



Resources for Reconstruction

*Ensuring that we have the people and material
resources we need to reconstruct Queensland*

Discussion Paper No 1

September 2011



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Introduction

This paper is the first in a series to be presented by the Queensland Reconstruction Authority (the Authority) to focus on the magnitude of the reconstruction task across the State including the projected demand for resources. It is based on information available as at September 2011.

As revised information becomes available, data will be updated, regional hot spots reviewed and proposed responses and actions further developed and implemented.

Ongoing analysis of the size of the reconstruction task and discussion with industry groups will continue to inform strategies and actions to ensure appropriate measures are taken to meet the demands of reconstruction efforts and avoid delays in completing reconstruction across the State.

Purpose

This paper discusses the:

- size of the reconstruction task across Queensland
- the anticipated resources needed to complete the reconstruction task within the scheduled 3-year reconstruction period
- human and material impact of other projects such as planned mining and resource sector developments and other known major infrastructure projects.

The purpose of this paper is to:

- inform Government and industry stakeholders of the medium term reconstruction resource requirements
- inform industry so it is able better to plan and prepare for projected human resource and material needs
- identify hot spots, by region, where there is expected to be pressure on human and/or material resources
- assist in identifying future actions for Government, industry and the Authority to maximise availability of human and material resources.

Interim Findings

Reconstruction works across the State in the next three years will lead to increased demand for workers across a wide range of skill levels and place additional demand on construction materials, plant and equipment.

Current findings are based on available data and information as at September 2011. These findings will be progressively reviewed and updated as new and revised information becomes available.

1. There is sufficient short-term capacity to meet the reconstruction works program

In the immediate term, the capacity to meet the reconstruction task in Queensland is adequate and is expected to provide timely support for the building and engineering sector. However, in the medium term (2012-14) there is expected to be increasing competition from resource sector projects, other infrastructure investment and housing development.

2. Shortages are expected to continue for engineers, supervisory and management positions

The scale of reconstruction works will add to pre-existing (pre-disaster) skill shortages in key skilled labour areas such as engineering, project management, supervising foremen and plant operators.

3. Mining and resource projects will compete with reconstruction works

The level of investment in mineral and energy projects is expected to grow substantially from 2011-12, peaking in 2014-15 and 2015-16. This suggests that although there will be competing demands, the timing of the reconstruction works (anticipated peak in 2011-12 and 2012-13) means that the bulk of reconstruction works should conclude before the projected peak in resource projects is realised.

Whilst the bulk of spending in the resource sector is scheduled for 2014-2016 a significant component of the 2012-2013 'early works' will be civil construction works for port, mine and rail developments. These works will directly compete for available labour and materials. The rolling out of proposed resource sector projects will need to be closely monitored and strategies developed to ensure continuity of reconstruction works is maintained.

Local government and the Department of Transport and Main Roads report strong competition for both skilled and unskilled labour from the resource sector, increasing pressure on labour and materials.

4. Capacity varies across regions with Fitzroy, Mackay-Whitsunday and South West regions having large reconstruction works programs and significant competition from other resource sectors

Capacity to meet reconstruction tasks varies by region and will be influenced by the:

- magnitude of reconstruction works
- current levels of unemployment / workforce availability
- location and timing of mining and resource sector projects
- availability of construction materials.

When reconstruction work estimates are combined with planned resource sector projects, the regions with the highest resource demand are Fitzroy, Mackay-Whitsunday and the South West. Estimates of expenditure on reconstruction works, sourced from local governments, indicated the greatest expenditure will occur in the South West, Fitzroy and Metropolitan regions.

Stakeholders report that pressure points are already evident in the South West and Fitzroy regions with demand for civil construction in these regions expected to increase in the next six months.

Stakeholders also reported that increased demand for both labour and materials had already been realised in the South West and Fitzroy regions, while there are emerging anecdotal indications of increasing demand for accommodation for the construction workforce, particularly in the Fitzroy region.

5. Western and South West Queensland regions are faced with the challenge of accessing construction materials – demand may outstrip supply and transport and haulage logistics are challenging

Supply and demand for road construction material varies between regions. Non-coastal areas face the most significant challenges. Key issues for Western and South Western regions include:

- inconsistent quality and availability of road base material
- bitumen products not being readily available
- limited availability of specialist plant and equipment
- long lead times for key materials
- limited and costly logistics chains.

Road base materials represent the construction material in highest demand across Queensland regions in particular Fitzroy, Darling Downs and South West regions.

The large state-wide demand for petroleum-based materials including bitumen and asphalt has the potential to influence the availability of this product for Western and South West Queensland regions.

6. Development approval for new quarries or extending existing hours of operation is considered a project risk given the processes required to meet material resource demand

In areas where there is potentially a shortage of road base material, solutions include opening new quarries or increasing production of existing quarries. However, consistent feedback from stakeholders is that potentially lengthy development approval processes means that approval for increased production or the opening of new quarries is highly unlikely within the available time.

Where shortages or possible logistical impediments are identified, the Authority will seek to develop regionally specific solutions to overcome blockages. The Authority will continue to work with industry to identify hot spots or obstacles to completing reconstruction works. Under the *Queensland Reconstruction Act 2011* there are options for fast-tracking quarry approvals if circumstances warrant it.

7. There is potential for a shortfall of plant and equipment in some regions

Stakeholders consider that there will be a potential shortage of specialised plant and equipment such as spreaders, mixers, road profilers, stabilisers and transport vehicles. However, there is evidence that industry has identified this shortfall with many reporting the procurement of key equipment.

Background and Context

From November 2010 to February 2011 Queensland experienced a series of natural disasters that will long be remembered. The catastrophic impact of the floods that devastated Central and South-East Queensland coupled with the destruction wrought by Severe Tropical Cyclone Yasi resulted in 100 per cent of Queensland being declared disaster-affected and the tragic loss of 37 lives.

Establishment of the Queensland Reconstruction Authority

The Queensland Reconstruction Authority was established on 21 February 2011 to monitor and coordinate the Queensland Government's program of infrastructure reconstruction and recovery within disaster-affected communities. The Authority reports to the Premier, as Minister for Reconstruction, and to a Board that includes six other appointed nominees representing industry, state, federal and local governments. The Authority has a North Queensland office based in Innisfail.

The Authority's mission is to reconnect, rebuild and improve Queensland, its communities and economy. It operates under the auspices of a comprehensive and integrated recovery and reconstruction plan for the State – *Operation Queensland: The State Community, Economic and Environmental Recovery and Reconstruction Plan 2011-2013*. The Authority is responsible for coordinating, implementing and monitoring the rebuilding and recovery of communities that have been affected, damaged or destroyed by the floods and cyclones. The Authority works across all levels of government to plan and facilitate an effective and coordinated program of reconstruction for public infrastructure and other property.

With an overall damage cost of the weather events estimated to be in the vicinity of \$15 billion¹, the Authority is taking a proactive role to ensure that sufficient resources, both human and material, are available for reconstruction efforts across the State.

Recovery

After immense effort, much of Queensland has recovered from the events of the summer. The vast majority of the infrastructure affected has been reopened, communities are rebuilding and the economy is recovering.

However, there is much to be done. Even though considerable repair work has been undertaken, a damaged asset may be made operational but still require restoration as a result of the disaster.

Local governments and state agencies have acted swiftly to restore services to Queensland communities. To assist these responsible agencies in the restoration efforts and to ensure that reconstruction work is not delayed by liquidity or cash flow problems, the Authority has provided significant funding advances on the basis of initial damage estimates. By 8 September 2011, local governments and state agencies had received funding advances more than \$1 billion.

Table 1 on the following page details the level of damage across the State and the extent of recovery to date.

