CSQ

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Queensland Major Projects Pipeline 2022

QUEENSLAND
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With support from BIS Oxford Economics

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EXECUTIVE SUMMARY

The QMCA CSQ Queensland Major Projects Pipeline Report (QMPPR) provides a comprehensive list of major engineering construction projects, alongside an analysis of the corresponding level of construction activity taking place during the year. The analysis is based on the completion of existing projects and an assessment of the future projects that are likely to go ahead.

For the past 11 years, the five-year pipeline has dramatically changed from $77b in 2011 that was heavily influenced by resource and energy investment from 2010 - 2015.

In the wake of this boom the pipeline fell away, along with investor and industry confidence.

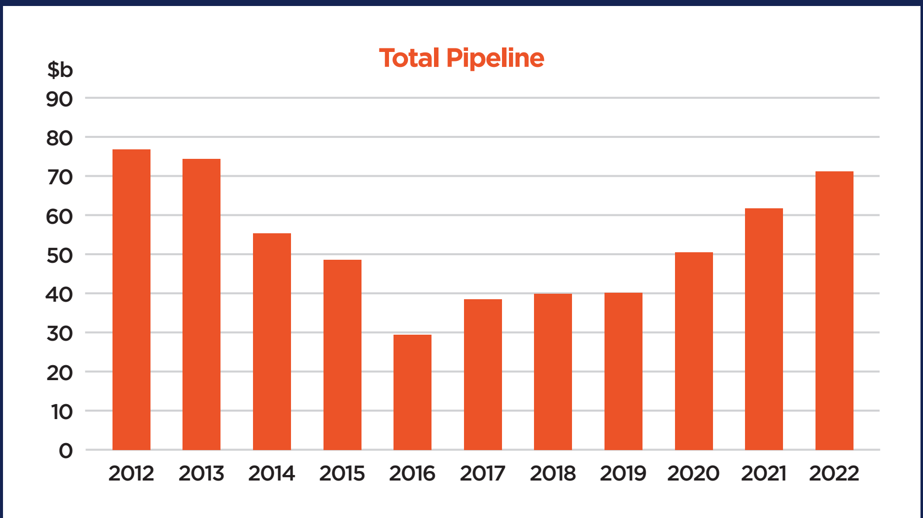
New South Wales and Victoria gained a steady march on Queensland from 2015 onwards, with large scale investment programs in public infrastructure propelling these states forward. Since 2019, we have seen a return to investment in critical infrastructure in Queensland and this is reflected in today's pipeline increase to $71.3b.

What the pipeline is now showing is increased investment in energy storage and renewable energy, and significant spending on public infrastructure. In the longer term, hydrogen projects will also add to the pipeline.

The headline figure of the five-year pipeline has slowly returned to that of 2012/13. With Olympic related infrastructure yet to be factored in, a level of confidence is returning to the industry, however, the headwinds on the horizon for the engineering and construction industries require level-headed and wise navigation. For the pipeline to be delivered successfully, how two critical issues play out will determine the reality of what can be achieved. They are:

Productivity, and skills and resources.

This year's report highlights these areas and provides the foresight required for adequate preparation.



For an accurate economic coverage, a complete list of major projects is considered for the analysis and the explicit assumptions for each project regarding work done. The construction workforces employed each year are also included. The QMCA along with support and input from Construction Skills QLD (CSQ), and in conjunction with BIS Oxford Economics and Aurora Marketing, are pleased to have developed this year's report for the industry.

The 2022 QMPPR includes all projects which are expected to be in construction over the next five years from 2022/23 to 2026/27. The report shows that major project activity is rising strongly in Queensland but there are significant headwinds to sustaining major project activity in coming years.

Now at $71.3b, the total five-year pipeline is $9.4b (14%) more than in 2021.

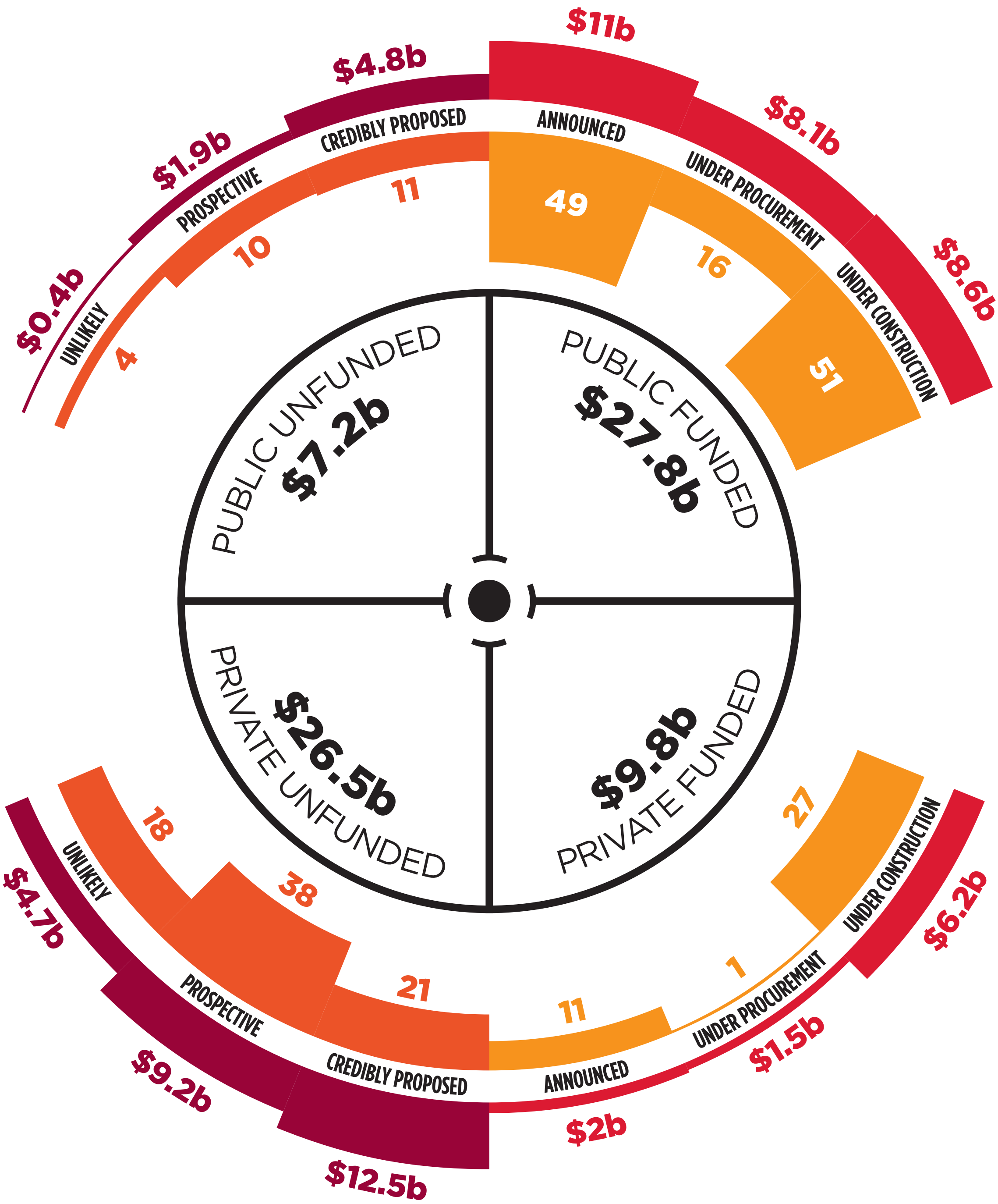
This is predominantly due to the addition of $7.3b in unfunded works, predominantly private sector funded, pushing up unfunded work in the pipeline to $33.7b.

Funded work completed on major projects over the next five years, now sits at $37.6b – this is $2.1b higher than was reported last year. In fact, funded activity has risen in each of the forward years compared to 2021 and is estimated to peak again in 2022/23 (as indicated in last year's report). It is expected that strong funded activity over the next five years will continue in roads, defence, and water and sewerage compared to 12 months ago, but less progress with non-water utilities projects (electricity, gas pipelines and telecommunications) mining and heavy industry and, to a small degree, rail.

While the pipeline is bigger than last year, activity over the next five years will reflect vast changes within regions. Lower levels of funded work is expected in Greater Brisbane, to be offset by strong increases in activity in the surrounding regions of Ipswich-Toowoomba-Logan, the Gold Coast, Sunshine Coast and Wide Bay. Funded activity will heighten across Cairns, Townsville, Fitzroy and outback regions, but is set to decline in Darling Downs-Maranoa and Mackay-Isaac-Whitsunday.

With funded work set to peak this financial year, the growth is reliant on expedient financial approvals. The pursuit of new and productive projects will maintain steady growth, and identifying infrastructure gaps, selecting productive projects and developing funding solutions will remain critical priorities.

BELOW: Pipeline Summary. Source: BIS Oxford Economics, QMCA member knowledge.



Supply chains will continue to be constrained in the short term due to the ongoing impacts of Covid-19 on economies globally, in addition to geopolitical conflicts. More than previously, sustaining – let alone growing – major project activity in Queensland will require meeting the ‘4C’ Challenge of dealing with sharply higher **costs**, and weakened **capacity** and **capability** to deliver, whilst transitioning to a lower **carbon** world. With supply chains stretched beyond limits and Queensland competing hard for adequate resources to deliver major projects - not just among states but internationally - achieving growth will require more efficient and effective operation, and will ideally turn around the industry’s poor productivity performance once and for all.

KEY FINDINGS

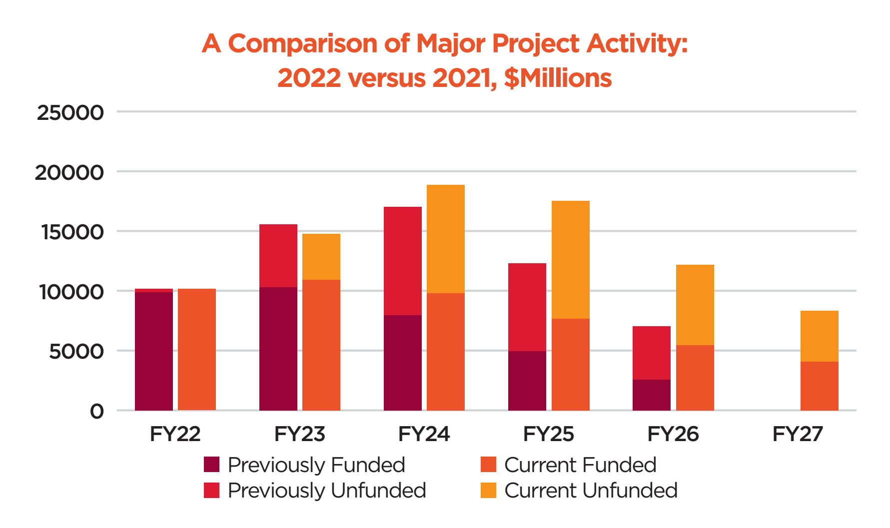
The major projects pipeline continues to grow. In the five years between 2022/23 and 2026/27 inclusive, the major projects pipeline is valued at $71.3b. This figure is much higher than the growth reported over the last two years, whereby 2021 reported $61.9b and 2020, $50.8b.

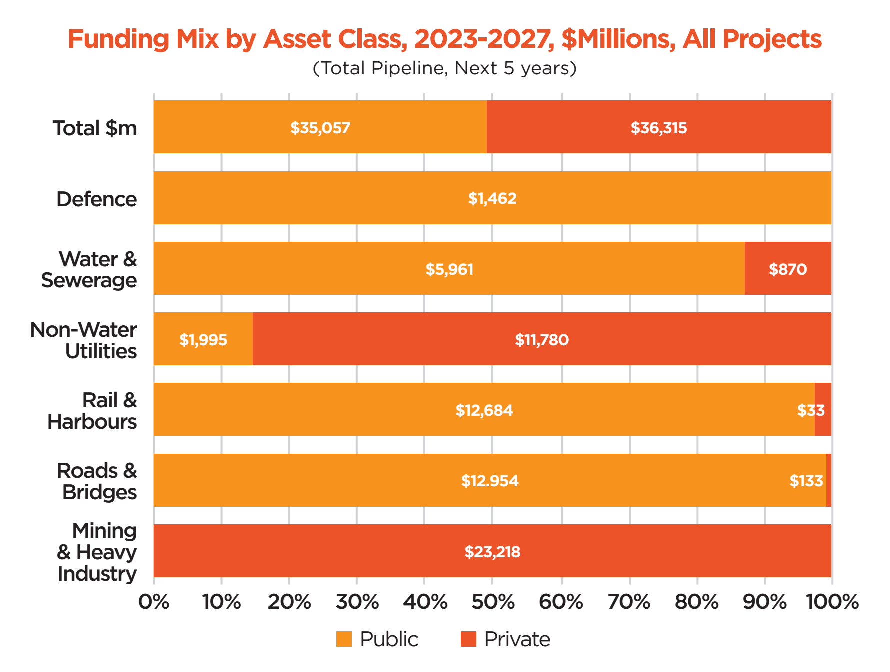
$37.6b (53%) of the pipeline value is funded, up from $35.5b in 2021.

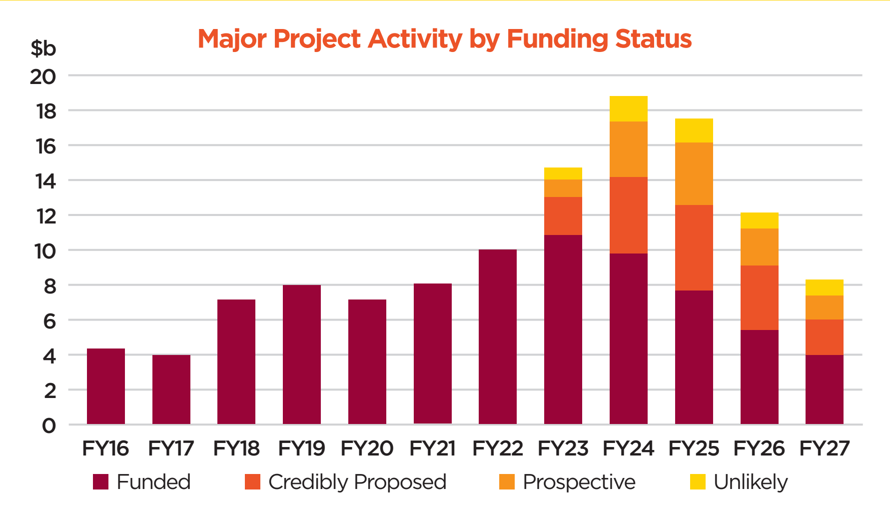
47% of the pipeline is unfunded, up 26% in 2022/23. This does create a level of uncertainty with respect to further progression of projects in the pipeline to financial decisions. There needs to be a focus on how projects can be approved and funded in a more streamlined manner.

The public sector remains a key funder of major project work. 49% of the total pipeline is funded by the public sector and represents 74% of all funded work.

2022/23 has the potential to be the strongest year of major project activity since the end of the resources boom in 2013/14 – a trend we have seen across recent QMPP reports. The total of funded and unfunded activity is projected to be $14.7b. If all unfunded works go ahead, total major project activity will have more than doubled the 2019/20 figure. It will also eclipse the total 2013/14 total by 4%. The present-day total, however, is still well below the record $19.5b worth of major project work that was set in 2012/13 at the peak of the resources boom.







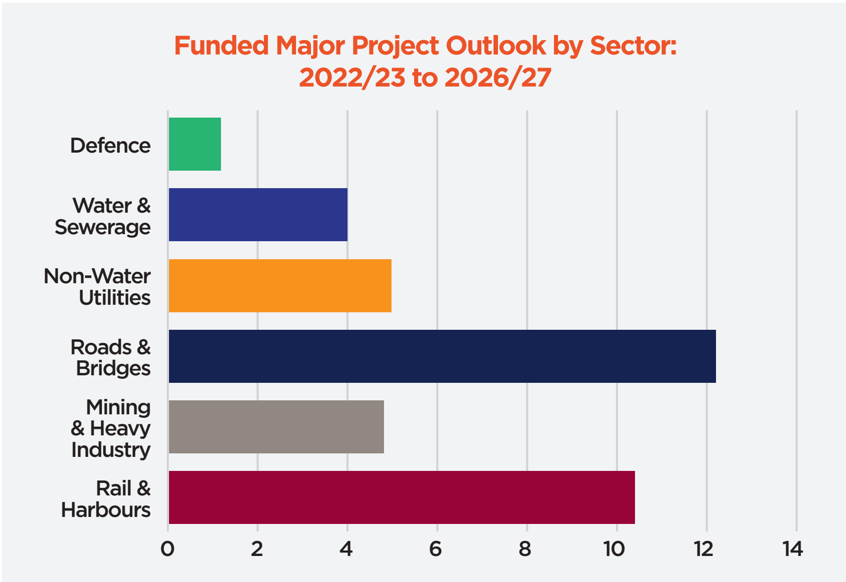
Source: BIS Oxford Economics, QMCA member knowledge.

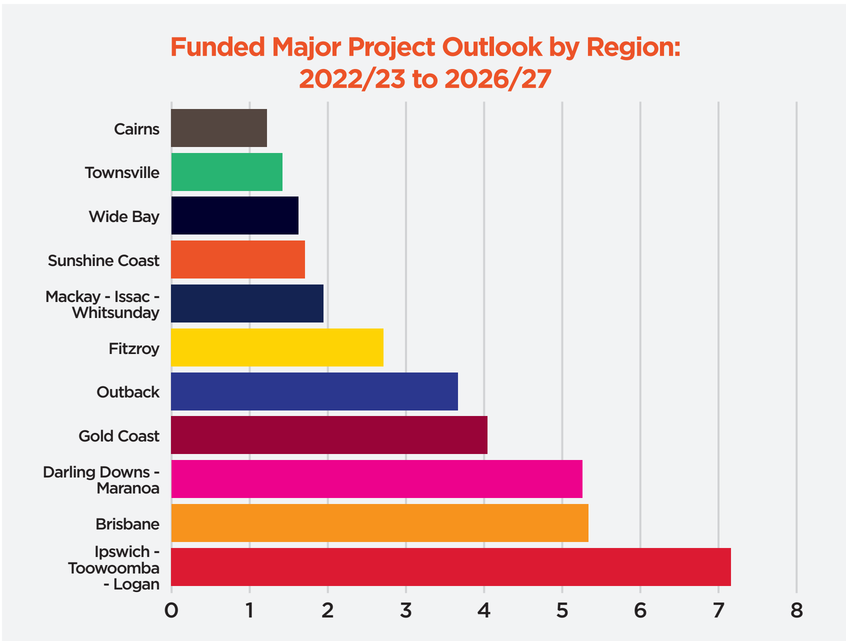
Increased construction costs and tight capacity constraints pose a threat to this favourable outlook, with the stress mostly being a direct result from supply chain disruptions and bottlenecks against a backdrop of rising demand. Road and bridge construction costs (as reflected by the ABS Road and Bridge Producer Price Index) are nearly 9% higher than 12 months ago, with broader engineering construction costs rapidly rising at a pace unmatched since 2008. Higher costs, labour shortages and general challenges associated with materials and equipment, feed into the very real risk that pipeline activity growth will stall, and some projects could be postponed or cancelled.

Sustaining the pipeline beyond 2022/23 - assuming supply constraints and costs can be managed - is critical to the sustainability of the industry. $9.8b of the pipeline in 2023/24 is funded and falls short of the funded level for the previous year. However, a substantial $9.1b in 2023/24 project activity is currently unfunded. $8.2b of this amount originates from the private sector and close to $6b of this corresponds to mining and heavy industry projects (with $4b of that amount from coal project work). $1.4b is derived from electricity projects and a total of $900m in pipelines work.

Funded work is highly concentrated in 'megaprojects' (valued at $1b). Megaprojects will contribute to about half of the funded pipeline over the next three years, which is a similarly large ratio as was reported in previous years. By contrast, projects valued under $200m make up slightly less than 10% of major project work predicted for the next three years, compared to an average of 15% of similar value during the past five years.

Major project outlooks differ considerably by region. Compared to last year, Brisbane's five-year funded pipeline has shrunk by 20%, yet surrounding regions can look towards increased funding in the pipeline. The strongest growth predicted for funded work this year, occurs in the Gold Coast and Wide Bay regions and is 60% up than it was in 2021. Major transport and water projects play a dominant role in this finding.

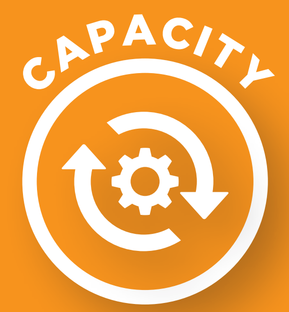




Source: BIS Oxford Economics, QMCA member knowledge.

MEETING THE '4C' CHALLENGE:

CAPACITY, CAPABILITY, COSTS AND CARBON



The 2022 QMPPR holds a promising outlook for major project activity in Queensland. Whilst current funded activity peaks in 2022/23, the substantial increase in unfunded work beyond this year, suggests there is a real possibility of major project activity growth that will maintain an upward trajectory in the coming years.

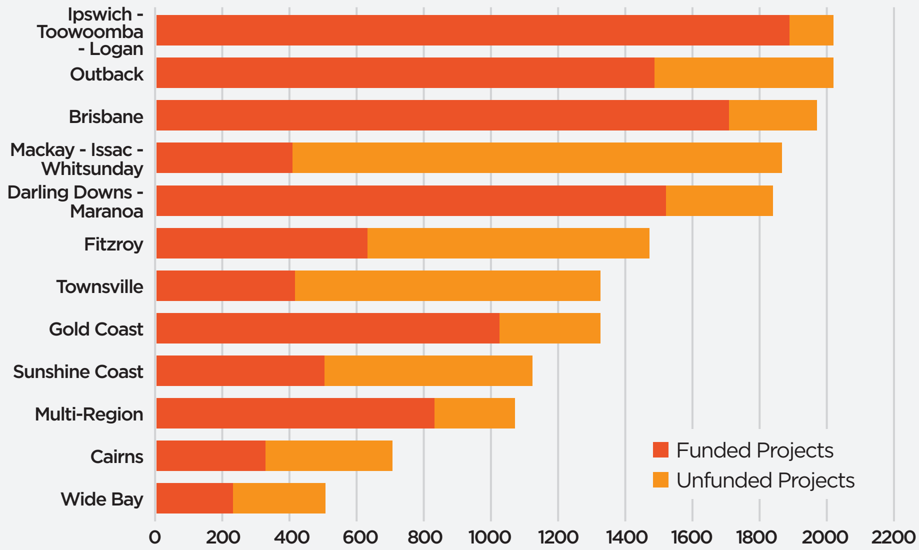
There are, however, considerable risks to the outlook. After a period of lagging behind east coast rivals of New South Wales and Victoria, Queensland is now pursuing infrastructure investment at a time when capacity and capability to deliver has been undermined by supply chain disruptions and surging input costs. While the broader economy and society seek to embrace a new and emerging 'post-Covid' normal, supply chain activity for the major project industry remain about as far from normal as they can get.

Labour shortages are widespread and this affects construction trades, professions, and unskilled labour from enduring years of border closures and disrupted education and training. The unskilled labour pool is vital to fulfilling both direct and indirect construction jobs.

Materials and equipment suppliers are also hampered by rising costs and delays in the delivery of critical machines, parts and components from overseas, as industrial production sputters towards recovery and international freight costs have increased 7-8 times over previous levels. These challenges have the potential to see major project work in the pipeline 're-profiled' to mitigate capacity, capability and cost risks, or at worst case scenario – cancelled.

The risk that infrastructure investment fails to keep pace with Queensland's impressive, nation-leading rate of population growth is a concern, especially with the need to provide infrastructure that will support the 2032 Olympics. Furthermore, these challenges may prevent timely investments in renewable energy solutions, in turn helping Australia meet its total carbon emission reduction targets.

Major Project Construction Labour Demand, 2026/27 inclusive



Source: Construction Skills Queensland for QMCA and BIS Oxford Economics (2022)

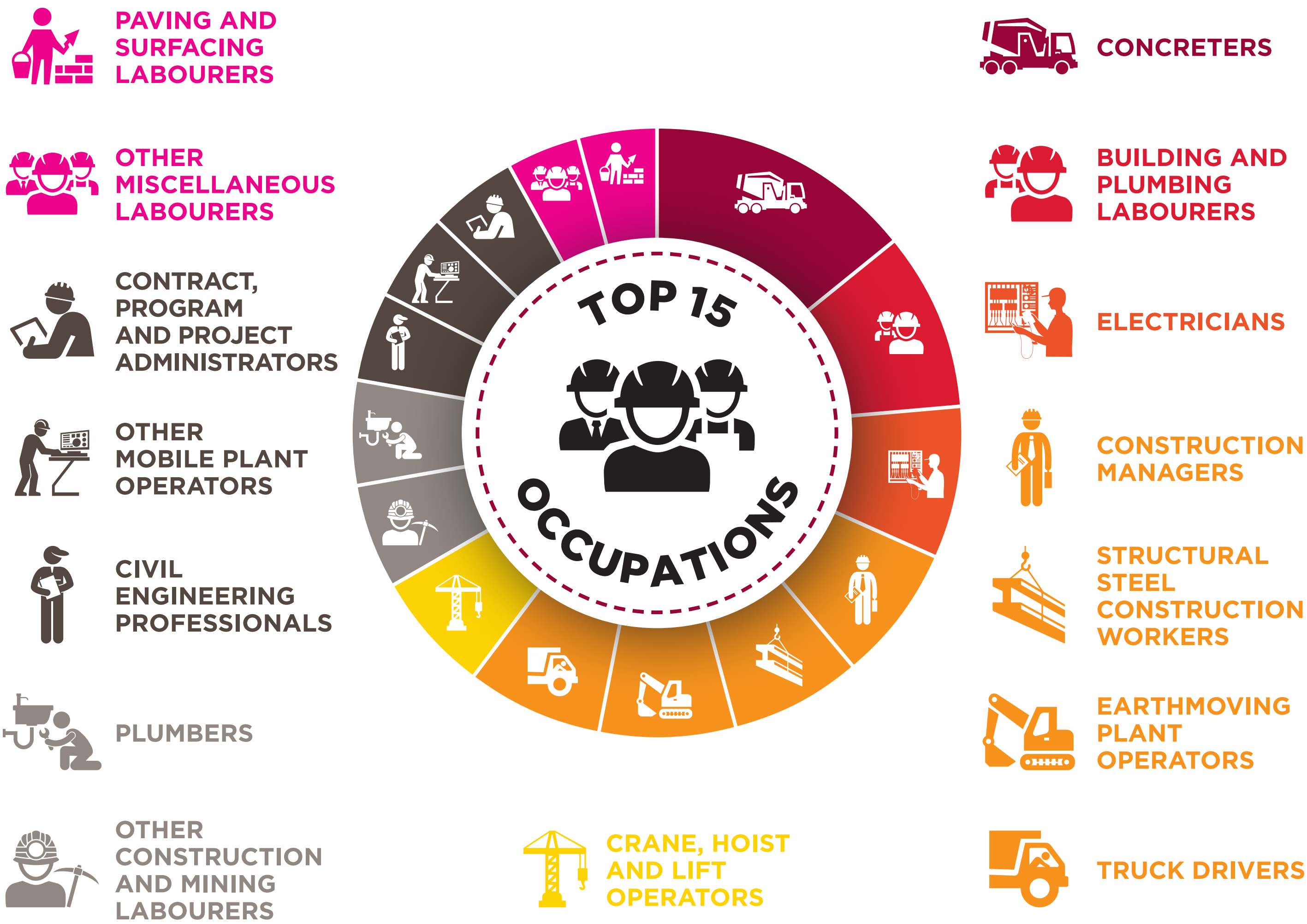
The $71.3b pipeline could require 16,200 construction workers on average from now until 2026/27, to include skilled trades, professions and unskilled labour. More workers are predicted for the funded component (approx. 10,800) which leaves 5,400 for unfunded works. Most of the worker demand will be in regional and remote Queensland, accounting for an estimated 60 to 80%.

Renewable energy is well-positioned to pick up over the long-term. As Queensland transitions to net zero and pursues a large-scale hydrogen export industry, CSQ estimate this could require $13.9b annual investment over the next 30 years. This will catalyse an almost permanent demand for civil construction labour, with an estimated 14,500 to 26,700 new jobs possibly required, more than half of which will be in regional and remote Queensland.

The $71.3b pipeline will be delivered under tight labour market conditions, with trade demand already very high due to the pandemic. A $16.3b pipeline already confronts Queensland's civil construction sector which is 55% growth from pre-pandemic times and is the highest point since the mining boom ended.[1] 70% is publicly funded and reflects initiatives like the state government's recovery plan and record transport investment. Unprecedented demand for critical civil trades has followed - more than 1,000 job advertisements in the most recent month.[2] The 'normal' rate is less than 500, yet this figure continues to grow, with many roles required in regional and remote Queensland.

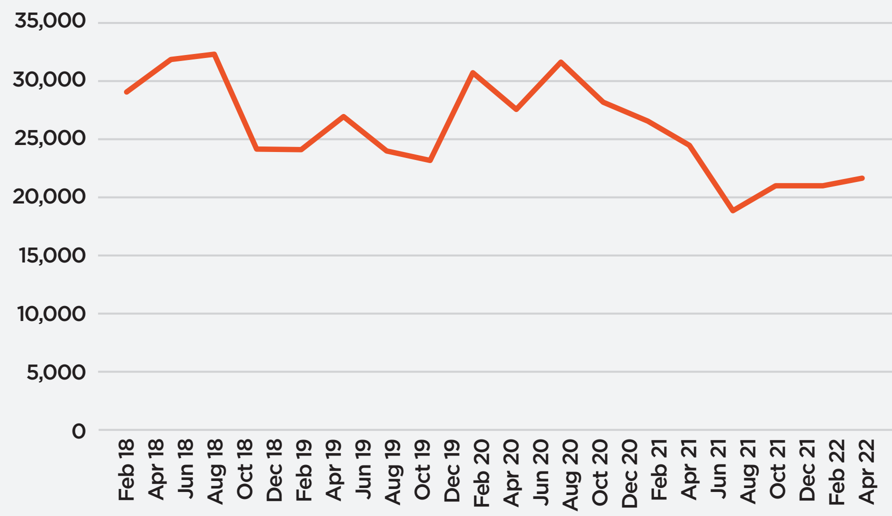
The supply side for both labour and training has not responded. Employment in the Queensland civil construction sector (currently 21,600 workers) remains 20% below pre-pandemic levels.[3] These figures have deteriorated since the pandemic began, even while broader industry employment show signs of recovery. Regarding training, a record-breaking intake of construction apprentices (driven by the pandemic wage subsidy program) has been mainly a residential phenomenon. This has inadvertently crowded the normal proportion of construction apprentices choosing to train in the civil and infrastructure sector, with that proportion now running at about half relative to 2019.[4]

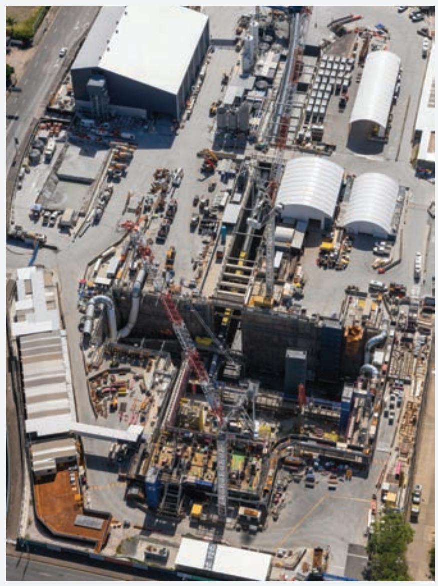
[1] Australian Bureau of Statistics (2022). Engineering Construction Activity, Australia.
[2] National Skills Commission (2022). Internet Vacancy Index – Regional May 2010 - July 2022.
[3] Australian Bureau of Statistics (2022). Labour Force, Australia, Detailed.
[4] National Centre for Vocational Education and Research (2022). Apprentices and Trainees.



Source: Construction Skills Queensland for QMCA and BIS Oxford Economics (2022)

Employed persons, Heavy and Civil Engineering Construction, Queensland





Source: Australian Bureau of Statistics (2022)

RECOMMENDATIONS

The QMPPR presents a number of measures for consideration that are targeted at boosting supply and mitigating the '4C' risks to government and industry. Perhaps more crucially, these recommendations are intended to help re-spur growth in productivity which is necessary in order to meet the 2023 QMPPR projections.

INCREASING SUPPLY

Whilst it's encouraging that the Commonwealth government has agreed to increase migration levels for skilled resources, much more is needed. Skilled migration will assist with addressing current skills shortages in construction and related input industries, as will speeding up the visa approval system and clearing application backlog.

Commonwealth and State Governments need to agree on substantial increases in education and training investment toward building and construction trades and professionals.

This may include:

- Funding additional vocational and professional places
- Boosting incentives and subsidies for apprenticeships, and
- Instituting mandated ratios of trainees and apprenticeships on all major public projects.

Government and industry should support initiatives that promote diversity and participation. Improving the culture of the engineering and construction industries is fundamental to attracting a diverse workforce. Supporting greater female participation, enhancing childcare opportunities, and making moves towards more flexible working arrangements are all encouraged, as well as embracing initiatives that embraces diversified cultures.

Meanwhile, training and workforce participation initiatives need to be implemented in regional and remote communities throughout. This generates skills development, secures work and raises standards of living for historically socio-economically disadvantaged groups, while assisting with resourcing regional programmes about renewable energy, transport and water infrastructure.

Equally, poor and unacceptable behaviour on site by certain unions must be stamped out. This is a significant contributor to mental health issues in the workplace and understandably, deters people from joining the industry.

It is the responsibility of both state and local government to ensure quarry capacity (and developments in recycled materials) keep pace with infrastructure demands. It is suggested that the programs have rapid approval processes, that quarries are developed to match regional demands, and flexibility is granted to temporarily exceed production and/or truck movement limits for critical infrastructure projects.

BOOSTING PRODUCTIVITY

Governments are encouraged to continue to seek approaches that are collaborative and bring long-term value to tendering and procurement. This can reduce infrastructure risks, costs and inefficiency, which consequently strengthens productivity and investment in capacity and capability to achieve sustainable industry outcomes. In the current high-escalation environment, procurement approaches that can help identify escalation risks earlier (for example, Early Contractor Involvement) should be preferred.

In Queensland, strides have been made in recent times towards a collaborative contracting model with Transport and Main Roads, yet this needs to be extended across the entire program and to other agencies and clients. Without this approach to the industry, further financial failures with industry and companies going under are predicted.

Innovation in the way major projects are funded, financed and procured requires government attention. Encouraging maximum industry participation and rewarding tenders that target workforce growth and labour productivity are essential.

Queensland Government agencies need to adhere to principles for lean construction, as well as work with industry to develop benchmarked lean construction processes and systems aimed at boosting productivity and reducing costs.

Governments should work with industry to continue to standardise terms, contracts and procurement models as much as possible. Pushing outdated Industrial Relations approaches on industry that doesn't reflect current standards or deliver any productivity increases need to be avoided.

Both industry and government need to collaboratively find innovative solutions for life-cycle infrastructure standards that ensure sustainability. Materials and processes used in building and maintaining enduring infrastructure that lower life-cycle costs are optimal. One of the major impediments to using alternative solutions (such as recycled materials) is their current prescriptive specifications, therefore reviewing these limitations will enable much more flexibility for innovative solutions to be trialled on projects and deployed in the future.

POSITIONING QUEENSLAND

FOR SUSTAINABLE LONG-TERM GROWTH

Queensland and Commonwealth government agencies are expected to work with industry to best allocate and share unusual price escalation risks to support industry sustainability, particularly for firms exposed on fixed price contracts. Actions agencies can take may include:

- Reducing delays between design, project tendering, submissions and approvals
- Offering winning tenderers opportunity to re-price based on market evidence, quotes, including rise and fall provisions in contracts, and
- Provisions to address the significant fluctuations and price increases across the supply chain and industry over the past 12 months and ongoing.

Government agencies need to consider either accelerated and/or advanced payments to secure purchase and storage of materials and equipment. Alternatively, they should provide other resources such as land and storage facilities to assist in early purchase of resources.

The Queensland Government would do well to transition to more stable, growing revenue streams for funding infrastructure. This will protect against volatile infrastructure investment cycles, debt and asset recycling measures, and direct private investment. A longer-term plan to shift away from stamp duties and other procyclical revenue streams is advised. This includes asset recycling and other initiatives involving private capital.

The development of a suite of policies to reduce the carbon footprint of the construction industry in Queensland, is the Government's and industry's shared responsibility. The use of less-emissions intensive materials and process, and developing optimal energy use plans for all construction projects needs to be considered.

It is recommended that National and State Governments include resilience/adaption work in infrastructure audits, and develop a list of 'at risk' infrastructure. This will ensure that the scale of these issues are fully assessed and appropriate funding plans are developed. State or Commonwealth Government agencies (including Infrastructure Australia) should be tasked with developing a comprehensive quantitative analysis to aid public decision-making.

National and State Governments need to consider ways that regulated utilities can be provided appropriate funding, with the intention of building resilience to climate change among their networks and at lowest cost to consumers.

The ongoing need for governments and industry to work together, to forge solutions and devise approaches that sufficiently meet the challenges of our times, is a constant that runs in parallel with the pipeline.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Queensland Major Projects Pipeline Listing 2022

Source: CSQ-QMCA.

