the basis that the preliminary design is substantially complete at the time of development of the RAP or RAMP.

DMR has delivered over a dozen significant road projects using the ECI model.

Within DMR's model and the model of other Principals, the procurement model has developed quickly so that Stage 1 has become the soft dollar starting point in Stage 2 for differing pricing mechanisms: a guaranteed maximum price or a lump sum, and even for different delivery models such as a construct only model.

ECI and Tendering

For government Principals, ECI provides value for money in what is arguably procurement by sole invitation. It does this by optimising risk allocation by the cooperative application of risk management techniques in a Stage 1 alliance style 'open book' relationship. This means genuine value for money emerges because both parties ultimately enter the Stage 2 construction contract at a price that they have agreed with eyes open and a shared understanding of project risks and responsibilities.

DMR's ECI Contract assumes a single contract encompassing both Stage 1 and Stage 2. The Stage 1 activities are essentially pricing, programming and scoping activities for the Stage 2 construction activities. Other Principals have dealt with Stage 1 activities by:

- Separate contracts for Stage 1 and Stage 2.
- Agreeing the Stage 1 activities without a Stage 1 contract. For example, Department of Commerce, the project management arm of the New South Wales Government, has procured a range of projects by using an interactive tendering process it calls early tender involvement (ETS) and the New South Wales Government's GC21 Contract. This contract does not deal with the tendering process but each prospective tenderer for the project is paid to participate in critiquing the design and project documentation.

DBFO incorporating ECI

DMR's ECI is essentially a two stage design and construct contract. This makes it suitable for use in major projects to be procured using private finance. In the UK, PFI projects have been procured by Design, Build, Finance and Operation (DBFO) contracts. ECI's potential benefits here can be realised by:

- appointing a Contractor and designer who then become the supplier of construction services or an operator who then becomes the operating and maintenance contractor to a Special Purpose Vehicle (SPV) which successfully bids the DBFO contract; or
- appointing an SPV from the outset with financing and certain subcontract packages being the subject of a separate tendering process.

These potential benefits include early delivery, reduced transaction costs and opportunities to develop a best/better value solution by the best team from the outset.

In the development of DBFO procurement options incorporating ECI, the overall aim is to determine an option which would most likely achieve these objectives:

(a) ensuring best value throughout the life of the contract;
(b) speeding up delivery;
(c) minimising transaction costs, and the time taken to carry out the selection process, consistent with holding a fair competition;
(d) selecting suppliers on the optimal combination of quality and price;
(e) incentivising innovative solutions; and
(f) maintaining a competitive and sustainable market.

Skill is required to achieve the reconciliation of these objectives. For example, the later the Contractor supplier becomes involved in the process the less opportunity there is to influence the final outcome but the greater the opportunity for a meaningful pricing competition. Conversely, the earlier the Contractor/developer is involved the greater the opportunity to innovate, develop the best value solution but the less the opportunity to drive down costs by a pricing competition. The reconciliation means careful consideration of:

- supplier involvement at the earliest possible stage with selection on quality only; or
- supplier involvement at the latest possible stage with selection based on threshold quality and price.

Even if ECI proceeds and a Principal become dissatisfied with its appointed private sector supplier partner, it will be entitled to terminate their agreement with that partner and continue the procurement, using design and other works produced by the private sector supplier partner prior to termination. The only loss to a Principal in such a case will be the cost of the private sector partner's design services, part of which would have been incurred through consultant costs in any event in a traditional procurement.

Conclusion

Since its creation, Australian versions of ECI have been used in a wide variety of projects within and outside of road transport industry including:

- program ECIs;
- projects priced by a variety of pricing techniques (including combining a soft dollar approach in Stage 1 together with a hard dollar approach in Stage 2);
- projects where the Contractor's obligations for the project have been confined to construction as well as design and construction (by assessing and agreeing risk in Stage 1 the model addresses the potential risk and pricing pitfalls of traditional design and construct contracts).

If the ambitious program of Australian government infrastructure projects is to be delivered in the currently constrained contractor and finance markets, then ECI is one key to doing so. Principals and Contractors alike therefore need to be alert to the potential benefits of applying ECI and its variants to major projects.

QR Network: Rail infrastructure for Queensland's future

QR Network is a major rail infrastructure business, providing supply chain solutions and services. We own and manage a 10,000 kilometre rail network extending across the length and width of Queensland.

A bird's eye view of work on the Darra to Springfield Transport Corridor in early January 2010

In July 2010, the business will be separated to support two new companies: Queensland Rail and QR National. The significant infrastructure projects currently underway will continue under the new structures.

QR Network Executive General Manager Michael Carter said the company's long history of success provided a good foundation for the future.

"Our capital expenditure has nearly tripled from $366 million in 2004/5 to $1.04 billion in the last financial year," he said.

"We are focussed on delivering on-time and on-budget to meet our customers' growing needs, while achieving our aim of ZERO injuries at construction sites.

"ZERO harm is our core value. We are committed to the safety of our people, our customers and our business. This will continue in the future."

Mr Carter said the track network will be separated with coal infrastructure becoming part of QR National, and freight/SEQ infrastructure to become part of Queensland Rail.

COALRail major projects (to become part of QR National)

QR Network's COALRail Infrastructure Program supports the expansion of the Central Queensland export coal industry and increasing demand for the region's coal exports.

Since 2006, the program has delivered more than $1 billion in new rail infrastructure contributing to capacity increases across Queensland's coal supply chains.

Last year, the COALRail program completed $500 million in new infrastructure projects, including the Jilalan Rail Yard Upgrade project. Commissioned in August, the project has enabled a significant increase in tonnage throughput and seen record numbers of trains operating on the Goonyella System.

Operating efficiencies also increased on the Blackwater System. Almost 80 per cent of the track was duplicated last year with the progressive completion of projects between Westwood and Wycarbah, Stanwell and Wycarbah, and more recently between Grantleigh and Tunnel.

Overall, these projects will see the duplication of approximately 200 kilometres of track. Further duplications are planned to support future expansion at the Gladstone Port in the coming year.

In 2010, construction will also commence on one of the largest rail infrastructure projects ever undertaken by QR Network: the Goonyella to Abbot Point Expansion (GAP).

The GAP project includes construction of the Northern Missing Link, a 69 kilometre section of new track linking the Goonyella and Newlands coal systems, in addition to capacity expansions throughout the existing Newlands System and at the Port of Abbot Point.

The project will enable mines in the Newlands and Goonyella Systems to export up 50 million tonnes of coal per annum (Mtpa) via Abbot Point Coal Terminal, and will support the current $845 million terminal expansion.