¹ World Bank & QldRA, June 2011 Report: Queensland: Recovery and Reconstruction in the Aftermath of the 2010/2011 Flood Events and Cyclone Yasi

Table 1: Damage and recovery statistics²

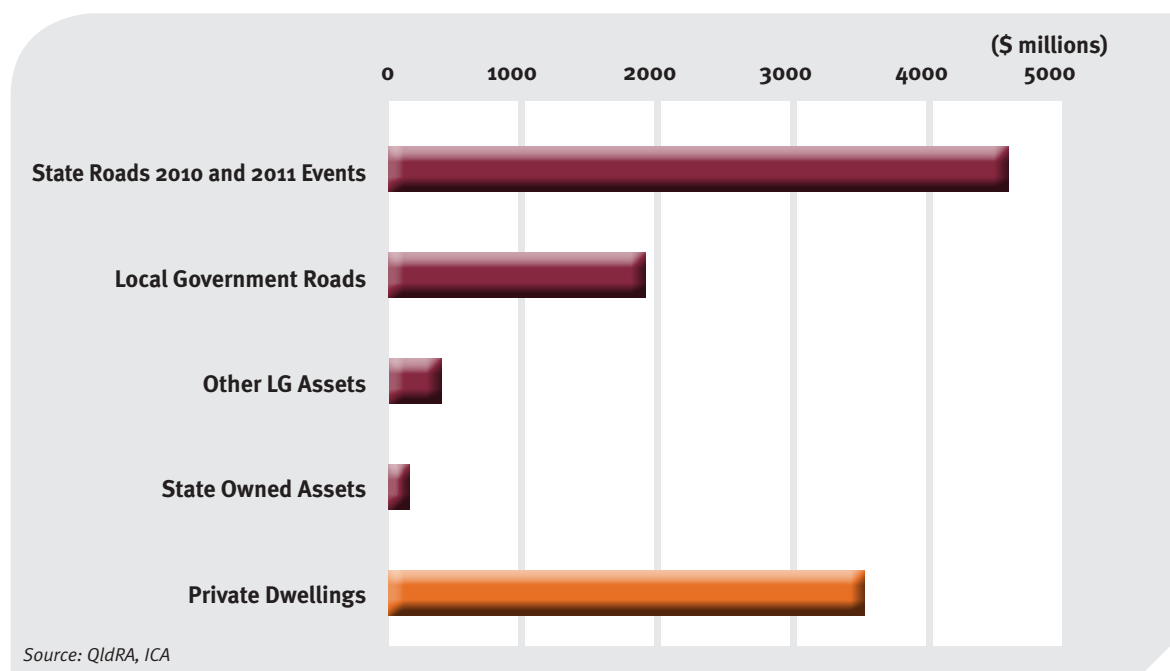
	November 2010 – March 2011	Status as at 9 September 2011
Roads	9170 kilometres of Queensland's state-owned road network damaged	8482 kilometres of Queensland's state-owned road network recovered (92.5%)
Rail	4748 kilometres of Queensland's state-owned rail network damaged	4596 kilometres of Queensland's state-owned rail network re-opened (93%)
Bridges and culverts	89 state-owned bridges and culverts with major damage statewide	89 state-owned bridges and culverts made operational
Schools	411 schools (state owned) affected	411 schools operating from original location
National Parks	138 parks closed due to damage	123 parks reopened
Premier's Disaster Relief Appeal Fund	More than \$276 million donated to Premier's Disaster Relief Appeal with more than \$251 million distributed to individuals	

Cost of Reconstruction

The estimated cost for the recovery of state and local government roads, local government assets and private dwellings is in the vicinity of \$10.8 billion³.

Figure 1 shows that 43 per cent of this expenditure is expected to be for state roads. When combined with local roads, the total projected expenditure on roads accounts for 61 per cent of total reconstruction costs. Projected expenditure on private dwellings is estimated to be 34 per cent of total costs.

Importantly, these estimates represent only part of the costs of recovery. The World Bank concluded that the cost of damage and losses in Queensland could be up to \$15 billion when the impacts on mining, tourism, agriculture and commercial sectors are included⁴.

Figure 1: State-wide expenditure on reconstruction by asset type⁵

² Queensland Reconstruction Authority, September 2011

³ Note that these projected costs include both reimbursement of costs for works that have already been completed and also projected future expenditure for completing reconstruction

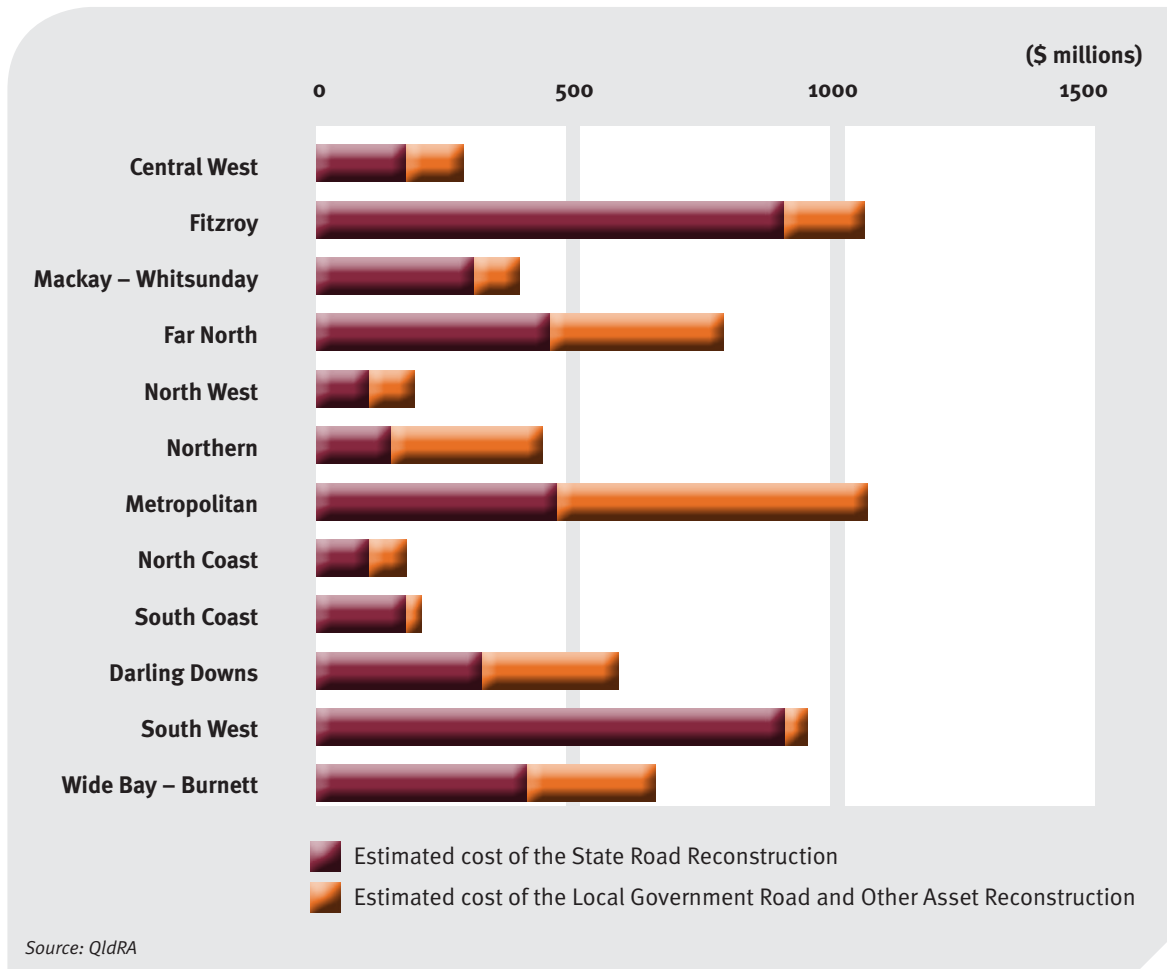
⁴ World Bank & QldRA, June 2011 Report: Queensland: Recovery and Reconstruction in the Aftermath of the 2010/2011 Flood Events and Cyclone Yasi

⁵ Data for state roads and government owned assets based on estimates for restoration works by Queensland Government agencies and local government (March 2011) Data on private dwellings based on an estimate of the total reserved insured value of damage to private property (Insurance Council of Australia, 22 July 2011)

Figure 2 illustrates the estimated cost of reconstruction across Queensland's regions. It shows that the Fitzroy, Metropolitan, South West and Far North regions represent the highest level of anticipated reconstruction works⁶.

Reconstruction efforts will be financed from a variety of sources. Commonwealth and State Government Natural Disaster Relief and Recovery Arrangements (NDRRA) will provide an estimated \$6.8 billion for state and local roads and assets for the period 2011-2014, with private dwelling reconstruction funded from insurance, donations and private sources.