ROADS, BRIDGES & RUNWAYS

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
BNE Auto Mall	Brisbane Airport	Private	Brisbane - North	1000	560	Under Construction	133	113										
Breakfast Creek Green Bridge	Brisbane City Council	Public	Brisbane - North	67	54	Under Construction	11	33	10									
Brisbane Metro CP	Brisbane City Council	Public	Brisbane Inner City	1244	858	Under Construction	330	330	132									
Bruce Highway - Caboolture to Steve Irwin Way	Qld Government & Federal Government	Public	Sunshine Coast	663	500	Under Construction	200	200										
Bruce Highway - Cairns Southern Access Corridor Stage 3 - Edmonton to Gordonvale	Federal Government	Public	Cairns	481	300	Under Construction	110	80										
Bruce Highway - Cairns Southern Access Corridor Stage 5 - Foster Road intersection	Qld Government	Public	Cairns	225	162	Announced		61	101									
Bruce Highway - Cooroy to Curra Section D	Qld Government & Federal Government	Public	Wide Bay	1000	750	Under Construction	250	250	125									
Bruce Highway - Deception Bay Road Upgrades	Qld Government & Federal Government	Public	Moreton Bay - North	163	121	Under Construction	59	34										
Bruce Highway - Dohles Rocks Road North Facing Ramps	Qld Government & Federal Government	Public	Brisbane - North	150	113	Announced			37	38	38							
Bruce Highway - Linkfield Road Overpass	Qld Government & Federal Government	Public	Brisbane - North	125	101	Announced		15	40	46								
Bruce Highway - Mackay Ring Road Stage 2	Qld Government & Federal Government	Public	Mackay - Isaac	350	228	Announced			38	76	76	38						
Bruce Highway - Managed Motorways Program - Gateway Motorway to Caboolture Stage 2	Qld Government & Federal Government	Public	Moreton Bay - North	105	53	Under Construction	20	20	13									
Bruce Highway - Maroochydore Road and Mons Road Interchanges Upgrade	Qld Government & Federal Government	Public	Sunshine Coast	301	240	Under Construction	116	26										
Bruce Highway - Pine River to Dohles Rocks Road interchange	Qld Government & Federal Government	Public	Moreton Bay - North	1098	834	Announced			40	160	200	190	160	64	20			
Bruce Highway - Pavement Widening - South of Home Hill to North Ingham	Qld Government & Federal Government	Public	Townsville	100	75	Under Construction	4	5										
Bruce Highway - Rockhampton Ring Road (North & South Packages)	Qld Government & Federal Government	Public	Fitzroy	1100	825	Under Procurement		236	236	236	118							
Bruce Highway - Saltwater Creek Upgrade	Federal Government	Public	Townsville	103	77	Under Construction	26	26	26									
Bruce Highway - Tiaro Flood Immunity Upgrade	Federal Government	Public	Wide Bay	336	252	Announced		42	105	105								
Bruce Highway - Townsville Northern Access Intersections Upgrade	Qld Government & Federal Government	Public	Townsville	108	81	Under Construction	38	38										
Bruce Highway - Townsville Ring Road Stage 5	Qld Government & Federal Government	Public	Townsville	230	115	Under Construction	58	57										
Bruce Highway - Upgrade Burdekin River Bridge	Qld Government & Federal Government	Public	Townsville	94	51	Under Construction	3	6	9	10	9	7	6					
Cairns Ring Road	Qld Government & Federal Government	Public	Cairns	359	251	Announced		31	90	90	40							

ROADS, BRIDGES & RUNWAYS

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Cairns Western Arterial Road - Redlynch Connector Road to Captain Cook Highway, Duplication	Qld Government & Federal Government	Public	Cairns	300	230	Announced		18	60	60	50	42						
Centenary Highway Capacity Upgrade - Ipswich Motorway to Toowong	Qld Government	Public	Ipswich	400	240	Prospective			40	80	80	40						
Centenary Highway Bridge Duplication	Qld Government	Public	Ipswich	244	176	Under Procurement		56	70	49								
Cleveland - Redland Bay Road Upgrade	Qld Government	Public	Brisbane - South	110	77	Under Construction	25	31	22									
Cooktown to Weipa Corridor Upgrade	Qld Government & Federal Government	Public	Outback - North	323	220	Under Construction	41	95	84									
Coomera Connector Stage 1 - North	Qld Government & Federal Government	Public	Gold Coast	677	432	Under Construction		91	216	125								
Coomera Connector Stage 1 - Central	Qld Government & Federal Government	Public	Gold Coast	1185	756	Under Procurement		126	252	252	126							
Coomera Connector Stage 1 - South	Qld Government & Federal Government	Public	Gold Coast	338	216	Announced			45	108	63							
Cunningham Highway Upgrade	Qld Government	Public	Ipswich	213	155	Announced		56	75	24								
Gateway Motorway - Bracken Ridge to Pine River	Qld Government & Federal Government	Public	Brisbane - North	1000	781	Announced			49	120	140	140	140	140	52			
North South Urban Arterial Corridor (Moreton Connector)	Qld Government & Federal Government	Public	Brisbane - North	920	690	Credibly Proposed				83	121	152	152	131	51			
Gladstone Port Access Road Extension	Qld Government & Federal Government	Public	Outback - North	125	88	Announced		33	55									
Gympie Arterial Road Interchange Upgrade	Qld Government & Federal Government	Public	Brisbane - North	65	51	Under Construction	27	24										
Inland Freight Route (Mungindi to Charters Towers) Upgrades	Qld Government & Federal Government	Public	Darling Downs - Maranoa	500	363	Announced		15	40	50	50	50	50	50	40	18		
Ipswich Motorway Corridor	Qld Government & Federal Government	Public	Brisbane - West	100	74	Prospective			19	37	19							
Ipswich Motorway; Rocklea to Darra Stage 2 - Oxley to Darra	Qld Government	Public	Ipswich	520	390	Prospective					30	150	150	60				
Kangaroo Point Green Bridge	Brisbane City Council	Public	Brisbane Inner City	190	150	Under Construction	75	75										
Level Crossing Removal - Beams Road	Qld Government	Public	Brisbane - North	209	146.6	Announced		49	98									
Level Crossing Removal - Boundary Road	Qld Government & Federal Government	Public	Brisbane - West	186	142.7	Announced		48	95									
Lindum Rail Crossing Upgrade	Brisbane City Council / Qld Government / Federal Government	Public	Brisbane - East	85	59.5	Announced			10	30	20							
M1 Pacific Motorway - Varsity Lakes to Tugun	Qld Government & Federal Government	Public	Gold Coast	1000	750	Under Construction	250	250	125									
M1 Pacific Motorway - Watland St - Logan Motorway (Stage 3a)	Qld Government & Federal Government	Public	Gold Coast	1000	750	Announced			125	250	250	125						

ROADS, BRIDGES & RUNWAYS

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
M1 Pacific Motorway North: Daisy Hill to Logan Motorway	Qld Government & Federal Government	Public	Logan - Beaudesert	1000	670	Announced		33	180	200	155	102						
M1 Pacific Motorway North: Eight Mile Plains to Daisy Hill	Qld Government & Federal Government	Public	Logan - Beaudesert	750	493	Under Construction	164	164	83									
M1 Pacific Motorway Upgrade Program - Intersection Upgrades (Exit 41)	Qld Government & Federal Government	Public	Brisbane - South	82	40	Under Construction	20	10										
M1 Pacific Motorway Upgrade Program - Intersection Upgrades (Exit 49)	Qld Government & Federal Government	Public	Brisbane - South	110	60	Under Construction	10	30	20									
Mt Isa to Rockhampton Corridor Upgrade (incl. Yeppoon Road Duplication)	Qld Government & Federal Government	Public	Outback - North	237	150	Announced		27	50	50	23							
Mackay Port Access - Bruce Highway to Mackay - Slade Point Road	Qld Government & Federal Government	Public	Mackay - Isaac	350	250	Announced		40	100	100	10							
Mt Lindesay Highway - Johanna Street to South Street	Qld Government	Public	Logan - Beaudesert	53	38	Under Construction	13	25										
Mt Lindesay Highway - Stony Camp Road to Chambers Flat Road	Qld Government & Federal Government	Public	Logan - Beaudesert	75	56	Under Construction	22	22										
Northern Transitway	Qld Government & Federal Government	Public	Brisbane - North	72	50	Under Construction	20	26										
Peak Downs Highway - Walkerston Bypass	Qld Government & Federal Government	Public	Mackay - Isaac	187	95	Under Construction	34	41	20									
Cape York Region Package Stage 2	Qld Government & Federal Government	Public	Outback - North	238	178	Under Construction	50	55	43									
Riverway Drive Stage 2 (Allambie Lane - Dunlop Street)	Qld Government	Public	Townsville	95	68	Announced		27	41									
Sunshine Motorway - Mooloolah River Interchange Stage 1	Qld Government	Public	Sunshine Coast	320	220	Announced		30	80	80	30							
Tennant Creek to Townsville Corridor Upgrade - Queensland	Qld Government & Federal Government	Public	Townsville	250	180	Announced			35	50	50	45						
Toowoomba to Ipswich Corridor Upgrade	Qld Government & Federal Government	Public	Ipswich	75	56	Announced		7	7	9	13	12	11					
Townsville to Roma Corridor Upgrade	Qld Government & Federal Government	Public	Townsville	125	93.75	Announced			13	33	33	15						
Warrego Highway Upgrades between Ipswich and Toowoomba	Qld Government & Federal Government	Public	Toowoomba	468	344.8	Announced		43	86	86	86	43						
Youngs Crossing Road, Lawnton	Moreton Bay Regional Council	Public	Brisbane - North	83.25	45.63	Under Procurement		9	28	9								
Indooroopilly Roundabout Intersection Upgrade	Brisbane City Council	Public	Brisbane - West	126.2	95.912	Under Construction	30	41	25									
Moggill Road Corridor Upgrade project - all stages (where Stage 1 completes in early 23/24)	Qld Government	Public	Brisbane - West	183	146.4	Under Construction	10	50	8	35	38							
Outback Way, QLD	Federal Government	Public	Outback - North	154	100.1	Announced			5	10	15	20	20	15	10	5		
Gateway Motorway and Bruce Highway Upgrades, North Brisbane to Moreton Bay Region	Federal / Qld Government	Public	Brisbane - North	2100	1407	Announced				141	211	422	352	281				

RAIL

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Beerburrum to Nambour Rail Upgrade (Stage 1)	Qld Government / Aurizon	Public	Sunshine Coast	800	650	Under Procurement		41	81	163	203	163						
Varsity Lakes to Elanora Extension	Qld Government / Aurizon	Public	Gold Coast	859	470	Prospective				130	180	160						
CRR; Tunnel, Stations and Development (TSD) PPP	Qld Government	Public	Brisbane Inner City	3700	3400	Under Construction	933	933	560									
CRR; Rail, Integration and Systems package (RIS)	Qld Government	Public	Brisbane Inner City	900	900	Under Construction	228	228	200									
CRR; European Train Control System Level 2	Qld Government	Public	Brisbane Inner City	634	600	Under Construction	155	28	27									
CRR; Three new stations (Pimpama, Helensvale North and Worongary-Merrimac)	Qld Government	Public	Brisbane Inner City	120	80	Announced			40	40								
North Coast Line Capacity (Brisbane to Cairns)	Qld Government	Public	Cairns	116	70	Under Construction	17	17										
Inland Mainline Freight Upgrade; NSW/QLD Border to Gowrie	ARTC	Public	Darling Downs - Maranoa	1600	1350	Under Procurement		120	440	450	340							
Inland Mainline Freight Upgrade; Gowrie to Kagaru	ARTC	Public	Ipswich	3550	2900	Under Procurement			258	945	967	730						
Inland Mainline Freight Upgrade; Kagaru to Acacia Ridge & Bromelton	ARTC	Public	Logan - Beaudesert	150	100	Announced			20	40	40							
Aldoga Rail Yard For SBR	Qld Government	Public	Outback - North	350	280	Unlikely							70	140	70			
Elanora to Coolangatta extension	Qld Government	Public	Gold Coast	700	490	Unlikely						196	294					
Ipswich to Springfield	Qld Government	Public	Ipswich	1500	1050	Credibly Proposed					250	250	250	300				
Moura - Aldoga Link Project (Wiggins)	Aurizon	Public	Outback - North	500	325	Unlikely						135	140	50				
Wiggins Island Coal Rail Infrastructure Stage 2	Aurizon	Private	Outback - North	714	499.8	Unlikely						83	167	167	83			
Wiggins Island Coal Rail Infrastructure Stage 3	Aurizon	Private	Outback - North	450	315	Unlikely								126	126	63		
Gold Coast Light Rail Stage 3	Qld Government & Federal Government	Public	Gold Coast	1200	852	Under Construction	248	248	248	107								
Loganlea Station Relocation	Qld Government & Federal Government	Public	Logan - Beaudesert	95	62	Announced		14	24	24								
Mt Isa to Townsville	Queensland Rail	Public	Outback - North	380	320	Under Construction	80	80	80	40								
CRR; Clapham Yard Stabling (Moorooka)	Queensland Rail	Public	Brisbane - South	299	120	Under Construction	40	40	20									
Gold Coast Rail Line Capacity Improvement (Kuraby to Beenleigh) - Preconstruction	Queensland Rail	Public	Gold Coast	356	215	Under Construction	86	129										
Logan and Gold Coast Faster Rail	Qld Government & Federal Government	Public	Logan - Beaudesert	2600	1820	Announced			114	228	455	569	455					
Beerwah to Caloundra Rail Line	Qld Government	Public	Sunshine Coast	1600	1120	Announced						192	368	368	192			
Gold Coast Light Rail Stage 4	Qld Government & Federal Government	Public	Gold Coast	750	600	Announced				150	250	200						

HARBOURS/PORTS

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Townsville Port Expansion Project - Outer Harbour Expansion (Berths 14 & 15)	Qld Government	Public	Townsville	200	150	Prospective			50	50	50							
Townsville Port Expansion Project - Channel Capacity Upgrade	Qld Government	Public	Townsville	232	186	Under Construction	40	50	46									
Urangan Boat Harbour	Watpac / Seymour	Private	Wide Bay	800	200	Unlikely				90	100	10						
Abbot Point Dredging	Qld Government	Public	Mackay - Isaac	600	240	Credibly Proposed		80	80	80								
Hay Point Berth 2 Upgrade	BMA	Private	Mackay - Isaac	200	150	Under Construction	50	50										
BP Wharf Repurposing	Port of Brisbane	Public	Brisbane - East	100	80	Unlikely			40	40								
Port of Gladstone - Second Shipping Lane (Gatcombe and Golding Cutting Channel Duplication Project)	Gladstone Port Authority	Public	Fitzroy	760	532	Prospective			170	210	152							

DEFENCE

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Singapore Force Posture Initiatives - Shoalwater Bay	Federal Government	Public	Fitzroy	1100	400	Under Construction	133	133										
Singapore Force Posture Initiatives - Townsville	Federal Government	Public	Townsville	1100	600	Under Construction	200	200										
C11 80 Cairns	Federal Government	Public	Cairns	200	200	Under Construction	67	67	67									
EST02202 Other Sites and Redevelopment - Upgrade and Remediation Works to 9 sites	Federal Government	Public	Multi-Region	326	279	Credibly Proposed		93	93	93								
EST2039 - Borneo Barracks Redevelopment	Federal Government	Public	Toowoomba	200	200	Announced		67	67	67								
RAAF Base Townsville - Pellegrine Facilities (AIR 555 Phase 1)	Federal Government	Public	Townsville	294	234	Under Construction	18	72	72	72								
HMAS Cairns (NCIS) Facility Upgrade	Federal Government	Public	Cairns	155	100	Under Procurement		22	44	33								
P0010 National Airfields Maintenance RAAF Amberley	Federal Government	Public	Ipswich	100	100	Under Procurement			50	50								
P0012 National Airfields Works - Oakey, Townsville & Oakey	Federal Government	Public	Multi-Region	100	100	Announced			50	50								

WATER

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Lower Fitzroy River Infrastructure Project - Rookwood Weir	Sunwater for Lower Fitzroy River	Public	Fitzroy	352	195	Under Construction	60	99										
Fitzroy to Gladstone Pipeline	Gladstone Area Water Board (GAWB)	Public	Fitzroy	500	400	Under Procurement		67	133	133	67							
Wyaralong Dam WTP Stage 1	Seqwater	Public	Logan - Beaudesert	200	150	Credibly Proposed							38	38	38	38		
Somerset Dam Upgrade	Seqwater	Public	Ipswich	600	450	Credibly Proposed		100	125	125	100							
Lake McDonald Dam Upgrade	Seqwater	Public	Wide Bay	200	161	Under Procurement		64	96									
Toowoomba to Warwick Pipeline	Seqwater	Public	Toowoomba	300	270	Announced		83	125	62								
Urannah Dam	Bowen River Utilities	Public	Mackay - Isaac	2900	1933	Credibly Proposed				564	564	564	243					
Burdekin Falls Dam - Saddle Dam and Monolith Improvement	Sunwater	Public	Townsville	190	121	Announced		37	48	35								
Big Rocks Weir - Upper Burdekin	Townsville Enterprise	Public	Townsville	60	60	Announced			18	18	18	8						
Beaudesert Water Supply Zone Projects Stage 1 and 2	Qld Government	Public	Logan - Beaudesert	160	120	Under Construction	30	15										
Borumba Dam Stage 3	Seqwater	Private	Wide Bay	250	185	Prospective						62	62	62				
Cedar Grove Connector	Seqwater	Public	Logan - Beaudesert	100	70	Prospective			35	35								
Emu Swamp Dam	Granite Belt Water	Public	Darling Downs - Maranoa	206	164	Under Procurement			47	70	47							
Haughton Channel Capacity Upgrade	Townsville City Council	Public	Townsville	90	70	Prospective		20	50									
Haughton Pipeline Duplication - Stage 2	Townsville City Council	Public	Townsville	274	183	Under Procurement		56	84	42								
Paradise Dam Primary Spillway Improvement Project (DIP)	Sunwater	Private	Wide Bay	1200	900	Announced		16	15	51	264	287	267					
Six Mile Creek Dam Safety Upgrade Project	Seqwater	Public	Sunshine Coast	100	75	Under Construction	38	38										
Burdekin Falls Dam - Raising	Sunwater	Public	Townsville	500	350	Credibly Proposed					100	150	100					
Water Treatment for Bowen Fields	Arrow Energy	Private	Mackay - Isaac	250	175	Prospective		88	88									
Hughenden Irrigation Scheme	North Queensland Water Infrastructure Authority	Public	Fitzroy	300	210	Announced		70	70	70								
Cairns Water Security Program - Stage 1	Qld Government	Public	Cairns	215	161	Announced		27	54	54	27							

SEWERAGE

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Luggage Point Sewerage Scheme	Queensland Urban Utilities (QUU)	Public	Brisbane - North	600	500	Under Construction	38	38	38	38	38	38	38					
Gold Coast Council Long Term Recycled Water Release Stage 2 - South Stradbroke Pipeline	GCC	Public	Gold Coast	250	188	Announced				60	128							
Northern Treatment	Queensland Urban Utilities (QUU)	Public	Brisbane Inner City	220	175	Under Construction	37	23										
Southern Treatment Ipswich	Queensland Urban Utilities (QUU)	Public	Ipswich	170	136	Under Construction	40	53										
Norman Creek Sewer Augmentation - Brisbane	Queensland Urban Utilities (QUU)	Public	Brisbane Inner City	122	92	Announced			12	12	12	12	12	12	12	12		
Eagle Farm Rising Main Upgrade - A	Queensland Urban Utilities (QUU)	Public	Brisbane - North	165	124	Announced				16	16	16	16	16	16	16	16	
S1 Tunnel extn to Eagle Farm PS - B	Queensland Urban Utilities (QUU)	Public	Brisbane - North	96	72	Announced									18	18	18	18
S2 & Corinda Chelmer Sewer Augmentation	Queensland Urban Utilities (QUU)	Public	Brisbane - West	69	52	Announced		9	9	9	9	9	9					
Cazwell Street SPS to Hamilton Siphon	Queensland Urban Utilities (QUU)	Public	Brisbane - East	94	70	Announced		12	12	12	12	12	12					
Logan Water Infrastructure Program Alliance	Logan City Council	Public	Logan - Beaudesert	1000	746.5	Under Construction	83	83	83	83	83	83	83					
Cannery Creek Sewer Upgrade	Qld Government	Public	Brisbane - North	65	39	Announced		9	21	9								
Burpengary East STP Upgrade	Unity Water	Public	Sunshine Coast	65	55	Under Procurement			25	30								
Brendale STP Upgrade	Unity Water	Public	Sunshine Coast	65	55	Under Procurement			25	30								
Kawana STP Upgrade	Unity Water	Public	Sunshine Coast	150	100	Prospective					25	40	35					
Wamuran Irrigation Recycled Water Scheme (STP & Network)	Unity Water	Public	Sunshine Coast	150	120	Under Construction	50	70										
Aura & Harmony Water and Sewerage Network	Unity Water	Public	Sunshine Coast	230	200	Under Procurement		33	100	67								

ELECTRICITY

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
North Queensland Power Station	Private / Qld Gov / Feds	Private	Townsville	800	600	Unlikely		100	250	250								
Raglan Solar (300MW)	Eco Energy Group	Private	Fitzroy	327	114	Announced		57	57									
Bouldercombe Solar Farm (200MW)	Eco Energy Group	Private	Fitzroy	240	84	Announced		42	42									
Kidston Solar Project - Stage 2 (270 MW)	Genex Power	Private	Far North	400	140	Credibly Proposed		70	70									
150MW Kidston Stage 3 Wind Project	Genex Power	Private	Far North	250	88	Prospective		15	60	13								
Kidston Pumped Hydro Storage Project	Genex Power	Private	Far North	330	200	Under Construction		100	100									
Baralaba Solar Farm 92MW	FRV Services Australia Pty Ltd	Private	Fitzroy	150	53	Prospective				26	27							
Collinsville North Solar Project 100MW	Equis	Private	Mackay - Isaac	200	75	Announced		37	37									
Forsayth Wind Farm 75MW	Infigen Energy	Private	Cairns	120	42	Announced		21	21									
Koberinga Solar Farm 55MW	ESCO Pacific	Private	Townsville	90	32	Credibly Proposed				16	16							
Mirani Solar Farm 60MW	ESCO Pacific	Private	Mackay - Isaac - Whitsunday	100	35	Credibly Proposed			35									
Kelsey Creek Solar Farm 50MW	KCSF Consortium	Private	Mackay - Isaac - Whitsunday	80	28	Prospective				28								
Clermont (Phase 2) 75MW	Wirsol Energy	Private	Mackay - Isaac - Whitsunday	120	42	Prospective				12								
Lower Wonga Solar Farm (Stage 1) 350MW	Solar Q	Private	Wide Bay	560	196	Announced		39	78	78	30							
Blair Athol Solar Farm 60MW	TerraCom Limited	Private	Mackay - Isaac	100	35	Announced		18	18									
Tieri Solar Farm 77MW	FRV Services Australia Pty Ltd	Private	Fitzroy	400	140	Prospective		70	70									
Chinchilla Solar Farm 100MW	First Solar	Private	Darling Downs - Maranoa	160	56	Prospective			28	28								
Rugby Run Solar Farm Stage 2 105MW	Adani Australia	Private	Mackay - Isaac - Whitsunday	170	60	Prospective				20	40							
Clarke Creek Wind and Solar Farm (Stages 1 and 2)	Squadron Energy	Private	Mackay - Isaac	3000	700	Under Construction		140	140	140	140	140						
Majors Creek Solar Project 400MW	Edify Energy	Private	Townsville	640	224	Prospective					50	100	74					
Cape York Solar Storage 55MW	Lyon Group	Private	Outback - North	90	32	Prospective					32							
Barcaldine Remote Community Solar Farm (Stage 2) 50MW	Barcaldine Remote Community Solar Farm	Private	Outback - North	80	28	Prospective				28								
Lakeland Wind Farm 100MW	Windlab	Private	Cairns	160	56	Prospective			36	20								
Kaban Green Fower Hub 157MW	Neoen	Private	Cairns	300	90	Under Construction	40	40										
Freedom Power One 250MW	CWP Renewables	Private	Townsville	1300	455	Prospective				100	200	155						
Moura Solar Farm 110MW	ESCO Pacific	Private	Fitzroy	180	63	Under Construction	32	32										
Dingo Solar Farm 85MW	ESCO Pacific	Private	Fitzroy	140	49	Under Construction	25	25										

ELECTRICITY

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Rolleston Solar Farm 90MW	RES Australia	Private	Fitzroy	140	49	Prospective					20	29						
Chewko Solar farm 75MW	Tilt Renewables	Private	Cairns	120	42	Prospective			42									
Mareeba Solar Farm 60MW	CleanGen	Private	Cairns	100	35	Prospective				35								
Burdekin Solar Farm 140MW	CleanGen	Private	Mackay - Isaac	220	77	Announced		39	39									
Desailly Renewable Energy Park 1000MW	DP Energy	Private	Cairns	1600	560	Prospective					100	260	200					
Gumlu Solar Farm 60MW	RJ Gordon Solar Consultants	Private	Mackay - Isaac - Whitsunday	100	35	Prospective			35									
Bluff Solar farm 100MW	Infigen Energy	Private	Fitzroy	160	56	Prospective				20	36							
Archer Point Wind Farm 120MW	Wind Power Queensland	Private	Townsville	190	67	Prospective			30	37								
Aramara Solar Farm (140 MW)	Eco Energy World (EEW) Australia	Private	Wide Bay	280	98	Credibly Proposed		48	50									
Powering North Queensland: Transmission Line	Powerlink	Public	Cairns	150	128	Credibly Proposed		64	64									
Burdekin Falls - Hydro-Electric Power Station (50MW)	Stanwell	Public	Townsville	200	120	Prospective			30	60	30							
Galilee Basin Transmission Project	Adani	Private	Mackay - Isaac	100	80	Under Construction	40	20										
Aldoga Solar Farm 480MW	ACCIONA / Qld Government	Public	Outback - North	500	150	Announced		50	100									
Copperstring Transmission Line (2.0)	CuString Pty Ltd	Private	Outback - North	1700	1500	Under Procurement		500	500	500								
Forest Wind	Clean Sight/Siemens Financial Services	Private	Wide Bay	2000	1000	Prospective		167	417	417								
MacIntyre Wind Farm	CleanCo / ACCIONA	Private	Darling Downs - Maranoa	1960	980	Under Construction	430	430	120									
Dulacca Renewable Energy Project Wind Farm	Renewable Energy Systems	Private	Darling Downs - Maranoa	450	225	Under Construction	100	100	25									
Lockyer Valley Hybrid Gas-BESS	Quinbrook	Private	Darling Downs - Maranoa	200	120	Credibly Proposed		60	60									
Borumba Dam Pumped Hydro	PowerLink	Public	Sunshine Coast	1500	1000	Credibly Proposed				175	325	325	175					
Big T Pumped Hydro Storage Project	BE Power Projects Pty Ltd	Private	Toowoomba	980	784	Prospective				50	200	200	200	134				
Bouldercombe Battery Project	Genex Power	Private	Fitzroy	100	60	Under Construction	15	45										
Edenvale Solar Farm	Sojitz and ENEOS	Private	Darling Downs - Maranoa	200	160	Under Construction	80	80										
Wambo Wind Farm - Stage 1	Cubico / Stanwell	Private	Darling Downs - Maranoa	363	218	Announced		100	118									
Banana Range Wind Farm	EDF Group	Private	Mackay - Isaac	500	300	Prospective			100	100	100							
Kogan Creek BEES (100MW)	CS Energy	Public	Darling Downs - Maranoa	150	90	Credibly Proposed			60	30								

PIPELINES

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Arrow Bowen Pipeline	Shell / Arrow / Bow	Private	Mackay - Isaac	450	360	Prospective			160	200								
Northern Gas Pipeline Extension/Expansion (Qld Component)	Jemena / Galilee Energy	Private	Outback - South	3800	2660	Credibly Proposed		450	750	750	710							

TELECOMMUNICATIONS

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
National Broadband Network - Qld component	NBN Co.	Public	Multi-Region	9352	6878	Under Construction	459	290	266	60	67							

OIL & GAS

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Queensland Curtis LNG Upstream Field Development (Sustaining)	QGC & Shell	Private	Fitzroy	1375	1250	Under Construction	150	150										
Gladstone LNG Upstream Field Development (Sustaining)	Santos & Petronas	Private	Fitzroy	990	900	Under Construction	100	100										
Australia Pacific LNG Upstream Field Development (Sustaining)	Origin / Conoco Phillips	Private	Darling Downs - Maranoa	1375	1250	Under Construction	150	150										
Arrow - Upstream Field Development (Sustaining)	Arrow / Shell	Private	Darling Downs - Maranoa	715	650	Under Construction	150	150	200	150								
Western Surat Gas Project	Senex	Private	Darling Downs - Maranoa	1500	1200	Under Construction	186	186	186	186	186	186						
GLNG Roma East project	Santos & Petronas	Private	Darling Downs - Maranoa	750	375	Under Construction	35	35										
Australia Pacific LNG Salt Handling Facility	Origin / ConocoPhillips	Private	Outback - North	200	160	Unlikely				40	80	40						
Curtis LNG Project (Salt Concentrator)	QGC & BG Group	Private	Outback - North	200	150	Unlikely				30	45	45	30					
Ironbark Gas Facility (Domestic Supply)	Origin	Private	Darling Downs - Maranoa	300	240	Unlikely		140	100									
Surat Gas Expansion Projects	Arrow Energy	Private	Darling Downs - Maranoa	1800	1500	Under Construction	300	300	300	300								

COAL

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Eagle Downs Coking Coal	South 32	Private	Mackay - Isaac	1250	600	Prospective				158	228	215						
Maryborough (Colton)	Northern Energy (Owned By New Hope)	Private	Wide Bay	300	180	Prospective		66	114									
New Acland Stage 3 Expansion	New Hope Corporation	Private	Darling Downs - Maranoa	556	334	Prospective			95	143	95							
Peak Downs Expansion	BHP Billiton / Mitsubishi Alliance (BMA)	Private	Mackay - Isaac	460	345	Unlikely		80	160	105								
South Walker Creek	BHP Billiton / Mitsubishi Alliance (BMA)	Private	Mackay - Isaac	150	100	Prospective		24	40	36								
Grosvenor Underground Stage 2	Anglo Coal	Private	Mackay - Isaac	500	350	Credibly Proposed		70	90	105	85							
Central Queensland Coal Project (Styx)	Waratah Coal / Queensland Nickel	Private	Fitzroy	300	270	Credibly Proposed		50	220									

COAL

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Middlemount Coking Coal Mine Stage 2	Peabody / Yancoal	Private	Mackay - Isaac	325	284	Prospective		100	184									
Hail Creek Extension - Underground	Glencore	Private	Mackay - Isaac	1100	660	Prospective		150	180	180	150							
Rolleston Expansion	Xstrata/Glencore	Private	Fitzroy	400	280	Prospective		70	140	70								
Yarrabee	Yancoal	Private	Fitzroy	260	150	Unlikely							75	75				
Boundary Hill South Mine Extension	Anglo Coal	Private	Fitzroy	100	70	Unlikely							18	35	18			
Aquila	Anglo Coal / Mitsui	Private	Mackay - Isaac	240	228	Under Construction	91	46										
Foxleigh Plains Project	Anglo / CAML / Nippon	Private	Mackay - Isaac	200	140	Unlikely		70	70									
Eaglefield Coal Mine Expansion	Peabody	Private	Mackay - Isaac	1500	1200	Unlikely			250	350	320	280						
Monto Coal Mine Further Stages	Peabody / China Huaneng Group	Private	Wide Bay	265	159	Unlikely		60	99									
Drake Coal	QCoal	Private	Mackay - Isaac	900	690	Unlikely			130	240	240	80						
Olive Downs	Pembroke Resources	Private	Mackay - Isaac	1000	800	Under Construction	400	200	200									
Baralaba South Open Cut	The Mount Ramsay Coal Company (Liberty Mutual)	Private	Outback - North	200	160	Credibly Proposed		80	80									
Cameby Downs Expansion	Yancoal	Private	Darling Downs - Maranoa	250	225	Under Construction	100	50										
Millennium Expansion	Stanmore Coal / M Resources	Private	Mackay - Isaac	400	320	Credibly Proposed		60	100	100	60							
Minyango Coal Project Stage 1	QCoal	Private	Outback - North	750	600	Under Construction	120	240	240									
Oaky Creek Longwall Stage 2	Glencore Xstrata, Sumisho, Itochu, ICRA	Private	Outback - North	650	455	Unlikely		150	230	75								
Saraji East	BHP Billiton / Mitsubishi Alliance (BMA)	Private	Mackay - Isaac	2400	1800	Credibly Proposed		360	990	450								
Winchester South	Whitehaven Coal	Private	Mackay - Isaac	1000	900	Prospective			350	450	100							
Moranbah North	Anglo	Private	Mackay - Isaac	500	400	Credibly Proposed		100	150	150								
Valeria Met Coal Mine	Glencore	Private	Fitzroy	1500	975	Prospective			300	525	150							
Gemini Project	Magnetic South	Private	Mackay - Isaac	250	200	Credibly Proposed				67	89	44						

OTHER MINERALS & HEAVY INDUSTRY

Product Description	Sponsor	Funding Source	Region	Total Value ($m)	Eng Value ($m)	Status	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Mt Elliott	Chinova	Private	Outback - North	95	48	Unlikely		48										
Merlin Molybdenum-Rhenium Phase 2	Chinova	Private	Outback - North	345	250	Unlikely			100	100	50							
Cannington Expansion	BHP Billiton	Private	Outback - North	400	120	Under Construction	30	60	30									
Cloncurry Copper Project (Roseby Copper / Little Eva / Eva)	CMMC	Private	Outback - North	320	96	Prospective		50	46									
Red Dome Mungana	Consolidated Tin Mines Limited	Private	Cairns	330	215	Credibly Proposed		65	85	65								
Charters Towers	Citigold Corporation	Private	Townsville	246	135	Prospective		35	80	20								
SCONI Scandium Project (Phase 1)	Australian Mines	Private	Townsville	1014	304	Credibly Proposed		94	140	70								
Paradise Phosphate South project	Phosphate International	Private	Outback - North	250	188	Announced				47	94	47						
Mt Dromedary - Graphite Project	Novonix	Private	Outback - North	100	80	Unlikely				40	40							
Gladstone Energy and Ammonia Project	Australian Future Energy	Private	Fitzroy	1000	600	Credibly Proposed		200	200	200								
Agripower Amorphous Silica - Fertiliser Processing Plant	Agripower Australia Ltd	Private	Townsville	663	500	Credibly Proposed		150	200	150								
Agripower Amorphous Silica - Stage 2 Development	Agripower Australia Ltd	Private	Townsville	2000	1600	Credibly Proposed				400	800	400						
St Elmo Vanadium Project	Multicom Resources	Private	Outback - North	470	329	Under Construction	29	200	100									
Central Queensland Hydrogen project (3GW)	Stanwell/Iwatani	Private	Fitzroy	2000	1500	Credibly Proposed							250	500	500	250		
Townsville Hydrogen Facility (300MW)	Origin/Kawasaki Heavy Industries	Private	Townsville	1000	1000	Credibly Proposed						167	333	333	167			
Alpha HPA Precursor Production Facility	Alpha HPA	Private	Fitzroy	308	231	Under Construction	150	81										
H2 - HubTM Gladstone Green Hydrogen and Ammonia Production Facility	Hydrogen Utility (H2U)	Private	Fitzroy	4700	2585	Credibly Proposed			800	1300	485							
Hydrogen-Equipment Manufacturing Facility - Stage 1	Fortescue	Private	Fitzroy	115	80.5	Under Construction	13	40	27									
Aldoga Renewable Hydrogen Facility - Stage 1	Stanwell/Iwatani	Private	Fitzroy	500	350	Announced			50	200	100							
Hydrogen-Equipment Manufacturing Facility - Stage 2	Fortescue	Private	Fitzroy	885	619.5	Prospective								103	310	207		
Eva Copper Project	Copper Mountain Mining Corporation	Private	Outback - North	836.4	501.8	Prospective		102	200	200								


BMD
BMD

About Construction Skills Queensland

Construction Skills Queensland partners with major projects to develop a ready supply of skilled workers for every stage of these high impact projects.

CSQ helps industry understand future workforce requirements and supports **targeted workforce plans** that provide security and sustainability to project budgets and timeframes.

CSQ respects that each region and every project is unique and, therefore, encourages **local training solutions** that are tailored for individual project demands.

We provide the most **up-to-date thinking** on construction skills and training, underpinned by research and analysis on the drivers that will impact current and future workforce requirements.

This **empowers industry** with a line of sight to the future and the ability to stay one step ahead of potential challenges.

CSQ works alongside project teams to:

- collaborate on workforce plans
- identify any potential skills gaps for projects and provide meaningful solutions
- identify project-specific training and funding solutions
- provide guidance and support where needed around the Queensland Government Building and Construction Training Policy (Training Policy), and other Government procurement policies targeting social inclusion and local content.

CSQ's Workforce Planning capability provides free-of-charge support to industry to:

Save time and cost

Meet contract requirements including navigating Qld Procurement Policy

Navigate industry licensing and the VET apprenticeships/traineeship system

Establish strategies to attract, retain and develop your workforce

Identify funding opportunities and registered training organisations (RTOs)

Connect to a network of industry stakeholders

If you would like to explore how CSQ may assist your project, sector or region please contact us

1800 798 488 | info@csq.org.au | csq.org.au

CSQ | STRONGER FUTURES IN CONSTRUCTION

CSQ

CSQ monitors key industry trends and actively tracks Queensland's pipeline of major projects to inform and guide the development of workforce planning and training solutions for Queensland's building and construction industry.