In the longer term, QR Network is in the early feasibility stages of rail infrastructure developments to support the planned Wiggins Island Coal Terminal.

The scope, implementation and timing of these projects are guided by customer needs, alignment with port and mine expansions and operational requirements.

The completed Varsity Lakes station which opened in December 2009

A number of additional future expansion projects are in the early concept stage to continue expanding capacity as demand develops on the Newlands, Goonyella, Blackwater and Moura Systems expansions.

$1.1 billion of rail upgrades completed for SEQ (to become part of Queensland Rail)

The Queensland Government established the SEQIP*RAIL* program in 2006 to deliver capital infrastructure projects identified in its South East Queensland Infrastructure Plan and Program (SEQIP). QR Network is managing the delivery of the rail and some road components of the program.

Over the past four years, SEQIP*RAIL* has broken new ground, employing both traditional and alliance methods to deliver over $1.1 billion of works, including eight projects, 71 kilometres of new track and 11 metropolitan station upgrades.

QR Network has established three alliances to deliver its projects: S2K (QR and Abigroup), TrackStar (QR, Thiess United Group, Aurecon Australia and AECOM), and Horizon (QR, Department of Transport and Main Roads, John Holland, GHD and Kellogg Brown and Root).

Three projects were delivered by TrackStar in 2009. The first, the $298 million Caboolture to Beerburrum duplication project, opened in April. It involved the construction of two new 13.7 kilometre tracks and two new train stations at Elimbah and Beerburrum.

In October, the $70 million Beerwah Rail Crossing Project opened, improving traffic flow through Beerwah township and rail services on the north coast line.

Upgraded rail level crossing at Kinduro, north of Rollingstone in Far North Queensland - part of QR Network's massive program of upgrades to level crossing protection.

TrackStar also delivered the $324 million Robina to Varsity Lakes Rail Extension Project that was officially opened in December. This extension enables improved public transport connections for the Gold Coast region's growing population.

Three projects are currently underway, including the Darra to Springfield Transport Corridor – Stage 1 ($800 million), delivered by The Horizon Alliance. Due for completion in 2011, Stage 1 is South East Queensland's first large-scale integrated road and rail project. In addition to the rail line, the project includes a new station at Richlands and duplication of the Centenary Highway north of the Logan Motorway Interchange.

The $189 million Corinda to Darra Rail Upgrade is another TrackStar project, due to be finalised in 2010. It involves upgrading the rail line, improving station facilities and providing a link to the new Springfield line.

Work on the now completed St Lawrence Creek Bridge – improving reliability of rail services on the North Coast Line.

QR Network's COALRail Infrastructure Program is supporting the expansion of the Central Queensland export coal industry.

Richlands Station taking shape in January 2010, part of work on the Darra to Springfield Transport Corridor

COALRail project managers are part of QR Network's capable and skilled construction team


New tracks, new stations, new infrastructure.
And a continued focus on safety.
QR is committed to providing the best possible rail service for Queensland. That means delivering station upgrades, new yards, greater access to ports, improved level crossings, more school education projects and a continued focus on safety that's second to none.
QBP0334

Improving QR's freight network (to become part of Queensland Rail)

As well as QR Network's investment in infrastructure for coal, the company delivered in excess of $125 million in freight infrastructure projects in the last financial year.

QR Network is responsible for project management and delivery of more than 120 projects, including maintenance, upgrades and capital works across South East and regional Queensland.

Upgrading safety is a key component of this work. QR Network is delivering a massive program of upgrades to level crossing protection, including management of the federally-funded Boom Gates for Rail Crossings Program. Approximately $43 million is being provided to install upgrades such as boom gates, flashing lights, advance warning systems and safety cameras at 66 crossings across Queensland.

Another significant project for the freight network was construction of the new Queensland Government funded $28 million St Lawrence Creek Bridge, commissioned in early February. The bridge is stronger and more durable and more resistant to flooding and saltwater corrosion, improving reliability of rail services on the North Coast Line. It will also require substantially less maintenance.

Upgrades are also underway on the Mt Isa line in the North West, and West Moreton line beyond Toowoomba. Re-sleepering programs in both regions are replacing wood and steel sleepers with more resilient concrete ones. The priority work on the Mt Isa line follows approval for $102 million by the Queensland Government, and includes replacement of sleepers and relays, building passing loops and holding roads, and investment in remote monitoring equipment. Telecommunications infrastructure between Townsville and Mt Isa will also be replaced, in partnership with Ergon Energy.

Building for the future

QR Network's skilled and capable team have a record of on-time and on-budget delivery, and an impressive safety record. Our people will take these capabilities into the new businesses.

Workers on the Jilalan upgrade: ZERO Harm is QR Network's core value.

An aerial view of the Jilalan Rail Yard upgrade in the Goonyella coal system.

Building our future now

The Horizon Alliance brings leading edge design and construction techniques to projects through our proven team of talented professionals from each of the parent organisations.

Horizon is delivering Stage 1 of the highly anticipated $800 million Darra to Springfield Transport Corridor - the first major integrated road and rail project for south east Queensland, designed to offer flexible transport alternatives for people in the booming western corridor.

Stage 1 includes constructing a new passenger railway line from Darra to a station at Richlands and duplicating the Centenary Highway from two to four lanes from Richlands to meet with the existing Logan Motorway interchange at Carole Park.

The challenges of the project design are met by combining the skills, experience and resources of established industry leaders in infrastructure design and delivery.

Horizon's dynamic and flexible project delivery model provides a full realm of design, construction and multi disciplinary services. Our alliance model allows complex projects to be delivered on time and to budget, while working to ensure positive outcomes for the community, the environment, safety, quality, durability and value for money.

Our outstanding achievements include:

- Winner Australian Steel Institute – Engineering Projects Structural Engineering Steel Design Excellence: Infrastructure and Mining for the Springfield Link Bridge 2009
- Winner Construction Skills Training Centre – Employer of the Year – Civil Construction 2009
- Winner Construction Skills Queensland Training Excellence Awards 2009 – Employer Commitment to Training – over $5M Award.

The Horizon Alliance: Inspired people, leading the industry in delivering integrated infrastructure for our community.

THE HORIZON ALLIANCE

Building Our Future Now

QR · John Holland · GHD · KBR · Toward Tomorrow's Queensland · Queensland Government

The Horizon Alliance is a collaboration between QR Network Pty Ltd, Department of Transport and Main Roads, John Holland Pty Ltd, GHD Pty Ltd and Kellogg Brown & Root Pty Ltd.