Figure 2: Estimated cost of reconstruction by region of state-owned and local government roads and other assets (2011-12 to 2013-14)



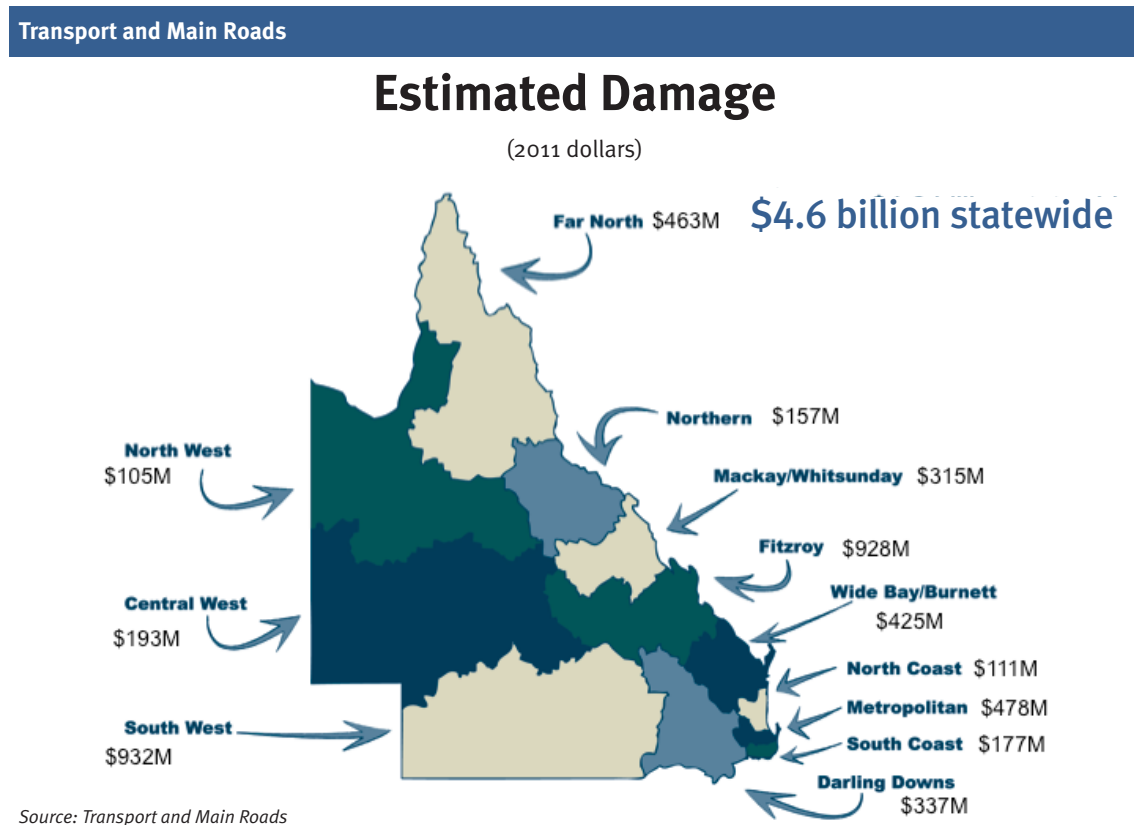
State Road Expenditure

The estimated cost of reconstruction works for the State-controlled road network is between \$4 billion and \$5 billion. This figure also includes costs of State road construction for damage sustained in early 2010 yet to be fully reconstructed.

The regional distribution of the works is represented in Figure 3 and shows the largest projected expenditure in the South West and Fitzroy. Work in these two regions represents more than 40 per cent of state-wide costs⁷. Other regions with high reconstruction costs are: Metropolitan, Far North and Wide Bay Burnett.

⁶ Data for state roads and government-owned assets based on estimates for restoration works by Queensland Government agencies and local government (March 2011)
⁷ Figures correct as at 30 June 2011

Figure 3: Estimated damage of state-owned roads⁸



Damage to State and Local Government Owned Assets

Damage to State and local government owned assets such as schools, parks and libraries is estimated at \$573 million.

Local Government Road Network

The estimated cost of reconstruction works for the local government road network is \$1.975 billion. This figure is based on estimated damage figures submitted by local governments to the Authority in March 2011. These figures will be updated as local governments further refine damage costs and estimates become more accurate.

Damage to Private Housing

The extensive damage to private dwellings and property resulted in approximately 122,000 insurance claims being lodged with an estimated reserved value of \$3.66 billion (as at 22 July 2011). It is anticipated that the majority of this reconstruction activity will occur in 2011-12 and 2012-13.

⁸ Source: Transport and Main Roads – Significant Procurement Plan for Transport Network Reconstruction Program

Increased and Competing Demands

Given the damage repair bill may be up to \$15 billion, reconstruction in the next three years will inevitably lead to increased demand for:

- skilled labour (e.g. civil engineers and architectural drafters, supervising foremen and technicians)
- low skilled labour (e.g. labourers, drivers and other operators)
- materials (e.g. aggregate, road base, cement, bitumen and bitumen spray)
- plant and equipment.

At the same time as the reconstruction task is underway, there are a number of significant developments in the resources sector, broader capital works and infrastructure projects that will place additional pressure on both human and material resources.

Mineral and Energy Resource Sector

Current and future investment in Queensland mineral and energy projects will have a substantial impact on the demand for resources, including labour. The level of investment in mineral and energy development projects from 2011 to 2020 is estimated at \$146 billion⁹ with the majority of this activity projected to commence by 2016.

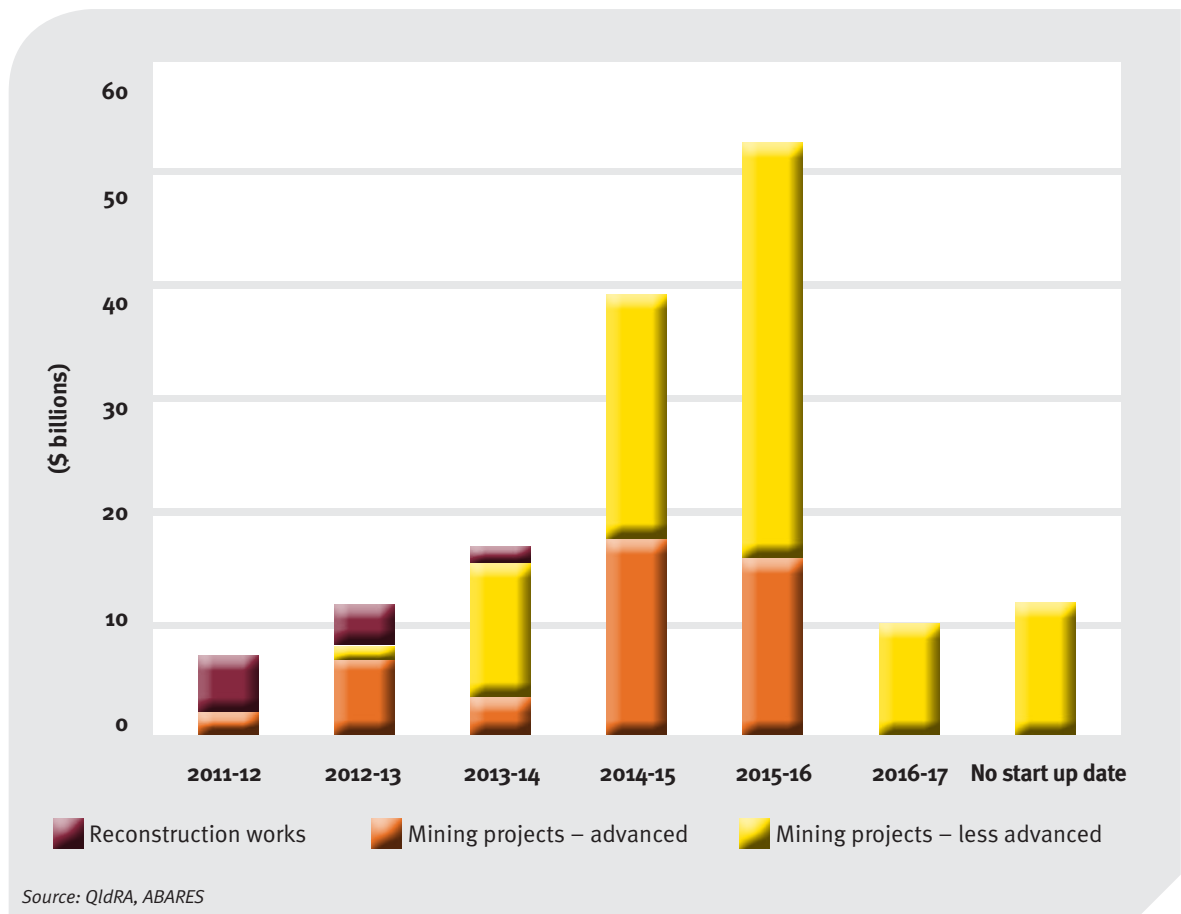
These mineral and energy projects include new and expanded coal mines, the commencement of Coal Seam Gas (CSG) extraction, processing and handling of Liquefied Natural Gas (LNG) and construction of associated rail networks. The phasing of the expenditure of these mineral and energy projects together with the level of anticipated reconstruction works is represented in Figure 4.