BMD

BMD Constructions is a wholly owned subsidiary of the BMD Group, and provides civil and industrial construction services to public and private sector organisations throughout Australia. Established in 1979, BMD Constructions strives to be deliberately different in its approach to business with every project being regarded as an opportunity to build long-term relationships of mutual benefit.

Townsville Enterprise

For over 25 years, Townsville Enterprise has been a key driver in attracting major investment to the region. It ensures that Townsville, Magnetic Island, Palm Island, the Burdekin Shire, the Hinchinbrook Shire and the Charters Towers region benefit from investment and economic prosperity, tourism opportunities and the business events market.

Toowoomba and Surat Basin Enterprise

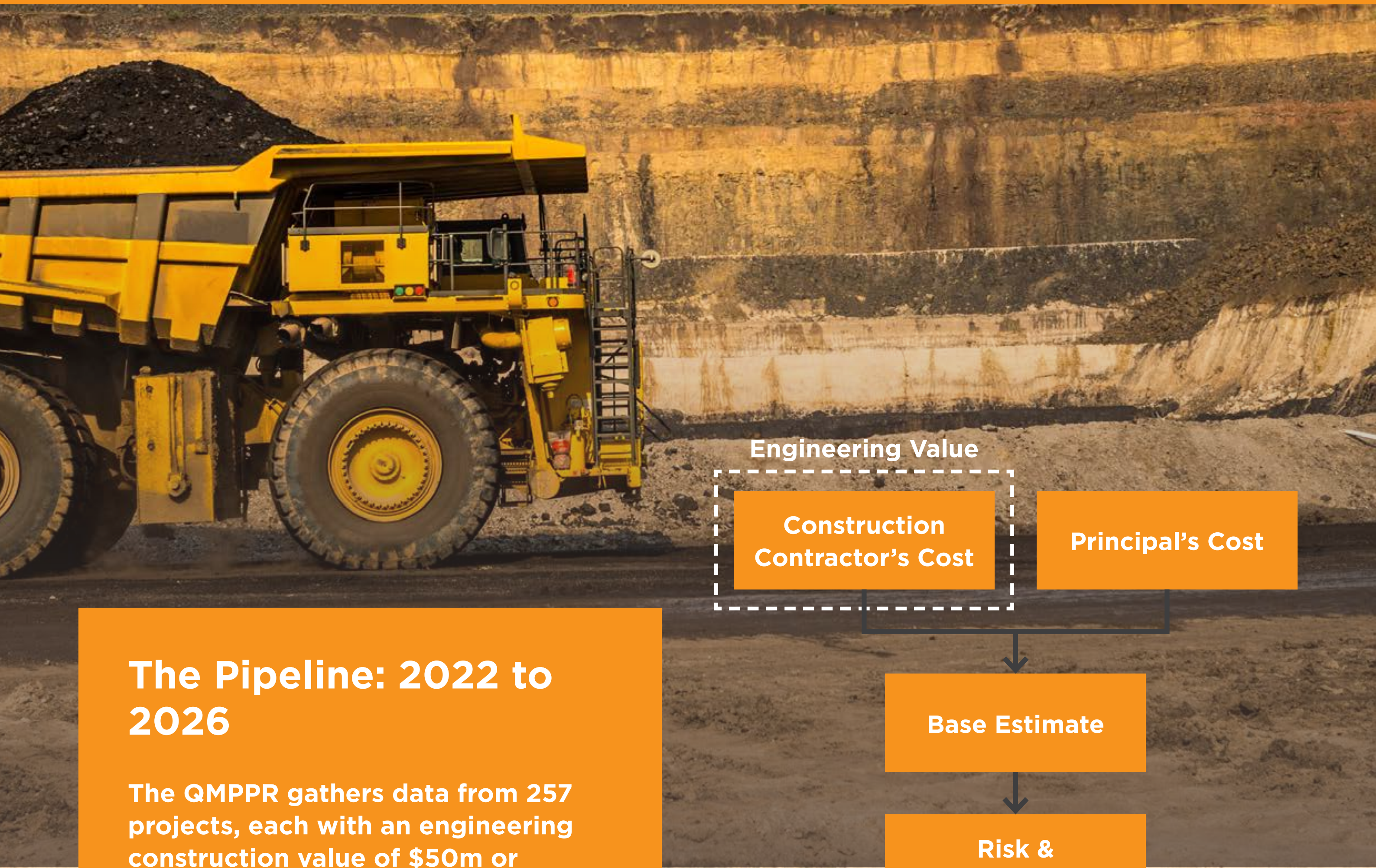
TSBE is an independent, member-driven economic development organisation actively linking our business community to opportunities across the Toowoomba, Western Downs, Maranoa and surrounding areas.

Bennett + Bennett

Established in 1968 on the Gold Coast, we have been privileged to play a significant role in key projects and areas of development legislation that have helped shape South East Queensland.

Our success and longevity within the industry comes from our experience, and ability to work with an outstanding array of clients who continue to put their trust in us. Through collaboration, ongoing improvement, upskilling, and technology investment we are able to adapt our services to best meet their changing needs, whilst ensuring we remain current in an evolving market.

THE PIPELINE: 2023 TO 2027



The Pipeline: 2022 to 2026

The QMPPR gathers data from 257 projects, each with an engineering construction value of $50m or greater, organised into 12 sectors and 11 regions.

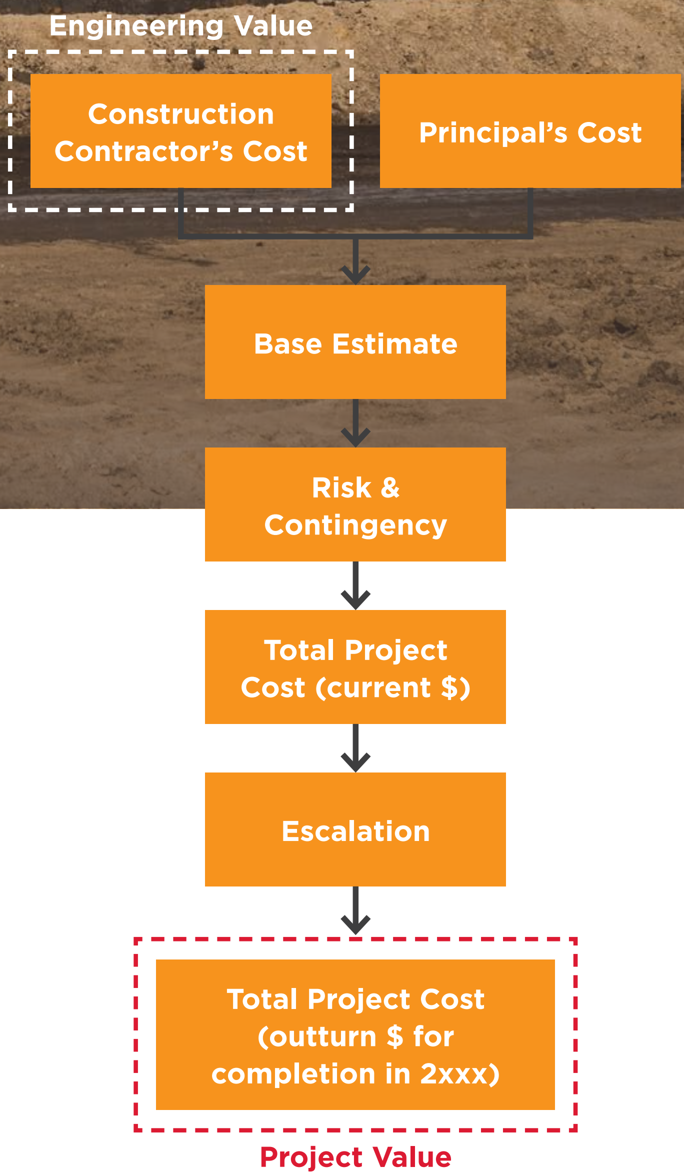
Each project in the pipeline is separately assessed as either funded or unfunded and then assigned to one of six different project statuses:

Funded

- Announced
- Under Procurement
- Under Construction

Unfunded

- Credibly Proposed
- Prospective
- Unlikely



The funded forecast view is similar to a 'worst case scenario' outlook, should international developments or public sector finances deteriorate significantly or the combination of threats to the Queensland construction industry remain unaddressed.

Maintaining a growing pipeline of major project work requires shifting currently unfunded projects into the funded category, as well as incorporating new projects into the pipeline. While the most likely scenario for major project work excludes 'unlikely' projects, these are included to measure their potential impact on major project work, particularly later in the forecast. It should be noted that given the timing of this year's report, the forecast period has shifted two years forward rather than the usual one year, which may result in more prominent differences in forecast comparisons between the 2021 version of the report and the current report.

The new Federal Government is also bringing down its budget on the 25th of October. Whilst it is not expected to see major change to projects in the short to medium term, priorities may change in the long term.

Key points

The Major Projects Pipeline contains $71.4b in work between 2022/23 and 2026/27 inclusive. This comprises $37.6b in funded work and $33.7b in unfunded work. Publicly funded projects represent $35.1b of the pipeline, while $36.3b comprises privately funded work.

'Funded' project categories include:

ANNOUNCED
These are projects which have funding support but have not yet entered the procurement (as at July 2022). There are currently $13.1b in announced projects in the pipeline.

UNDER PROCUREMENT
These projects sit in the procurement stage but have not yet started construction (as at July 2022). There are $9.6b in projects under procurement in the pipeline.

UNDER CONSTRUCTION
Projects in flight/under construction fall under this category. There are $14.9b in projects currently under construction in the pipeline.

'Unfunded' project categories include:

CREDIBLY PROPOSED
Projects that are supported by governments and/or the private sector but still in prefeasibility/business case mode and so do not have funding committed. There are $17.4bn in credibly proposed projects in the pipeline.

PROSPECTIVE
Projects considered likely to occur over the next five years but are not yet formally proposed are considered prospective. Presently, there are $11.2b attributed to these projects in the pipeline.

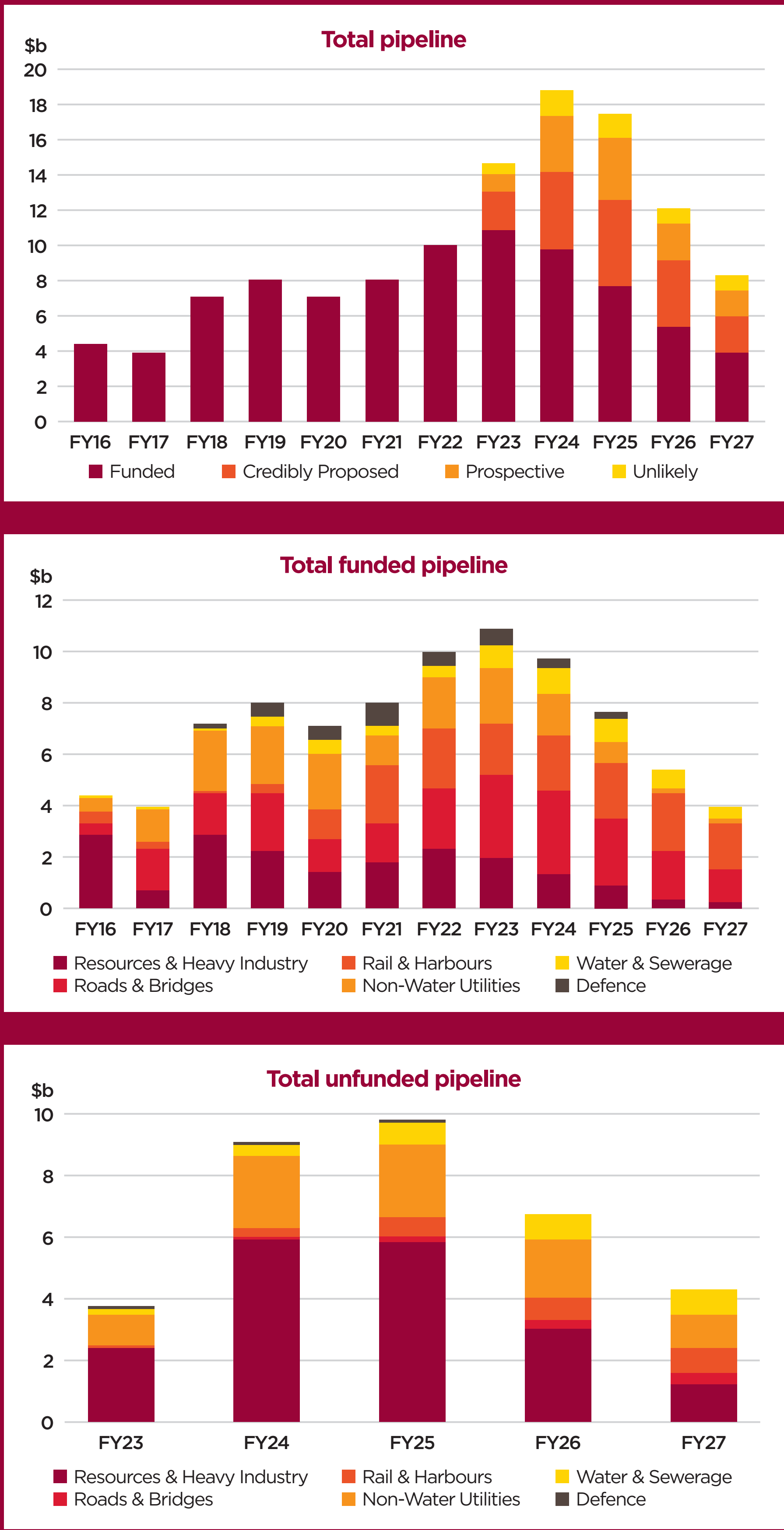
UNLIKELY
These are projects considered not to occur in the next five years, even if announced. There are up to $5.2b in unlikely projects in the pipeline.

These charts illustrate historical and projected major project construction activity between 2015/16 and 2026/27, with the future five-year pipeline period based on the 2022 Major Projects List. Key points from this analysis are:

The Major Project Pipeline outlook for activity has risen compared to the 2021 QMPPR and this will increase by $9.5b over the five years to 2026/27. Major project construction activity in the pipeline is equal to $71.3b between 2022/23 and 2026/27. The resources and heavy industry sector is responsible for most of this increase, with overall construction activity growing by $4.8b, followed by the non-water utilities sector at a $2.5b rise.

A strong growth profile is projected in the near term, with major project construction activity progressing from $10.0b in 2021/22, to a $18.8b peak in 2023/24. This spike in activity reflects an average annual growth rate of 37% over the two-year period from 2021/22 to 2023/24.

A greater proportion of funded work in the pipeline has risen from 41% to 47%, relative to the 2021 MPPR. While funded pipeline activity has increased by 6% in relativity to last year's findings, unfunded activity has jumped by a substantial 28%. This increase in unfunded activity over the pipeline is equivalent to $7.3b, with the mining and heavy industry sector accounting for 74% of the increase.



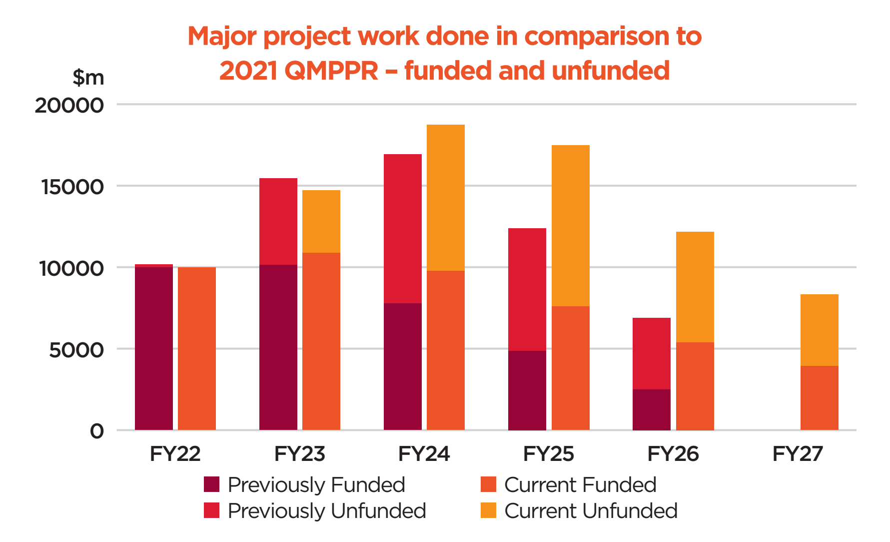
Source: BIS Oxford Economics, QMCA and IAQ member knowledge

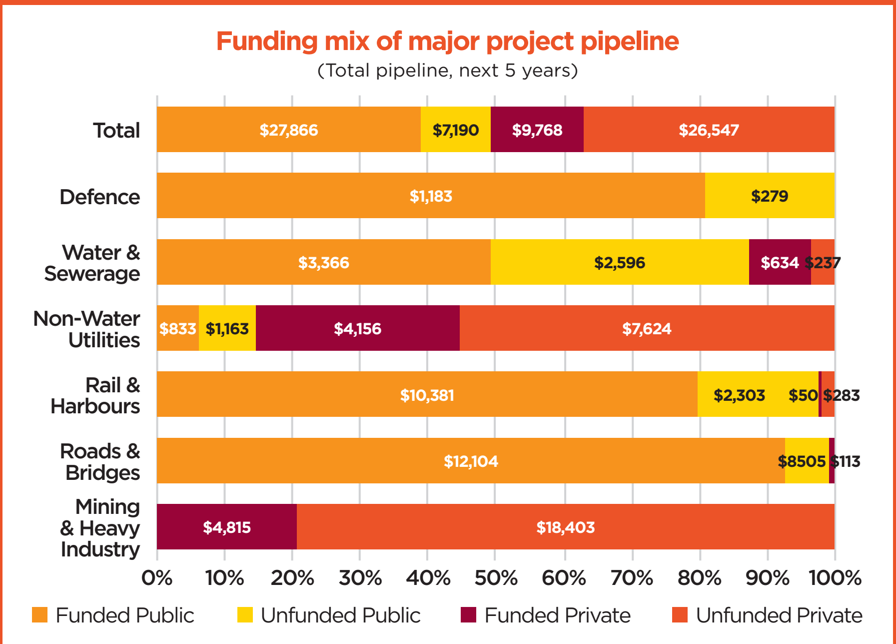
The number of major projects in the pipeline has increased by 29% compared to the 2021 QMPPR, with 141 publicly funded projects and 116 privately funded projects. This represents $35.1b and $36.3b worth of construction activity, respectively. The public to private funding split in pipeline activity remains near identical to previous iterations of the pipeline.

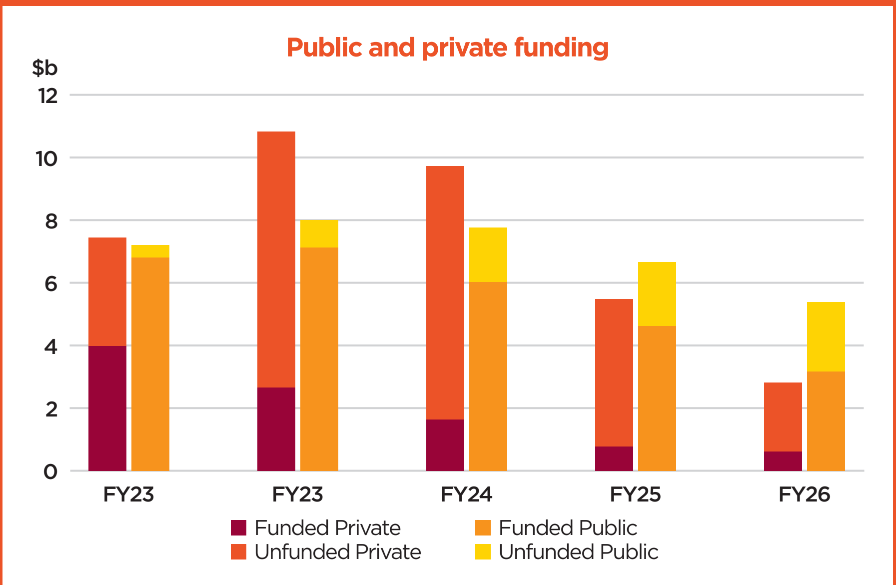
Compared to the 2021 QMPPR, investment in privately funded projects has fallen from 44% to 27%, while publicly funded projects receiving funding has remained relatively unchanged at 79%. The average privately funded project size of $313m is greater than the average publicly funded project of $249m.

There has been an increase in projects classified as 'unlikely' - rising from 17 to 22 - and projects that are considered prospective (still unfunded) have more than doubled from 22 to 48. This large proportion of projects sitting in the 'unfunded' stage of delivery is mostly driven by private projects in the non-water utilities sector (which includes renewables), which has seen a tripling in unfunded projects from 11 to 34.

Overall, total net funded activity across all sectors has increased by $2.2b, and total net unfunded activity across all sectors has increased by $7.3b. The upward trend is driven by the water and sewerage sector, which has seen funded pipeline activity rise by $2.0b compared to the previous Major Project Pipeline. In terms of unfunded activity, resources, heavy industry, and non-water utilities have contributed $5.4b and $3.0b respectively to the net increase in unfunded pipeline works.







Source: BIS Oxford Economics, QMCA and IAQ member knowledge

CSQ LABOUR AND SKILLS REPORT

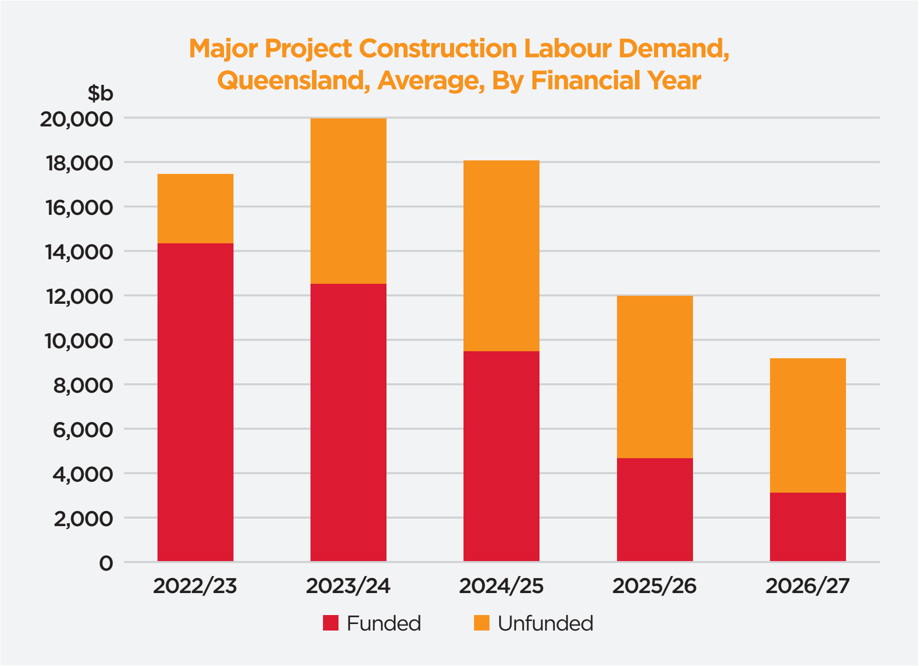
CSQ

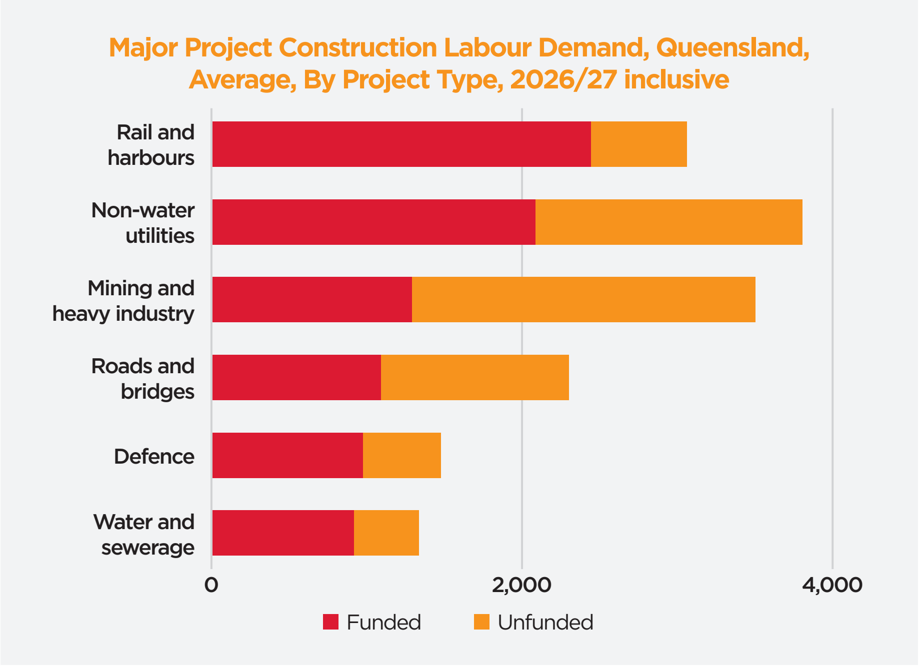
Labour requirements

The $71.3b civil pipeline outlined in this report could require 16,200 construction workers on average from now out to 2026/27, according to CSQ analysis. This includes skilled trades, professions and unskilled labour. More workers are predicted for the funded component, requiring an estimated 10,800. This leaves 5,400 for unfunded works.

Labour requirements will fluctuate year-to-year around these averages - with higher workforce requirements in the nearer term. Labour requirements for the full portfolio of projects (funded and unfunded) will likely peak in 2023/24 at 20,000 workers. For funded projects, this peak is sooner, with 14,000 workers required in the very near term, 2022/23. These estimates will increase as new projects are added in the future.

In terms of the labour requirements by project type, all categories require substantial levels of construction labour. For funded projects, rail and harbours account for the highest number with an estimated 2,500 workers on average from now to 2026/27. This is followed by non-water utilities (2,000) and mining and heavy industry (1,300).





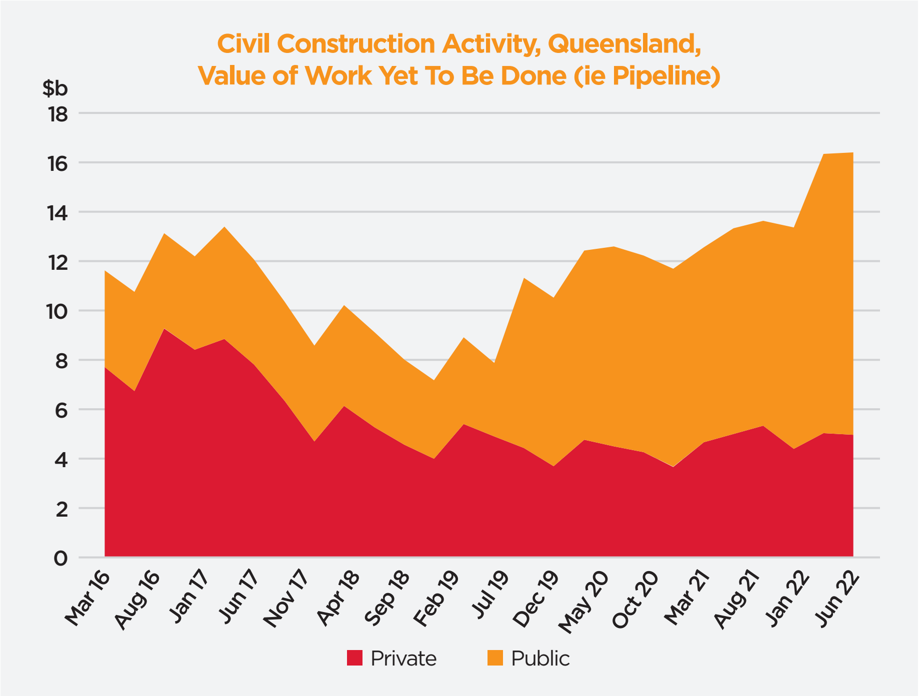
Source: CSQ for QMCA and BIS Oxford Economics (2022)

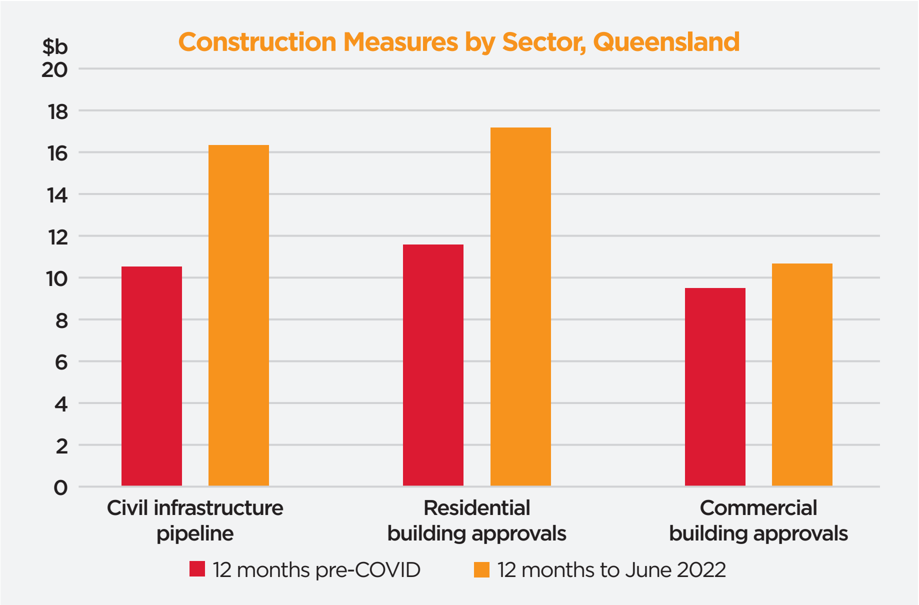
Current demand

This $71.3b pipeline (and the associated labour requirements) will hit an industry already experiencing an extraordinary period of pandemic-induced demand. A $16.3b portfolio of unfinished projects already confronts Queensland's civil construction sector in mid-2022. This is the highest point since the mining boom ended.

This pipeline is underpinned by public infrastructure projects, deployed in part to drive the pandemic recovery. The Queensland Government delivered a record $15.5b of capital commitments in its 2022-23 State Budget, alongside a four-year $30b transport investment plan. Public investment now accounts for around two-thirds of infrastructure projects underway in the state.

Forces like these have driven the civil pipeline up by 55% compared to pre-pandemic. And when combined with the 50% increase in value of residential building projects catalysed by the home building stimulus (and commercial projects remaining surprisingly strong), demand across the industry is already at an extraordinarily high level.



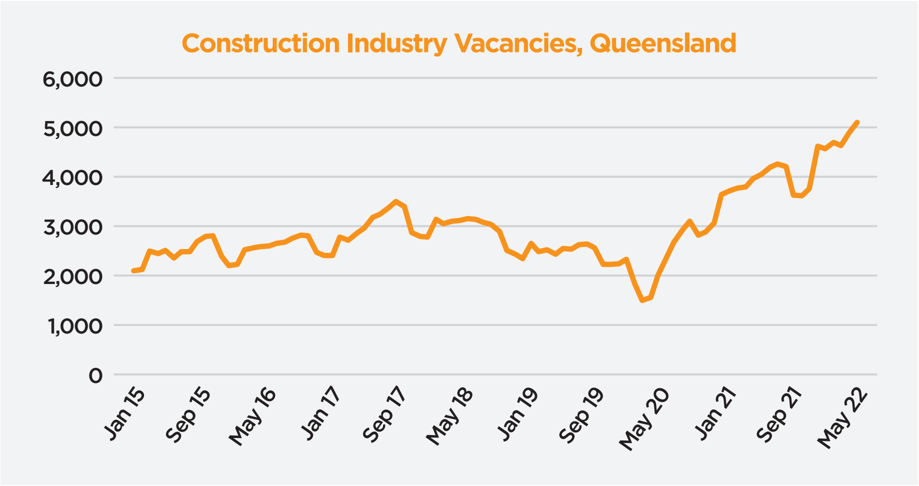


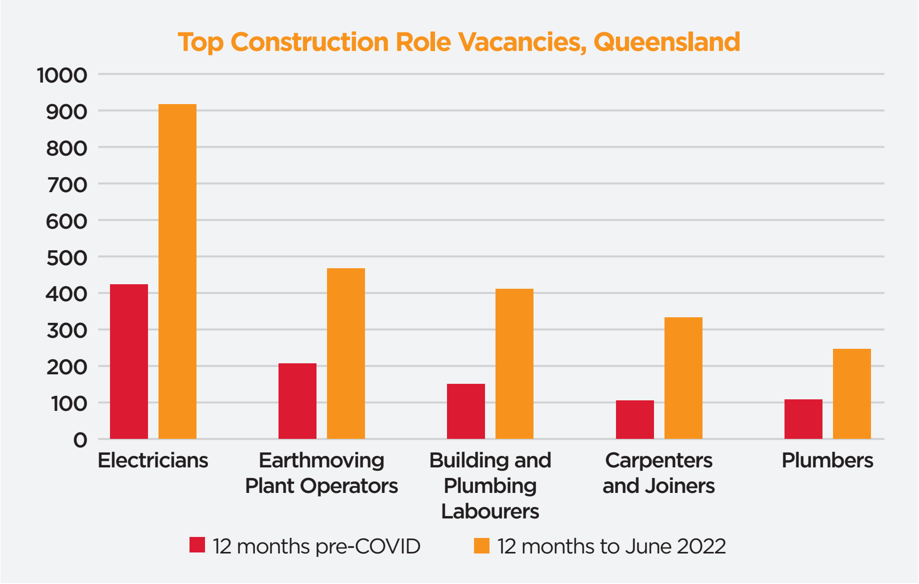
Source: ABS (2022); CSQ (2022)

Current shortages

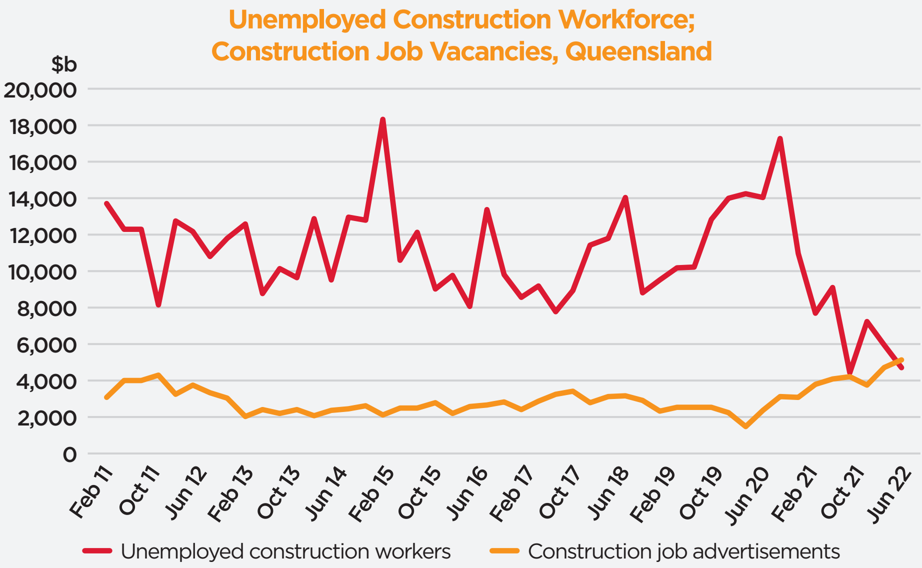
Despite this exceptionally strong demand for projects, the number of workers in the Queensland construction industry has rarely exceeded its pre-pandemic level. Employment in the civil construction sector has fared much worse - at 21,600 workers it remains 20% below pre-pandemic levels, even while demand soars. A crude estimate suggests a shortfall of at least 10,000 civil workers at present, given this was the workforce mobilised to deliver a smaller pipeline of work before pandemic onset. The shortfall is likely larger given the five-year high in demand. Either way, labour levels are nowhere near where they need to be given the number of projects around at present.

This reflects deep workforce issues on the supply side. Labour shortages are among the major challenges facing the industry. Like demand, these emerged as a function of the pandemic period, and have become well entrenched since (the drivers of the shortage are discussed later). Operators and contractors in all sectors, including residential, commercial and civil, continue to report shortages as of September 2022, according to the Performance of Construction Index. There is now a clear risk these shortages will carry over to impact the efficient delivery of the next phase of growth in Queensland, which includes the $71.3b civil projects pipeline, and other critical ambitions like the 2032 Olympics and the state's 2030 (and now 2032) decarbonisation goals.