Safety in design

Design for safe construction, operation and maintenance

Safe design is concerned with:

- **eliminating workplace health and safety hazards at the design stage of structures; or**
- **controlling risks, as early as possible, in the planning and design of structures.**

(Workplace Health and Safety Queensland 2007)

As the size and complexity of infrastructure projects across Queensland increases, designers must incorporate safety into all aspects of their projects to meet legislative requirements and provide safer workplaces for all stakeholders involved in project delivery.

Opportunities to create safer structures are more cost-effective when captured in the early stages of the design life cycle. The most effective risk control measure — eliminating the hazard — is often cheaper and more practical to achieve at the design or planning stage than later in the life cycle when the hazard becomes a real risk to the client, user, worker and business.

The National Standard for Construction Work [NOHSC:1016 (2005)] aims to protect people from construction hazards by charging those responsible for design with preempting these hazards and either eliminating them or, where this is not practicable, minimising the risks they pose. These requirements have been incorporated into state legislation, including the Queensland Workplace Health and Safety Act 1995, placing an absolute duty on designers to consider safety as part of the design process.

Who are designers and what are their obligations?

Responsibility for achieving safe design rests with parties or individuals who control or manage design functions. Design function is influenced by different parties at different stages of the design process, as well as during the structure's life cycle. These parties include:

- design professionals, such as architects, engineers, industrial designers and contractors
- other groups who make design decisions, such as clients, developers, builders, owners, insurers, project managers, purchasers, health and safety professionals, and ergonomics practitioners
- suppliers (including manufacturers, importers, plant hirers), constructors, installers and trades and maintenance personnel
- government regulators and inspectorates.

Each party's responsibility for the design process should be commensurate with the degree of control that party has. Often, the design process occurs over various stages and involves many parties making financial, commercial, specialist or technical decisions that may positively or negatively affect the structure's safety. Such shared decision-making leads to a shared responsibility between the parties for the safety of the design.

Various hazard identification and risk assessment methods can be implemented on infrastructure projects to ensure a safe design. In south-east Queensland, the Ipswich Motorway Upgrade (Dinmore to Goodna) project uses the CHAIR (Construction Hazard Assessment Implication Review) process to identify, assess and mitigate risk.

Ipswich Motorway Upgrade project

The Ipswich Motorway Upgrade (IMU) project between Dinmore and Goodna is the largest road alliance project to be delivered in Australia. The Queensland Department of Transport and Main Roads is upgrading this 8km section of motorway and formed Origin Alliance to deliver the project. The upgrade will improve safety, ease congestion and enhance the local transport network. The upgrade, funded by the Australian Government, is a key infrastructure initiative that will provide a safer, more reliable and sustainable transport solution for the Western Corridor and south-east Queensland's wider transport network.

A key challenge for this project is to construct the motorway in a very constrained, busy corridor — with approximately 100,000 vehicles using the road every day. Maintaining the safety of the travelling public and road workers has been a key priority. The temporary works necessary to maintain traffic flow are extensive, requiring the use of more than 22km of portable precast barriers to ensure the safety of all workers.

The IMU alliance team has adopted the CHAIR (Construction Hazard Assessment Implication Review) process as a tool to assist designers, constructors, clients and other key stakeholders to come together to reduce construction, maintenance, repair and demolition safety risks associated with the project. The tool, developed by Workcover New South Wales in 2001, is applicable nationwide.

A CHAIR study is a three-stage process considering construction, operation and maintenance phases of the project and uses various guidewords to identify safety aspects and issues. The entire project is divided into discrete logical work elements for consideration at separate workshops to allow each element to be considered in sufficient detail.

Discussions on the associated risks determine whether the safety risk can be eliminated. If the safety risk cannot be eliminated, the CHAIR committee must determine how it might be reduced and assess whether the proposed risk controls are appropriate. The hierarchy of controls implemented to resolve the risk involve personal protective equipment, administrative controls and engineering controls.

Next, the effectiveness of the controls are assessed to determine whether an activity requires a more detailed analysis of the risks — perhaps because the risk has not been removed, or because the design is somewhat innovative and its risks are not fully understood. Finally, comments, actions and recommendations are documented and appropriate management methods are determined for design issues still to be resolved.

Conclusion

The safe design of a structure will always be part of a wider set of design objectives, including practicability, aesthetics, cost and functionality. These competing objectives need to be balanced in a manner that does not compromise the safety and health of those who work on or use a structure.

Various models can be used to ensure that Principles of Safe Design are incorporated into each project. The model trialled on the Ipswich Motorway project has proven to be successful, improving safety and construction by identifying potential hazards through a coordinated approach by all stakeholders.

OriginAlliance
Connecting Dinmore to Goodna

PB PARSONS BRINCKERHOFF
125 YEARS

The road ahead

Jonathon Williams, Minter Ellison

Unlocking new investment streams and changing behaviours will be vital to South East Queensland's transport infrastructure development, says Jonathon Williams.

South East Queensland's rapid development will lead to major transport challenges in the coming decades to rival those of Melbourne or Sydney (see figure 1). Some even predict that the inefficiency cost of congestion in Brisbane could soon outstrip that of the southern capitals. These issues are of national as well as local significance because the region plays an increasingly more important role in the wider Australian economy.

Figure 1

SEQ transport challenges

Geography and environment		Challenges for funding and planning
Extended low density ribbon development 200km from Coolangatta to Noosa. Most growth in outer suburbs – especially the west. Brisbane divided by Brisbane River with limited crossing points for all modes. Reducing household size exacerbates already dispersed development pattern. No orbital road network.	Population growth 1.5 times growth in Sydney and Melbourne (5.26 million people in 2056). $3 billion p.a. avoidable congestion cost to SEQ economy in 2020. High dependency levels on private vehicle use. Growth in demand for public transport dramatically exceeding planned levels. High mobility baby boomer demographic.	High capital cost of projects. $96.4 billion existing SEQIPP commitments – but many unfunded. Budget deficit in current and next financial years. Limited tax base for new revenue. State credit rating downgrade. Crowding out of semi-sovereign debt market. Limited Commonwealth infrastructure funding. Negative sentiment about private investment and asset sales. No integrated cross jurisdictional planning body for the region. Limited 20 year planning horizon.

Governments at all levels are working to tackle these issues.

Of course, a critical element is about providing better infrastructure and services of the right types in the right places and at the right times. The South East Queensland Infrastructure Plan and Program (SEQIPP) sets out clear plans for infrastructure development in the region. It is imperative that these planned projects are revisited regularly to ensure their continuing relative benefits.

But for many reasons, new infrastructure cannot provide the only answer.