This figure distinguishes between projects that are advanced (committed or under construction) and those that are less advanced (undergoing planning or approval processes).

A significant amount of investment in less advanced mineral and energy projects is predicted to commence from 2013-14 with an anticipated peak in 2014-15 and 2015-16. Historically, the likelihood that all of the less advanced projects commence as planned is relatively low, so some level of caution should be applied to the ultimate delivery of some of the less advanced projects.

⁹ ABARES Minerals & Energy Major Developments – April 2011 listing

Figure 4: Value of reconstruction works and the value and stage of development for mining projects 2011–2016 and beyond¹⁰



The anticipated peak in reconstruction works is scheduled for 2011-12 and 2012-13¹¹ with the level of investment in mineral and energy projects expected to grow from this financial year peaking in 2014-15 and 2015-16 as shown in Figure 4. This suggests that the reconstruction works should be completed before the projected major peak activity in resource projects. However, there is potential for the front-end civil construction works of the mineral and energy projects to compete with reconstruction works for labour and materials as this early construction activity traditionally commences 1 to 2 years prior to the expected operational start-up.

This potential for competition for resources further reinforces the importance of reconstruction works being completed within the projected time frame or securing construction materials and plant equipment for the life of the restoration works.

¹⁰ Source: Queensland Reconstruction Authority, Queensland Treasury – State Budget 2011-12; Insurance Council of Australia and ABARES Minerals & Energy Major Developments (April 2011 listing). The reconstruction works includes restoration of State and local roads, other State and local government assets and private dwellings. Restoration of private dwellings apportioned \$2.44b in 2011-12 and \$1.22b in 2012-13 and the forecast of expenditure as per State Budget 2011-12 papers. Data for mining projects represents capital expenditure across the whole of project life.

¹¹ Queensland Treasury, State Budget Paper: Rebuilding Queensland after the natural disasters of the summer of 2010-11

Further, both local government and the Department of Transport and Main Roads report competition for labour from the resource sector, with attractive packages offered to workers in the mining regions. Industry feedback to the Commonwealth Treasury, as part of its quarterly Business Liaison Program, notes that shortages in the resources and related construction sectors are expected to drive wage pressures in the near term, with wage agreements awarding pay increases in excess of 5 per cent in some specialised professions.¹² These developments will inevitably affect the cost structure of the labour force available for reconstruction. There are emerging anecdotal indications of increasing demand for accommodation for the reconstruction workforce, particularly in the Fitzroy region.

Capital Works and Infrastructure Projects

In addition to reconstruction works and resource sector developments, a significant program of capital works and infrastructure projects is also planned across Queensland.

The State Government's capital program for 2011-12 is almost \$15 billion (including reconstruction works). The program includes significant investments in health, public transport, water infrastructure, education and housing. It includes a health capital program of \$1.82 billion with the majority allocated for hospital projects, including three new tertiary hospitals in South-East Queensland and hospital redevelopments in Cairns, Mackay, Mount Isa, Rockhampton and Townsville.¹³

Taking a longer term perspective, the consultation version of the Queensland Infrastructure Plan (July 2011) sets out a 20-year infrastructure plan for the state, which includes both short-term and longer-term infrastructure priorities to meet the future needs of growing regions.

¹² Commonwealth of Australia (2011): Key Themes from Treasury's Business Liaison Program

¹³ Queensland Government, State Budget Paper 2011-12, Capital Statement, Budget Paper No 3

Figure 5: The value of building and engineering construction activity in Queensland 2001 – 2011¹⁴.

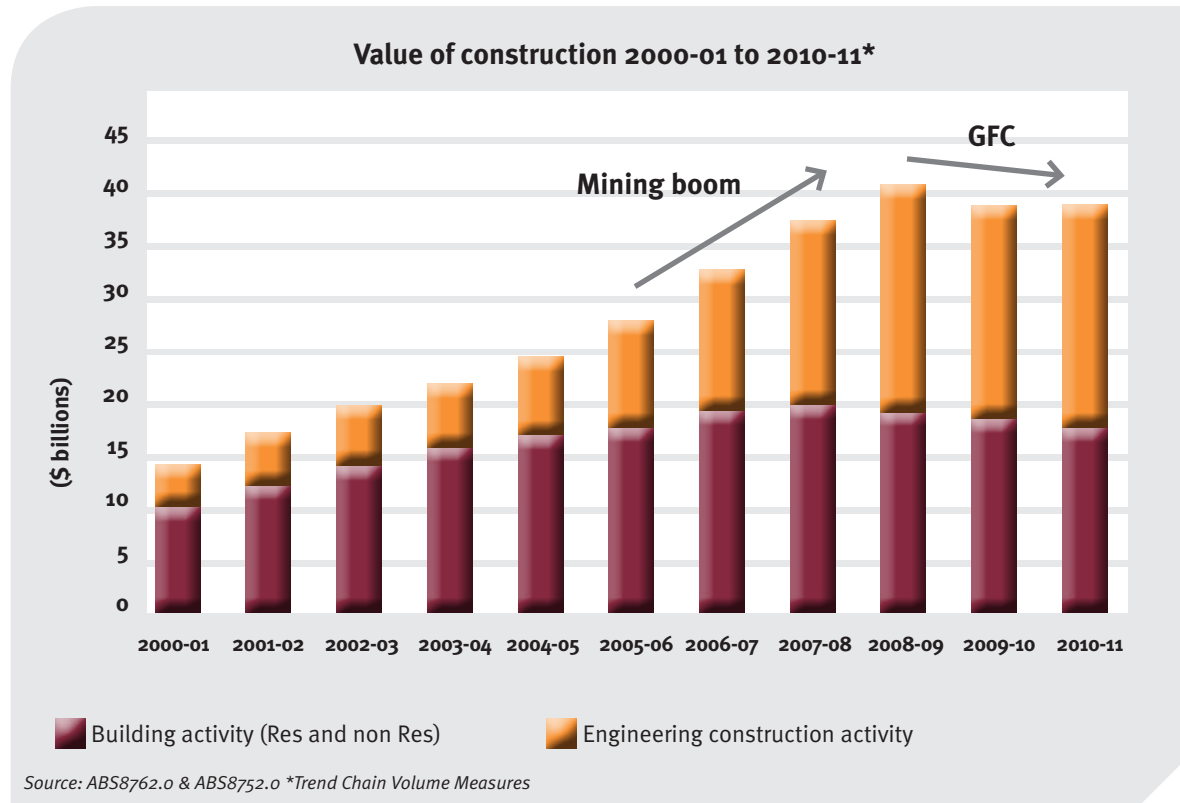


Figure 5 details an historic trend of the value of building and engineering construction activity in Queensland between 2001 and 2011. The building and engineering construction data represents the majority of capital infrastructure works in Queensland including activity relating to the resource sector and residential and non-residential building sectors.

The value of building and engineering construction activity grew at a rapid pace up to 2008-09, while from 2005-06 there has been a strong surge in engineering construction activity, which reflects significant investment in mining and infrastructure related projects, buoyed by surging commodity prices during this period.

The level of building and engineering construction activity declined in 2009-10 and is expected to have remained at similar levels in 2010-11 (dampened by the impacts of the Global Financial Crisis [GFC]).

While there will be a substantial amount of construction activity in Queensland under way as the disaster reconstruction works commence in 2011-12, it follows a period of subdued construction activity. It is expected that these restoration works of \$5.75 billion in 2011-12, \$3.72 billion in 2012-13 and \$1.41 billion in 2013-14 should provide timely support for the building and construction industry in Queensland. Moreover, the size of these reconstruction works in value terms are relatively modest compared to the overall level of activity (nearly \$40 billion) in recent years in Queensland.

The timing of the reconstruction works appears to be conducive to the future trends in the industry. Business investment is forecast to pick up, growing at 27.75 per cent in 2011-12 following 13 per cent growth in 2010-11. This is primarily due to the favourable terms of trade and strong demand emerging from Asia for mining commodities¹⁵.