Source: National Skills Commission (2022); CSQ (2022)

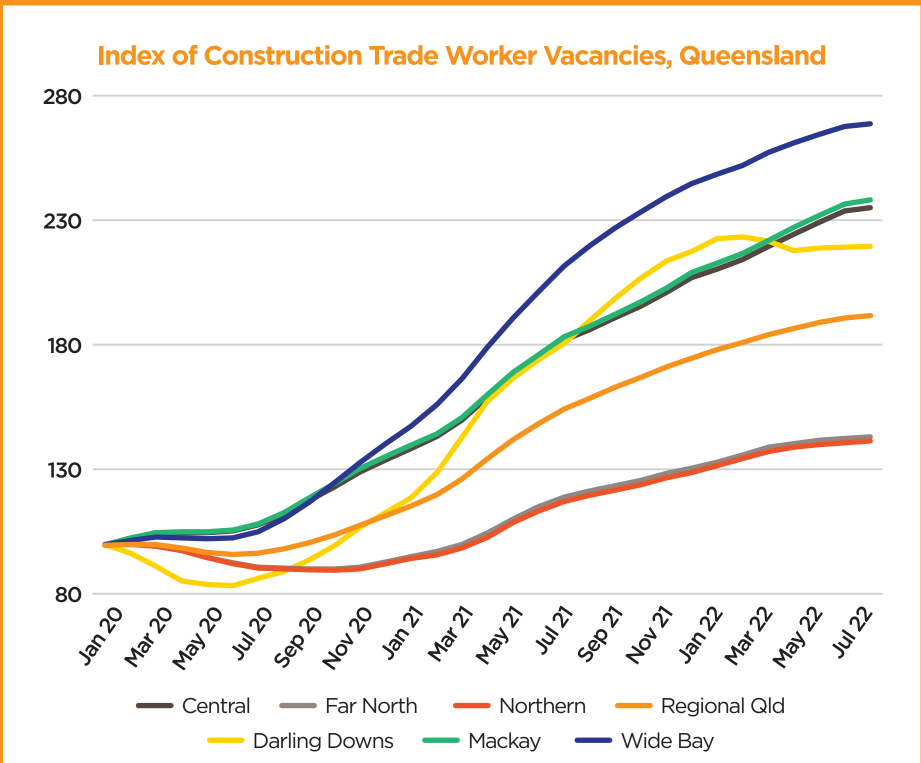


Source: ABS (2022); National Skills Commission (2022); CSQ (2022)

One striking indicator of the scale of current shortage is the number of advertised positions going unfilled. Presently, there are 5,100 open vacancies in the state's construction industry (with around 1,000 of these in civil trades). This is around double the normal level prior to the pandemic and represents the highest point for several years. These vacancies continue to grow, with the highest point reached in the most recent period that data is available (August 2022).

Understanding which occupations account for the largest share of this industry-wide growth in vacancies provides a real-time proxy of roles in the most acute shortage. Applying this method, the largest skills shortages in the Queensland construction industry are for Electricians, Earthmoving Plant Operators, Building and Plumbing Labourers, Carpenters and Joiners, and Plumbers (many of these are critical to civil projects). That being said, across a basket of 30 major construction occupations and trade roles, all are currently registering above average levels of unfilled vacancies. This indicates shortages are widespread, and while some roles are in more drastic shortage than others, this is an issue across the full spectrum of construction skills and trade services.

There are also more unfilled vacancies than unemployed workers at present. This is a deeply challenging position for any industry, but particularly one on the cusp of a further ramp up in activity. The 5,100 current vacancies compares to 4,700 unemployed workers (see chart below). This suggests that even if there was total employment of every person currently seeking to work in the industry, there would still be a shortage of labour. This has driven the unemployment rate in the Queensland construction industry to 1.9%, amongst the lowest levels since records were collected.



Source: National Skills Commission (2022); CSQ (2022). Index = 100 Jan 2020

The regional challenge

This labour shortage is particularly pronounced in regional and remote Queensland. This is a challenge given an estimated 60 to 80% of labour requirements emerging from the $71.3b pipeline are in the regions. These shortages have emerged for both demand and supply side reasons (supply side discussion in next section).

Much of the pandemic-induced demand for both civil and residential building has fallen into regional Queensland. Take the building boom - the increase in home approvals has risen by 70% in regional Queensland compared to only 40% for the South-East. This is unlike past building booms which were much more concentrated in the South-East (for example, the apartment boom circa 2018). Civil and heavy infrastructure projects – like mining, renewables and defence – also carry this strong regional footprint.

This demand has hit labour markets that are traditionally much thinner than the South-East, particularly for construction. This has quickly opened up a shortage issue. Under normal conditions new pockets of demand are usually managed via high levels of construction labour mobility, with regional workforces travelling into adjacent jurisdictions to follow demand. This is not happening as fluidly at present given that all parts of Queensland have experienced an upturn in building (and civil work) since the pandemic began.

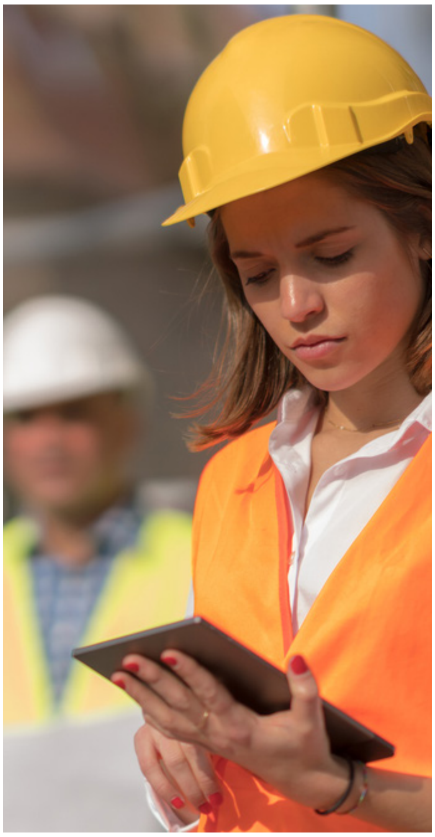
The outcome has been a surge of unfilled vacancies opening up in regional Queensland. These are currently 90% higher than pre-pandemic and are impacting the construction industry in all regions of the state. More acute shortages are currently reported in Wide Bay, Mackay and Central Queensland, yet the problem is widespread. These are critical issues for the industry given long-term industrial development in new growth sectors like renewable energy and critical minerals are largely regional opportunities, with construction jobs far away from major cities.

Supply side drivers of the shortage

The pandemic surge in demand is not the only reason for the skills shortage - the supply side is also severely constrained due to the pandemic's impact on overseas migration. This is what makes the current shortage issue more challenging and complicated than its precedents; it's driven by both supply-side and demand-side shocks.

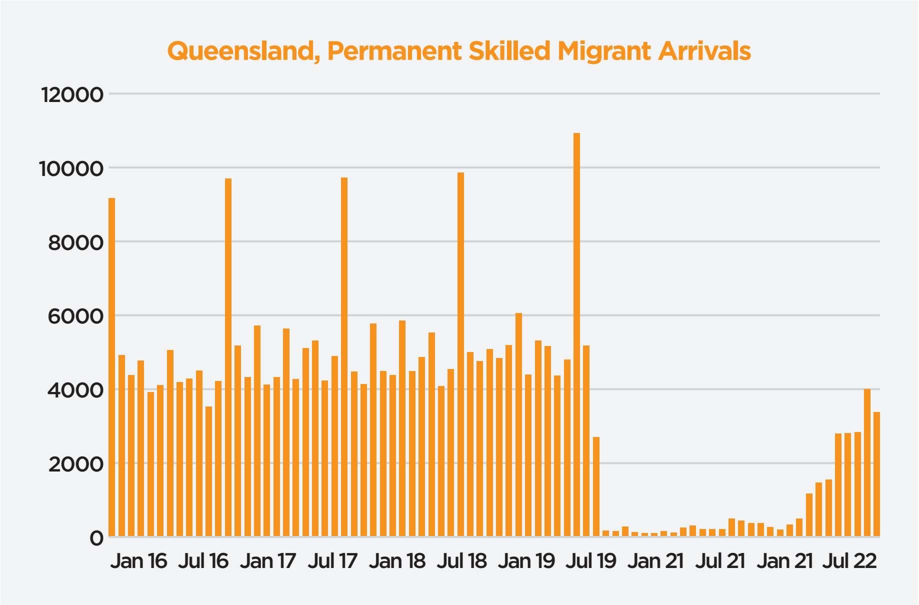
Before Queensland closed its international borders in 2020, tens of thousands of skilled migrants entered the state every year. Thousands of these were then absorbed by the Queensland construction industry, with migrants providing a critical source of labour supply in both metropolitan and regional areas, and across all sectors of the industry.

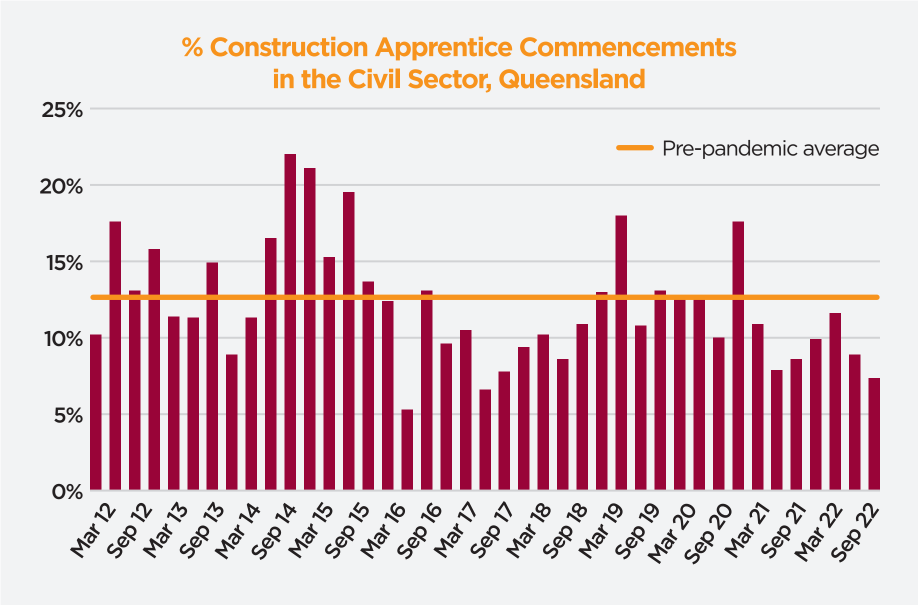
Queensland's borders reopened in February 2022, but beyond a trickle, the inflow of skilled migrants has not returned to normal levels. The number of permanent skilled visa-holders arriving in Queensland plunged from 65,000 in 2019 to 21,300 in the 12 months to August 2022. Taken in aggregate, the drop is extraordinary. According to CSQ analysis, Queensland now has a shortfall of 130,000 skilled workers as a result of the pandemic. This shortfall has been significant enough to drive Queensland's rate of population growth below historical norms, despite interstate migration increasing during the pandemic. This is impacting the construction industry, along with most other industries in the state.



There were expectations that once borders reopened these migrant patterns would return to normal. While the media reports that normal visa-processing has been held up by administrative backlogs, it's prudent to ask if skilled migration will ever return to pre-pandemic levels. Either way, strategies to 'grow our own' talent may need deep consideration to avoid future shocks to critical labour supply channels like migration.

Early attempts to 'grow our own' have shown some preliminary signs of success, but also some of the unintentional outcomes that can manifest. On the training side, we have witnessed a record-breaking intake of construction apprentices recently as employers rushed for a generous pandemic wage subsidy. While this has seen some growth in training conducted in the civil sector, most uptake is heavily skewed towards training with employers in the residential building sector. This has inadvertently crowded out the normal proportion of construction apprentices training with employers directly in the civil and infrastructure sector – with that proportion now running well below average across the last year and a half.





Source: ABS (2022); NCVER (2022); CSQ (2022)

Future sources of growth – Brisbane 2032 Olympics and renewable energy

Brisbane 2032 Olympics

Building public infrastructure for the Brisbane 2032 Olympics will be a key priority for the next decade, and will need to be delivered in the context of the skills shortages outlined above (if these do not moderate in the interim). CSQ is actively tracking key projects and associated announcements for the 2032 Olympics, with a view to model the workforce requirements and local availability of skills as more information is made available.

Although the timing and magnitude of the construction costs and project budget remains uncertain, suggestions range from $5.8 to $6.0b over the next decade, according to a recent budget review. More detailed information on this pipeline will likely emerge once the Olympics Delivery Authority has been finalised.

Renewable energy

One part of the pipeline will then pick up over the longer term - renewable energy. These projects already account for around 20% of the state's major project pipeline (up from only 5% in 2019). These span a portfolio of $21b to be delivered by 2025 in Queensland, according to CSQ.

Out to 2050 a further ramp up in projects is likely. This will support Queensland's transition to net zero and enable a large-scale hydrogen export industry. Recent research by CSQ indicates this could require $13.9b annual investment over the next thirty years, and catalyse an almost permanent demand for civil construction labour. Up to 26,700 new jobs could be required.

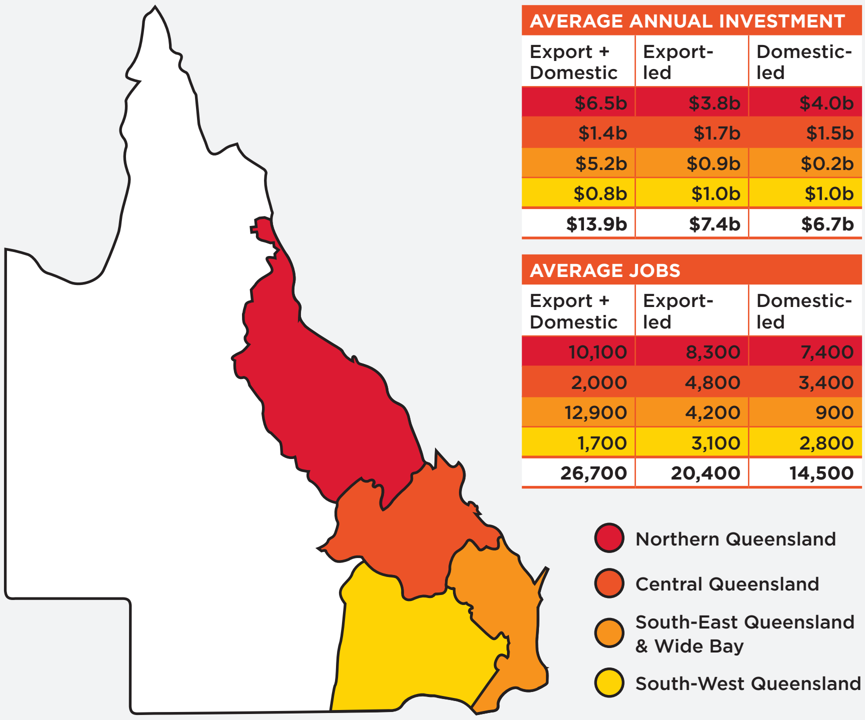
Well over half of this investment and the flow on labour requirements would land in regional and remote Queensland (see map). In the most ambitious scenario, Northern Queensland could see demand for up to 10,100 workers, while Central Queensland and South-West Queensland require around 2,000 in each region. This still leaves material labour needs for South-East Queensland and Wide Bay (12,900). Most of the roles required will fall into one of fifteen occupations.

For more information on CSQ renewables research please visit:
www.csq.org.au/renewables/

Renewables-related annual CAPEX and construction labour requirements, Queensland, 2021-2050

AVERAGE ANNUAL INVESTMENT		
Export + Domestic	Export-led	Domestic-led
$6.5b	$3.8b	$4.0b
$1.4b	$1.7b	$1.5b
$5.2b	$0.9b	$0.2b
$0.8b	$1.0b	$1.0b
$13.9b	**$7.4b**	**$6.7b**

AVERAGE JOBS		
Export + Domestic	Export-led	Domestic-led
10,100	8,300	7,400
2,000	4,800	3,400
12,900	4,200	900
1,700	3,100	2,800
26,700	**20,400**	**14,500**



Top 15 renewables construction jobs, Queensland, 2021-2050

Construction & related labourers	Electrical distribution trades workers
Concreters	Construction managers
Truck drivers	Plumbers
Earthmoving plant operators	Surveyors & spatial scientists
Electricians	Metal fitters & machinists
Structural steel construction workers	Crane, hoist & lift operators
Engineers (electrical, civil, industrial, mechanical & production)	Mechanical engineering drafts persons & technicians
Electronics trades workers	

Source: CSQ (2022)

Sector outlook

Roads and Bridges

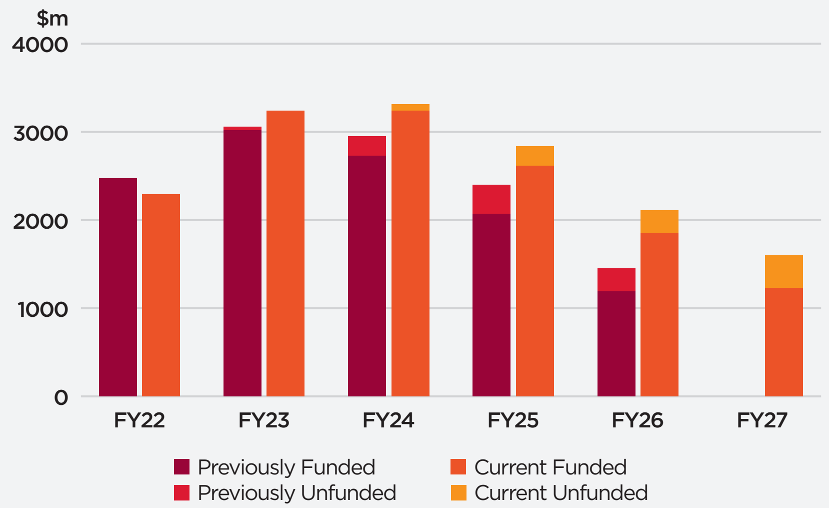
The most recent financial year (outside of the pipeline, 2021/22) recorded a step up in road construction, as state and federal government stimulus began to materialise into construction activity, rising from $1.5b to $2.3b. However, total funded projects in 2021/22 were down 7% compared to the 2021 QMPPR outlook, as supply constraints and Covid-19 related disruptions began materialising in 2021.

Continued state funding commitments announced in the 2022/23 state budget, has lifted the 5-year pipeline outlook particularly in the latter half, with total funded project value rising by $0.7b. Funding for roads and bridges remains dominated by the public sector and represents 99.1% of total activity in this segment over the next five years.

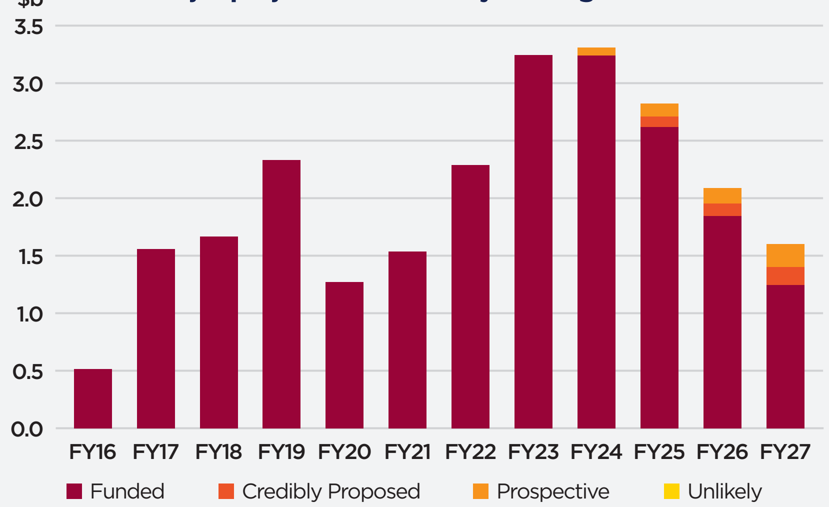
Key projects supporting activity throughout the forecast period include:

- **Coomera Connector Stage 1** – $1.2b - 2022/23 to 2025/26
- **Brisbane Metro CP ($858m)** - 2020/21 to 2023/24
- **Bruce Highway** - Rockhampton Ring Road (North and South Packages) ($825m) - 2022/23 to 2025/26
- **M1 Pacific Motorway** - Watland St - Logan Motorway (Stage 3a) ($750m) 2023/24 to 2026/27
- **M1 Pacific Motorway North** - Daisy Hill to Logan Motorway ($670m) 2022/23 to 2026/27

Major project work done compared to 2021 QMPPR



Major project work done by funding status



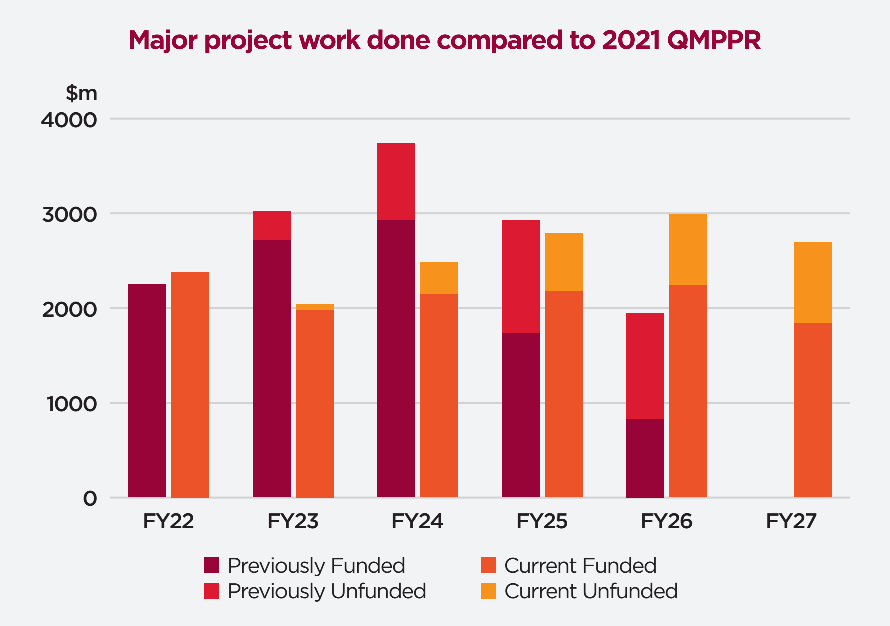
Source: BIS Oxford Economics, QMCA and IAQ member knowledge

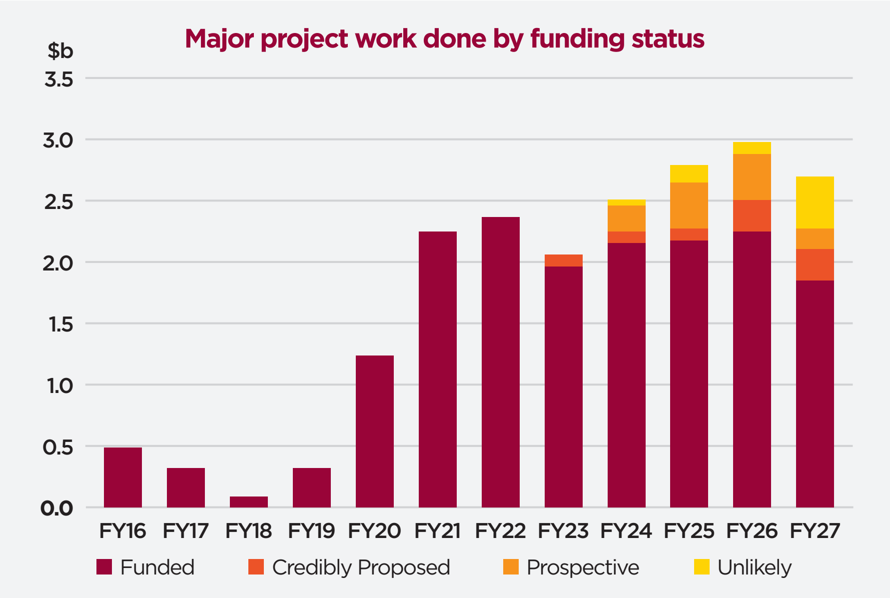
Railways and Harbours

Rail and harbour major project activity has risen sharply in the most recent financial year, from a trough of $80m in 2018/19, to $2.4b in 2021/22. Activity is expected to remain elevated over most of the pipeline, with a peak in 2025/26 at $2.3b. This is stimulated by a sizable increase in publicly funded rail projects in the latter half of the pipeline.

Major projects which continue to promote growth in the sector include the following:

- **Cross River Rail** - Various packages with an engineering construction value of $5.0b Construction on major packages commenced in 2019/20 with project completion expected in 2024/25
- **Inland Rail** - Three major sections with an engineering construction value of $4.35b. The largest component - Gowrie to Kagaru - is currently under procurement, with construction expected to commence in 2022/23 and project completion expected in 2026/27
- **Logan and Gold Coast Faster Rail** - $1.8b and duration from 2023/24 to 2026/27
- **Gold Coast Light Rail Stage 3** - $825m and duration from 2022/23 to 2024/25
- Infrastructure associated with the new rolling-stock





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

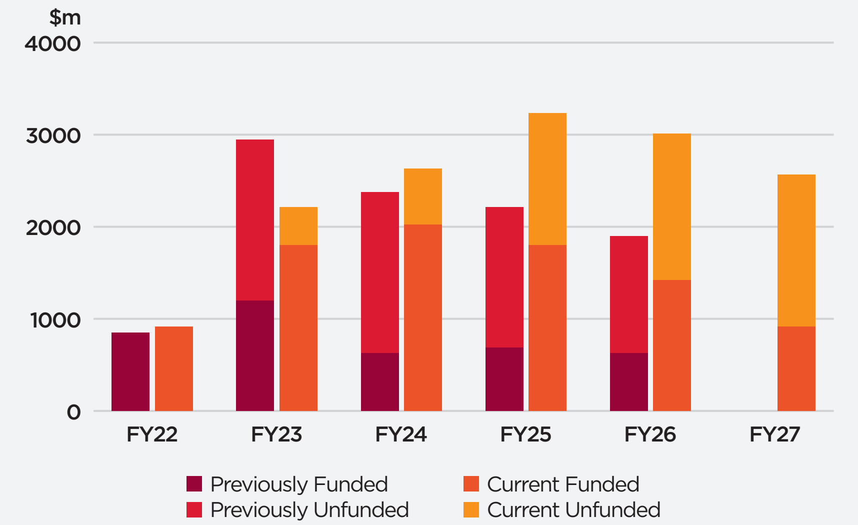
Water and Sewerage

The water and sewerage sector has witnessed a sizable leap in secured funding for major projects over the pipeline in comparison to the 2021 QMPPR outlook. However, over half of the activity in the latter years of the pipeline is unfunded, averaging 54% per year between 2024/25 and 2026/27. With the commencement of a number of publicly funded dam and pipeline projects, construction activity in 2022/23 will step up a notch of 144%, growing from $0.46b in 2021/22 to $1.1b.

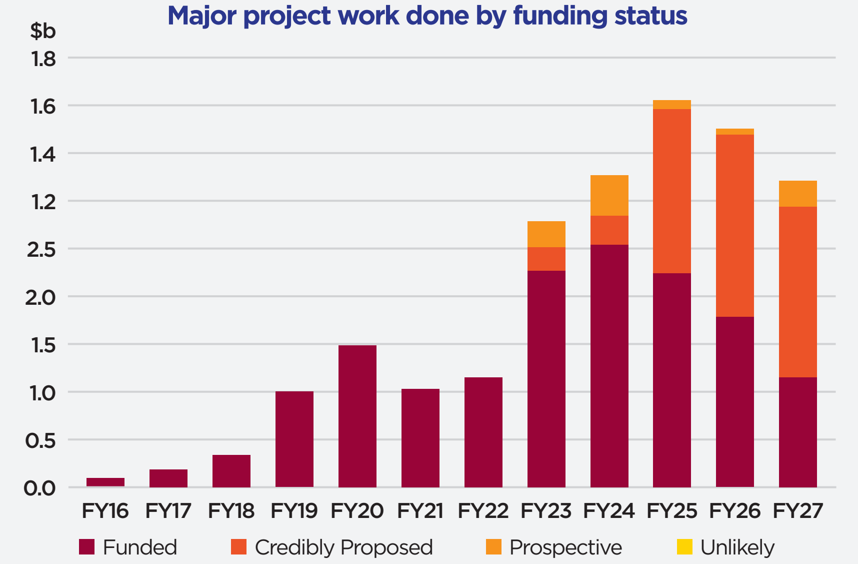
Major funded projects which support construction activity in the pipeline period include:

- **Paradise Dam Primary Spillway Improvement Project** – Valued at $900m, with construction to commence in 2022/23 and completion expected in 2027/28.
- **Logan Water Infrastructure Program Alliance** – Valued at $746m, with construction commenced in 2019/20 and completion expected in 2027/28
- **Luggage Point Sewerage Scheme** – Valued at $500m, with construction commenced in 2015/16 and completion expected in 2027/28
- **Fitzroy to Gladstone Pipeline** – Valued at $400m, construction to commence in 2022/23 with completion expected in 2025/26

Major project work done compared to 2021 QMPPR



Major project work done by funding status



Source: BIS Oxford Economics, QMCA and IAQ member knowledge

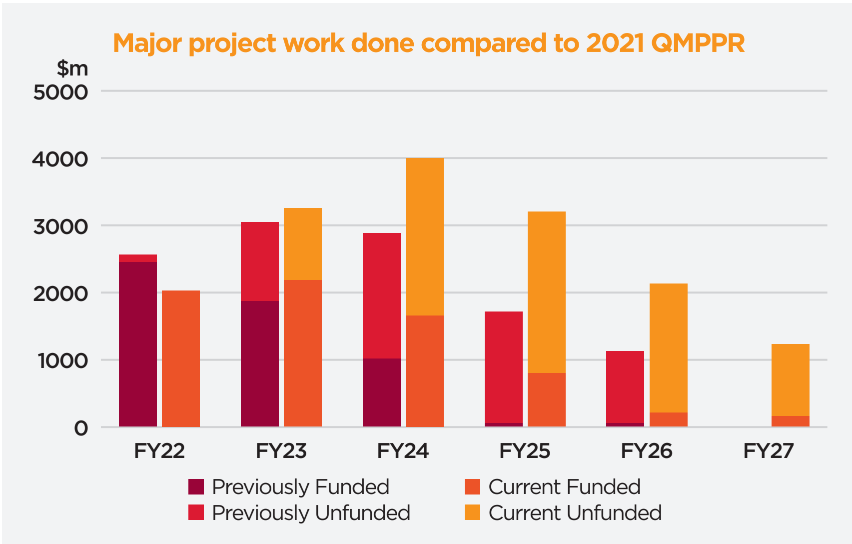
Electricity, Pipelines and Telecoms

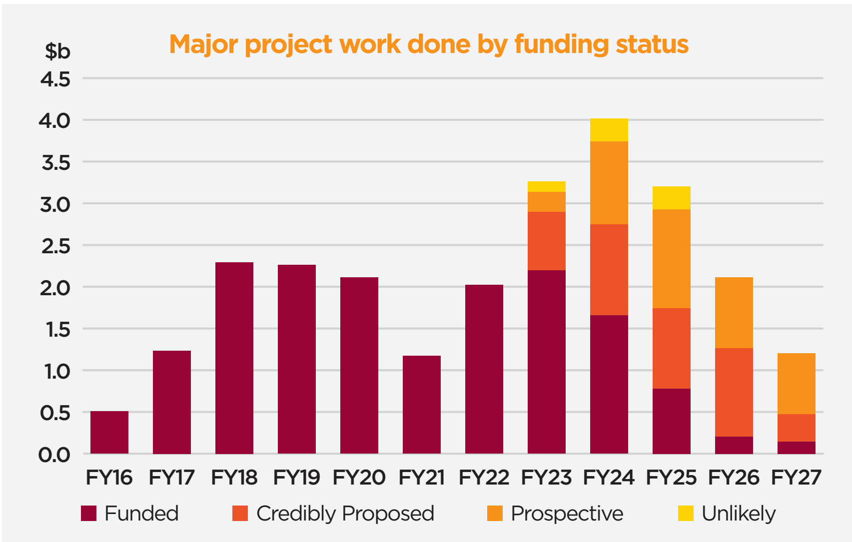
Non-water utilities construction activity is expected to grow moderately in 2022/23, with the completion of several major renewable energy projects being compensated by the commencement of others, and potentially the $1.5b Copperstring Transmission Line.

Privately funded projects dominate the electricity, pipelines and telecommunications sector, representing an estimated share of 84% of construction activity. Investment in this segment also tends to be more volatile than sectors (which are mostly publicly funded). The sector outlook is predominately unfunded, that increases total activity accounting for 32% of 76% in 2025/26.

Major funded and credibly proposed (but unfunded), projects which support construction activity in the forecast period include:

- **Copperstring Transmission Line (2.0)** – Valued at $1.5b
- **Clarke Creek Wind and Solar Farm (Stages 1 and 2)** – Valued at $700m. Stage 1 commenced construction in early 2022/23 and Stage 2 expected completion in 2026/27
- **MacIntyre Wind Farm** – Valued at $980m, construction commenced in 2021/22 with completion in 2023/24
- **QLD Component Northern Gas Pipeline Extension/Expansion (credibly proposed)** – Valued at $2.7b
- **Borumba Dam Pumped Hydro (credibly proposed)** – Valued at $1.0b, with commencement expected in 2024/25 and completion post 2027/28





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

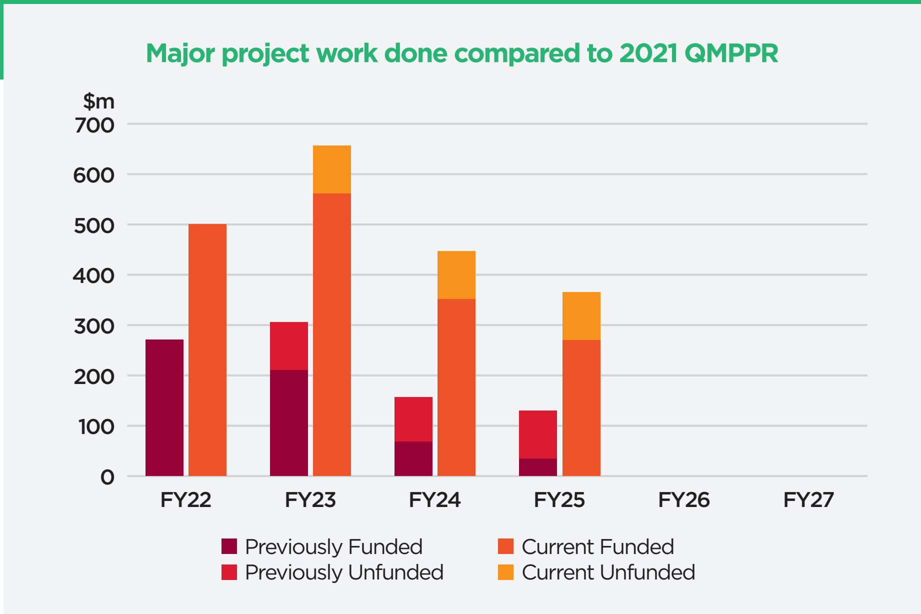
Defence

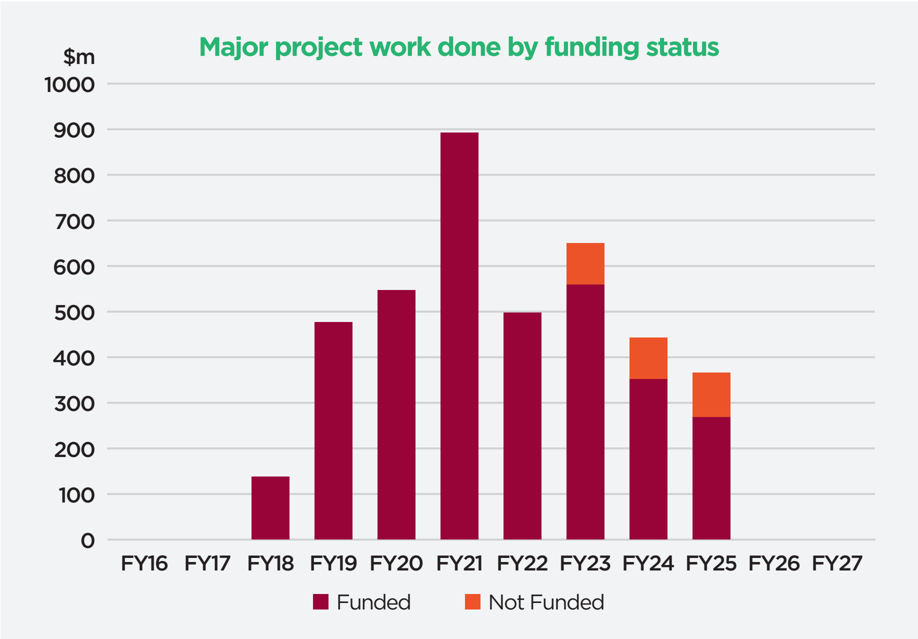
Major defence construction activity has significantly increased since the publication of the 2021 QMPPR, with the total funded pipeline outlook rising from $0.58b to $1.18b. Given the relatively small size of this sector, a few key projects have contributed to the large proportional rise in pipeline activity. Further, these major defence projects are expected to reach completion by 2024/25, with no major construction activity currently recorded for the remainder of the pipeline.

The correct Defence review being undertaken may see work in this sector grow substantially.