Crucially, available public funding is limited (see figure 2).

Figure 2

SEQ transport projects	
Committed	**Uncommitted & uncertain**
Northern Link Tunnel	Centenary Highway Upgrade
Gateway South Upgrade	Eastern Busway (Stage 2 & 3)
Gateway Duplication	Cross River Rail/Inner City Rail capacity expansion
Ipswich Motorway	Gold Coast Rapid Transit (Helensvale and Coolangatta sections)
Gold Coast Rapid Transit (Griffith University to Broadbeach)	Gold Coast Rail (Varsity Lakes to Coolangatta)
New Passenger Rolling Stock	Pacific Highway Upgrade
	Gateway Upgrade North
	Brisbane Metro system

One alternative is to further consider private sector funding options. Some entities, including the Commonwealth Government and bodies like Infrastructure Partnerships Australia, advocate a greater role for private sector investment to bridge the funding gap in urban transport. But challenges arise because public transport is inherently uneconomic.

Even if money was no object, indefinite development has negative social and environmental consequences.

Queenslanders therefore also need to get better efficiency and sustainability from their existing transport infrastructure. We need to be creative about using non-infrastructure solutions. Therefore, some argue that behaviour management should be an important part of the SEQ transport blueprint. Congestion and/or network based charging is a particularly topical dimension in this debate. This resonates with expected recommendations from the Henry Tax Review. The State Government's SmartMobility strategy also indicates that the time could be ripe to move into this new world.

The options for private investment

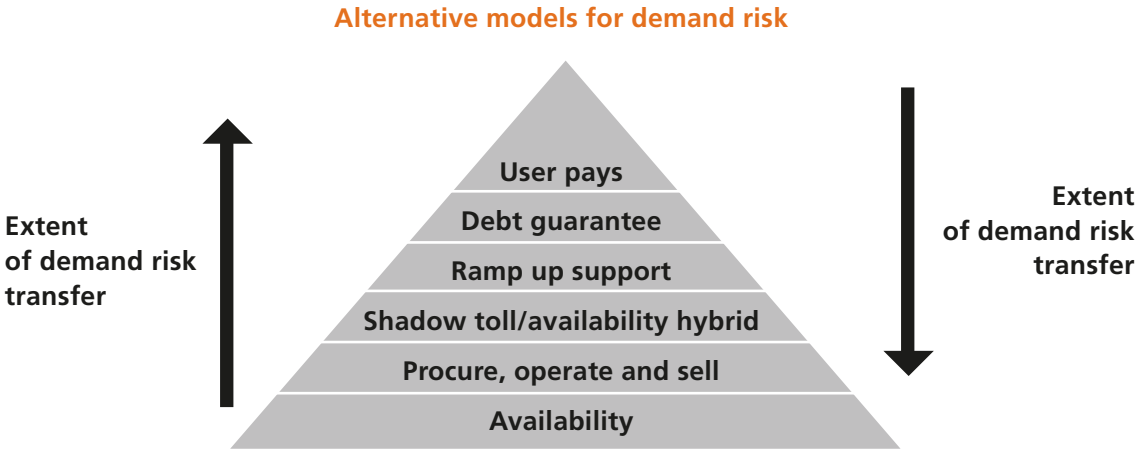
In Queensland, the State owned enterprise model (e.g. QR and QML) has generally been preferred to private sector investment. Exceptions, such as the AirTrain rail link and Brisbane City Council's TransApex tunnel projects have had their share of controversy.

One seemingly vexed issue is patronage risk and associated perceptions about value for money - for example, the view expressed by some administrators that a privately funded road can only meet value-for-money criteria if the investor accepts all demand risk. Conversely, post GFC, others have called on the State to adopt the social infrastructure 'availability' model as the only viable response to a new investment paradigm.

In reality these are two approaches from a spectrum of options. They are alternatives available for different projects and contexts (see figure 4). All alternatives are likely to have their place in the coming years if private sector investment is to be encouraged.

The recent call for Expressions of Interest in the Gold Coast Rapid Transit Project seems to show, for example, that Queensland seems willing to consider all its options.

Figure 3 - Alternative models for demand risk



Non-infrastructure solutions

What alternatives exist to get better value from our existing transport infrastructure?

Some of the non-infrastructure solutions available are illustrated in figure 4.

Figure 4

Engineering	Behavioural	Planning	Modal shift
Hard shoulder running	Education	Longer term planning horizons	Offer alternatives to car use with perceived value
Variable Speed Limits	HOV Lanes	Single region-wide planning approach	Create zero wait journeys
Tidal flow	Congestion Charging	Identification and reservation of land corridors for future development	Create user focused service patterns
Dynamic Lanes	Network-based road pricing	Strategic Urban developments - TODs	Improve safety and security
Ramp metering	Simple flexible payment mechanisms		Improve travel information
Multi modal corridors	Car pooling schemes		
Traffic Signal coordination			
Free flow tolling			

The key challenge is going to be to optimise the efficiency of all South East Queensland transport assets across all modes. In 2030, more than 170,000 vehicles per day are predicted to use the Pacific Highway between Brisbane and the Gold Coast. That is almost double the number in 2005. Passenger rail lines into Brisbane will be similarly constrained.

The imperative to act is clear.

Already, engineering-based measures designed to change the pattern of use of congested portions of the road network are being implemented with some success (e.g. HOV Lanes on the Pacific Motorway and variable speed control on the upgraded sections of the Gateway South). We are likely to see more of these measures in the future.

The work of the Translink authority and introduction of smart card technology through "Go Card" also appear to be helping to make the public transport alternative to road use more accessible and appealing.

It seems likely, however, that the most effective way to influence transport choices and achieve efficiency will be through specifically targeted network charges. A concern is whether such radical change is politically deliverable before congestion brings the region to a standstill.

Bridging the investment gap

To date, user charging has been used primarily as a means to finance roads in the region on a one-off basis. This has the unintended result that an inconsistent charging regime may lead to sub-optimal network pricing, and hence use, for a considerable period. Typical toll road concession arrangements lock in toll prices and vehicle classifications for a period of 40-45 years.

Continuing this pricing model, further use of one-off private financings (or concession sales) to fund building blocks of the network can only hinder Queensland's ability to introduce a consistent network-wide road pricing regime now, or in the future. For example, current vehicle classifications on the Gateway Bridge are different from the proposed classifications on the Clem 7 tunnel, Airport Link and the Hale Street Bridge.

Yet it is not too late to address this issue before the problem becomes insurmountable for the region. If network charges and/or congestion charging can be implemented, new options open up to deliver major network changes through derived revenues. Some in industry and academia go even further than this. They argue that recycling transport-based charges is necessary for public acceptance and in the interests of efficiency.