¹⁴ Source: Source: ABS Engineering Construction Activity (Cat. No. 8762.0) ABS Building Activity (Cat. No. 8752.0) March 2011
¹⁵ State 2011-12 Budget

Resource Requirements for Reconstruction

The following sections provide information at a broad level on the resource requirements for reconstruction – human and material, plant and equipment.

The Authority has sought to analyse the size of the reconstruction task and identify possible regional hot spots, taking into account projected resource sector demand to better inform industry about projected future demands.

Where shortages or logistical impediments are identified, the Authority will seek to develop regionally specific solutions to overcome blockages.

1. Human Resources

Reconstruction works across the State will lead to increased demand across a wide range of skill levels from highly-skilled specialists (such as civil engineers and architectural drafters) to low-skilled workers (such as labourers and drivers).

Projected regional jobs supported by reconstruction activities

Figure 6 illustrates the projected number of jobs supported by the reconstruction of State roads, local government roads and other assets across the State for financial years 2010-11 to 2013-14.

The data shows that the demand for workers is unevenly spread across the State. The four regions of Fitzroy, Metropolitan, South West and Far North represent the majority (58.6 per cent) of all the jobs supported by the reconstruction activities.

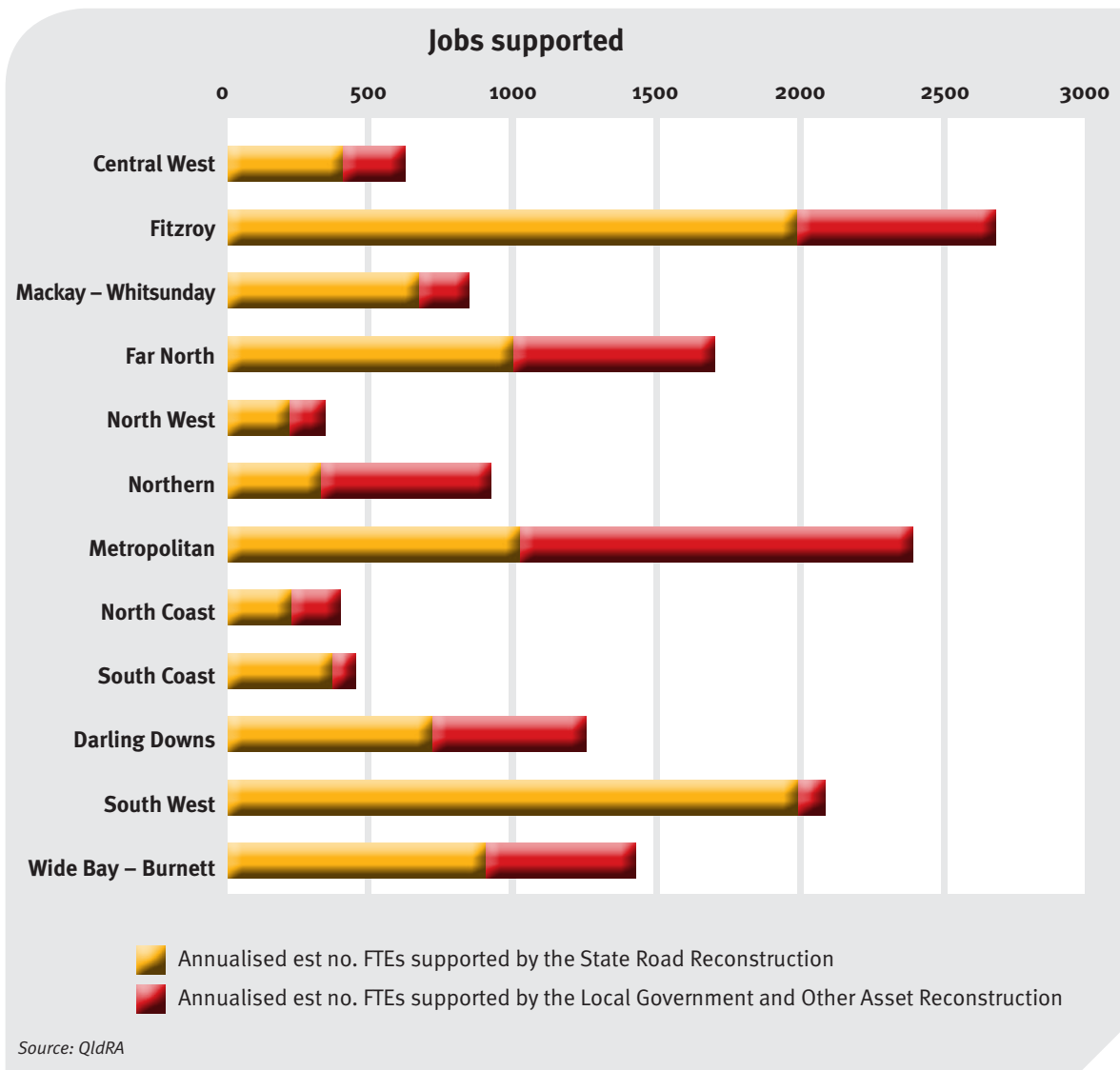
Figure 6 provides an indicative view of the contribution of the reconstruction activities on FTE (full time equivalent) employment in Queensland regions. The number of FTEs supported does not represent the quantum of new jobs created by economic activity rather the impact on employment throughout the economy. Included in these figures will be the direct on-site employment as well as the indirect service provision from the broader economy. A split between direct and indirect FTEs is not provided by this methodology. These projections indicate that the reconstruction works across Queensland regions will support more than 15,000 jobs.

This methodology is based on the Queensland Treasury economic model that estimates the contribution to employment in the Queensland economy from the final demand for construction services^{15a}. The model describes the average number of FTE jobs supported by \$1 million of final demand for construction services, rather than jobs generated, and is represented by the following formula:

$$\text{Number of FTEs supported} = \text{Project cost (\$/m)} / 6.70$$

15a Queensland Treasury, 2011 – Office of Economic and Statistical Research Technical Note: Employment supported by final demand for construction services, June 2011.

Figure 6: Projected annualised regional jobs supported by reconstruction of state roads and local government roads and other assets (2011-12 to 2013-14)¹⁶



Short-term spare capacity

Whilst Figure 6 details the high level of demand for workers as a result of the reconstruction timetable, consistent feedback from stakeholders (Commonwealth, State and local government, industry associations and labour force data) indicates that there is spare capacity within the Queensland labour market to meet the short-term reconstruction needs.

This spare capacity is attributed to a number of factors, including some downturn during the GFC. In its April 2010 Major Projects Report¹⁷ the Queensland Major Contractors Association (QMCA) predicted surplus capacity emerging from the completion of major road and transport infrastructure projects. However, QMCA identified a huge emerging demand from planned mineral and energy projects that could impact on these surpluses.

¹⁶ The number of jobs supported represents the average annual number of FTE jobs supported by \$1 million of final demand for construction services (#FTEs = Project cost (\$m) / 6.70) (Ref: Qld Treasury) and derived from estimates of restoration works.

¹⁷ Queensland Major Contractors Association (April 2010) Major Projects Report Queensland Engineering Construction Outlook

Additionally, spare capacity varies by region, with unemployment ranging from 4.1 per cent in Townsville to 8.6 per cent in Cairns¹⁸. Participation rates are also highly variable.

The Major Projects report was prepared by QMCA prior to the weather events of 2010-11 and predicted that there was significant potential for privately funded resource and energy sector projects to fill the gap left by the anticipated reduction in public sector investment, noting the uncertainty surrounding a number of these projects.

The construction industry is a dynamic industry comprising an estimated work force of 238,000 people (building, heavy and civil engineering construction)¹⁹. Workers in the construction industry are generally mobile, responding to major developments and infrastructure projects across the State or interstate.

In the medium term (2012-2013) there is expected to be increasing competition for construction workforces from resource sector projects, infrastructure investment, national broadband network roll-out and housing developments.

Already there are some emerging hot spots for skill shortages, particularly where unemployment is low and resource sector developments are progressing. Stakeholders report that heightened competition for human resources is currently being experienced and is likely to increase in the medium term in regions such as South West Queensland and Central region (Mackay, Gladstone and Emerald).