The pipeline activity will be driven by several projects, including:

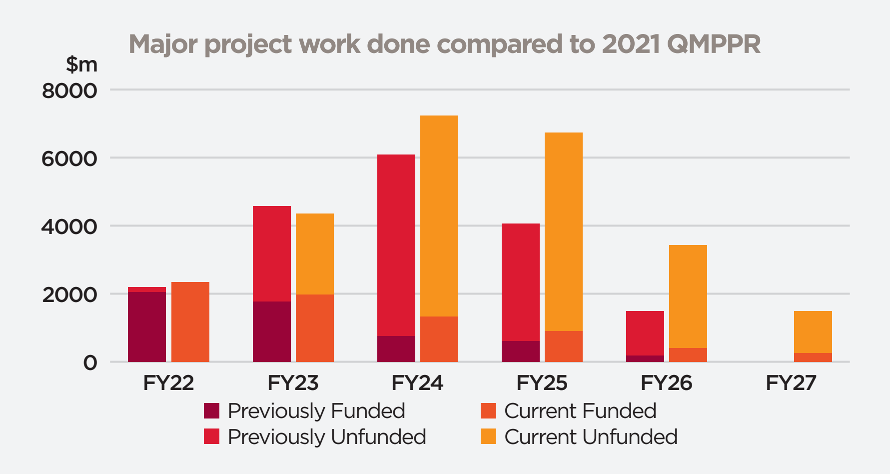
- **RAAF Base Townsville** - Pellegrine Facilities ($243m)
- **The Borneo Barracks Redevelopment ($200m)**
- **The National Airfield Works across Oakey and Townsville ($200m)**

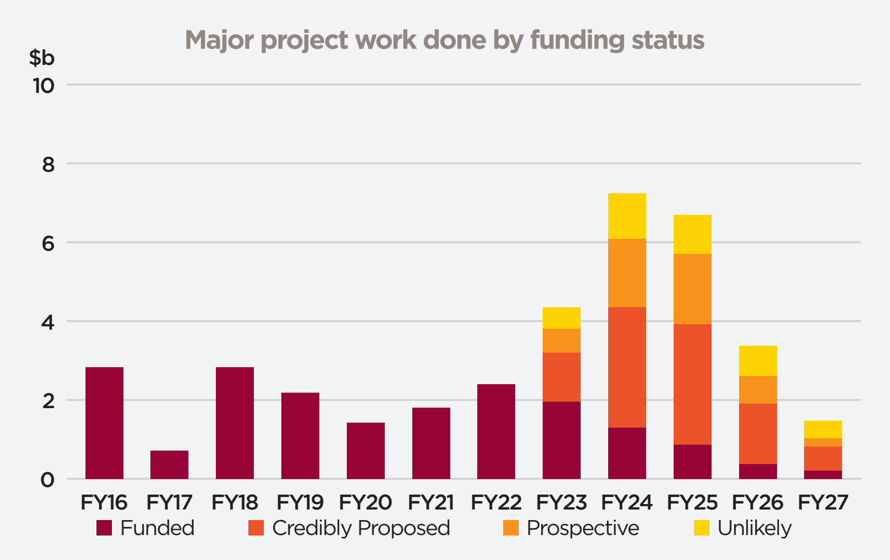




Source: BIS Oxford Economics, QMCA and IAQ member knowledge

Resources and Heavy Industry





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

After a recent trough in activity, the resources and heavy industry sector are set to bounce back with activity rising from $2.4b in 2021/22 to $4.4b in 2022/23. However, this $2.0b increase is considered unfunded within the pipeline. Coal projects are the main driver for this, which represent 63% of unfunded activity in 2022/23. Over the entire pipeline, coal projects account for 59% of this sectors unfunded work.

Total pipeline activity over the five years to 2026/27, has increased by $4.8b compared to the 2021 QMPPR total, and is currently valued at $23.2b. Despite this boost in construction expenditure, unfunded projects continue to make up the vast majority of the outlook at 79%, calculated as $18.4b. Furthermore, 21% of unfunded activity is assigned to projects that are considered 'unlikely' to occur. Given the high proportion of projects which are currently unfunded, future activity in the sector is considered to be the most 'at-risk'.

Funded activity in the sector is largely driven by oil and gas projects which account for 57% of total funded work in the sector. These projects include:

- **Surat Gas Expansion Projects** – Valued at $1.5b, construction commenced in 2020/21 with project completion expected in 2024/25
- **Western Surat Gas Project** – $1.2b, construction commenced in 2020/21 with project completion expected in 2026/27
- **Arrow** – Upstream Field Development – Valued at $650m. The upstream sustaining works project is currently under construction, with the remaining construction to follow between 2021/22 and 2024/25

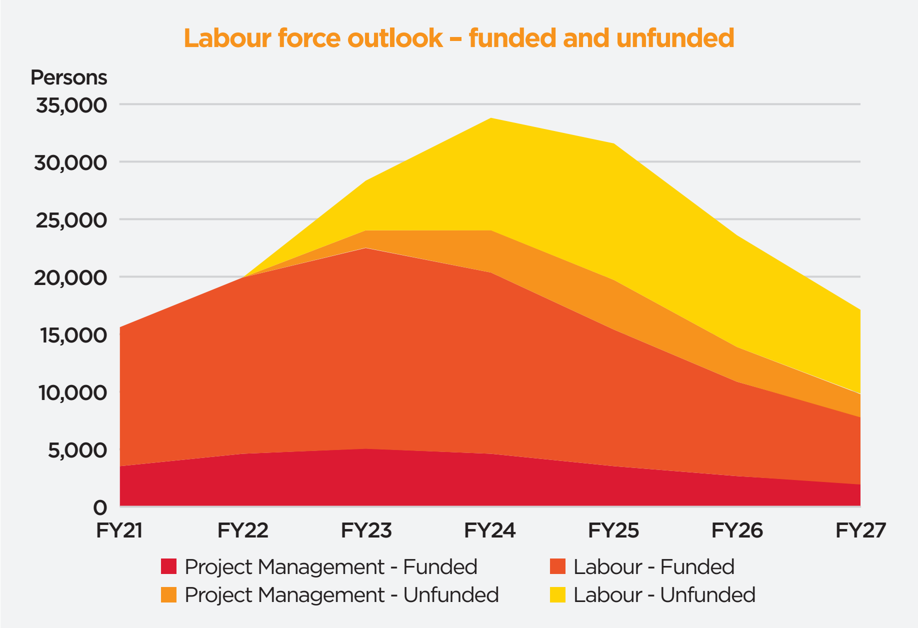
The large portion of unfunded activity in the sector is mainly driven by a plethora of unfunded coal projects. This has increased by 10% since the 2021 QMPPR outlook and now sits at 92% (or some $10.8b). It is anticipated that many of these prospective projects will soon be reaching their make-or-break threshold and funding decisions will need to be made.

This year's pipeline has also been shaped by the addition of several unfunded and significant heavy industry projects. These include various W2 projects H2-HubTM Gladstone green hydrogen and ammonia production facility ($2.6b), the Agripower Amorphous Silica - Stage 2 Development ($1.6b), and Fortescue's Hydrogen-equipment manufacturing facility - Stage 2 ($620m). In part, these projects are responsible for driving the growing bulk of currently unfunded works over the back-end of the project pipeline.

Major project workforce outlook

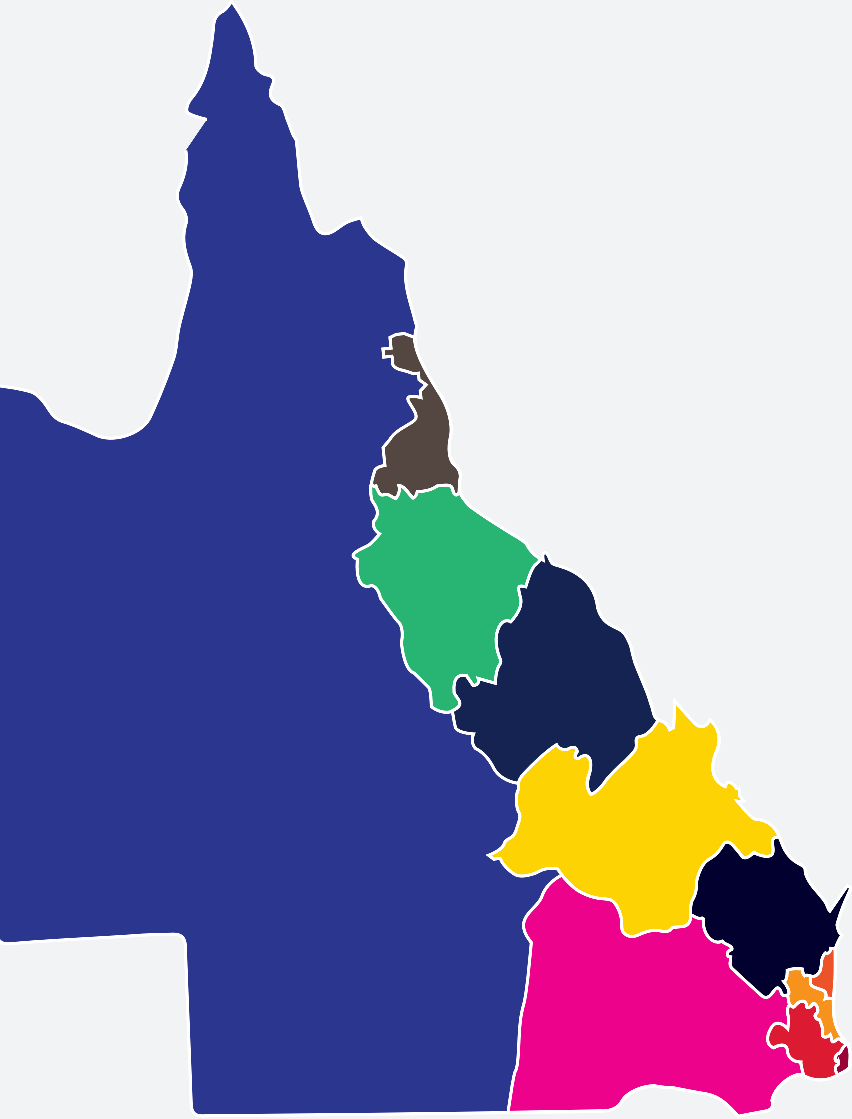
In 2021/22, increases to the major project workforce amount to 4,500 direct, full-time equivalent (FTE) roles to approximately 20,000 FTE roles in 2021/22. The pipeline of funded and unfunded projects is expected to yield a near 21,700 FTE roles in 2022/23. (This is a 42% y/y increase.) With 21,700 FTE construction labour roles and 6,600 FTE construction project management roles. Labour force requirements are then expected to peak in 2023/24 (33,800 FTE), to correspond with the growth in construction activity.

Although the major project workforce demand outlook is positive, a substantial amount of unfunded projects - particularly in 2022/23 and 2023/24 - pose a considerable downside risk. Consequently, the 'worst-case scenario' would involve only funded projects proceeding through to the construction phase. If this is the case, labour force requirements would peak at approximately 22,500 FTE in 2022/23, comprising 17,400 FTE construction labour roles and 5,100 FTE construction project management roles.



Source: BIS Oxford Economics, QMCA and IAQ member knowledge

REGIONAL PIPELINE SUMMARY



Funded Major Project Work over the next 5 years by region

- Cairns $1.2b
- Townsville $1.4b
- Mackay-Isaac-Whitsunday $1.9b
- Fitzroy - $2.7b
- Wide Bay $1.6b
- Brisbane $5.3b
- Sunshine Coast $1.7b
- Gold Coast $4.0b
- Ipswich – Toowoomba – Logan $7.2b
- Darling Downs-Maranoa - $5.3b
- Outback $3.7b

Queensland Regional Outlook

This section examines how the major project pipeline is divided between the different regions of Queensland, based on a regional split that separates Queensland according to ABS SA4 regions. There are 19 SA4 regions in total. The five Brisbane SA4s are grouped together and include East, West, North, South and Inner City, while the two Moreton Bay SA4s – North and South – fall into a Greater Brisbane category. Toowoomba is combined with Ipswich and Logan-Beaudesert, and the Queensland Outback SA4 region combines Outback North, Outback South and Far North Queensland, which is essentially an area that covers the bulk of non-coal base metals and minerals mining, and the townships of Mt Isa, Cloncurry and Weipa.

In this section, a separate outlook for the project pipeline is provided for each of the 11 regions listed above. This outlook includes an analysis of the major projects and is split by funding status and sector. The overall Queensland outlook has improved since last year's QMPPR, however, there continues to be substantial disparity between different regions in terms of activity size, growth and funding volatility.

Key points

The 2022 Major Project Pipeline shows an increase in funded project activity across most regions. The highest concentration of funded work over the next five years has shifted from Greater Brisbane to the Ipswich - Toowoomba - Logan region, with 19% of funded activity.

South East Queensland accounts for 48% of all funded project activity over the pipeline. Unsurprisingly, given heightened population growth in the region (above the national average), there is a strong pipeline of publicly funded infrastructure works to accommodate the current and future population base. This is represented in the major project pipeline, with funded activity in SEQ mainly driven by transport infrastructure. This accounts for 73% of SEQ's total pipeline activity.

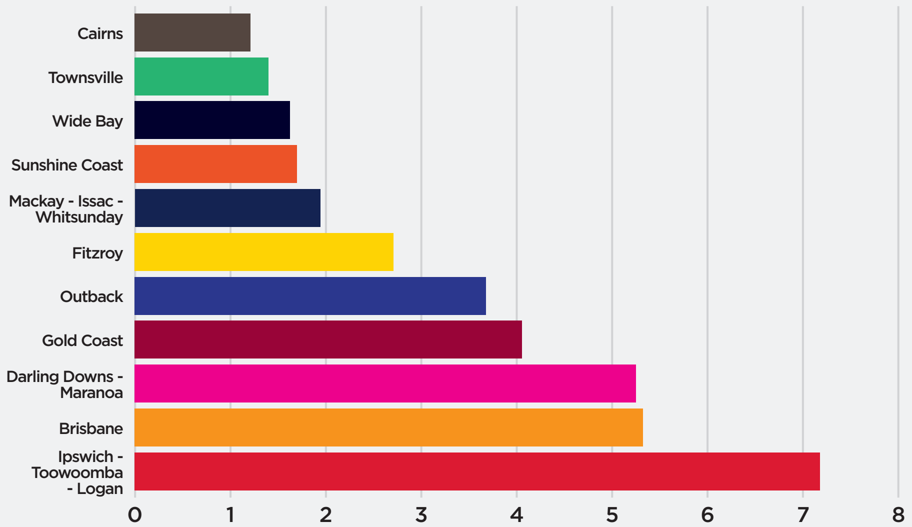
The regions with the largest portion of pipeline activity over the next five years is concentrated in the Outback and the Mackay-Isaac regions. This area will account for 30% ($22b) of all project activity over the next five years. However, given the relatively higher proportion of pipeline activity which sits in the resources and heavy industry sector, these regions also have over 74% of project activity unfunded. Correspondingly, these two regions account for 47% of total unfunded project pipeline activity.

Three regions see funded pipeline activity fall – Brisbane, Darling Downs and Maranoa, and Mackay-Isaac, with a 25% average decrease compared to the 2021 QMPPR. All other regions have seen funded activity increase by an average of 31%. (Refer to chart B2.5).

By comparing historical construction activity to future activity, it is evident that the Gold Coast is the fastest growing region. Total construction activity over the past 5 years, compared to the next five years, will increase by 311%

Source: Richard Greenwood.

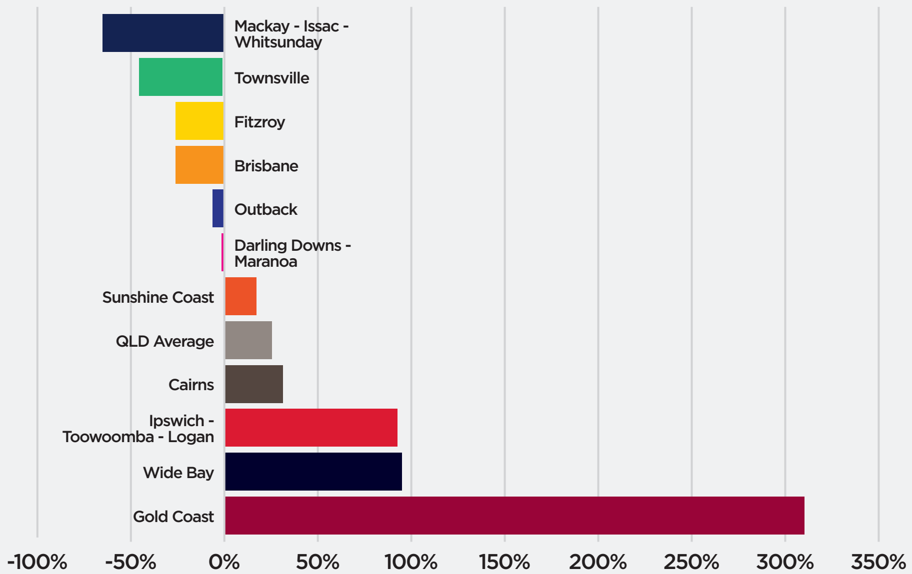
Funded Major Project Work over the next 5 years by region, $B[1]



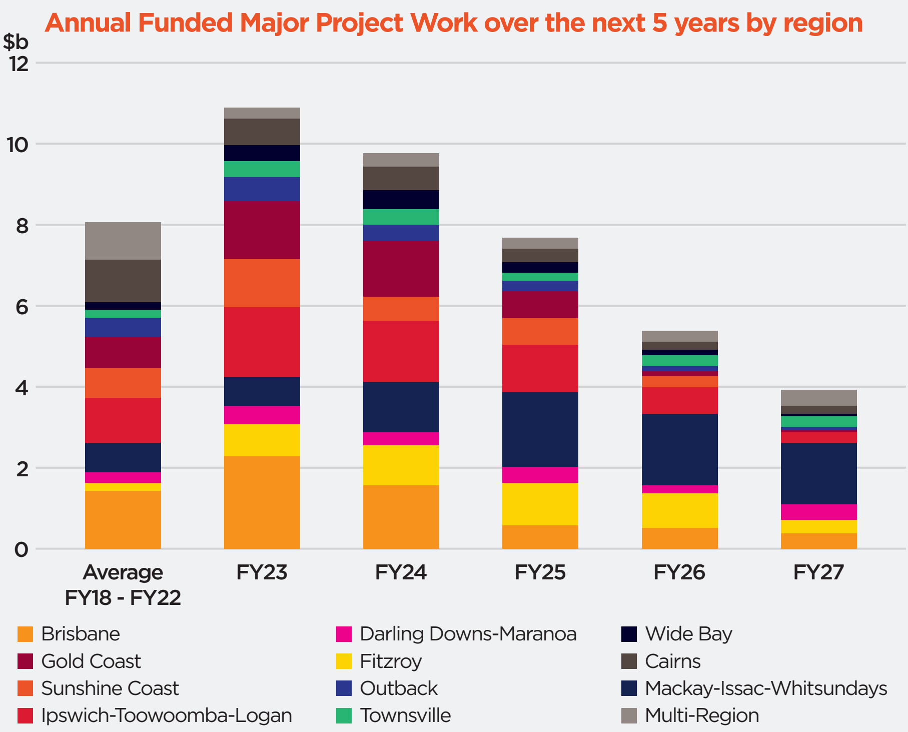
Source: BIS Oxford Economics, QMCA and IAQ member knowledge
[1]Regions may not add to total Queensland due to Multi Regional Projects.

Average Growth in Major Project Work over the next 5 years by region[2]

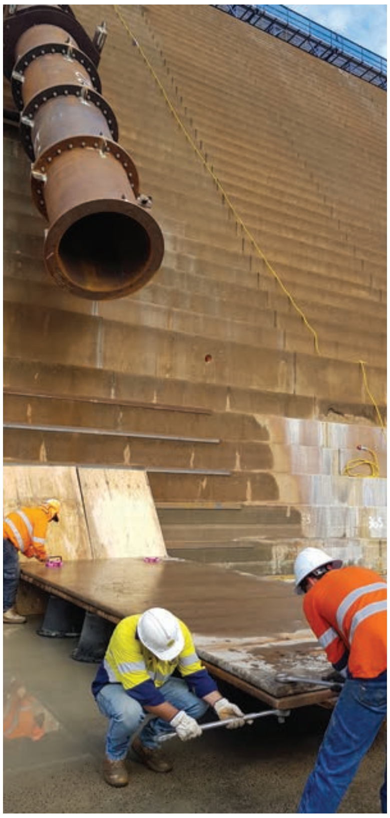
Expected Growth in Funded Major Project Work From FY22-FY26 v. FY17-FY21

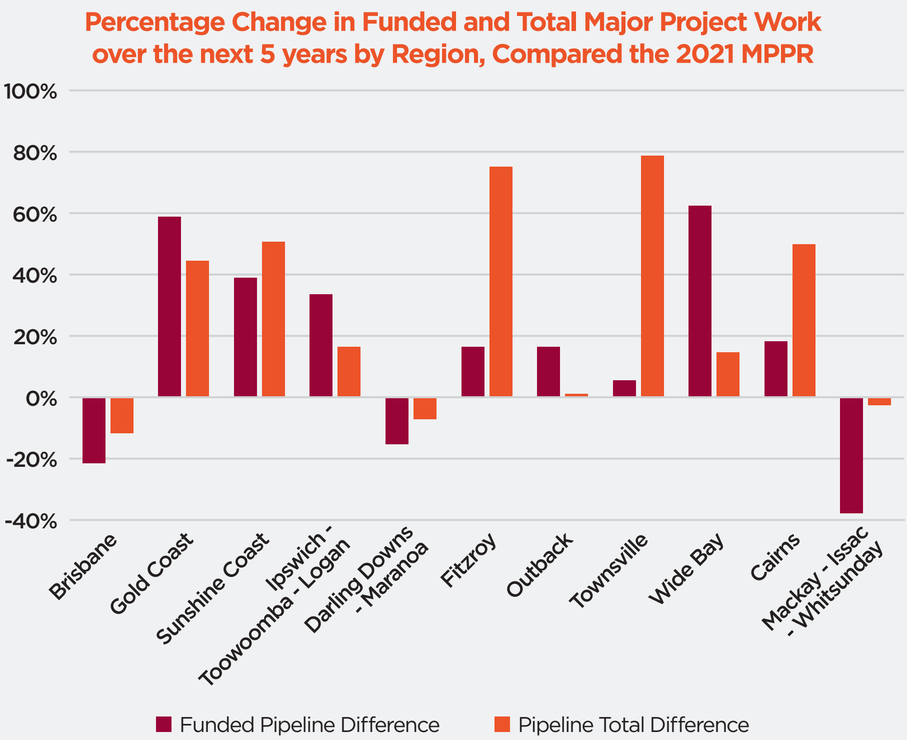


Source: BIS Oxford Economics, QMCA and IAQ member knowledge
[2]Figures in this chart represent the ratio of average funded work over the next five years (2021/22 to 2025/26) compared to the estimated average of major project work in the region between 2016/17 and 2020/21 inclusive.



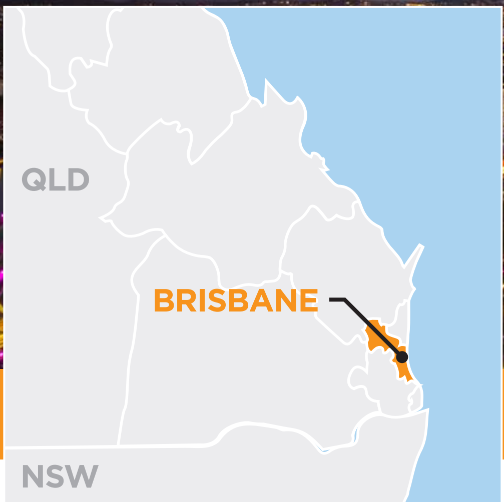
Source: BIS Oxford Economics, QMCA and IAQ member knowledge





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

Brisbane



Population:
1,829,623
Population growth has averaged 1.8% per annum over the last 10 years.

Total Pipeline Size:
$6.3b

Sectors Driving Growth: Transport infrastructure – Road and Rail

Proportion of total unfunded work:

Key Funded Projects[3]: Cross River Rail Packages (combined value of $5.1b)

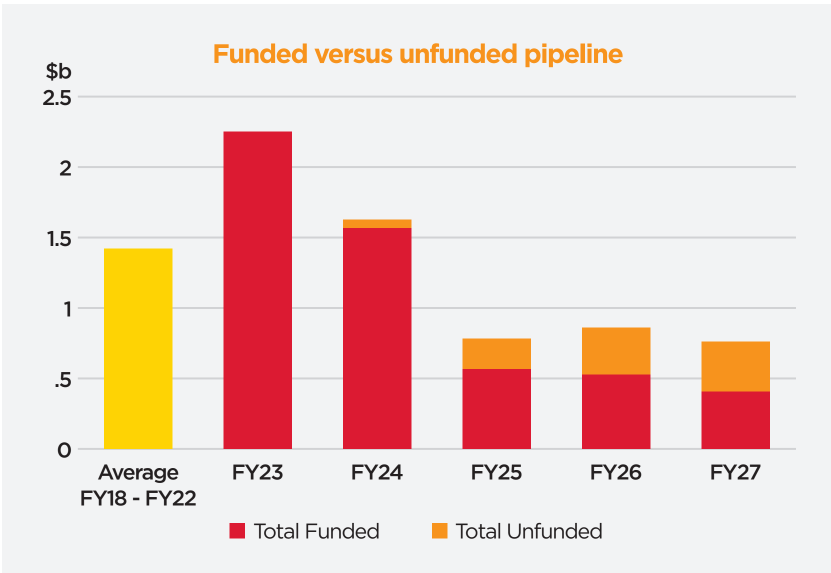
Brisbane Metro ($858m), Bruce Highway - Pine River to Dohles Rocks Road interchange ($834m)

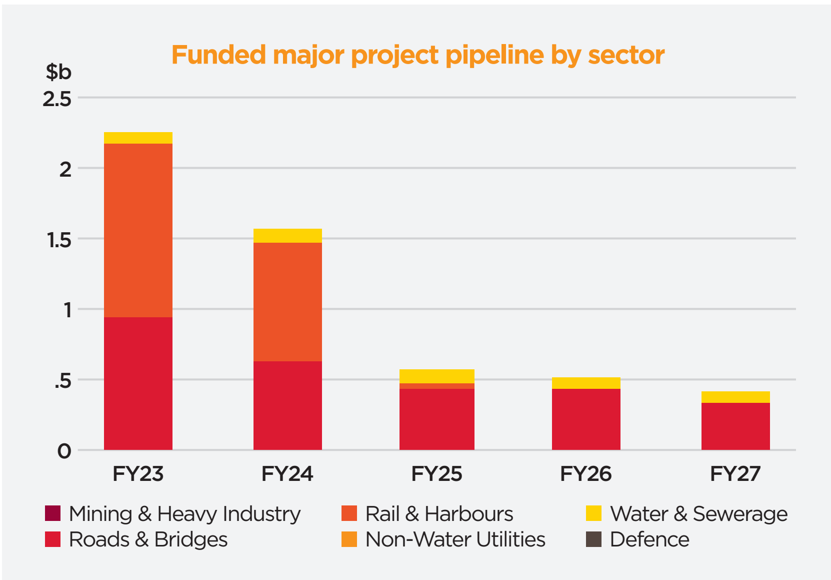
Gateway Motorway – Bracken Ridge to Pine River ($781m)

Key Unfunded Projects:
North South Urban Arterial Corridor (Moreton Connector, $690m)

Big T pumped hydro storage project ($784m)

Outlook: The Brisbane region continues to have one of the highest ratios of funded to unfunded major project work, owing to the strong pipeline of publicly funded transport infrastructure projects over the next five years. Activity will peak in 2022/23 and remain elevated over 2023/24, driven by increasing activity on the Cross River Rail, Pacific Motorway, Brisbane Metro Busway and the Gateway Motorway. The completion of the Cross River Rail will mark the beginning of pipeline activity beginning to taper off after 2023/24.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

[3]All project values will be construction estimates (as opposed to total spend)

Gold Coast

Population:
649,659
Population growth has averaged 2.3% per annum over the last 10 years.

Total Pipeline Size:
$4.7b

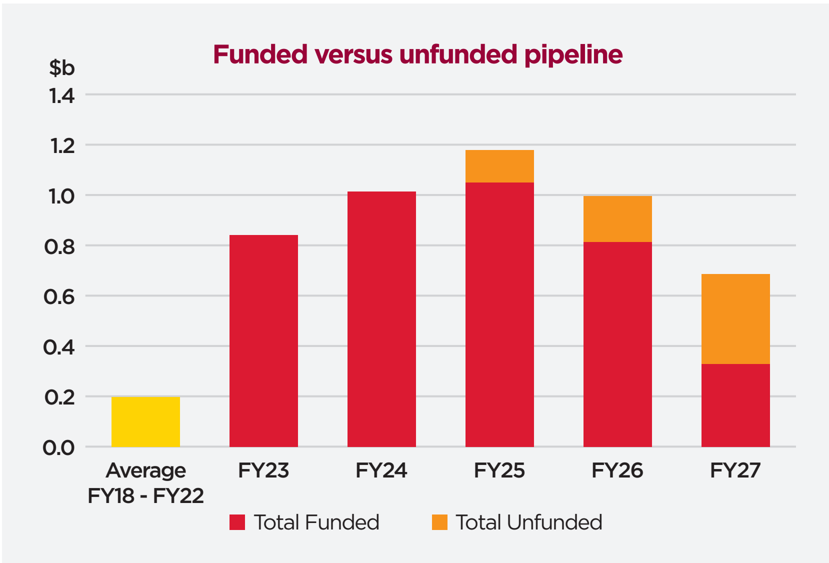
Sectors Driving Growth: Transport infrastructure – Road and Rail

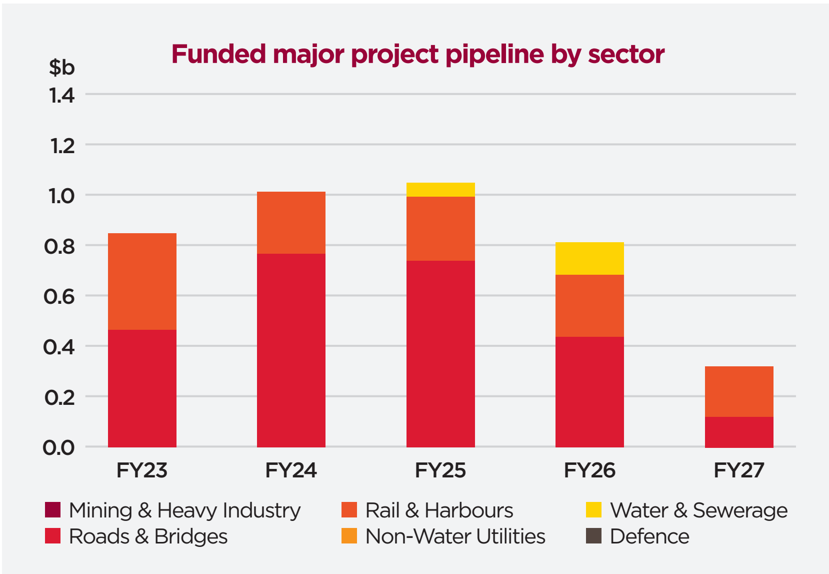
Proportion of total unfunded work:

Key Funded Projects:
Coomera Connector Stage 1 - North, Central and South ($1404m)
M1 Pacific Motorway - Varsity Lakes to Tugun, and Watland St to Logan Motorway ($1500m)
Gold Coast Light Rail Stage 3 and 4 ($1452m)
Varsity Lakes to Elanora Rail Extension ($470m)

Key Unfunded Projects: Elanora to Coolangatta Rail Extension ($460m)

Outlook: Activity in the Gold Coast region in the coming years, is almost exclusively driven by publicly funded transport infrastructure works – a response to the strong growth in population and tourism in the high-density region of South East Queensland. Public expenditure on transport infrastructure in the region is split over the 5-year pipeline as: 66% road and 44% rail.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

Sunshine Coast

Population:
403,521
Population growth has averaged 2.8% per annum over the last 10 years.

Total Pipeline Size:
$2.6b

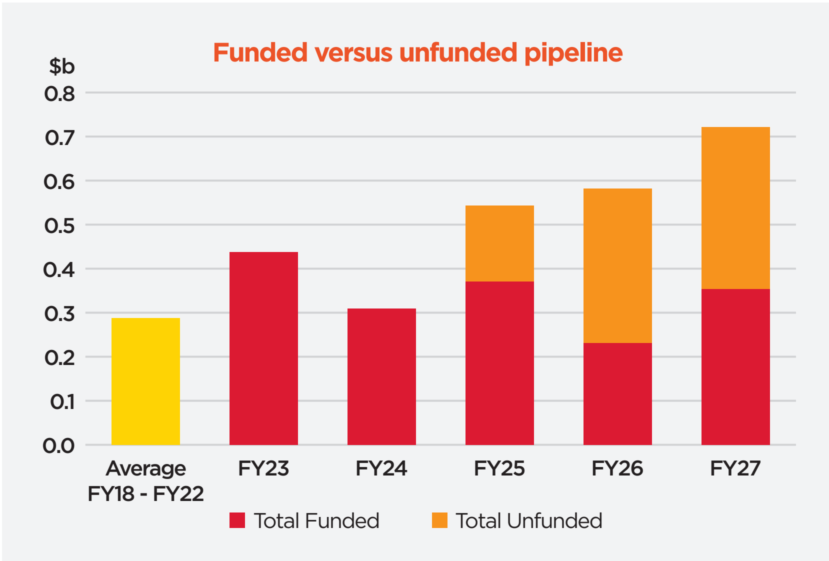
Sectors Driving Growth: Transport Infrastructure – Road and Rail, Water and Renewables

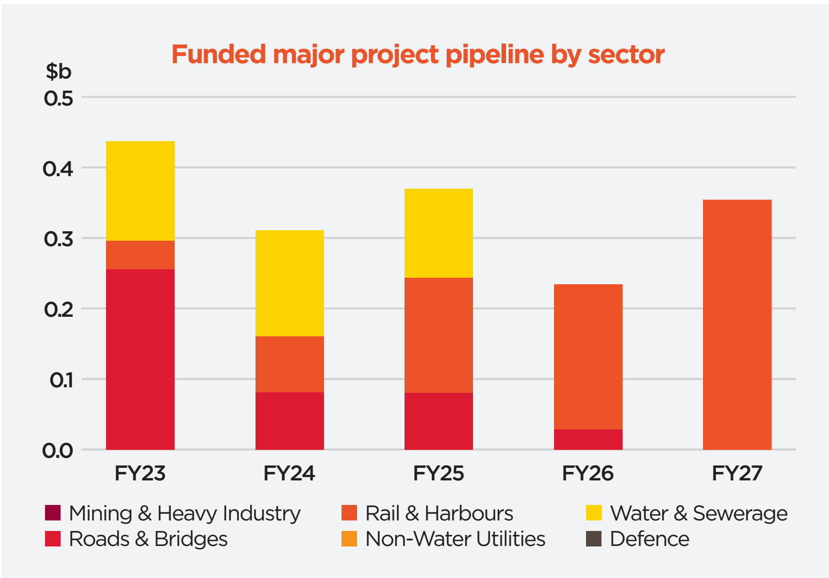
Proportion of total unfunded work:

Key Funded Projects: Bruce Highway - Caboolture to Steve Irwin Way ($500m)
Bruce Highway - Maroochydore Road Interchange Upgrade ($240m)
Beerburrum to Nambour Rail Upgrade ($650m)
Aura and Harmony Water and Sewerage Network ($200m)

Key Unfunded Projects: Borumba Dam Pumped Hydro Project ($1000m)

Outlook: The Sunshine Coast region benefits from the overlapping belt of publicly funded transport investment in South East Queensland. This funding, along with several water and sewerage projects, has ensured steady construction activity over the 5-year pipeline. The Queensland Government has also identified the Borumba Dam Pumped Hydro Project as a likely investment, with feasibility studies currently underway. This project would significantly boost the latter half of the pipeline and acheive a record high level of activity in 2026/27.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

Ipswich-Toowoomba-Logan

Population:
903,448
Population growth has averaged 2.3% per annum over the last 10 years.