One simple option is to follow the London model, where supplementary business charges and other revenues (such as congestion charges) support project-specific borrowings to help fund initiatives like the Crossrail Project. The parallel with Brisbane's own Cross River Rail Project is clear.

New possibilities may also open up for direct private sector investment. For example, congestion charging could cross-subsidise service payments for a major route upgrade and maintenance PPP in Brisbane. Similar models have already been implemented elsewhere to address urban network deterioration. Other capital raising options for transport investment might also be possible, such as the wholesale securitisation of some or all network revenues or a regionally focused retail bond placement – preserving a perception of public asset ownership.

South East Queensland's transport challenges are considerable, but not insurmountable. Innovation will allow new approaches to infrastructure utilisation and funding, including greater private sector involvement on the right projects.

Jonathon Williams is a major projects and transport specialist in Minter Ellison's Brisbane office.

Engagement critical to 21st century project delivery

Cory Heathwood, Director, Phillips Group

The desire to develop nation-building projects has been part of the Australian psyche for more than 200 years.

From the Snowy Mountain Scheme and the Sydney Opera House to the rail, road and port networks that criss-cross the country, infrastructure projects are vital for creating jobs and for the ongoing economic and cultural enhancement of the nation.

As Australia's population continues to grow, the need for infrastructure has never been greater. However, decision-makers are being confronted by a range of funding and capacity constraints as well as a growing environmental and social consciousness, where the assessment of the feasibility and delivery of projects is being considered on more than just project valuations. The impact of stakeholder management on all aspects of the project management chain is now a constant in both design and delivery. It is also having an influence in government policy agendas particularly when assessing priority infrastructure need.

> **"The impact of stakeholder management on all aspects of the project management chain is now a constant in both design and delivery."**

Infrastructure Australia, established by the Federal Government, undertook a review of policy and regulatory reforms that highlighted a range of options to alleviate issues to create more efficient infrastructure networks. The findings pinpointed critical areas where future public and private investment should be directed:

1. Developing a more competitive broadband system
2. Extending the national energy grids so there's greater flexibility and competition in our power and gas markets, whilst creating new opportunities for renewables
3. Improving port productivity and associated land transport links
4. Lifting the amount of freight shifted by rail
5. Preparing for the impact of climate change on water supplies
6. Expanding public transport services within cities
7. Improving services to Indigenous communities.

These areas provide an important guideline for future infrastructure investment. There is a strong emphasis on sustainability, connectivity and working in partnership with communities.

Effective stakeholder management will be an integral feature in each of these areas in both planning and delivery.

For the last 25 years, stakeholder management has gone through evolutionary change where the principles of good practice in stakeholder management are now an essential part of project management. Recognised guidelines and frameworks now exist at both the government and industry level.

Government in particular has embraced stakeholder engagement as an element to cross-department decision-making and policy development.

The Queensland Government's 'Get Involved' web portal is now a one-stop shop for industry, volunteers and interested parties, featuring both current engagement projects, resource guide, and frameworks for connecting with indigenous and disadvantaged groups.

The Stakeholder Management Dynamic

The challenge for industry moving forward is to continue the evolution.

Communications and relationship management are now essential skill sets for project leadership teams. Stakeholder-mapping at all levels, understanding issues, considering the challenges and opportunities and developing a personalised strategic approach can bring benefits to the whole project team.

At the grassroots level, residents are real people living in real streets and real communities. Action and community liaison groups include individuals with identifiable ideologies and motivations.

Spending the time to understand these nuances has now become an important part of project assessment and forms an integrated process where stakeholder communication plays an integral role in ensuring a positive, sustainable and lasting legacy.

The challenge is to remain flexible and leaders must ensure strategies achieve optimum results and can adapt to changing social, community and political agendas. Evolving trends in stakeholder management include:

1. **Trust:** As with any two-way relationship, gaining and sustaining trust takes time and energy. It also can be quite fragile and severely undermined through direct and indirect action. The process of establishing trust and community goodwill is now a leadership driver for project teams to build a community consciousness through which the rest of the project will be judged.

> **"The process of establishing trust and community goodwill is now a leadership driver for project teams…"**

2. **Expectations:** Getting the project promise right is crucial. There is increasing pressure for projects to be delivered with ever more value for money, innovation and accountability. What was best practice yesterday is becoming quickly surpassed. Australian projects are now part of a global marketplace, and international strategies are being adapted to Australian conditions. Further, greater alignment is expected between planning and delivery stages. Stakeholders at all levels are now well educated on legislative and development processes and there is a greater spotlight on industry to instigate effective mitigation measures.

> **"Stakeholders at all levels are now well educated on legislative and development processes and there is greater spotlight on industry to instigate effective mitigation measures."**

3. **Social change:** Society continues to change rapidly. Bridging the generational divide is now a real issue for project leaders. Embracing the social media phenomenon often needs to be balanced with grassroots strategy to achieve optimum outcomes. Connecting with regional areas and communicating with socially and economically disadvantaged communities requires quite distinct approaches.
4. **Reality check:** Project leaders should be acutely aware of the parameters in which they work. Within a particular corridor there may be multiple planning and infrastructure projects occurring. Therefore, clarity in information provided to stakeholders and clear understanding of scope is critical.

It is without doubt that construction feats throughout this century will continue to amaze, and engineering and technical capability will reach new bounds. However, it is clear that communications and stakeholder management are now measures of key performance and are being judged by community and political leaders. It is just as clear that a leadership approach to stakeholder management will be central to project management, as well as a critical outcome in terms of quality and success of project delivery.

As one of Australia's leading communication consultancies, Phillips Group has a strong track record working with government and industry to deliver successful engagement programs, issues and crisis management, and bid strategy for some of Australia's most significant and successful infrastructure projects.

Tugun Bypass

Phillips Group was part of PacificLink Alliance (Main Roads, Abigroup and SMEC) that designed and constructed the $543 million Tugun bypass. Phillips Group provided on-site community relations and stakeholder management for the duration of the project. The work included communication with three government jurisdictions, 31,000 residents, 50,000 daily motorists and key stakeholders including an operating airport.

At the project start-up, the team was faced with a community that were very concerned about the construction impacts on their lifestyle and amenity. In addition there were key stakeholders still objecting to it being built.

The team had to work hard to build relationships and trust. The strategic approach included regular, personal visits and timely and appropriate communication about the construction works. In addition the alliance selected a number of local charities to support through fundraising at internal events and through teams participating in local sporting activities.