In the March quarter 2011, the Construction Sentiment Monitor²⁰ indicated that more industry participants are reporting the effects of skills shortages – 62 per cent voiced a concern about this problem in March, up from 56 per cent in December 2010. The report noted that carpenters, electricians and plumbers were difficult to source, with plumbers nominated by 13 per cent of those surveyed (up from 8 per cent in December). Construction, project management (16 per cent) and professional design services (20 per cent) remained sought after by a higher percentage of industry participants²¹.

Impact of Queensland mineral and energy projects

There may be as many as 38,000 construction and operation jobs created in the Queensland resources sector between now and 2014-2015²¹. However, this figure could be somewhat optimistic as it is based on the assumption all projects planned will proceed within the reported timeframes and that the workforce numbers given are representative of the actual numbers. Any change in project timeframes will result in changes to the peak levels of projected workforce numbers. Given the volatile nature of the resource sector, this figure should be considered as an estimate only and subject to change.

The Queensland Major Contractors Association²² (QMCA) identified potential short-term skills challenges as energy projects commence with a likely shortfall in capacity and skills needed to either commence construction and/or maintain the progress of existing projects. The report notes that the size of the shortfall is dependent on the ability of government, project proponents and contractors to successfully import new workers into Queensland and re-deploy project staff and construction workers from South-East Queensland to regional Queensland.

Significant other challenges include the need to provide the necessary structural and social infrastructure to support workforces particularly in the Bowen, Surat, Gladstone and Mackay regions and the Northern Economic Triangle²³.

One of the largest impacts from increased mining activity is expected to be in Central Queensland (Mackay, Fitzroy and Central West), which includes the Bowen and Galilee basins. Additionally it is predicted that the CSG/LNG industry will invest more than \$30 billion to develop export markets in the next 20 years²⁴. Workforce demand is expected to peak in the next five years as industries in the Surat Basin expand.

¹⁸ DEEWR Small Area Labour Markets, December quarter 2010

¹⁹ ABS-LFS:Data Table 1, 23 June 2011

²⁰ Davis Langdon- Construction Sentiment Monitor, Findings Report 14, April 2011

²¹ OESR Estimates

²² Queensland Major Contractors Association (April 2010) Major Projects Report Queensland Engineering Construction Outlook

²³ The Northern Economic Triangle (NET) is a commitment by the Queensland Government to foster sustainable economic, social and community growth through the emergence of Mount Isa, Townsville and Bowen as a triangle of mining, mineral processing and industrial development.

²⁴ Energy Skills Queensland (2009) Energy Skills Queensland Workforce Planning Report

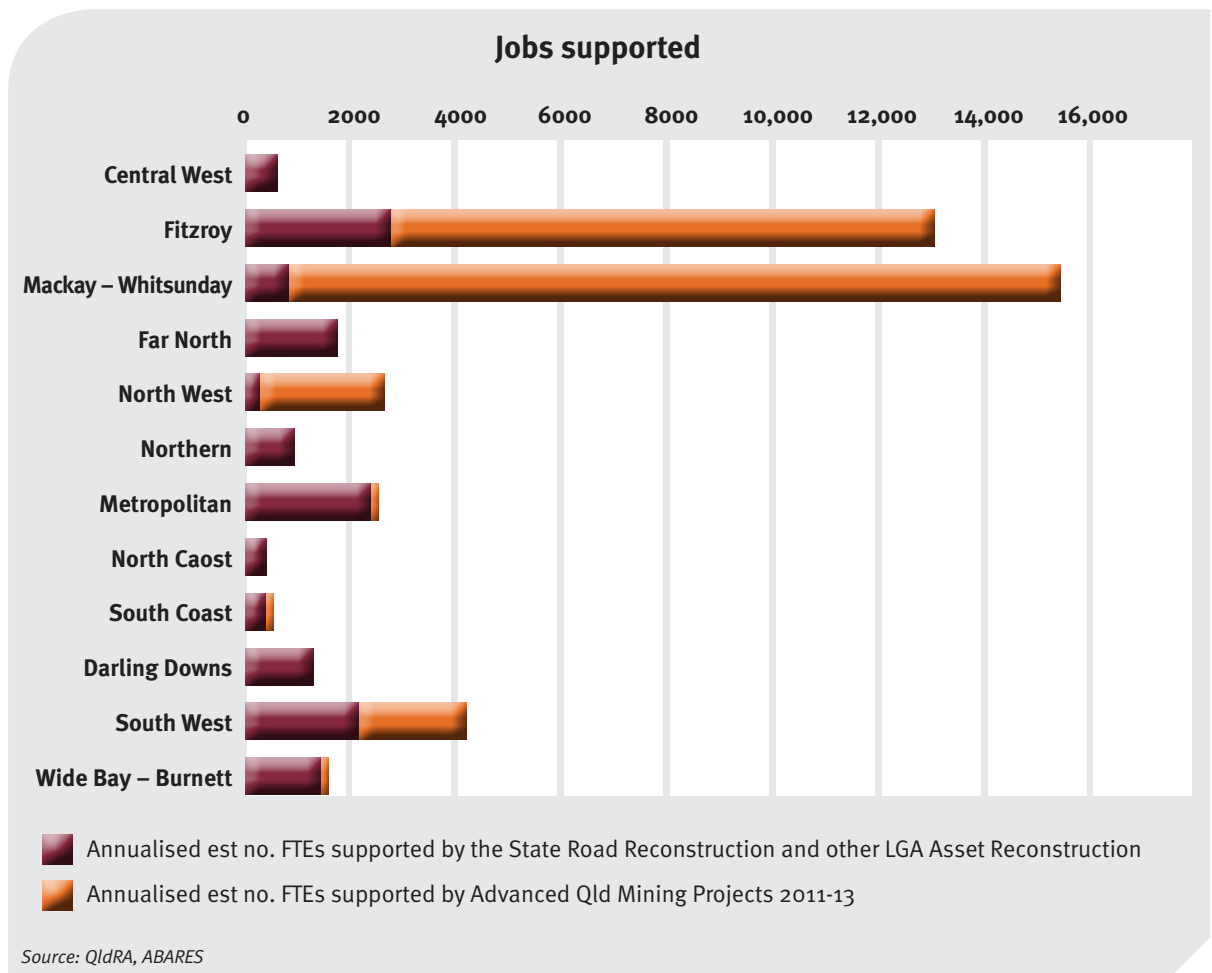
To illustrate the increasing demands from the resources sector, the Construction Skills Qld CSG /LNG Industry Construction Workforce Plan labour demand analysis (predominantly trade) estimates that approximately 6700 workers will be required to construct the initial four LNG trains and associated upstream (CSG field facilities) and downstream (LNG processing facilities) . Once management and supervisory staff are added (1:10 supervisor to worker ratio) the forecast increases to approximately 9000 workers.

Figure 7 combines the projected number of jobs supported by the reconstruction of State roads, local government roads and other assets with advanced mining projects (as listed by ABARES, April 2011) across the State for the financial years 2010-11 to 2013-14.

These jobs supported by the mineral and energy projects are likely to be spread across the broader domestic and global economy, however the figures do not necessarily represent a shortfall in capacity.

When reconstruction works are combined with resource projects as illustrated in Figure 7, the regions with the highest labour force demands are Fitzroy, Mackay-Whitsunday (Bowen Basin), South West (Surat Basin) and North West.

Figure 7: Projected annualised regional jobs supported by the reconstruction of state roads, local government assets and mining projects, 2011-12 to 2012-13²⁵



²⁵ The number of jobs supported represents the average annual number of FTE jobs supported by \$1 million of final demand for construction services (#FTEs = Project cost (\$m) /6.70) (Ref: Qld Treasury) derived from estimates of restoration works and mining project expenditure. Mining project expenditure forecasts based on ABARES Minerals & Energy Major Developments – April 2011 listing.

Existing shortages

The scale of the reconstruction task is expected to add to pre-existing (pre-disaster) skill shortages such as engineers, project managers, supervising foremen and plant operators.

Engineers Australia report that there is an undersupply of engineers. It is estimated that 6000 engineers graduate nationally each year and another 7000 engineers move to Australia from overseas. However, many of the overseas-trained engineers are not readily employed and require additional training and experience to be able to take up opportunities locally.

The Department of Transport and Main Roads (TMR) and other stakeholders have advised that mining companies are attracting local engineers from both TMR and local government workforces offering significantly enhanced remuneration packages, rather than recruit engineers from overseas.