Total Pipeline Size:
$8.6b

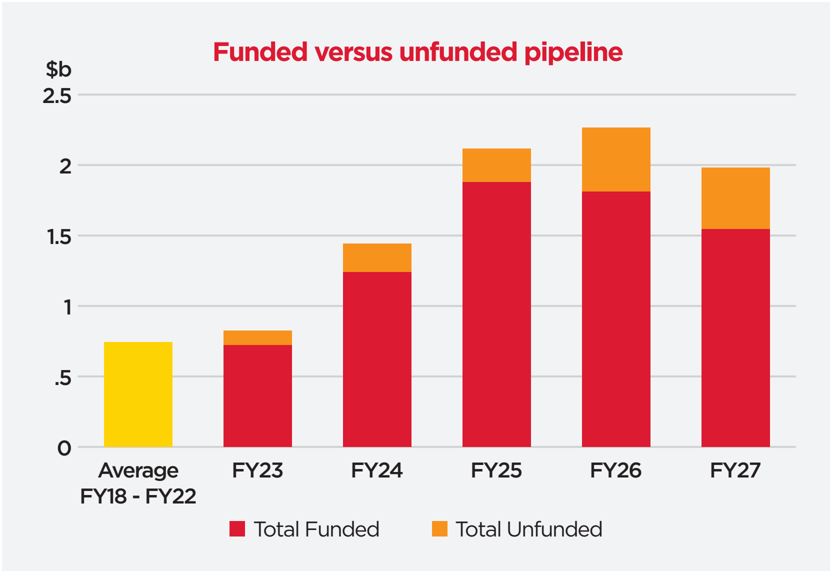
Sectors Driving Growth: Transport Infrastructure – Road and Rail, Water

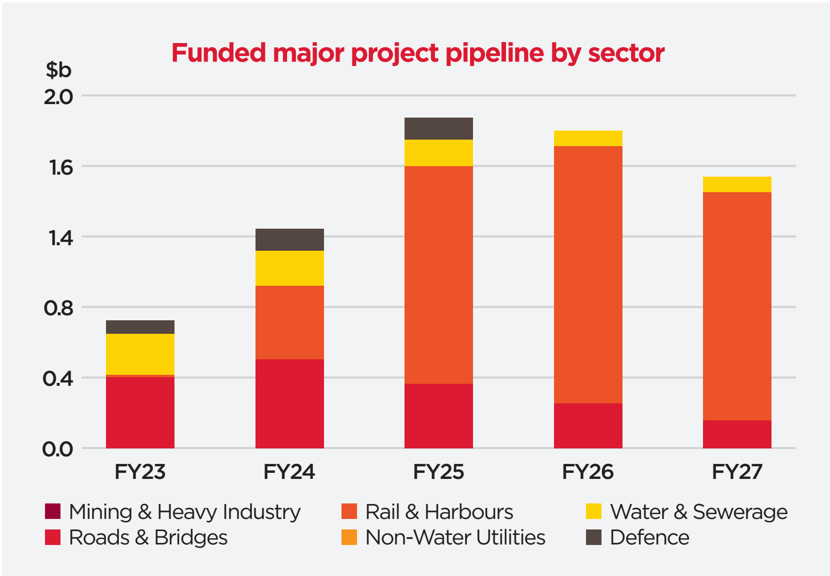
Proportion of total unfunded work:
17%

Key Funded Projects:
Inland Mainline Freight Upgrade - Gowrie to Kagaru ($2.9b)
Logan and Gold Coast Faster Rail ($1.8b)
Warrego Highway upgrades between Ipswich and Toowoomba ($400m)
Pacific Motorway Segments (a combined $1.16b)
Logan Water Infrastructure Program Alliance ($746m)

Key Unfunded Projects: Ipswich to Springfield Rail ($1.1b)
Somerset Dam Upgrade ($450m)
Ipswich Motorway - Rocklea to Darra Stage 2 ($390m)

Outlook: Major project activity in the Ipswich-Toowoomba-Logan region is expected to pick up in the coming years, with activity peaking at $2.3b in 2025/26. This robust growth is driven predominately by rail projects commencing in 2023/24, with the extension of water and sewage projects making up for the tapered level of road construction activity in the pipeline's latter half.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

Darling Downs-Maranoa

Population:
130,066
Population growth has averaged 0.4% per annum over the last 10 years.

Total Pipeline Size:
$6.1b

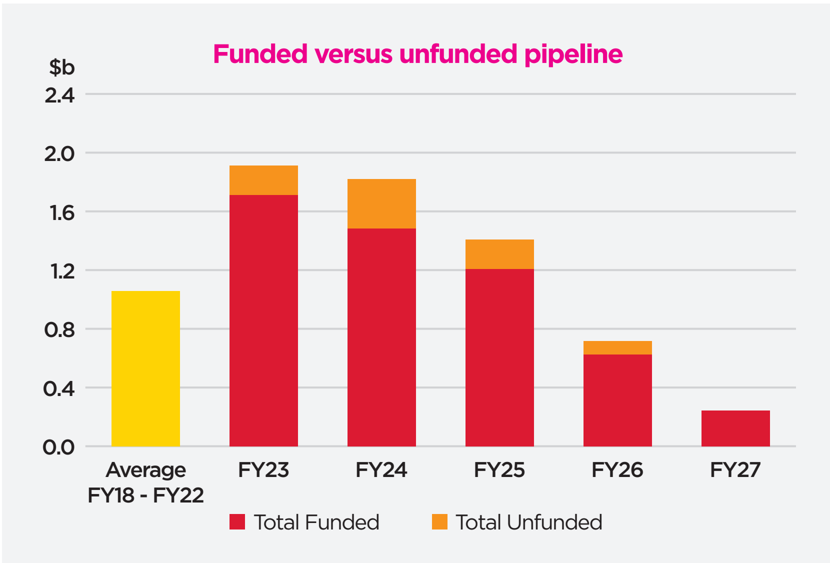
Sectors Driving Growth: Gas Development within Resources, Rail and Renewables

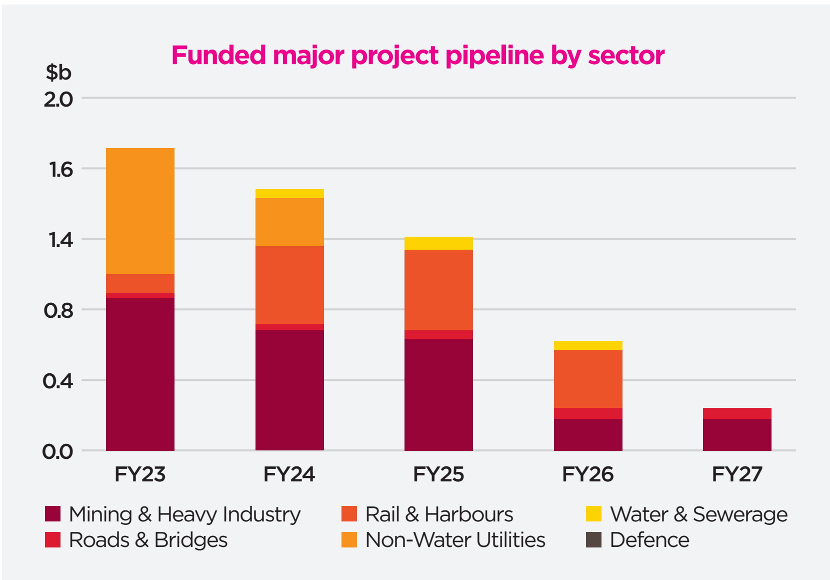
Proportion of total unfunded work:
14%

Key Funded Projects:
Inland Mainline Freight Upgrade - NSW/QLD Border to Gowrie ($1.4b)
Surat Gas Expansion Projects ($1.5b)
Western Surat Gas Project ($1.2b)
MacIntyre Wind Farm ($980m)

Key Unfunded Projects: Lockyer Valley hybrid gas-BESS Plant ($120m)
New Acland Coal Mine Stage 3 Expansion ($334m)

Outlook: Major project activity in the Darling Downs – Maranoa region will continue to be supported by the development and ongoing sustainment of gas projects. The region covers key gas fields such as the Cooper Basin and Eromanga Basin in the West and South West of Queensland. The exploration of new fields (such as Western Surat) in recent years, is expected to add to the existing levels of expenditure on well sustainment. Activity in the region is also set to benefit from the commencement of the Inland Rail in 2022/23, just as several renewable projects near completion by 2023/24.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

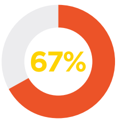
Fitzroy

Population:
231,104
Population growth has averaged 0.6% per annum over the last 10 years.

Total Pipeline Size:
$8.3b

Sectors Driving Growth: Defence, Road, Coal, Renewables, Water and Heavy Industry (hydrogen)

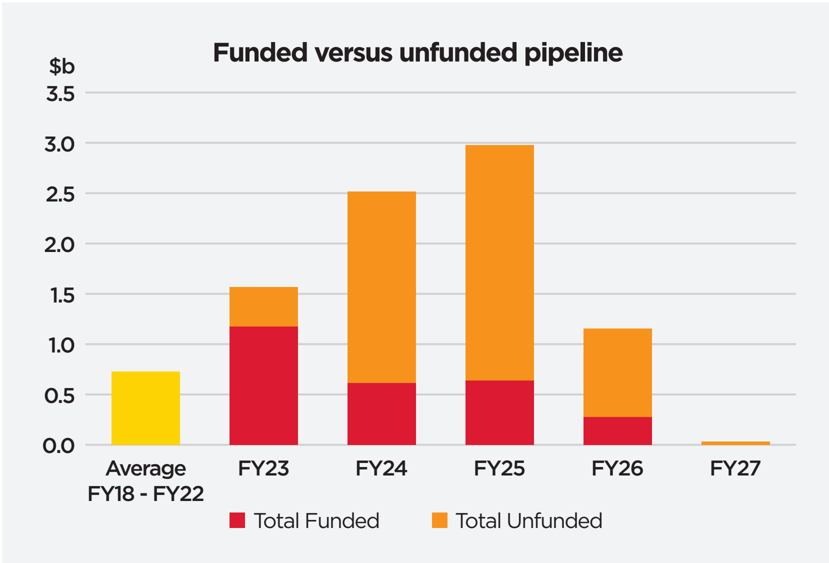
Proportion of total unfunded work:

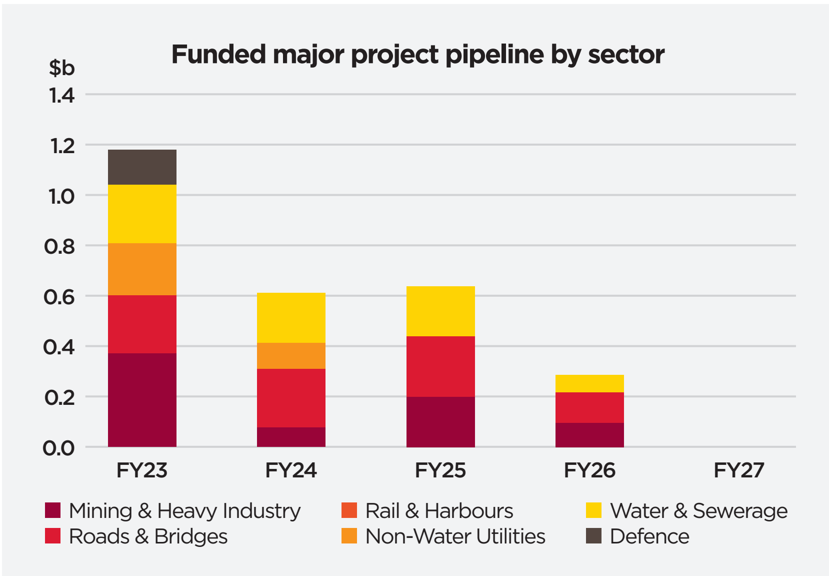


Key Funded Projects: Rockhampton Ring Road ($825m) Singapore Force Posture Initiatives - Shoalwater Bay ($400m)
Fitzroy to Gladstone Water Pipeline ($400m)
Aldoga renewable hydrogen facility - Stage 1 ($350m)

Key Unfunded Projects: Central Queensland Hydrogen Project ($1.5b)
H2-HubTM Gladstone Facility ($2.6b)
Gladstone Energy and Ammonia Project ($600m)
Port of Gladstone - Second Shipping Lane ($532m)
Gladstone Hydrogen-equipment Manufacturing Facility - Stage 2 ($620m)
Valeria Met Coal Mine ($975m)

Outlook: Major project funded activity in the Fitzroy region is projected to peak in 2024/25. However, it is important to note that after 2022/23 the majority of project activity is comprised of unfunded coal and hydrogen related projects, with 77% of activity in 2023/24 and 2024/25 unfunded. Of all the regions in the 2022 QMPPR, the Fitzroy region has witnessed the single biggest increase in pipeline activity at $3.5b.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

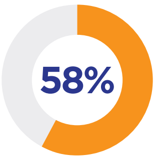
Outback

Population:
81,634
Population growth has averaged -0.6% per annum over the last 10 years.

Total Pipeline Size:
$8.7b

Sectors Driving Growth: Roads, Energy and Mining

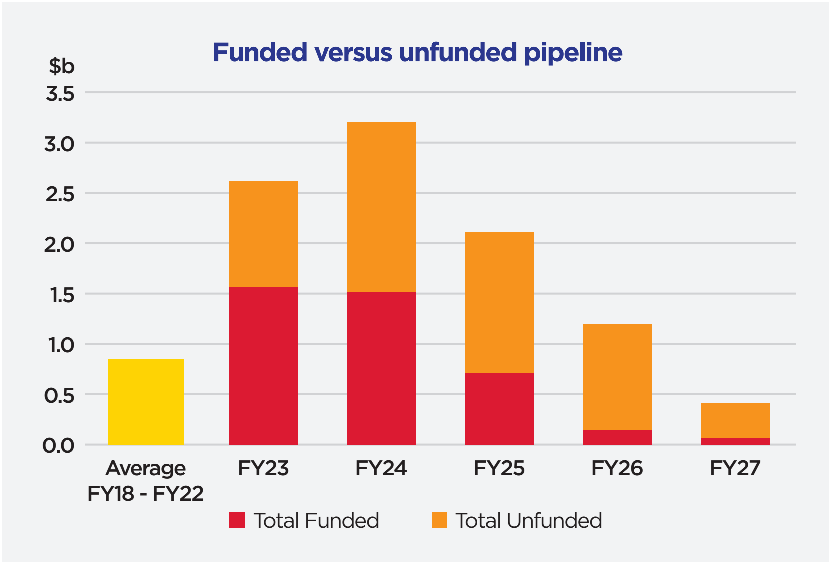
Proportion of total unfunded work:

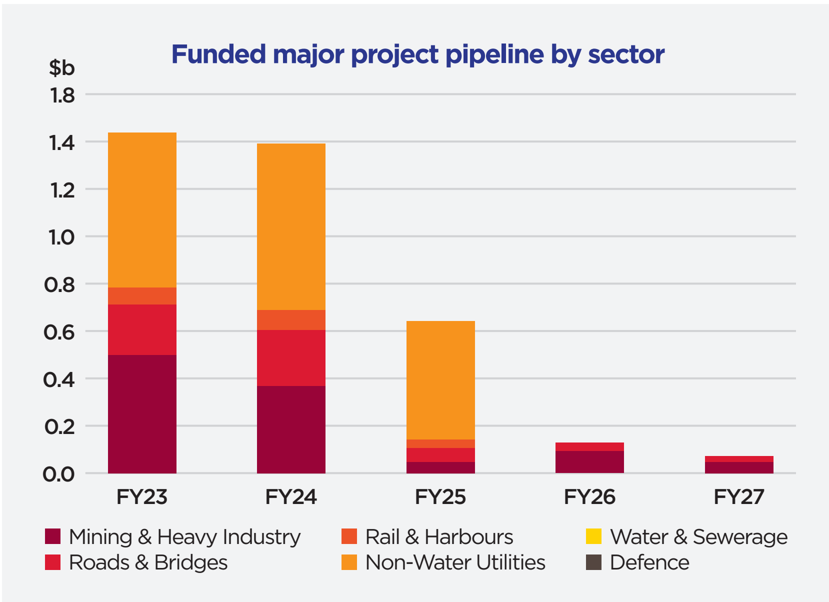


Key Funded Projects: Copperstring Transmission Line ($1.5b)
Minyango Coal Project Stage 1 ($600m)
St Elmo Vanadium Project ($329m)
Kidston Pumped Hydro Storage Project ($200m)
Mt Isa to Townsville ($320m)

Key Unfunded Projects: Northern Gas Pipeline Extension/Expansion (QLD Component) ($2.7b)
Eva Copper Project ($502m)
Kidston Solar Project - Stage 2 ($140m)

Outlook: The regional profile for the Outback – an area that covers approximately two-thirds of Queensland – is distinct from the other regions due to its low population and historical reliance on resource related activity. Due to the larger number of private resource projects in the region, unfunded activity makes up 68% of the total pipeline. Furthermore, with the completion of several publicly funded road projects and the Copperstring Transmission Line by 2024/25, funded activity declines to 14% of total activity between 2025/26 and 2026/27.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

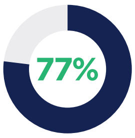
Townsville

Population:
237,452
Population growth has averaged 0.6% per annum over the last 10 years.

Total Pipeline Size:
$6.0b

Sectors Driving Growth: Water, Roads, Defence, Renewables and Minerals

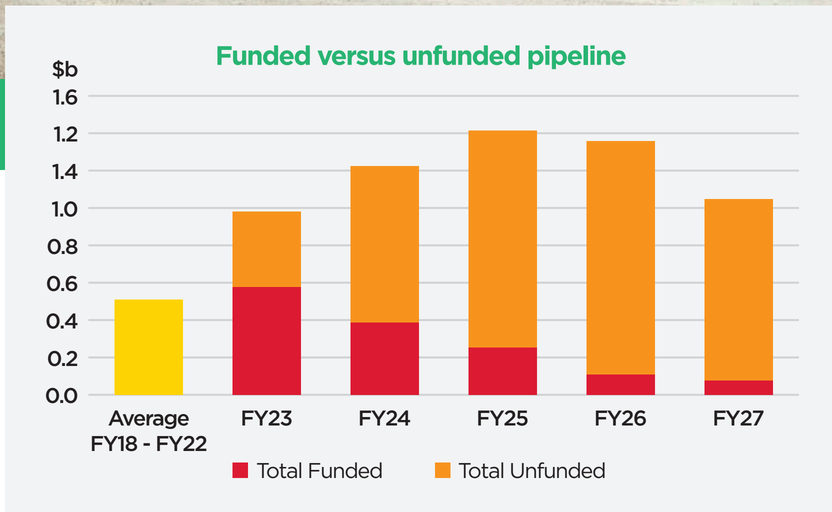
Proportion of total unfunded work:

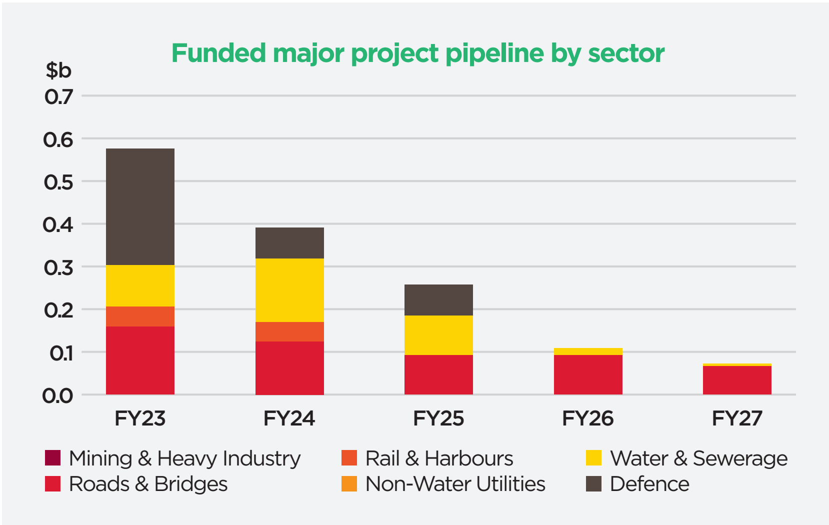


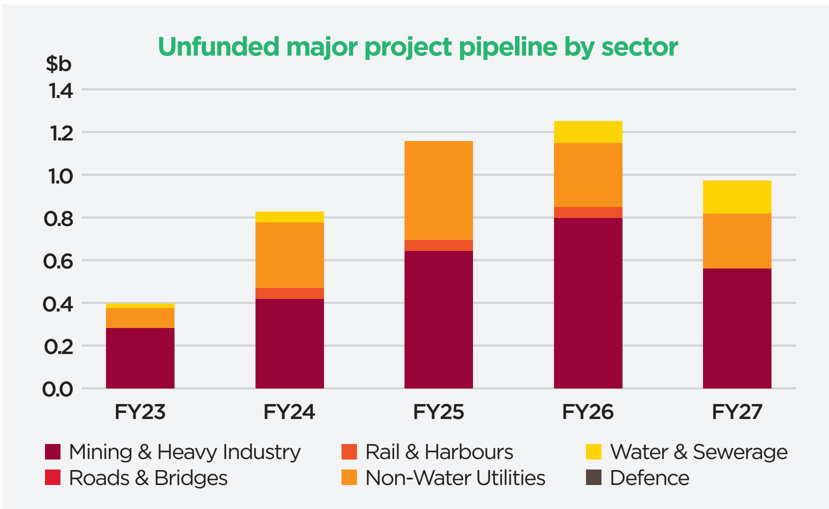
Key Funded Projects: Singapore Force Posture Initiatives - Townsville ($600m)
RAAF Base Townsville - Pellegrine Facilities ($234m)
Tennant Creek to Townsville Corridor Upgrade ($180m)

Key Unfunded Projects: Agripower Amorphous Silica - Stage 1 & 2 ($2.1b)
SCONI Scandium Project ($304m)
Freedom Energy One Project ($455m)
Burdekin Falls Dam Raising ($350m)

Outlook: The Townsville region exhibits the greatest diversity in major project activity, with activity split between resources, water and non-water utilities, roads, and defence. Pipeline activity is set to peak in 2024/25 at $1.4b, with unfunded activity in the latter half of the pipeline remaining at elevated levels. This is due to prospective, major heavy industry and renewable projects. Compared to the 2021 QMPPR, the Townsville region's total pipeline has lifted by $2.6b which represents a 78% increase driven by the inclusion of new projects – again, all within the heavy industry and renewable sectors.







Source: BIS Oxford Economics, QMCA and IAQ member knowledge

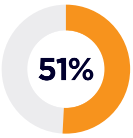
Wide Bay

Population:
310,728
Population growth has averaged 1.1% per annum over the last 10 years.

Total Pipeline Size:
$3.3b

Sectors Driving Growth: Roads, Renewables and Water

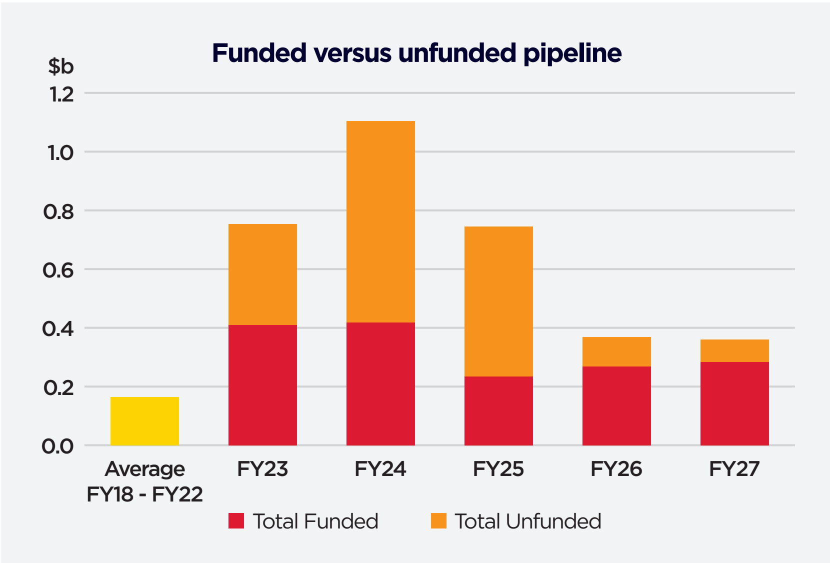
Proportion of total unfunded work:

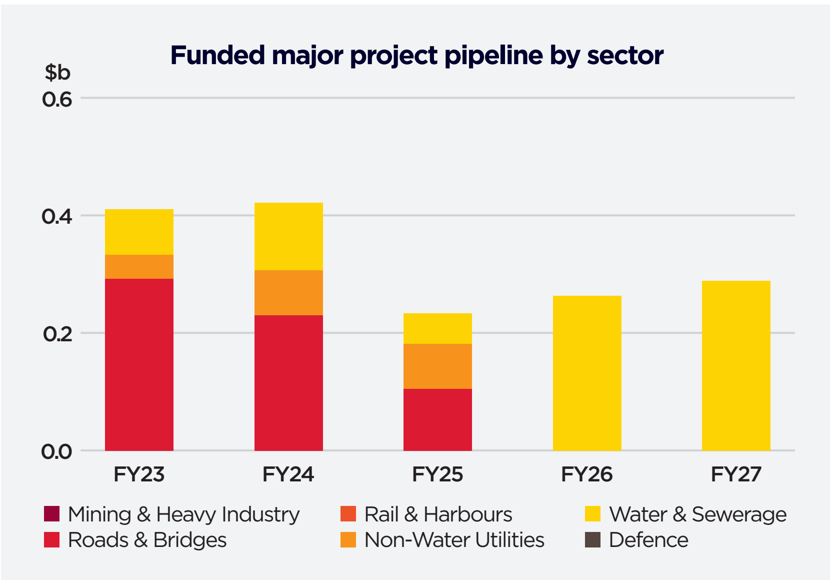


Key Funded Projects: Bruce Highway - Cooroy to Curra - Section D ($750m)
Bruce Highway - Tiaro Flood Immunity Upgrade ($252m)
Paradise Dam Improvements ($900m)

Key Unfunded Projects: Urangan Boat Harbour ($200m)
Forest Wind ($1b)

Outlook: Major project activity in the Wide Bay region is supported by a mixture of road, water, renewable and coal projects in progress until 2024/25. Beyond this point, activity in 2025/26 and 2026/27 is sustained by the Paradise Dam Improvement Project, with most projects nearing completion in 2025. Like other regions dominated by renewable, and mining and heavy industry projects, unfunded activity at 59% takes the lead in the Wide Bay regions pipeline from 2022/23 to 2024/25.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

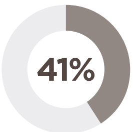
Cairns

Population:
257,149
Population growth has averaged 1.05% per annum over the last 10 years.

Total Pipeline Size:
$2.1b

Sectors Driving Growth: Roads, Water and Defence, and Renewables

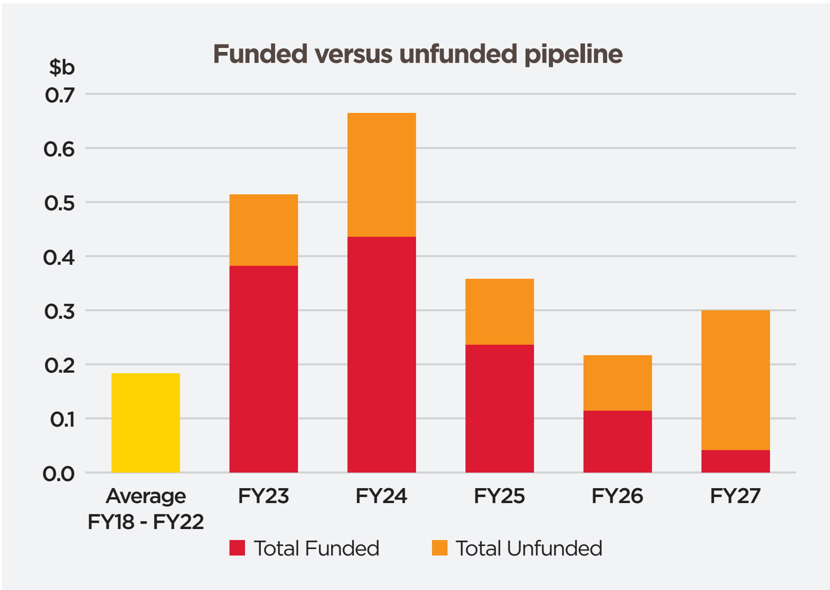
Proportion of total unfunded work:

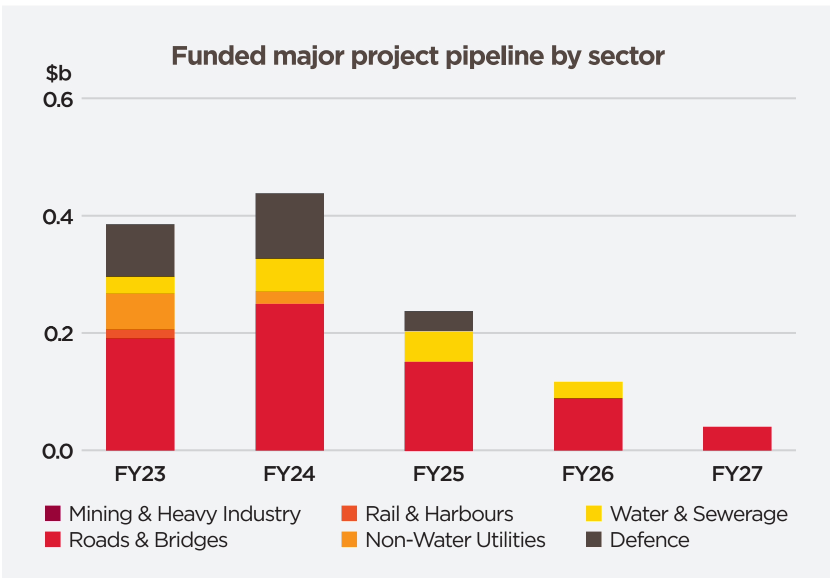


Key Funded Projects:
Cairns Ring Road ($251m)
Cairns Western Arterial Road - Redlynch Connector Road to Captain Cook Highway ($230m)
Cairns Water Security program - Stage 1 ($161m)

Key Unfunded Projects: Desailly Renewable Energy Park ($560m)
Red Dome Mungana Mine ($215m)

Outlook: Road and defence funded projects will hold up the Cairns regions major project activity over the next two years, with 2023/24 heralding peak activity in these sectors valued at $663m. As these projects begin tapering off in 2024/25, the pipeline will be supported by several renewable projects, including the commencement of the prospective Desailly Renewable Energy Park.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

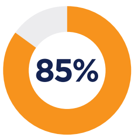
Mackay-Isaac-Whitsundays

Population:
183,269
Population growth has averaged 0.7% per annum over the last 10 years.

Total Pipeline Size:
$12.9b

Sectors Driving Growth: Mining (Coal), Water, Renewables and Water

Proportion of total unfunded work:

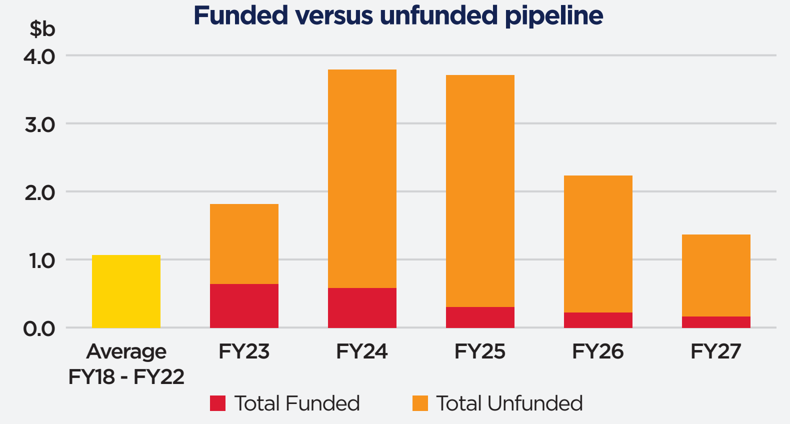


Key Funded Projects: Bruce Highway - Mackay Ring Road Stage 2 ($228m)
Mackay Port Access - Bruce Highway to Mackay ($250m)
Clarke Creek Wind ($700m)
Olive Downs Mine ($800m)

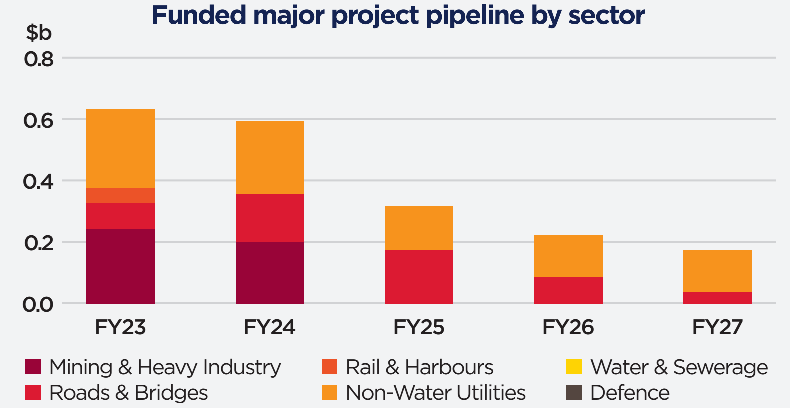
Key Unfunded Projects:
Urannah Dam ($1.9b)
Saraji East ($1.8b)
Eaglefield Coal Mine Expansion ($1.2b)
Winchester South ($900m)
Hail Creek Extension ($660m)
Eagle Downs Coking Coal ($600m)
Drake Coal ($690m)

Outlook: The Mackay-Isaac outlook has historically been enhanced by large coal projects and the Report suggests this will continue. However, renewable projects, along with the Urannah Dam project, will support activity over the 5-year pipeline. Funded work is anticipated to remain around the $600m mark in 2022/23 and 2023/24, before tapering off.

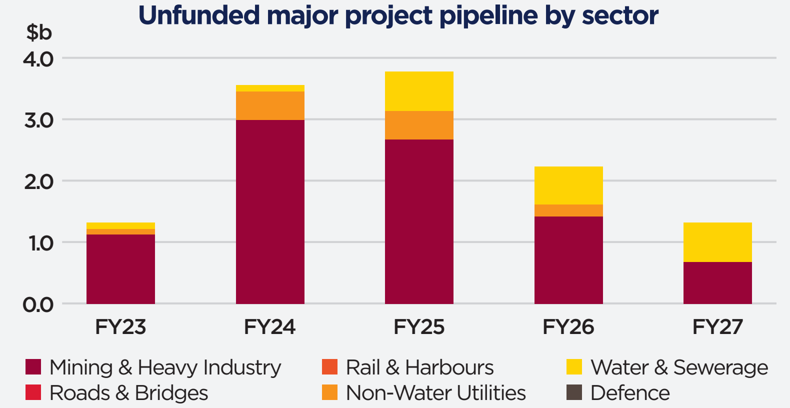
Funded versus unfunded pipeline



Funded major project pipeline by sector



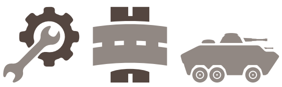
Unfunded major project pipeline by sector



Source: BIS Oxford Economics, QMCA and IAQ member knowledge

Mackay-Isaac has the largest proportion of unfunded work out of the regions valued at approximately $11b over the next five years. These are predominately comprised of coal projects, with the outcome for these unfunded projects quite uncertain. Furthermore, 18% of the pipeline activity (which is made up of coal related projects) is considered unlikely, adding significant downside risk to the region's outlook.

Multi-Region

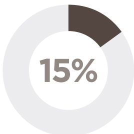


Sectors Driving Growth: Non-Water Utilities, Roads and Defence

Total Pipeline Size:

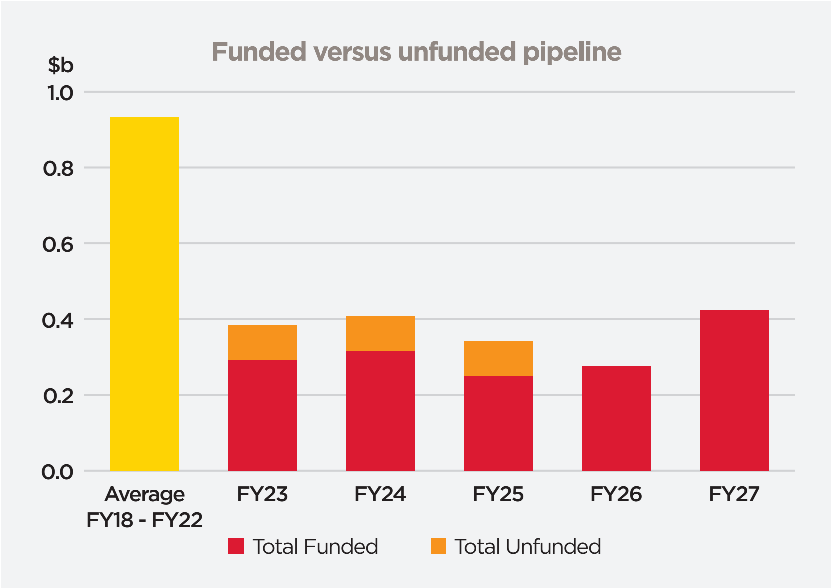
$1.8b

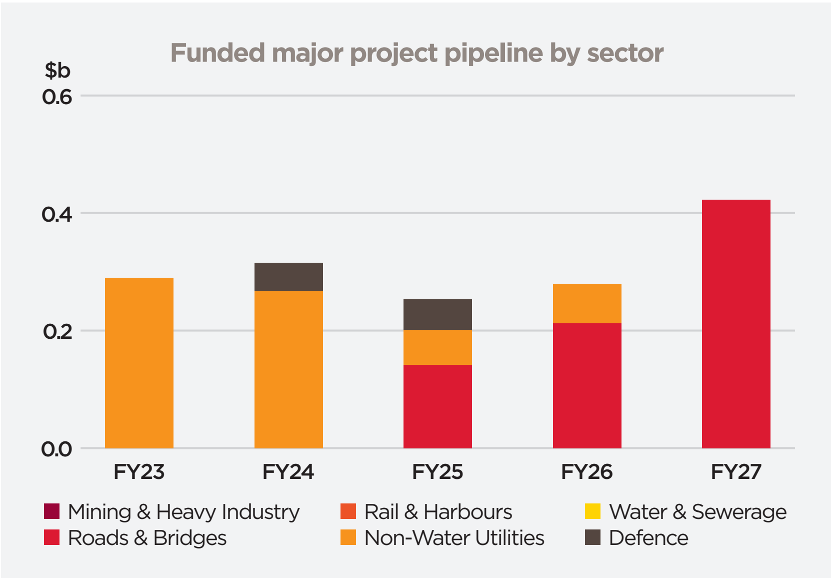
Proportion of total unfunded work:



Key Funded Projects: Gateway Motorway and Bruce Highway Upgrades - North Brisbane to Moreton Bay Region ($1.4b) National Broadband Network – Qld Component ($6.9b)

Outlook: The Multi-Region pipeline is funded primarily by the continued rollout of the National Broadband Network (NBN) across Queensland. Investment in this area is set to slow down after 2023/24, with upgrades to the Gateway Motorway and Bruce Highway commencing in 2024/25.