Establishing two community liaison groups (CLGs) further assisted in building relationships and led to the development of a project legacy in consultation with the community – a walking and bike trail to improve local connectivity.

The project's community relations performance was independently audited at six monthly intervals and moved upwards as the project progressed to achieve an outstanding KPI result of 84 per cent.

The opening of the bypass provided an opportunity to recognise and thank the community for their support during construction.

Cairns Port Authority – Domestic Terminal Redevelopment

From 2006 to 2009, Phillips Group worked closely with the Cairns Port Authority (CPA) and project manager Coffey Projects to develop and implement a strategic communication plan for the Authority's $200 Million Domestic Terminal Redevelopment. Phillips Group delivered internal communication, airport stakeholder engagement and broader community relations. The strategy was designed to ensure that redevelopment impacts were minimised and effectively communicated throughout the three-year development.

Through the creation of uniquely branded collateral directing people to designated information channels, Phillips Group was able to engage directly with stakeholders and quickly resolve issues and concerns. More than 85 per cent of issues that could have been raised in the public domain and generate negative publicity were contained to one-on-one engagement with the project team. Regular communication and personal contact built strong relationships during the three-year project. The overall goal to protect CPA's brand reputation throughout the redevelopment was achieved.

Artist's impression of the domestic terminal redevelopment.

Building understanding at the information kiosk at the WCRW Open Day

Western Corridor Recycled Water Project

In 2007, the effects of a seven-year drought in south east Queensland were severe with the dam system capacity below 18 per cent and residents cutting water use to 140 litres per day.

The Government had started construction on a Water Grid, the largest urban drought response in Australia, and the Western Corridor Recycled Water (WCRW) Project was a crucial part of the Grid.

Phillips Group was appointed to the WCRW project team in May 2007 to manage corporate communications.

It was vital to build trust with key stakeholders and manage expectations around project delivery. With such a large, complex piece of infrastructure, the spotlight was trained on the construction team. The focus of the communication plan was on education about the recycled water technology and the logistics and engineering feats required to deliver the Project on time. The work of all five Alliance communication teams and that of the WCRW project office ensured this goal of building understanding with key stakeholders was met.

Transit-oriented development: An opportunity to shape SEQ's communities of tomorrow

Ainsley McLaren, THG

South East Queensland has very few identified Greenfield growth areas remaining. By considering transit-oriented development principles, and with public transport infrastructure funding commitments in place to support this, we have the opportunity to shape the communities of the future and make the most of the Greenfield land we do have left.

Transit-Oriented Development (TOD) is not just about increasing public transport ridership, but achieving desirable land use, economic and social outcomes. It is acknowledged that there are limits to funding for transport infrastructure; but without, we risk losing the opportunity to create a new type of community – a vibrant, mixed-use community that is less dependent on automobiles - from the outset rather than through infill and redevelopment. All levels of government and the private sector need to work together to create new thinking to facilitate solutions to ensuring the necessary infrastructure is in place. Planning and development is currently underway for some of South East Queensland's major new urban growth areas.

The region has the opportunity to adopt an innovative approach to facilitating the growth of Greenfield centres to create an urban structure that will support the communities of tomorrow. This structure must surely address the major regional, national and global realities with which we are currently faced – peak oil, traffic congestion, urban sprawl and global warming. If we do not take advantage of this opportunity, instead we will facilitate a series of disjointed suburban developments that merely support and exacerbate current infrastructure problems.

This presentation first defines transit-oriented development; and then considers the importance to a transit-oriented community approach to development of Greenfield centres; and the need for transport infrastructure to lead growth of new centres. The presentation then looks briefly at two SEQ-specific case studies, in which THG are currently involved – Pimpama on the Gold Coast and Greater Flagstone in Logan City. Both of these examples emphasise the opportunities for these major growth areas to be planned as transit-oriented communities, underpinned by timely commitments to public transport infrastructure provision.

South East Queensland is Australia's fastest growing metropolitan region, in the third fastest growing country in the developed world[1], accommodating an average of over 55,000 additional persons per annum between 1986 and 2004[2]. This growth is anticipated to continue, with the South East Queensland Regional Plan 2009-2031 projecting a total population of 4.4 million in 2031, up from 2.8 million residents in 2006[3].

To accommodate this high level of population growth, the SEQ Regional Plan requires that the region focus development within the identified Urban Footprint and on a strategy of compact, efficient urban development. One of the approaches identified in both SEQ Regional Plans to-date is Transit-Oriented Development[4].

Transit-oriented communities

The SEQ Regional Plan defines transit-oriented developments as *"mixed use residential and employment areas designed to maximise the efficient use of land through high levels of access to public transport"*[5]. In a presentation in 2007, the Chair of the Queensland Government's TOD Taskforce, offered three important characteristics of transit-oriented development: high quality public transport, higher densities and mixed uses and high quality urban design[6].

One "characteristic" that wasn't included was a "public transport culture". It is critical that creating TODs is not just about constructing physical infrastructure, building and spaces; but also about fostering generational change to promote a community and culture that proactively reduces their automobile dependence and prioritises walking, cycling and travelling via public transport.

Defining TOD

GB Arrington of PB Place Making in the United States emphasises the difference between transit-oriented development (TOD) and transit-adjacent development (TAD)[7]. Transit-adjacent development tends to involve conventional single-use development patterns, with conventional parking requirements[8]; and while located adjacent to public transport, does not have any functional or meaningful relationship with the transport node[9]. Arrington suggests there are limited benefits to be achieved through TAD, as despite proximity to transit, TAD does not reshape (or shape) development.

GB Arrington makes another important distinction; defining two different types of projects when considering development around transit[10]. Firstly he defines TOD as a project incorporating development of a transit village, town centre, urban infill or even Greenfield community within a five (5)-minute walk of a transit node. He separates this type of project from a "joint development", which generally occurs on a parcel of single ownership, often publicly-owned land, and primarily with rail stations[11]. Most joint developments involve a single development of a central building or precinct incorporating the rail station; rather than planning a broader rail catchment[12]. This research raises important considerations for developing South East Queensland's future transit-oriented communities; especially given that most existing and future TOD projects planned for the region reflect Arrington's definition of a "joint development" project.

Reedy Creek, Albion, and Milton are a few examples of this type of development, which focus on one development site, rather than necessarily leading generational change towards a public transport culture among the broader community. Considering the limited availability of broadhectare development sites within the urban footprint, it is acknowledged that this type of infill and redevelopment approach must form a critical component of accommodating population growth in the region. It is also recognised that given the often significant timeframes and resources involved in masteprlanning broader precincts, single-site based TODs offer an appealing opportunity to get "runs on the board". It is noted that the precinct plan type TODs, as opposed single-site type TODs, offer significant complexity due to the difficulties associated with assemblage of fragmented, privately-owned land, especially given the limited powers of Government in this regard.