Current initiatives

There are a wide range of programs and initiatives introduced by Commonwealth and State governments, peak and professional bodies and industry associations designed to help meet the human resources needs required to undertake the overall reconstruction effort. These are in addition to the standard programs that are supporting the reconstruction program. Some key initiatives include:

- **\$83 million Jobs and Skills Package** comprising:
 - Building community capability of affected communities to support local industry, coordinate employment and skills assistance
 - Green Jobs to provide employment and work experience in projects to rebuild community and public infrastructure
 - Apprentice support measures to support employers to retain apprentices and trainees
 - Priority skills development for training to address priority skills development
 - Employment of 19 Jobs and Skills Development Officers in 15 regional councils and 11 in Industry bodies – this work will complement that of existing Australian Government Local Employment Coordinators and proposed Indigenous Employment Coordinators.
- **\$50 million Strategic Investment Fund** administered by Skills Queensland to:
 - Facilitate strategic responses to emerging skills needs and areas of VET market failure
 - Develop collaborative and innovative initiatives that address priority skills development issues and support improved workforce planning at an enterprise, regional and industry level
 - Allocate up to \$35 million for the development of industry existing workforce and up to \$15 million for the provision of pre-employment or pre-apprenticeship training to skill the future workforce of industry.
- **\$10 million Construction Skills Queensland Skills Strategies** – Construction Skills Queensland (CSQ) is providing a \$10 million response package to assist organisations or employers to become involved in community-based and major infrastructure rebuilding projects associated with the recent disasters. The package also includes initiatives to help out-of-trade apprentices re-enter the industry, financial support for existing workers to update skills and meet licensing requirements and reimbursements for workers to take short safety courses.
- **Indigenous employment strategies** including Indigenous Employment and Training Support Officers working across the State to provide culturally appropriate mentoring and support to increase the retention and completion rate of Indigenous apprentices, trainees and vocational students.

- **Skilling Queenslanders for Work** provides \$105 million in grants across programs including:
 - Participate in Prosperity
 - Productivity Places Program
 - Queensland’s Green Army
 - First Start Program
 - Get Set for Work
 - Indigenous Employment
 - Community Literacy Program
 - Youth Training Incentives.

Jobs and Skills Development Officers (JSDO)

Thirty JSDOs will work with local governments and industry organisations to facilitate the coordination of skills and employment assistance across areas affected by the 2011 Queensland natural disasters and to support the development of specific workforce strategies aligned to the needs of affected industries.

The work of the JSDOs will be complemented by existing Local Employment Coordinators and proposed Indigenous Employment Coordinators.

- **The Overseas Qualified Engineers Group** was established by **Engineers Australia** (Qld Division) in February 2011 to help facilitate the integration of overseas-trained engineers currently residing in Australia into the Queensland workforce and engineering labour market. The group promotes and facilitates development of overseas-qualified engineers and provides them with guidance, mentoring and motivation to improve their communication and chances of securing employment in the Australian/Queensland engineering sector. Since its inception, the group has convened four events for overseas-trained engineers, which (on average) were attended by 120-140 participants. The Group/Engineers Australia also assists such engineers in having their qualifications and competencies assessed and in accessing courses such as the 16-week, *Overseas Qualified Engineering* program course offered by the Brisbane North Institute of TAFE.⁶
- **Local Government Association of Queensland (LGAQ)** operates a number of business initiatives to assist its member local councils in their service delivery. **Local Government Infrastructure Services (LGIS)** is working with 12 councils in project managing construction works and in developing funding submissions for the Authority – Lockyer Valley, Somerset, Southern Downs, Balonne, South Burnett, Bundaberg, Gladstone, Whitsunday, Cassowary Coast, Woorabinda, Cherbourg and Palm Island. LGIS estimates that these submissions will be worth approximately \$800 million. **Local Government Disaster Recovery Services Pty Ltd (LGDRS)** is a recent business initiative of LGAQ to assist in the improvement of local governments’ competitiveness within a post-disaster environment with high demand for construction goods and services. LGDRS intends to provide virtual scale through regional and statewide procurement and delivery arrangements.

²⁶ In Queensland, engineering is a regulated profession under the Professional Engineers Act 2002. Under the Act, individuals providing professional engineering services are required to be registered to practice in Queensland. Engineers who practice under the supervision of registered professional engineers, registered in the same area of engineering, do not require registration.

- **Department of Transport and Main Roads (TMR)**

The Department is taking a leadership role across the road and transport sector to resource the reconstruction program of works. Due to the scale of the damage to State roads (\$4 billion – \$5 billion), it was recognised that a departmental business-as-usual approach would not deliver the reconstruction within the required timeframes. Consequently, additional program and project management resources will supplement existing resources to ensure the delivery of works in a timely manner.

Through its Transport Network Reconstruction Program (TNRP), TMR has established a Statewide Program Office and Regional Project Offices. Reconstruction works will be packaged in such a way that all available public and private road construction groups have the opportunity to competitively tender the works. Where this is not available, works will be packaged up further to attract national and international prequalified contractors.

The TNRP approach will:

- reinforce and build on existing local and regional supply relationships that will strengthen these arrangements and opportunities
- work collaboratively with both public and private sector partners to deliver the program
- use regionally based integrated planning and delivery teams (Regional Project Offices) and the Statewide Program Office to deliver during periods of peak workload before returning to business as usual.

In summary, based on available data and consistent feedback from stakeholders, it is anticipated that there is generally sufficient workforce capacity in the immediate term to meet increasing demands from reconstruction works across the State. The regional spread of this workforce is less clear.

In the short term, regions such as Fitzroy, South West, Mackay-Whitsunday and Northern and North West are expected to face high demands from both reconstruction works and growing resource sector projects. However, in the medium term (2012-14) there is expected to be increasing competition from the resources sector and major infrastructure projects.

The risk of escalation in these regions will potentially have a knock-on effect throughout the industry.

2. Material Resources

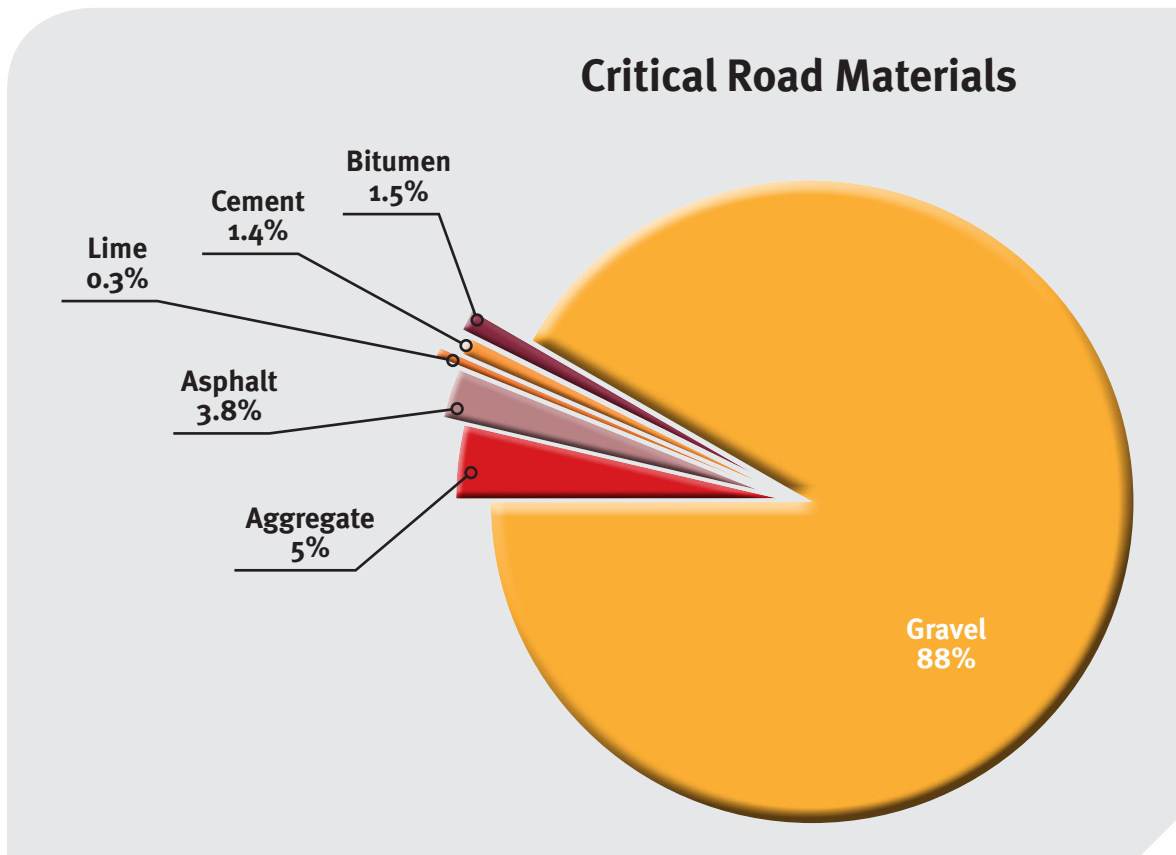
Critical road materials required for the reconstruction include quarry products (road base and aggregate), bituminous products, including asphalt, and stabilisation materials such as lime and cement. TMR estimates the cost of road materials for State roads will be \$1.05 billion, meaning that the materials cost is likely to equate to approximately 20-25 per cent of the overall construction cost.