Source: BIS Oxford Economics, QMCA and IAQ member knowledge

QUEENSLAND ECONOMY

Challenges, Risks and Opportunities

The Queensland economy is historically one of the faster growing state performers in Australia given relatively stronger population growth, natural resource endowments, and high growth in trade due to its close proximity to the faster growing economies of Asia. Queensland is a global leader in energy exports achieved by vast coal, mineral, and gas resources. The state is also well placed to support the transition to greener energy sources – such as hydrogen, renewable generation and energy storage (battery and longterm) – given its reserves of cobalt, graphite, copper and other ‘new economy’ materials. While a significant part of the Queensland economy is a result of mining, the state is highly diversified and increasingly linked into global trade networks through tourism, agriculture, manufacturing and education.

The emergence of the Covid-19 pandemic, and the health initiatives enacted to slow the spread of the virus, resulted in considerable challenges to the Queensland economy and the major projects industry. Closure of the international border between March 2020 and February 2022 limited an important source of skilled and unskilled labour through net overseas migration, while closure of state borders and intermittent lockdown constrained the movement of skills within Australia, impacting construction projects and the economy more broadly. Intermittent shutdowns in overseas economies, together with a switch in consumption from services to goods that choked international freight routes, lengthened delays in the delivery of imported materials and equipment, as well as increased costs.

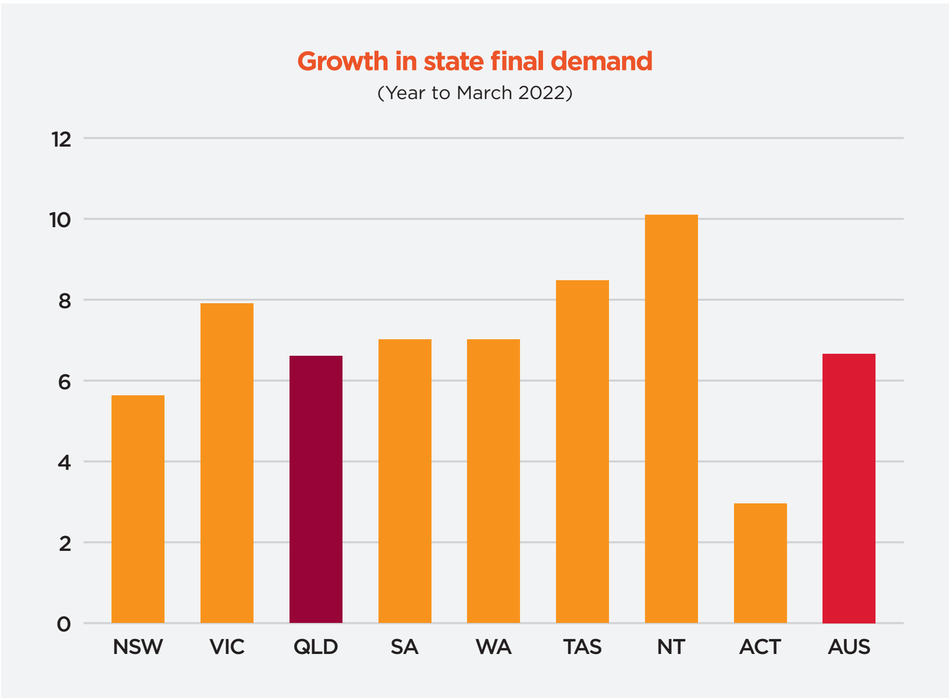
Overall, the Queensland economy has fared relatively well in the past year, with state economic growth (measured by State Final Demand) growing by 13.8% over the year to March 2022. While the re-opening of state and national borders presents further growth opportunities for the state's economy, there remain severe headwinds which will challenge growth in the major project pipeline and the broader economy in the near term.

In particular, supply disruptions created by the pandemic are expected to remain over the coming 1-2 years as economies battle to restore industrial production. China's 'Zero Covid' strategy has seen key industrial regions (including Chengdu and districts of Shenzhen) shut down again in September 2022, with the risk that more sporadic shutdowns will occur in other cities if even a small number of Covid cases are detected. Meanwhile, the war in Ukraine has created further supply disruptions, particularly for oil and gas, fertilisers, semi-finished iron, and steel and timber products. In turn, these supply side-challenges are driving the largest growth in generalised inflation (as well as construction costs) since the resources boom. Price growth for some key commodities such as reinforcing steel and timber products have risen at record pace since the 1970s.

How Australia and other economies are responding to this inflationary surge will also present headwinds. Distinctly tighter monetary policies (through rising interest rates) in Australia and around the world, will see growth in household spending and broader demand slow abruptly. Increasing supply and weakening demand will likely see prices for key commodities, (such as steelmaking coal and iron ore, as well as oil), decline from recent peaks, potentially impacting investment and royalty revenues to state governments. Meanwhile, higher interest rates are also driving a slowdown in property demand and turnover across Australia, disrupting what has been a substantial recovery in property taxes, such as stamp duty, which help fund public infrastructure projects. In Queensland's favour and in contrast to its east coast state neighbours, it sustains relatively strong population growth. This and the 2032 Brisbane Olympic Games will necessitate accelerated (or catch-up) infrastructure development.

Strong Rebound from Covid-19

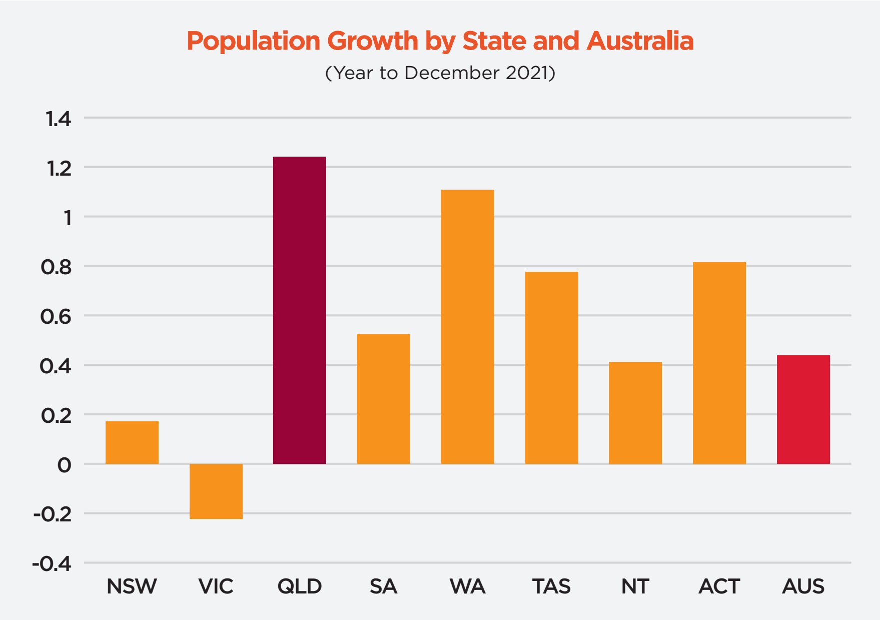
Queensland's economy has recovered well over the past year, with State Final Demand (SFD) growing 6.6% in real terms over the full year to March 2022. Having started the recovery ahead of other states in 2020/21, the state's growth has been driven by a rise in interstate migration which has spurred both additional demand for goods and services, and an additional supply of workers. Employment in Queensland has also strengthened considerably. The 2.73 million people employed as of March quarter 2022, is a 4.2% increase from the March quarter last year.



Source: BIS Oxford Economics, ABS data.

Over the past year, Queensland's higher net interstate migration (NIM) and a step-up in household formation has offset the weakness in net overseas migration, seeing underlying demand lift markedly in 2020/21. The pipeline of residential construction work to be done remains high following the increased dwelling investment from the Homebuilder program, although higher interest rates will weaken the outlook for new projects. For committed projects, disruptions to the supply of materials and labour will lead to a more protracted cycle than was previously anticipated. Government spending remains supportive. Transport infrastructure projects are continuing, while greater aged care and health spending is boosting government consumption.

Higher borrowing costs, increased cost of living and reduced borrowing capacity will weigh on housing activity in the near term. However, the return of overseas migration, robust international trade, and the return of international tourism will help maintain the moment in the Queensland economy.



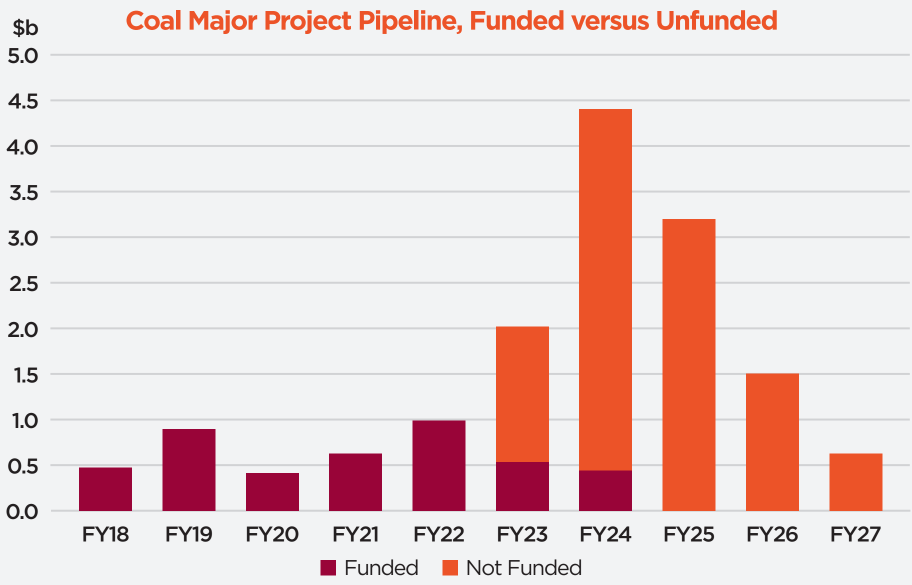
Source: ABS data.

Get set for severe growth headwinds

However, the Queensland economy is now facing severe global and national headwinds which will drive an acute slowdown in growth, and present challenges for the state's major projects industry. Following a 'Covid recovery inspired' 5.9% climb over the calendar year 2021, world economy growth is expected to slow down over the following calendar year, as high inflation and rising interest rates erode real household and business expenditure:

- **In Europe**, demand destruction triggered by surging energy prices is now expected to see Europe enter a recession over their winter. High gas and electricity prices will hit consumer and industrial activity hard and prompt further interest rate increases by the ECB.
- **The US economy** contracted again in the June quarter 2022. Strong labour markets are keeping the US economy from recession, but weakening in domestic demand confirms the economy is rapidly downshifting amid stubbornly high inflation and aggressive interest rate increases from the Federal Reserve.
- **Chinese economic growth** has been downgraded, reflecting dismal GDP growth of just 0.4% (year on year) in the June quarter - the worst outcome since the start of the pandemic. Policy stimulus introduced earlier, notably infrastructure investment, will take effect over the second half of 2022 but the recovery will be bumpy due to the ongoing dynamic Zero-Covid policy and the real estate downturn.

	2021	2022	2023	2024
World GDP (US$ weighted)	**5.9**	**2.8**	**1.7**	**3.2**
US	5.7	1.7	0.0	2.1
Eurozone	5.2	3.0	0.0	2.3
Japan	1.7	1.6	1.8	1.6
UK	7.4	3.5	0.1	2.1
China	8.1	3.2	4.9	5.2
India	8.3	7.0	4.4	7.1
Brazil	4.9	2.5	0.3	2.9
Russia	4.7	-4.4	-3.4	2.2



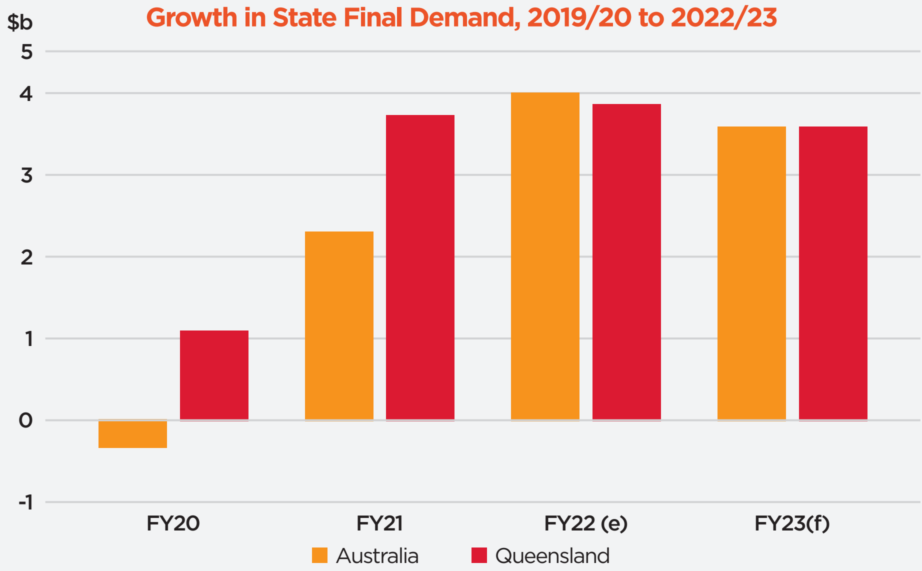
Source: BIS Oxford Economics, QMCA member knowledge

Overall, the global economy is expected to slow within a whisker of recession, with risks still skewing to the downside. Global output is likely to have declined in the June 2022 quarter, and early forward indications for the September quarter are not promising, with declining consumer and business confidence and purchasing activity suggesting another weak quarter. On top of higher interest rates, surveys of bank credit standards are starting to show that overseas banks are also tightening credit availability.

Australia has not seen the same degree of price inflation experienced in Europe and the US, but it is still very high and monetary policy has consequently been tightened just as hard, with the Reserve Bank of Australia (RBA) increasing the cash rate by an aggregate 2.25% (225 basis points) over the five months to September 2022. This is the fastest increase in the cash rate since 1994, when the Australian economy began to recover from the early 1990s recession. As with overseas economies, this is expected to drive a sharp slowdown in consumer spending and private investment. Downside risks to the national economic outlook are mounting, with the RBA Board acknowledging that a slowing global economy and imported inflationary shocks are narrowing the path to a soft landing from the current high inflation rate.

For Queensland's relatively resource-intensive and trade-exposed economy, these developments may bring particular challenges. While weaker global growth and easing commodity prices (particularly for oil) will have the greatest impact on headline inflation (and also construction costs), it may also impact the timing of investment decisions on resource projects in the major projects pipeline, as well as the size of royalties derived from resource extraction which are used to help fund public infrastructure projects. With regards to royalties, it is important to note that the Queensland Government has recently increased its royalty rates for the coal industry to take advantage of the surge in coal prices over 2021 and 2022 – with the Queensland Budget expected to be $1.2b better off as a consequence over the next four years.

However, there is also a risk that changes to the coal royalty system deter further coal investments. BHP has already announced that it is reviewing some new coal investments in the wake of the royalty changes. The QMPPR shows the potentially very large contribution coal could make to the pipeline, with over $10b in unfunded activity over the next five years; much of which is for Queensland's high quality coking coal used in steelmaking. However, there are currently no new funded coal projects which have not already commenced. The exception may be the New Acland Stage 3 Expansion Project, which received mining lease approvals in late August 2022, shifting it a step closer to funding approval.



Source: BIS Oxford Economics, ABS data

Higher interest rates and a slowing property market are also expected to drive a significant dent in Queensland's stamp duty revenues which have risen significantly over 2021-22, potentially impacting funding for major infrastructure projects. The Queensland Budget acknowledges that overall revenue will be lower in 2022/23, mainly as a consequence of falling royalty revenues. However, it also notes (Budget Paper 3, p.82) that taxation revenue is forecast to grow at a stronger rate over the next four years than the decade to 2020 overall, due to 'the benefit of higher house prices on stamp duty in the recent housing cycle.' There may be downside risks to these revenue projections given faster than anticipated increases in inflation and interest rates, with both property prices and turnover already declining and likely to fall significantly further through 2022-23, despite relatively robust population growth, meaning that infrastructure projects may rely more on debt funding than previously considered.

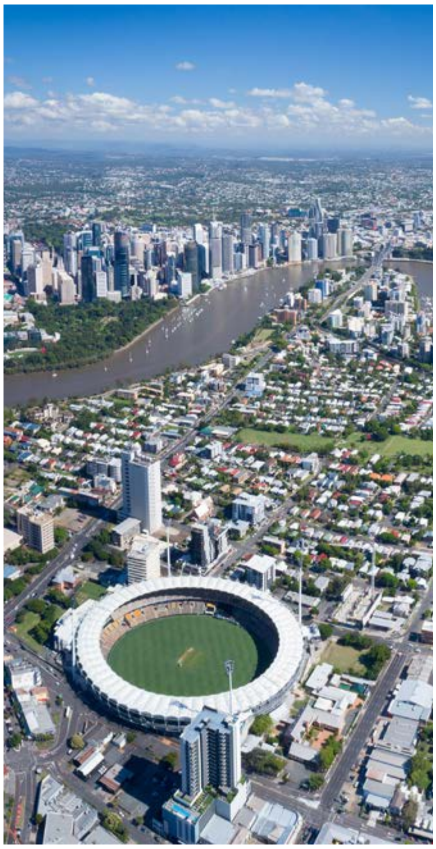
The proposed changes to land tax in the Queensland Budget, would also had a negative impact on stamp duty revenue. While the Queensland Government can be commended for considering a shift to land taxes given their economic efficiency and potential for diversifying the state's revenue from pro-cyclical sources, the 2022 Queensland Budget does not actually shift the revenue burden away from pro-cyclical stamp duties. Rather, the new land tax mainly attempts to target non-Queensland investors. It was only expected to raise $20m per annum and effectively 'double taxes' house purchasers and owners who own property in other states.

Overall, with economic momentum starting to wane, growth in Queensland State Final Demand (SFD) is projected to slow to 2.9% by 2023/24 following an estimated growth of 4.9% in 2021/22.

Brisbane Olympics provides upside opportunities

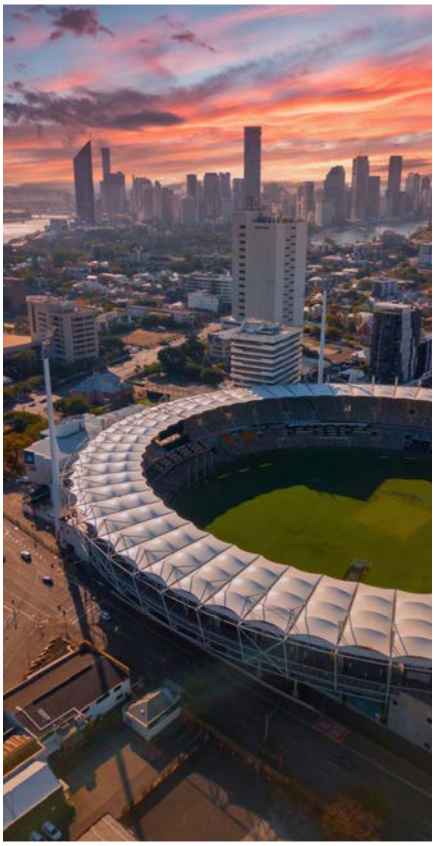
In July 2021, the International Olympic Committee announced that Brisbane will host the 2032 Olympic Games. This is expected to provide an upside to the current major project pipeline outlook as hosting the Olympics will require capital expenditure on upgrading or rebuilding venues and in particular enhancing transport infrastructure across the SEQ region. Brisbane will be the major hub, hosting 18 of the 32 Olympic competition venues and key non-competition venues – including a $1b rebuild of the 'Gabba', International Broadcast Centre, and Olympic and Paralympic Game Athlete's Village – but other key hubs will be located on the Gold Coast (7 venues) and the Sunshine Coast (4 venues). Football games will also be played in Toowoomba, Cairns and Townsville. Key projects to deliver the games include Brisbane Metro, Victoria Park and Kangaroo Point and Breakfast Creek bridges.

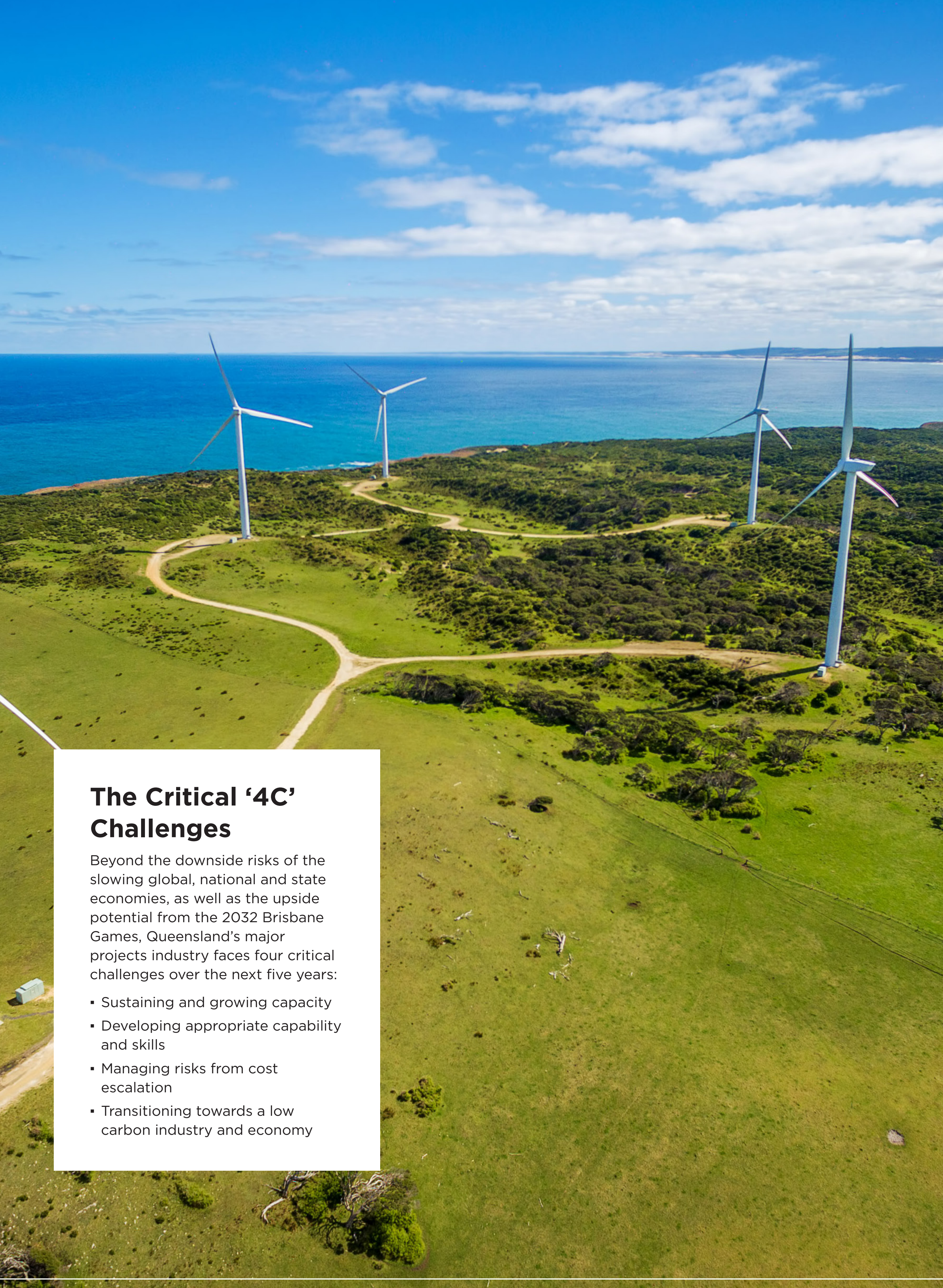
The need to accelerate the development of faster road and public transport links between the key SEQ Olympic hubs are likely to provide the greatest upside impact on the major project pipeline. The SEQ Regional Strategic Transport Road Map developed by CoMSEQ in 2019, in conjunction with the Games Feasibility Study, indicated that hosting the Olympics would require an accelerated, or rather, 'advanced' scenario for transport projects, including faster rail links between Brisbane and Gold Coast, Sunshine Coast and Ipswich and an upgrade to the Logan Motorway to be delivered prior to the Games instead of in following decades. This is on top of committed base investment including Cross River Rail, Brisbane Metro, and Pacific Motorway and Bruce Highway upgrades.



Hosting the 2032 Olympics is expected to add to Queensland's nation-leading population growth, its business confidence, as well as boost the state's international reputation and exposure. This may be represented in a boon for service export industries such as tourism and education, state-wide and nationally. For Brisbane and the SEQ region, hosting the Olympics represents a once-in-a-generation opportunity to critically re-think and coordinate longer term development, city building and infrastructure plans – not just for hosting the Olympics, but to support economic growth, productivity and social wellbeing for the region well into the future. With construction activity already ramping up on road and rail projects due to be completed mid-decade (in Queensland and across Australia), there is a clear opportunity to leverage the skills developed on these projects to help deliver the future transport projects that the state will need. In this respect – as well as for other infrastructure needs – enhancing the SEQ City Deal will provide greater consistency and certainty regarding the planning, commitment, and delivery of infrastructure across all tiers of government in the SEQ region in coming years.

Details about further infrastructure projects for South-East Queensland may be decided at a meeting of the Brisbane Organising Committee for the Olympic Games (BOCOG) in early October 2022. Potential projects for development include sports and new rail facilities to the Sunshine Coast, canoe slalom centre at Redlands and a late multibillion-dollar submission to Infrastructure Australia to improve transport links on Brisbane's fringe to Moreton Bay.



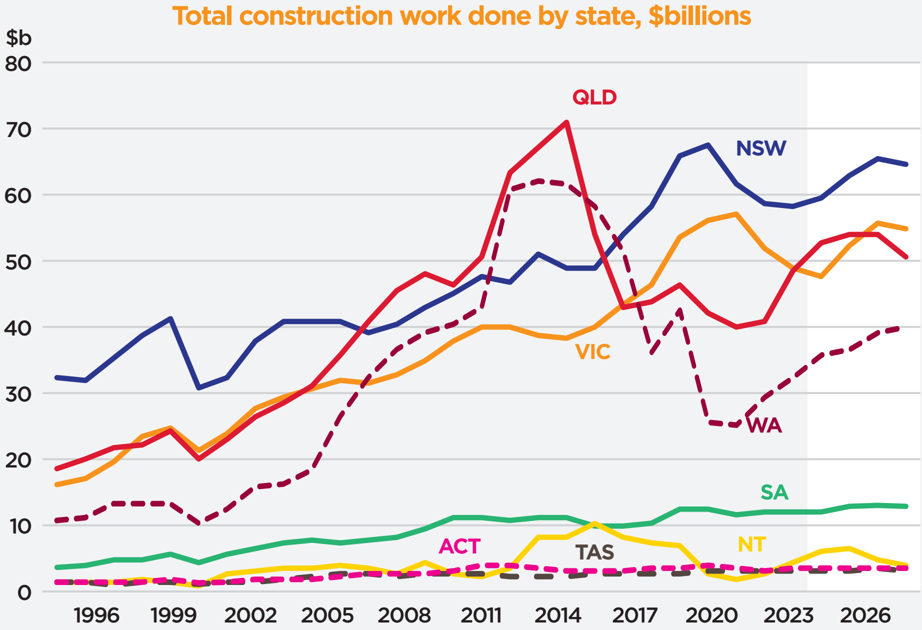


The Critical ‘4C’ Challenges

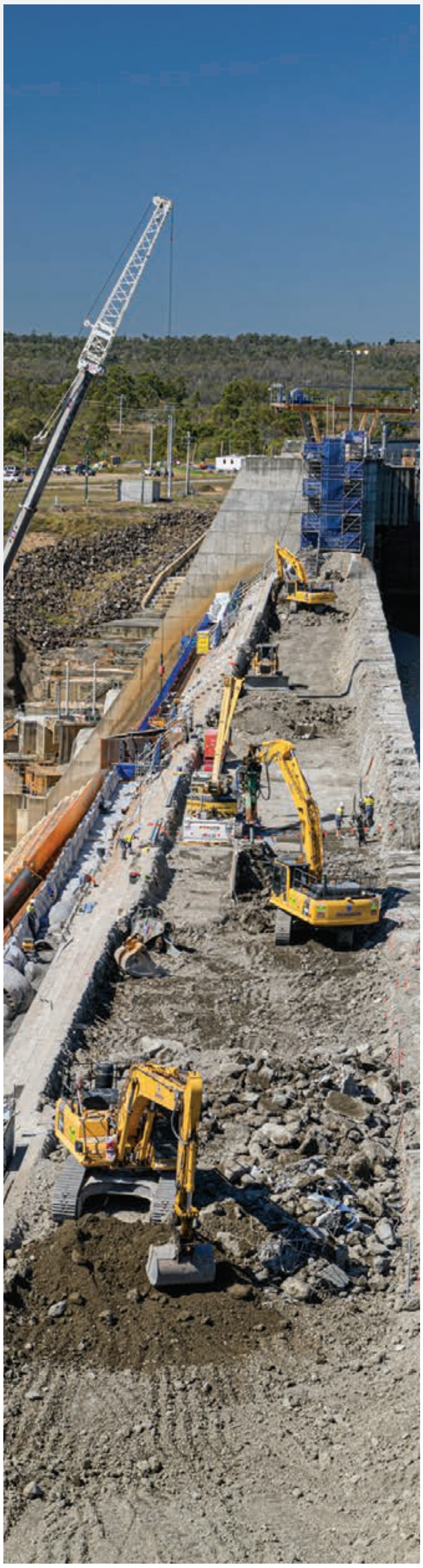
Beyond the downside risks of the slowing global, national and state economies, as well as the upside potential from the 2032 Brisbane Games, Queensland’s major projects industry faces four critical challenges over the next five years:

- Sustaining and growing capacity
- Developing appropriate capability and skills
- Managing risks from cost escalation
- Transitioning towards a low carbon industry and economy

Total construction work done by state, $billions



Source: BIS Oxford Economics, ABS



Capacity and Capability

The QMPPR has, over many years, highlighted the risks of insufficient capacity and capability in meeting the demands of the major projects pipeline. Over 2021/22 and into 2022/23, this challenge has become critical and is resulting in the largest and fastest increase in construction costs for several decades.

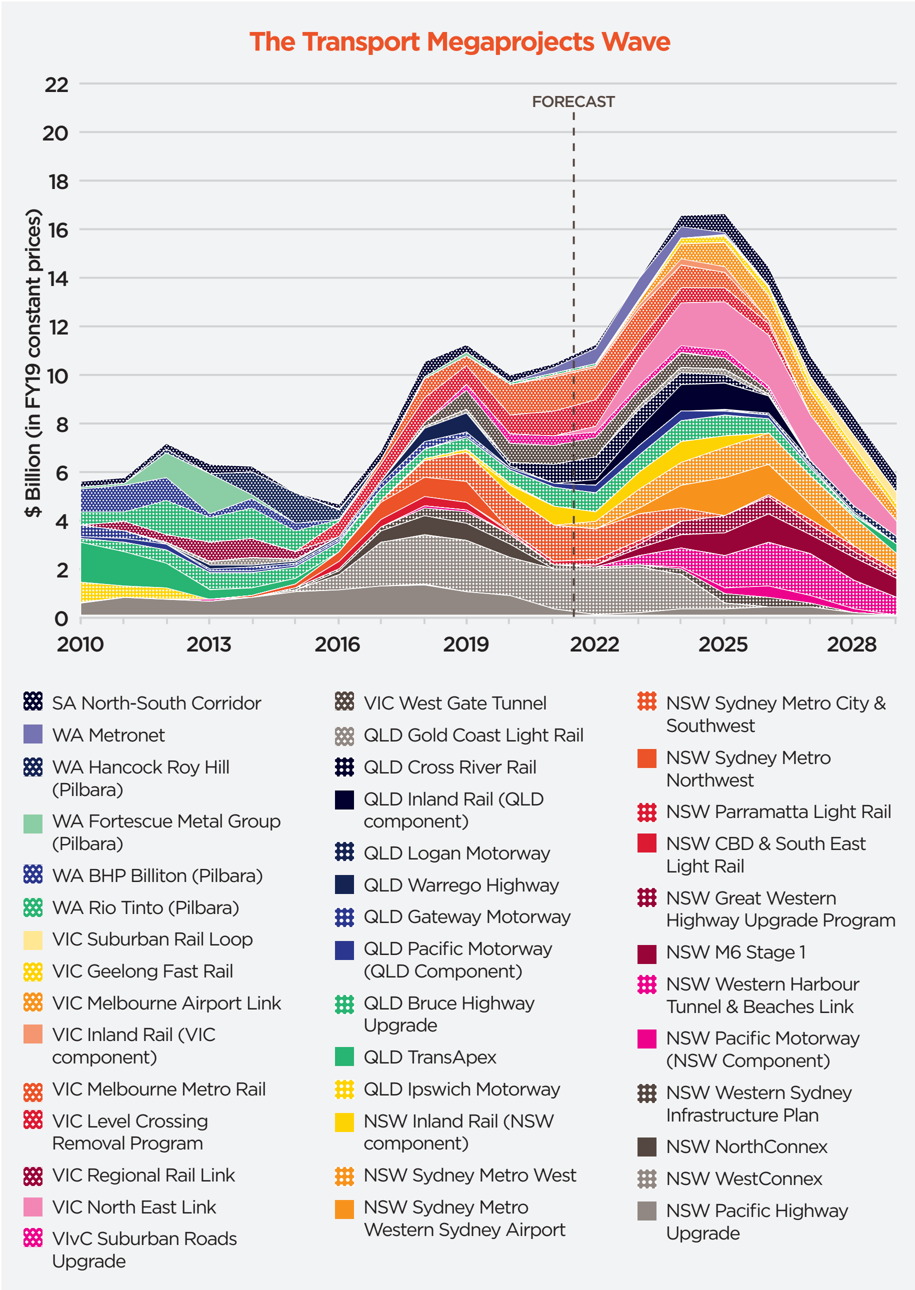
In many ways, this is both a demand and supply issue facing for the major projects industry, and as such it requires a multi-faceted suite of solutions.

On the demand side, Queensland (as well as Western Australia) is starting to ramp up investment in infrastructure in an already heated and supply constrained, national construction market.

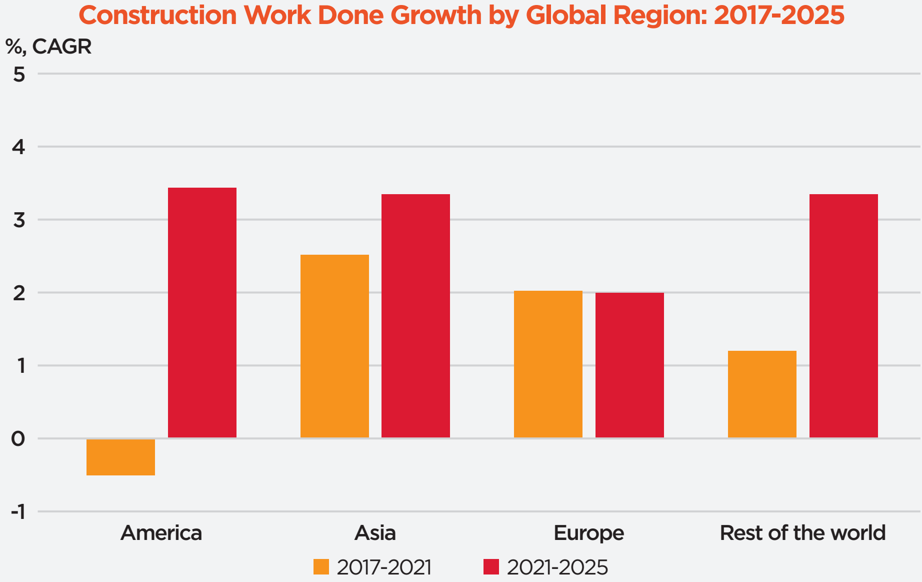
Major project activity rose 24% in 2021/22 to $10b - the strongest increase since the resource boom - and the total value (funded and unfunded) of the five-year pipeline at $71b, is the highest since the boom's climax. Total construction activity in Queensland grew 6.9% in 2021/22 according to ABS data and is forecast by BIS Oxford Economics to grow by a further 30% over the next three years. This prediction is based on all major construction segments – residential building, non-residential building and engineering construction – simultaneously surging from a mixture of stimulus measures (such as Homebuilder) as well as the timing of large social and economic infrastructure investments.

However, a similar pattern is taking place across most Australian states and territories, with Queensland's east coast neighbours – New South Wales and Victoria – bordering on sustaining high levels of work during the next five years. The combined pressure of rising national demand (which is expected to match or exceed what was seen at the time of the resources boom) is exposing the current frailties in supply chains. Hindrances to access labour is typically seen as the number one issue facing industry and their suppliers, as well as freight and logistics, and timely access to materials and plant and equipment. This situation could worsen if currently unfunded major resource projects were to proceed in Queensland. Apart from the $10.8b in unfunded coal projects, the QLDMPP identifies $3.7b in unfunded, other minerals projects and $3.5b in unfunded heavy industry projects (including several hydrogen opportunities). If these were to move into execution, it would create, strong competition for scarce skills and challenge infrastructure development across the state.

Apart from total construction work, there is also very strong competition for specialist resources, materials and equipment across the major projects industry. Work on transport megaprojects, many of which require specialist tunnelling, geotechnical skills and equipment, is expected to grow significantly in coming years, with Queensland competing hard with New South Wales and Victoria for critical skills. If demand cannot be met, it is likely that the 'wave' of activity will grow more slowly but take place over a longer timeframe. In any case, it is unlikely that major project activity will decline sharply anytime soon, with currently unknown projects likely to absorb available capacity once the current round of known projects begins to move towards completion in the late 2020s.