This only emphasises the importance of taking a different approach to SEQ's identified Greenfield growth areas - considering the broader community and linkages associated with Arrington's definition of a "transit-oriented development" project. SolarCity in Linz, Austria, is an example of a Government making a decision to create a viable and vibrant new community from scratch; proactively addressing some of our biggest global pressures. Public transport infrastructure and services were put in place as a first step to influence the development of the City and the community. Both identified case study areas in this presentation, Pimpama and Greater Flagstone, offer an opportunity to precinct plan transit-oriented communities for a broader catchment, rather than a single site, given that both involve only a small number of private land owners. Without construction of public transport infrastructure in a timely fashion, SEQ's remaining Greenfield areas have great potential for resulting in residential and commercial development adjacent to transit; losing the opportunity to shape a new public transport-focussed future for these communities.

Leading development with infrastructure

"The lack of services early in the life of newly developing areas often leads to higher car usage and a reluctance to use public transport. Such reluctance is likely to continue even when the suburb matures, even when public transport services improve"[13]. This is a quote from Queensland Transport (QT) in their Shaping Up Strategy, supporting the critical nature of early provision of infrastructure. The Shaping Up Strategy also notes that *"easy access to public transport is required to be provided early so that locational choices are in fact influenced by the availability of public transport"*[14]. Regional strategic planning documents, including this one and the SEQ Regional Plan, indicate that transit-oriented developments are essential components of urban structure and form and that early provision of public transport services is vital. While policy support for TODs may be in place however; funding constraints mean that implementation and delivery of the necessary transport infrastructure is difficult to facilitate and is not occurring in growth areas. Without public infrastructure in place, households will demand dwellings that accommodate their car-dependent lifestyles. This will ensure that the traditional size of houses and lots will dominate for another 20 to 30 years; impacting upon the coming generations' orientation to public transport and significantly underutilising our Greenfield areas. While policy openly supports the benefits of integrating land use and transport planning to create vibrant communities, decisions to prioritise and fund infrastructure provision often remain based on a technical benefit cost analysis; only giving very limited consideration to the direct and indirect land use, economic, social and environmental implications; with most factors relating directly to the physical location of the future station or the viability of the station in terms of construction cost, patronage and operations. There is a particular need for consideration of the impacts of timing of infrastructure provision.

In this regard, the viability of rail infrastructure does raise a "chicken and the egg" dilemma. This type of analysis generally identifies a number of passenger trips per annum at a set point in time in a station's population catchment that will support the viability of a proposed station. These analyses do not however take into account the fact that the densities required to support the viability of a train station can only be achieved if the train station is committed to be constructed within a short timeframe. If construction of a train station is not committed, the area will achieve significantly lower densities and most likely a single land use, which will mean that the catchment may not be capable of reaching sufficient critical mass to support a train station at all. It is acknowledged that only a finite bucket of money is available. However, in order to achieve the theoretical benefits of transit-oriented development, funding must be allocated and construction must occur in a timely manner in order to not lose the opportunity to create sustainable future communities from our Greenfield areas. Alternatively, SEQ will continue to be faced with several key challenges that will guide the region's future, including increased traffic congestion and hence growing carbon emissions, reduced air quality and peak oil vulnerability; and lower-density urban sprawl that accommodates larger and more costly dwellings that support a car-dependent lifestyle. Substantial investment in expansion or duplication of major highways to supposedly reduce traffic congestion is often the result of short-term motivations and cycles, and is thought to further encourage a dependence on private vehicle travel. On the other hand, commitments to build a rapid transit network on the Gold Coast provide a perfect example of the costs and issues involved in retrofitting transport infrastructure in an already motor-vehicle dependent and oriented community. Pimpama on the Gold Coast and Greater Flagstone in Logan City are two examples of South East Queensland growth centres that require commitments to transport infrastructure in order to take advantage of the opportunity to shape their communities for a more sustainable future.

Pimpama, Gold Coast City

Pimpama is part of the Gold Coast's northern growth corridor, experiencing high annual population growth rates of around 15 per cent per annum over the last few years, compared to Queensland's growth rate over the same period of about 2.5 per cent per annum. The proposed Pimpama rail station is one of four (4) "potential future" rail stations proposed for the existing Gold Coast to Brisbane passenger rail line, but according to multi-criteria analysis prepared for Queensland Transport[15], the station may not be warranted prior to 2016 and therefore is not yet being considered a priority for funding. In the Multi-Criteria Analysis, the potential future Pimpama station ranked very highly against nine (9) out of ten (10) criterion; however its catchment area was not considered to have sufficient population in place by the set timeframe of 2016 to viably support patronage of the train station.

Significant research by THG since has successfully demonstrated that based on developments proposed, approved, underway and completed in the catchment area the critical mass of population they require will be achieved between 2012 and 2014. While the need for provision of the train station in these areas is now acknowledged by both local and state government in terms of capacity and timing of growth of population catchments, funding for its provision is still not available. This raises important considerations for the future of Pimpama. The major development directly adjacent to the proposed Pimpama station, which has a preliminary development approval, has the potential to create a vibrant, mixed use town centre and walkable community to serve the major residential development occurring in the catchment and also create local business development and employment opportunities. In this particular case study, there is potential for not only a "joint development" of a mixed use site including the Pimpama rail station; but also the opportunity to influence improved urban outcomes for a transit-oriented community within the broader catchment area. This project is able to create around 2,700 dwellings, over one third of which are proposed as high-density dwellings within an 800-metre walkable radius of the train station. This is a development strategy that is considered viable by the proponent in terms of market demand and has significant positive implications for housing affordability.

Given the long timeframes currently associated with construction of the Pimpama station however, the proponents of this project have a second, alternative development scenario. Without the construction of the train station, the higher densities and mixed uses promoted in the SEQ Regional Plan, which are required to accommodate projected population and dwelling growth on the Gold Coast, and vital to creating a sustainable community, are just not viable. In this scenario, to the disadvantage of regional policy, the future community, and the developer, much lower density residential housing options and only limited additional land uses and activities will be achieved. The end result will be a future transit-adjacent community that will have limited relationship with the rail station if and when it is eventually constructed in the medium-to-long term.