Queensland is geographically and geologically diverse, which influences the availability of road materials. If road materials are not available close to work sites, material will need to be transported. Transportation costs will add to the overall cost of the materials and will also increase demand for road vehicles including trucks, bitumen and cement tankers. Additional demands will also be placed on rail transport systems.

Additional shipping to the ports of Brisbane, Townsville and Mackay will also be required to service the demand. This added pressure on the existing road, rail and port infrastructure will add to the already increased pressure from the natural gas and mining projects.

Figure 8 illustrates the indicative portions of road construction material required for road reconstruction across Queensland. The chart shows that by far the greatest demand is for quarry materials (pavement materials such as road base and aggregates).

Figure 8: Estimated proportion of critical construction materials for road projects²⁷



Source: QldRA

²⁷ Source: Derived from Transport and Main Roads – Significant Procurement Plan for Transport Network Reconstruction Program and Local Governments estimates of tonnages

Regional variations and potential shortages

Supply and demand for road construction materials will vary between regions. Consistent feedback from stakeholders has identified potential issues in the supply of road materials for the reconstruction effort across the State.

Regional variations have been identified with non-coastal areas nominated as facing the most challenges with demand outstripping supply and challenges in the transportation and haulage to these areas. Generally, western areas rely on sourcing local materials and ridge materials for their unsealed road network. Although, even where there is rock available, accessing it could be a constraint. Often base and sub-base material for sealed road networks need to be sourced from coastal areas.

With respect to the state road network and where supply and demand is reasonably balanced, TMR will use its Transport Network Reconstruction Program to reinforce and support the use of existing regional supply chain arrangements where these have sufficient capacity and are logical, economic, effective and efficient. This approach should reduce pressure on pricing.

In regions where the demand for materials exceeds available supply the TMR Statewide Program Office will identify critical materials shortages in each region and engage with industry bodies (existing and new suppliers) to put in place cross-regional supply chains. This cross-regional approach will be applied to quarry material, bitumen, asphalt and associated transport and logistics. This is likely to be more critical in regions with significant restoration programs such as the Fitzroy, Darling Downs and South West regions.

For local government road restoration, Western and South West Queensland are two potential hot spots, with extensive road network damage but potentially insufficient supply of materials and long distances to haul materials from other regions.

Regulatory issues

In areas where there is potentially insufficient local materials to meet reconstruction needs, possible solutions include extending the hours of operation or opening up new quarries to meet demand.

Stakeholders have raised issues about the time taken to gain regulatory approvals to open new quarries or modify the operating hours of existing quarries. Development approval processes for new quarries are considered by stakeholders to present a risk and require considerable work to achieve all requirements (e.g. cultural heritage considerations).

Stakeholders have suggested a fast-tracked approach to these approval processes and solutions could include a case-managed streamlined process to ensure an efficient and prioritised development approvals process.

Amendment to ERA16 – Extractive and Screening Activities Schedule²⁸

Noting this risk of materials supply, the Department of Environment and Resource Management (DERM) has recognised that increased flexibility for supplying quarry products at a project level will significantly enhance the reconstruction efforts.

Recent amendments by DERM to the Environmentally Relevant Activity Schedule: ERA 16 – Extractive and Screening Activities allows the extraction (other than by dredging) and screening 5000 to 100,000 tonnes per year of quarry materials for the construction and maintenance of rail transport infrastructure and roads under a self-assessed code of compliance, within some site specific constraints.

²⁸ www.derm.qld.gov.au/ecoaccess/business_and_industry/extractive_activities_mining_and_petroleum/extractive-screening.html

Where there is capacity for quarries to increase production, firm orders are required to justify the additional investment.

In the event that approval processes need to be fast tracked, the Authority has the power to expedite both State and local government regulatory decisions or approval processes, if deemed necessary.

3. Plant and Equipment

Timely completion of the reconstruction effort across the State also relies on the availability of plant and equipment, particularly for road building.

Stakeholders have identified a number of issues regarding the potential shortage of specialised plant and equipment – spreaders, mixers, road profilers, stabilisers and transport vehicles. The transportation or haulage of bitumen could also emerge as a supply risk.

The hot spots are in Western and South Western Queensland, where they experience difficulty in accessing materials and long transport lines tie up existing tankers. Local governments and other contractors in these regions also experience difficulties in obtaining quality materials.

Contractors are sourcing plant overseas where it is available. The high Australian dollar provides a favourable environment for investment in machinery and equipment. TMR is putting together large packages of work to ensure that contractors are confident that the investment in new plant and equipment is cost effective.

Going Forward

This paper has collated information about the size of the reconstruction task across the State, potential workforce requirements and demand for materials.

Although the information is presented at a broad level and is indicative only, already there are some regions that are emerging as potential hot spots where labour and materials may be difficult to source as the reconstruction task proceeds. These regions are:

- Fitzroy and Mackay– Whitsunday
- South West Queensland.

These regions have significant reconstruction demands, but face increased competition for labour with the resources sector and may not have access to sufficient local materials for road building.

Given its mandate, the Authority has a key role to work with Commonwealth, State and local government agencies, peak and professional bodies and industry associations to help address a number of the issues identified above to ensure that sufficient human and material resources are available to complete this unprecedented reconstruction program.

Dialogue with stakeholders

The Queensland Reconstruction Authority will continue to work with stakeholders to identify human resource and material shortages and assist in brokering solutions with a focus on the identified potential regional hot spots. Key stakeholders include:

- Local Government Association of Queensland
- Department of Transport and Main Roads
- Construction Skills Queensland
- Queensland Major Contractors Association
- Department of Education, Employment and Workplace Relations
- Skills Queensland
- Department of Education and Training
- Concrete, Cement and Aggregate Association
- Department of Employment, Economic Development and Innovation
- Engineers Australia
- Civil Construction Federation
- Australian Asphalt Pavement Association
- Building Services Authority
- Queensland Resources Council
- Local Government Infrastructure Services

Possible future actions – human resources

Ongoing dialogue with stakeholders will assist in refining some possible actions to address potential human resource hot spots. While specific actions will vary and be targeted to meet unique regional requirements, some broad suggestions to date include:

- providing stakeholders and industry groups with a pipeline of reconstruction works to help prepare for human resource and material demands
- marketing construction work opportunities in regions of high unemployment (e.g. Cairns, Wide Bay and Sunshine Coast) to source new staff for reconstruction projects and promote the benefits of such employment and lifestyle benefits when compared with resource sector employment
- input into workforce development plans such as the Surat Basin Workforce Development Plan, Queensland Infrastructure Plan, Queensland Regionalisation Strategy and Bruce Highway Upgrade Strategy
- supporting attraction and retention strategies
- implementing indigenous employment attraction and retention strategies
- identifying strategies to attract resident migrant workers
- using custom-designed, project-wide migration arrangements such as Enterprise Migration Agreements (EMAs) that are uniquely suited to the resources sector, ensuring that skill shortages do not create constraints on major projects and jeopardise Australian jobs. This initiative includes the use of Subclass 457 visas²⁹.

Possible future actions – materials

- Identifying obstacles in the development approval process for increased operating hours or the establishment of new quarries
- Identifying potential shortfalls of materials and developing regional strategies to address this issue
- Working with the mining sector to identify excess capacity and potential availability of materials for reconstruction.

Possible future actions – plant and equipment

As updated information on works programs and dialogue with industry proceeds, potential future actions will be identified and implemented.

²⁹ Temporary Business (Long Stay) – Standard Business Sponsorship (Subclass 457) visa