"The importance of TOD initiatives in the overall context of urban development is acknowledged in that the earlier these initiatives are put in place; a greater proportion of the community would have easier access to high frequency public transport whilst ensuring a more financially viable public transport system"[16]. This is a quote from Gold Coast's draft Local Growth Management Strategy. In their Planning Scheme, Gold Coast City Council also: *"encourage the early construction of bus or rail stations so that their presence can influence the development of the new community and encourage a public transport culture from the start"*[17]. As with regional planning policy and strategy, Gold Coast City Council also promotes the importance of transport infrastructure leading development. It is essential that Gold Coast City Council work closely with all relevant private and public sector parties to prioritise funding for the rail station in order to not lose the opportunity to shape a transit-oriented community and public transport culture at Pimpama.

Greater Flagstone, Logan City

The Mount Lindesay/North Beaudesert Study Area project led by the Queensland Government initially planned Greater Flagstone as a major growth centre accommodating around 60,000 people[18]. Now planning by Logan City Council indicates that the future City of Greater Flagstone is anticipated to be home to a population of around 150,000. Located in South East Queensland's south-west corridor, north of Beaudesert and Bromelton, south of Logan City and west of the Gold Coast; the future City of Greater Flagstone poses the opportunity to draw population and dwelling growth away from SEQ's popular, but constrained, coastal areas. With just five (5) land owners, who have a 780-hectare average land holding, making up the future City, the creation of a unified, master-planned community, highlighted by three distinctive, yet complementary, urban villages, is a very achievable goal in the short-to-medium term. This integrated approach is critical to achieving a sense of place, and community belonging and cohesiveness.

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The designated future City is bound to the east by the existing national gauge freight line connecting Sydney and Brisbane. The technical ability to add dual gauge rail lines to accommodate passenger rail services in this existing transport corridor has been confirmed by the State Government[19], however in SEQIPP a Salisbury to Beaudesert Passenger Rail Study, which will be commissioned to determine the viability of a passenger line, has been allocated a possible timeframe for completion of 2010 to 2019[20].

In December 2008, the Commonwealth Government committed $55.8 million in funding to upgrade the existing interstate standard gauge rail from Acacia Ridge (in south Brisbane) to Bromelton (a major future industrial city) as part of their Nation Building Fund allowing for passenger services adjacent to Greater Flagstone[21]. While this funding does not allow for rail stations and train sets, it provides a significant base of infrastructure with which to proceed. National Rail is currently working with Queensland Rail to initiate the upgrade of the rail line; however no commitments have been made by the Queensland Government for

...Pimpama and Greater Flagstone, offer the opportunity to create communities of the future...

construction of the ancillary infrastructure within a 2026 timeframe; despite the planning for the future City already being underway. This once again raises the issue of timing of infrastructure provision. Similarly to Pimpama, the availability of public transport and the consideration of transit-oriented development principles will guide the development of the future City of Greater Flagstone.

Outline Structure Planning processes for Greater Flagstone indicate maximum densities of up to only 50 dwellings per hectare are to be achieved in the City's three future centres. On the other hand, other future centres, such as Coomera, are targeting up to 200 dwellings per hectare in order to achieve a vibrant mixed-use community that can support a viable town centre, public transport infrastructure and other associated businesses, facilities and services. Without public transport infrastructure in place, Greater Flagstone will be very lucky to achieve even the planned 50 dwellings per hectare, and not necessarily in a form attractive to the market. One of the benefits of the Greater Flagstone growth area, is the small number of key landowners. If timeframes for provision of rail infrastructure are maintained for 20 years, development of predominantly traditional, lower density housing will occur, as would be expected if Greater Flagstone does not evolve as a TOD. In this case, complex ownership arrangements could be put in place to retain the large parcels of land in single ownership rather than have fragmented holdings. Noting of course that this is not likely to be a commercially-attractive or easy legal arrangement to facilitate. The large parcels could then be redeveloped in 20 to 30 years time when the rail is in place and can support the higher densities and mixed uses. Is this an ideal urban outcome though? This scenario means that Greater Flagstone will start out as an automobile dependent community that will require significant generational change to create a public transport culture and will require complete redevelopment to viably support infrastructure, facilities and services.

Both of these future growth centres, Pimpama and Greater Flagstone, offer the opportunity to create communities of the future, addressing major challenges that are facing South East Queensland (and the world). In the Queensland Government's TOD Fact Sheet they indicate that transit-oriented development results in *"the creation of vibrant communities; making the most efficient use of available urban land and providing the residential, transport infrastructure, employment and community facilities needed to accommodate growth in South East Queensland"*[22]. Through proactively implementing an integrated land use and transport approach focusing on provision of major passenger rail infrastructure, these growth areas have the opportunity to facilitate social, economic and environmental sustainability for the region.

While TOD is attributed with many direct benefits, some specific outcomes in relation to regional sustainability include:[23]

- Protection of open space and scenic amenity through the containment of urban sprawl and reduced urban encroachment into natural bush and agricultural land, as a result of higher densities and more compact urban form within the Urban Footprint;
- more efficient use of land and infrastructure through the creation of higher densities facilitating a critical mass of infrastructure;
- reduced traffic congestion pressures through increased public transport use;
- better air quality benefits due to a reduced reliance on cars; and
- more equitable access to community facilities and employment.

Pimpama and Greater Flagstone will develop completely differently if public transport is not in place early – traditional, low density suburbs rather than vibrant, mixed-use, transit-oriented communities. If this is the case, then additional land will have to be allocated in the Urban Footprint to accommodate growth; encroaching upon our Regional Landscape.

The provision of public transport infrastructure and the consideration of transit-oriented development principles are critical, however considering the timing of public transport provision – leading development with infrastructure – has the potential to make or break SEQ's future communities.

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[4] Both SEQ Regional Plans reference TOD. Office of Urban Management, op.cit., p.75. and Department of Infrastructure & Planning, op.cit., p.96-7.

[5] Department of Infrastructure & Planning, op.cit., p.96.

[6] Presentation by Greg Vann, Chair of the Queensland Government]s TOD Taskforce, as Session Chair, at the Living Smarter: The Future of South East Queensland conference, March 2007.

[7]GB Arrington, Transit-Oriented Development, Parsons Brinckerhoff, as part of a series of Transit Resource Guides available through the American Public Transportation Association, www.apta.com.

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[17] Gold Coast City Council, *Gold Coast Planning Scheme: Key Strategies*, (Gold Coast City Council: January 2007), p. 28.

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[22] Office of Urban Management, *Transit Oriented Development* (Fact Sheet), (Queensland Government), p.1.

[23] Western Australian Government TOD Coordinating Committee, *Reconnecting Perth: the Cross-Portfolio TOD Program*, (Western Australian Government: July 2005), p.5.

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