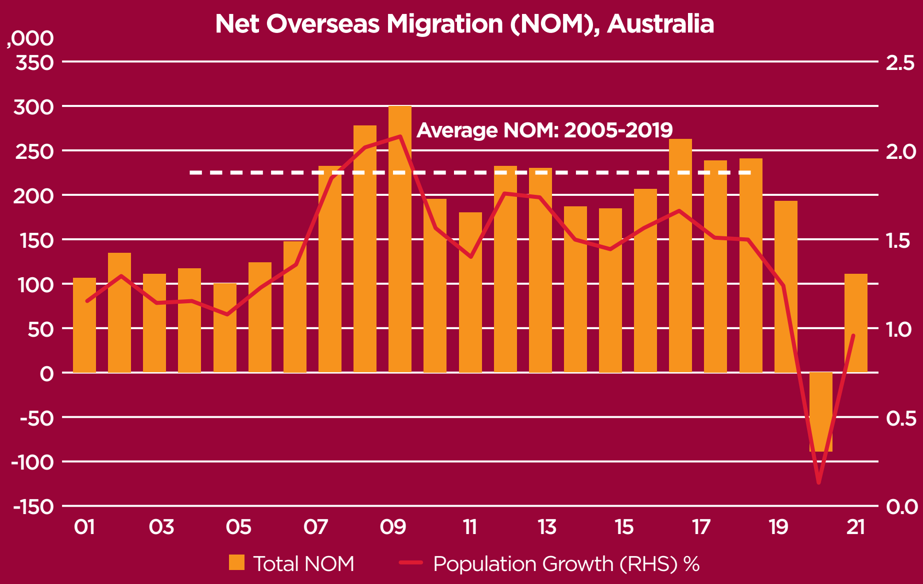


Source: BIS Oxford Economics.



To a large degree, strong demand competition for construction skills is also mirrored globally making it more difficult to attract skills to Australia. Governments worldwide have set their sights firmly on public infrastructure investment as a means to spark demand and employment following the coronavirus-induced, economic downturn. This has led to a surge in infrastructure construction demand, with activity (in value of 'work done' terms) expected to grow by 3.9% in 2022 alone, according to BIS Oxford Economics. As per the growth chart above indicates, global infrastructure construction demand is set to accelerate over the next four years to 2025 in most regions, about which more detail is provided:

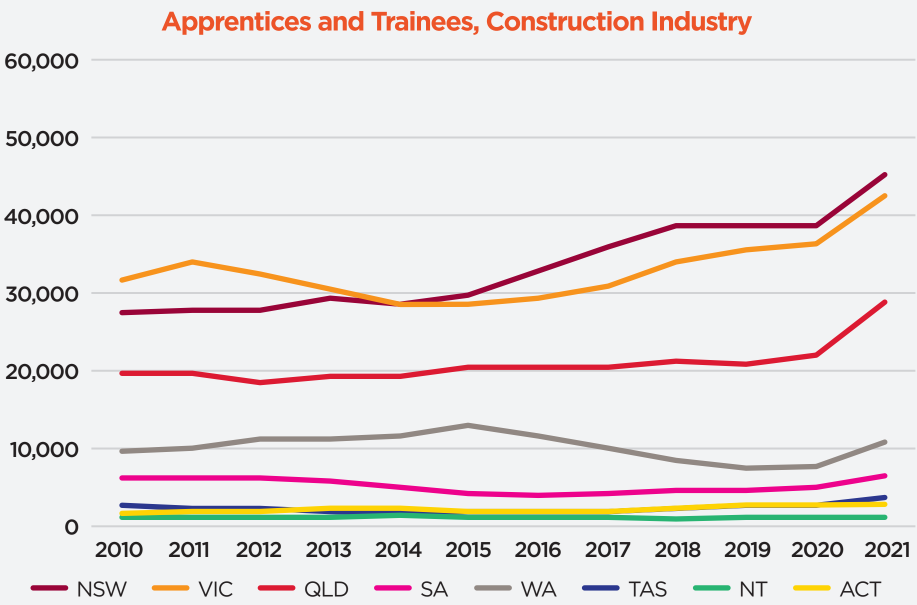
- Civil engineering construction activity is set to boom in the United States of America, supported by the US Infrastructure Investment and Jobs Act (IIJA), now known as the Bipartisan Infrastructure Law (BIL).
- Non-road transportation projects are supporting activity in Europe, including High Speed Rail 2 (UK), Grand Paris Express (France), Brenner Base Tunnel (Austria and Italy) and the Turin-Lyon high-speed railway (Italy and France). The Russia-Ukraine conflict has brought energy security and, more specifically, the push towards green energy generation back into the spotlight. This could accelerate investment in renewable energy solutions, particularly energy storage.
- In Asia, civil engineering activity remains a key driver of growth in the region as governments push ahead with a large backlog of major transportation projects. Chinese authorities continue to look to infrastructure stimulus to help counteract the repercussions of the real estate downturn and sporadic outbreaks of the Omicron variant.
- Construction activity in Saudi Arabia is set to grow rapidly over the coming years, supported by Vision 2030 - the Kingdom's strategic framework to diversify away from its reliance on the oil sector and in doing so, target US$800b in projects over the next decade.



While construction industry demand is expected to remain steadfast in coming years despite weaker economic growth, the other key risk to capacity and capability are persistent supply side disruptions. The major projects industry often relies on access to well-functioning global supply chains to meet local construction targets. Global supply chains have buckled under the pressure of Covid-19 shutdowns since 2020, and the war in Ukraine has perpetuated more strain during 2022. While much of the world experienced a post-pandemic economic recovery during 2021/22, China is still pursuing their ‘Zero Covid’ policy. This has resulted in severe lockdowns in major manufacturing and logistic hubs, which is disrupting industrial production, timely delivery and the cost of goods supply across the world.

Potentially for Australia, the greatest source of local supply side disruption to industry capacity and capability has been the closure of state and national borders during the pandemic. Prior to 2020, high annual levels of Net Overseas Migration (NOM) – averaging 219,000 persons per annum between 2004/05 and 2018/19 – had not only prevented severe skills shortages across a range of industries but was likely a critical factor in helping the construction industry meet strong growth in demand, driven by surging new investment in resources and public infrastructure.

By contrast, NOM went backwards by nearly 90,000 persons in 2020/21; a 330,000-person turnaround from the net inflow of over 240,000 persons recorded in 2018/19 itself – the worst NOM figure in Australian history outside of the net loss of 129,000 persons during World War 1. With only a partial recovery in NOM over 2021/22 since the national border re-opened in February 2022 - ‘missing’ population growth through NOM alone between 2019/20 and 2021/22, will likely exceed 440,000 persons.



Previous high levels of NOM not only provided the major projects industry the opportunity to source specialist skilled labour, but also provided a new and abundant pool of unskilled labour to Australia. An unintended consequence of the border closure was not solely a sharp constraint on specialist trades and professions, but also the supply of unskilled labour into trainee positions for construction and many related industries, particularly in manufacturing (for example, steelmaking and fabrication, and concrete products manufacturing such as pipe) as well as transport and logistics which includes truck drivers, forklift operators and the like.

In the absence of overseas labour, more of the load in ensuring capability falls to education and training sectors as well as ensuring a high number of people enter trainees and apprenticeships. Here, the outlook has steadily improved in recent years. Apprenticeship trainees have held flat across the nation at approximately 100,000 in a given year over the past decade. However, in the most recent data released by the National Centre for Vocational Education Research, apprenticeship numbers saw a steep rise in the calendar year 2021, with Queensland apprenticeship trainees going up more than 30% from approximately 22,000 to almost 29,000 between 2020 and 2021. This trend filters across Australia, with apprenticeship trainees rising by 20.9% from 117,000 to 141,000 over the same period.

Overall, meeting the capacity and capability challenges ahead and delivering on the opportunities presented by the expanding QLDMPP, requires policies and process that boost supply through:

- Better targeted education and training initiatives
- Increasing industry diversity and participation, and most critically
- Raising industry productivity.

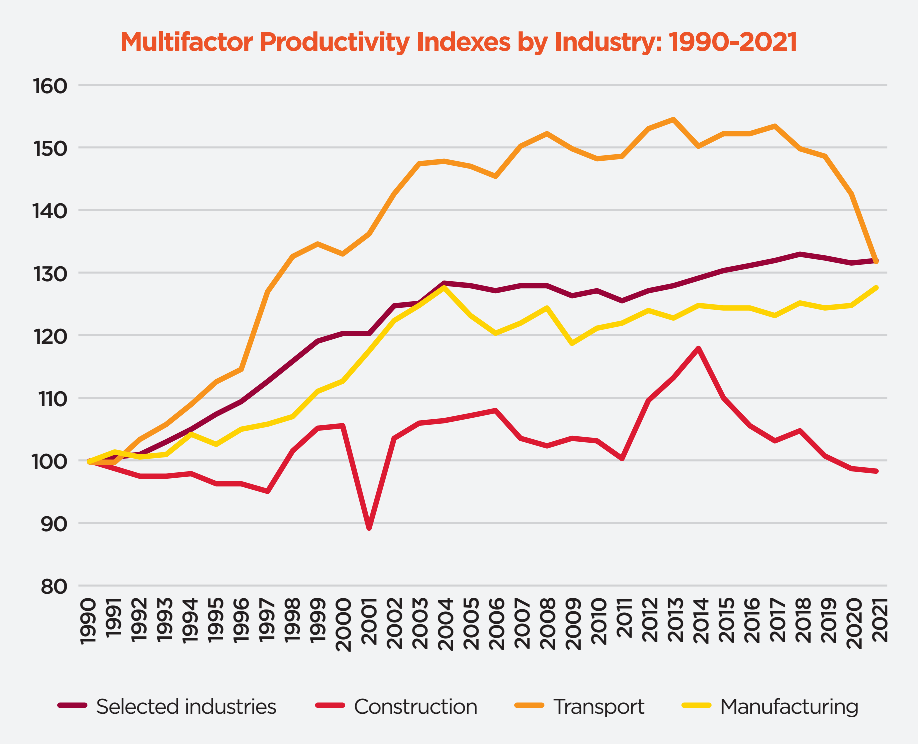
Education and training initiatives should be targeted to address the most critical construction skills shortages. Attention could also be focused on increasing education and training pathways in regional and remote Queensland communities. This not only supports skills development, secure work and higher standards of living for traditionally socio-economically, disadvantaged groups, but can also assist in resourcing large regional projects and programmes across renewable energy, transport and water infrastructure in the future.

One crucial area where capability could be boosted, is by better addressing female participation in the construction industry. An industry which does not recruit effectively from half of the population not only hampers its own capacity and capability, but also excludes differing perspectives and ideas which could help accelerate cultural change and improve industry productivity. This means supporting initiatives that assist female workforce participation, including enhanced childcare opportunities, movements towards more flexible working arrangements, and supporting other cultural initiatives that welcome women into the construction workforce.

Even with measures to boost supply through migration, education and training, and increased participation, the sheer scale of growth in demand for skills and resources to support infrastructure delivery is likely to exceed capacity increases in the market. Given the difficulties involved with rapidly increasing construction labour and capital inputs to meet demand, productivity improvements offer the critical link to minimising capacity and capability risks, enhancing industry sustainability and lowering infrastructure costs.

The Productivity Challenge

While productivity can be difficult to measure in the construction sector, data suggests that the industry in Australia, like its overseas counterparts, has had a chequered history in achieving sustainable, strong growth in productivity over time. Relatively slower growth in productivity, compared to the rest of the economy, means there is immense pressure placed on boosting the quantity of labour and capital inputs, to achieve higher levels of construction output, rather than improving the way they are used together. Where labour and other construction inputs are scarce, this itself can lead to increased demand pressure on resources, increasing capacity and capability risks (as well as construction costs).

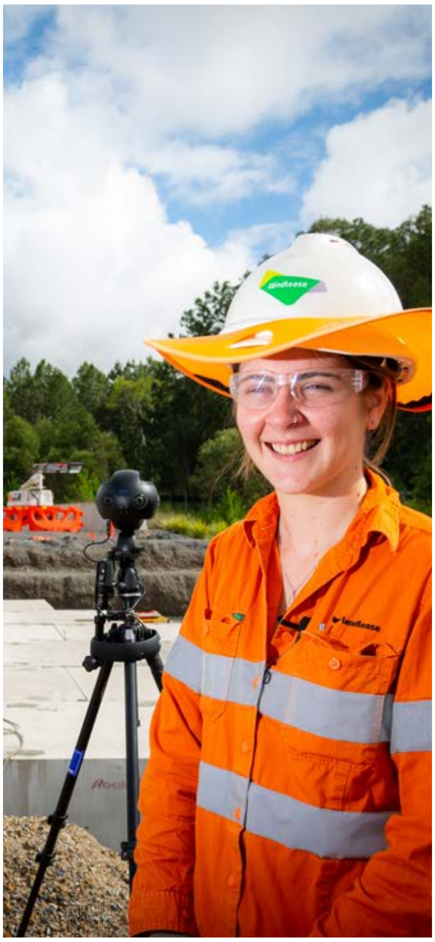


Source: ABS Data

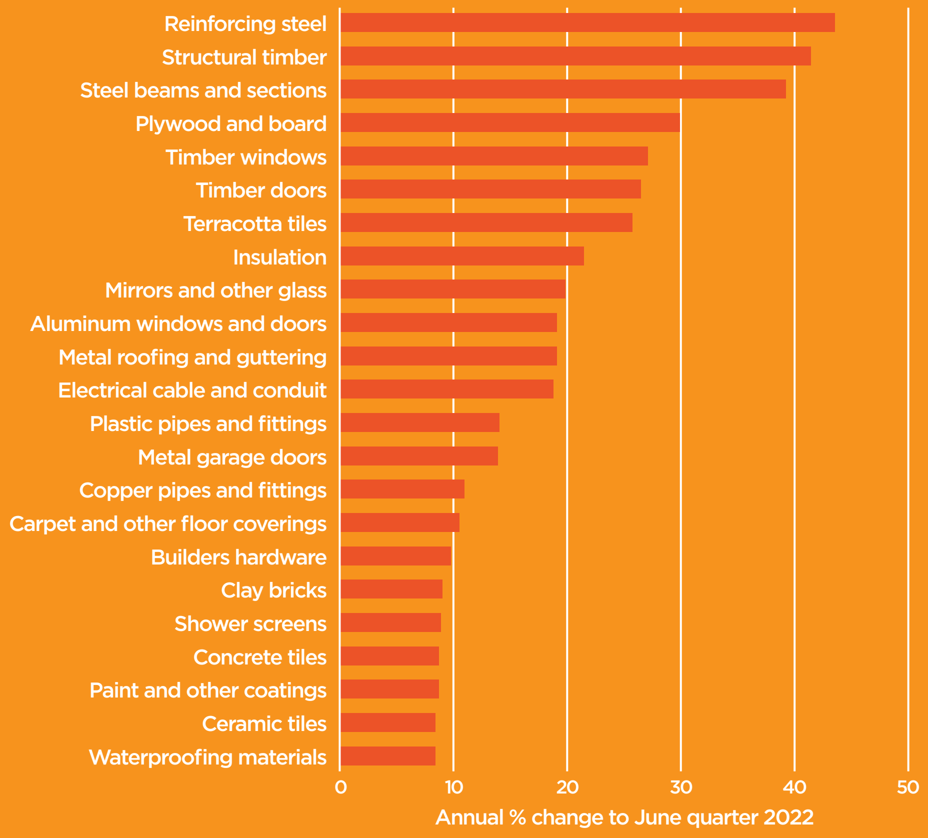
The Australian construction industry has generally lagged other industries in terms of productivity growth. Since the peak of the resource boom, Multifactor Productivity (MFP) has been declining in the construction industry, decreasing 16.5% during 2014 below its 1990 productivity performance. Overall, multifactor productivity in the construction industry has fallen an average of 0.1% per annum since 1990, while transport, manufacturing and other selected industries have experienced average productivity growth of 0.8-0.9% per annum over this period.

Recovering from more than 30 years of relatively poor productivity performance in the construction industry will take time. However, through recent collaboration and research across government and industry, opportunities to overcome this have focussed on achieving productivity improvements through cultural, planning or process reforms, such as:

- Reforming unproductive, adversarial cultures which reward contractors that are willing to absorb the most risk, rather than rewarding innovation and technology adoption
- Achieving a more efficient allocation of risk in contracts
- Better planning and identification of risks before procurement, including the use of collaborative contracting methods such as Early Contractor Involvement (ECI) and Alliances
- Streamlining engagement processes with third party asset owners on infrastructure worksites (notably privately owned utilities)
- Minimising tendering costs – including the use of standardised contracts
- Achieving greater consistency in the way industry is engaged, region-by-region and by sector.



Annual Growth in Prices for Selected Construction Inputs



Source: BIS Oxford Economics, ABS

Construction Costs

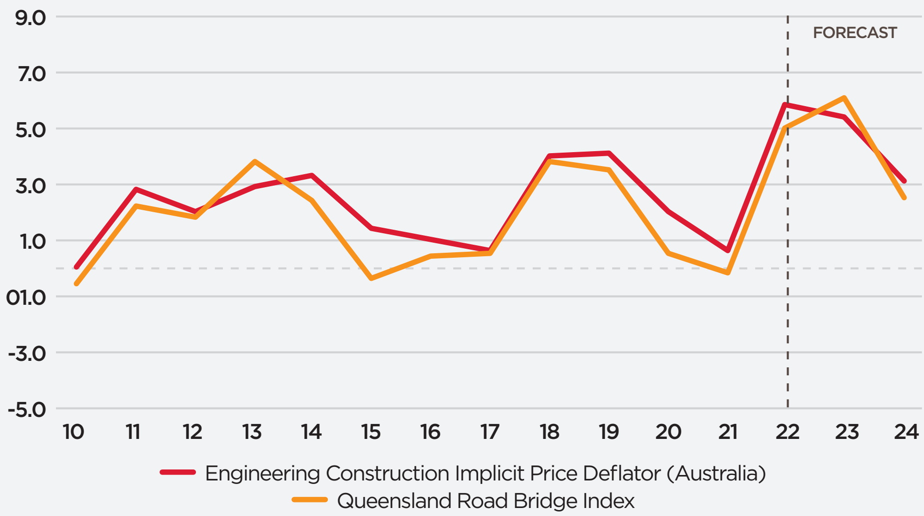
Increasing supply and demand side risks to capacity and capability (locally as well as globally) is reflected in the near-unprecedented escalation in construction costs observed in Australia (and overseas), over the past year. With margins typically thin in the building and construction industry, and given increasing risk being borne by contractors, sharp increases in costs threaten the financial sustainability of the industry, particularly when firms are locked into fixed price contracts. Coupled with an unfair distribution of risk.

Globally, the recent escalation of both formal and informal sanctions against Russia, the emergence of further supply chain problems, and the potential for more upside inflation surprises is driving broad inflationary pressures across the global economy as well as the construction industry. Global Consumer Price Inflation (CPI) is now expected to average over 7% this year. Much of the increase reflects higher energy and food inflation triggered to a large extent by the war in Ukraine. But the prospect of enduring long-lasting supply chain disruptions and more upside surprises, have prompted upward revisions to core inflation in some major economies, including the US and Europe. Meanwhile, greater disruption in the short term – especially in China where a zero-tolerance approach to Covid-19 continues to be pursued – points to slower normalisation of supply-chain pressures, and potentially, a slower transition of consumer spending from goods back to services.

In Australia, annual headline CPI has jumped 6.1% over the year to June 2022, while underlying inflation lifted 4.9%, both exceeding expectations. Transitory components continue to drive headline inflation, including high fuel prices, but with upward price pressure emerging from supply chain disruption, it is now apparent that inflationary pressures are broadening. Overall wage growth remains benign for now, but tight labour markets and low spare capacity is expected to see wage pressures increase from here.

For the Australian construction industry, high inflation in overseas economies, combined with steep rises in prices for globally produced commodities such as steel, timber and oil products, as well as global transport and logistics charges, is presenting a global 'triple-whammy' for construction cost escalation.

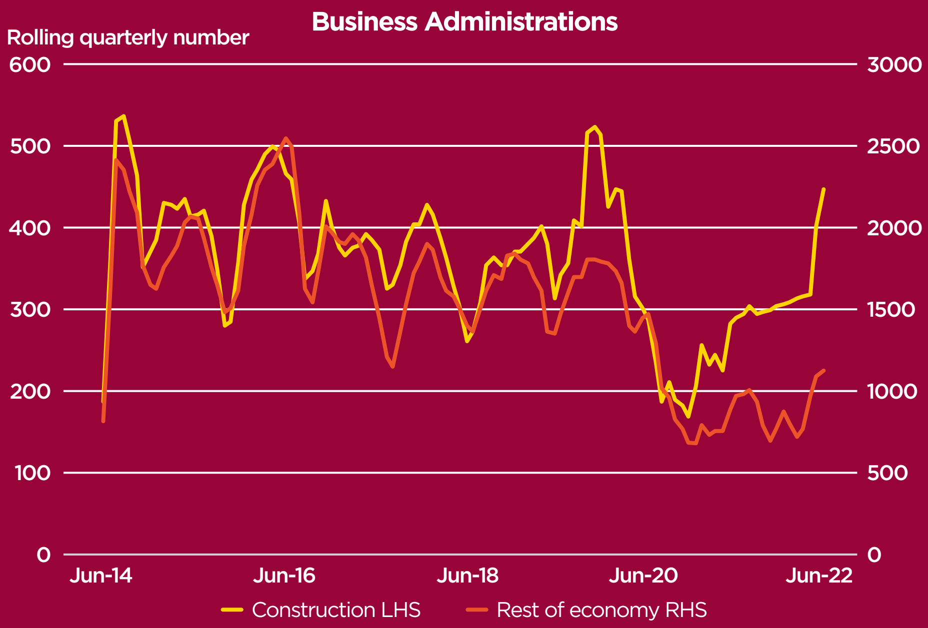
Annual Average Growth in Construction Costs



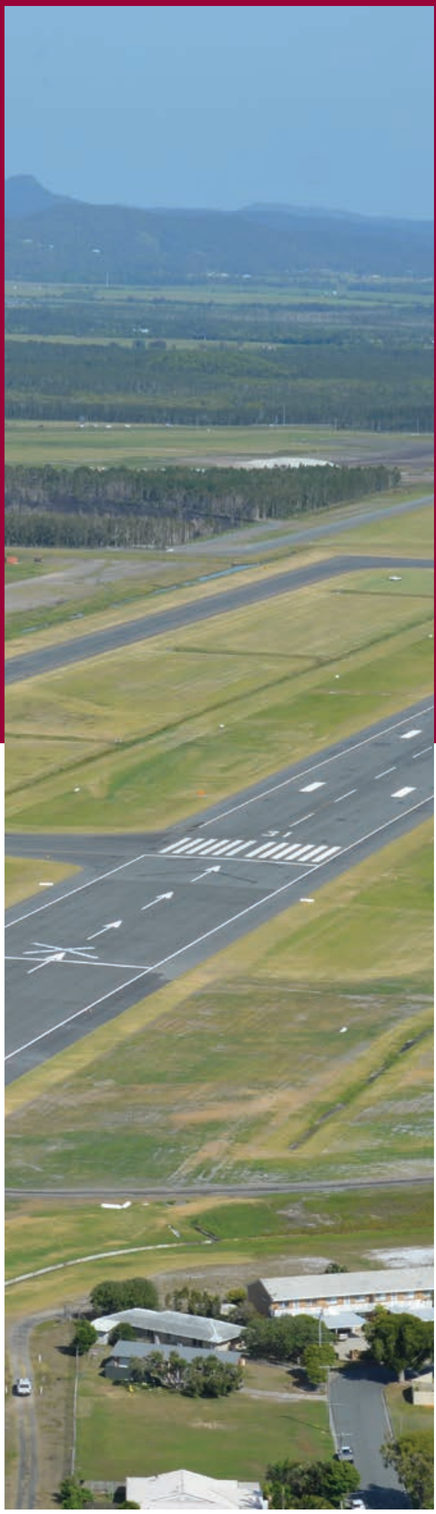
Combined with intensified local pressure on wages and construction materials prices from these peaks in construction activity and demands – as well as the prospect of much higher energy prices across the National Electricity Market – the net result is likely to be further pronounced growth in construction costs as measured by various construction price indices.

Construction costs ballooned in 2021/22 off the back of strong, international commodity markets and rising local demand for construction materials. Recent quarters of growth in the Australian Bureau of Statistic's Producer Price Indices and Implicit Price Deflators highlight this acute rise in costs. As evidenced in the chart above, the national measure for engineering construction costs rose by 5.9% over 2021/22, while the Queensland measure for road and bridge construction costs rose by 5.0% over the same year. These figures sit well above historical averages, and represent the largest growth in the indices since pre-GFC periods (specifically 2008/09, where the Queensland Road Bridge Index grew by 9.3%).

The main drivers of cost growth thus far, has been volatility in the underlying commodity markets which drive costs among certain key construction inputs. This includes steel, wherein record-high, iron ore prices in 2020/21 alongside continued supply disruptions, have now driven seven consecutive quarters of positive growth in the Reinforcing Steel Producer Price Index (leading to an annual growth rate of 40.7% over 2021/22) and oil. The energy crisis in-turn, brought on by the Russia-Ukraine conflict, has driven prices to record-high levels over the past year.



Source: ASIC, BIS Oxford Economics



Ultimately, these markets have not yet shown any significant weakness and the influx of domestic demand, such as local construction activity, is expected to drive prolonged cost increases among key materials. The current financial year of 2022/23 is projected to see further heightened growth in construction costs before softening in the years to come. As such, while we expect cost growth to decelerate, there won't be any outright decline and the cost of delivery will remain at a heightened level compared to pre-Covid periods.

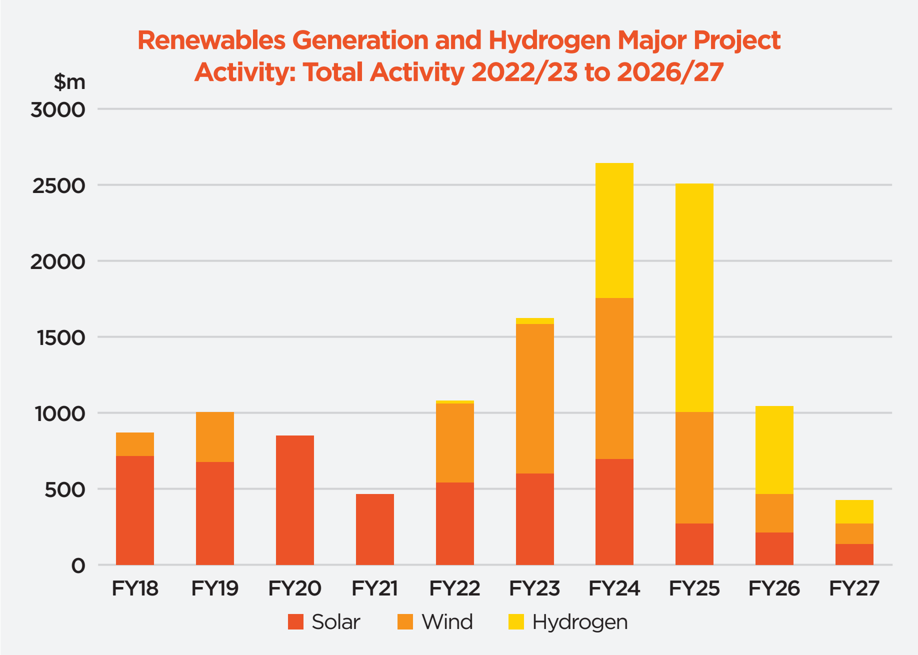
In turn, sharp increases in construction costs are creating severe financial challenges across the building and construction industry, with many suppliers and contractors locked into contracts that were fixed before the recent price surge. Recent data from the Australian Securities and Investment Commission highlight a surge in construction businesses entering administration over the June 2022 quarter – well above that of the broader economy – which is, unfortunately, likely to continue over the coming year as prices peak. Here, it will be important that government and other major project clients work closely with industry to best manage and share the risks from rising construction costs to minimise disruptions and the potential loss of capacity and capability through rising business failures.

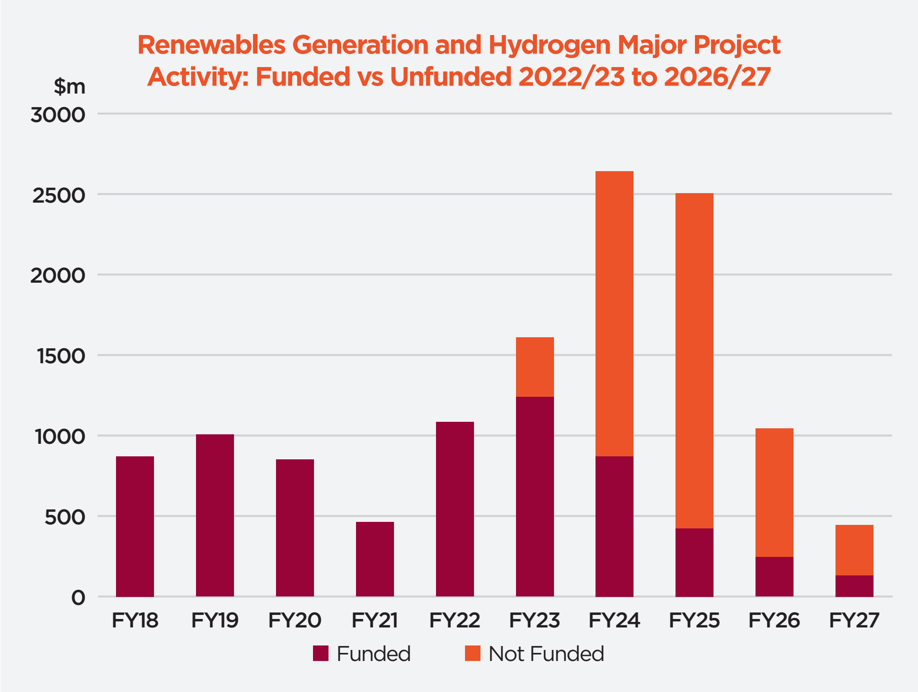
Carbon Emissions Reduction

Efforts to tackle climate change – and particularly the targeted reduction in greenhouse gas emissions from carbon dioxide, methane, nitrous oxide and ozone – present both challenges and opportunities for Queensland's major project industry, as well as the broader economy.

Queensland may face the most impactful environmental risks and challenges of all Australian states and territories, but also has the greatest opportunity to benefit from the development of 'greener' industries and the management of increasing climate change impacts on the built environment. Already, Queensland is embarking on another wave of investment in renewable energy generation led by the major projects identified in this report. The state is also well placed to develop its own hydrogen industry which could supply cleaner energy to Australia and the world as well as a being a leading source of 'new technology minerals' – including zinc, copper, lead, silver, phosphate and rare earths – that are necessary to establish a low carbon emission future.

Altogether, the 2022 QMPPR identifies $8.2b in renewables generation and hydrogen opportunities (not including extensive transmission works that will be required to connect regional and remote renewable generators to the electricity grid). However, currently $5.3b of these opportunities remain unfunded, with work on currently funded projects expected to decline from 2023/24.





Source: BIS Oxford Economics, QMCA member knowledge

Meanwhile, the increasing frequency of floods, droughts, storms and coastal erosion from climate change which has already been ‘baked in’, means that more infrastructure will need to be developed and rebuilt to higher standards, providing further upside to activity presented in this report and over the longer term. Slow global action on mitigating carbon emissions makes it more likely that global warming will reach 2°C above pre-industrial levels or higher, with consequences for the environment and the Queensland economy.

For the major projects industry, resilience/adaption strategies open a raft of risks and challenges which will differ depending on the type of infrastructure. At a fundamental level, higher levels of spending on infrastructure will likely be required, and this may drive a bigger, major projects pipeline over time. The billions spent on desalination and recycled water in Queensland (and other states) during the millennium drought is one example of how expensive adaptation is, and how it impacts the major project industry. In general, given the very long life cycle required of new infrastructure (typically up to 100 years), and the uncertainty of how far climate change will go (depending on the success or otherwise of mitigation strategies), infrastructure planners and builders will need to embed significant resilience principles into new infrastructure design, as well as adapting existing infrastructure to withstand potentially severe climate change impacts.

Finally, the major projects industry also faces challenges and opportunities in how best to achieve decarbonisation in infrastructure delivery. Carbon emissions from the construction industry in Australia have been estimated to represent around 18% of all emissions, with energy and materials key contributors. Carbon dioxide is generated throughout the entire construction process, including:

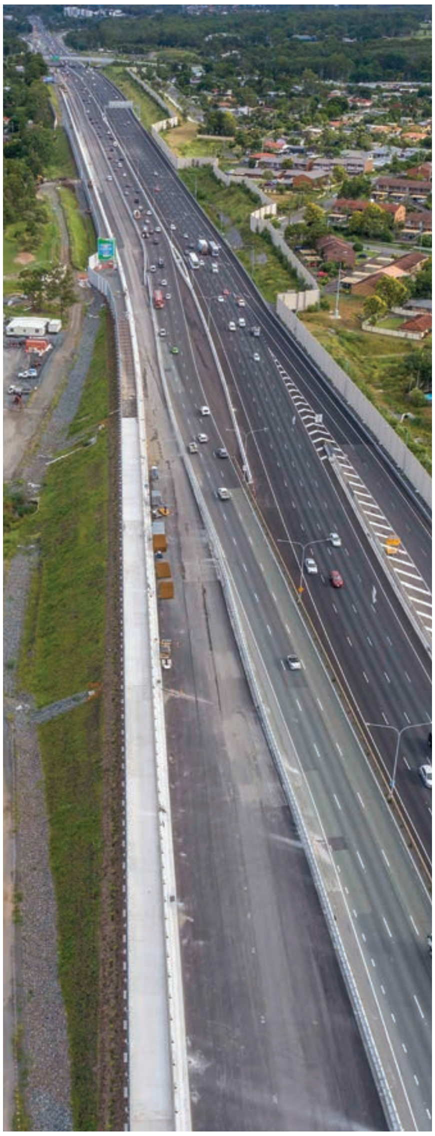
- Extraction
- Manufacturing (including the energy to manufacture materials and equipment)
- Transportation
- Construction
- Maintenance and
- Disposal

There are a range of strategies which the Queensland construction industry can employ to reduce its industry carbon emissions, including:

- Increasing the use of sustainable materials
- Reducing waste and increasing recycling
- Reducing transport requirements for materials, or utilising less carbon-intensive transport
- Producing energy use plans as part of planning for construction projects
- Reducing the need for on-site generators through establishment of grid connections
- Efficient energy management in site offices, particularly lighting
- Using on site accommodation with higher energy performance ratings
- Utilising spatial technologies to minimise idling and distance travelled by construction equipment

Optimising the use of less carbon-intensive materials is likely to be an important way of cutting embedded carbon in new infrastructure. International studies indicate that up to half of all carbon emissions in the construction industry are from cement production, both in the manufacturing process and as a by-product of the chemical reactions. However, a significant (up to 43%) of these emissions, are re-absorbed as cement ages and weathers over time in a process called carbonation. This illustrates the importance of looking at the full life cycle of construction materials in determining their carbon emissions intensity.

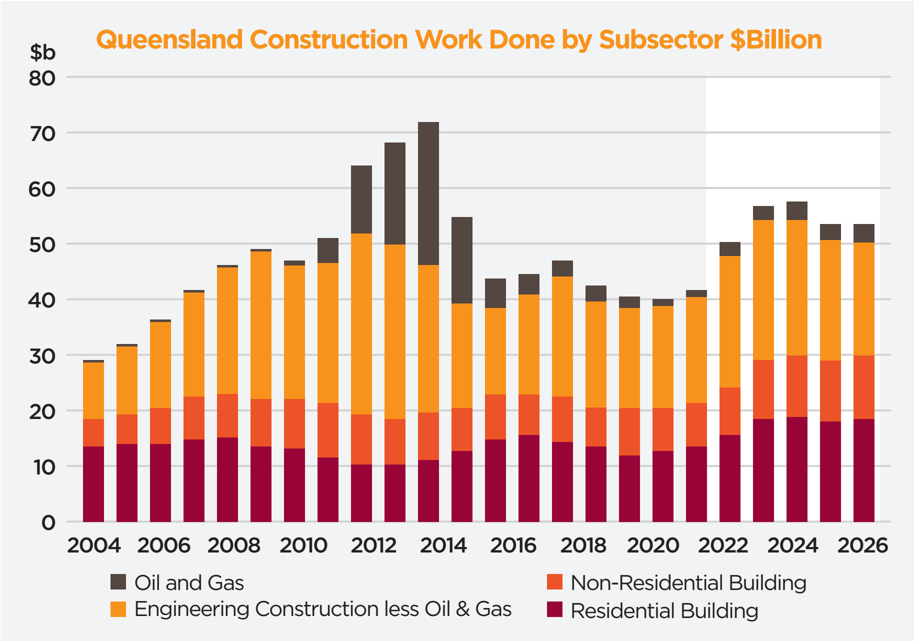
Apart from choice of materials, increasing industry productivity through new technologies and by implementing strategies and policies that result in less re-working and waste, is also likely to lead to the strongest reductions in emissions over time, other things being equal. With productivity falling substantially over the past five years, a large potential benefit in terms of carbon emissions could be realised if previous productivity performance is restored. Consequently, achieving productivity goals not only assists with reducing costs of projects and meeting capacity/capability constraints, but can also be a strong weapon in the fight against climate change.



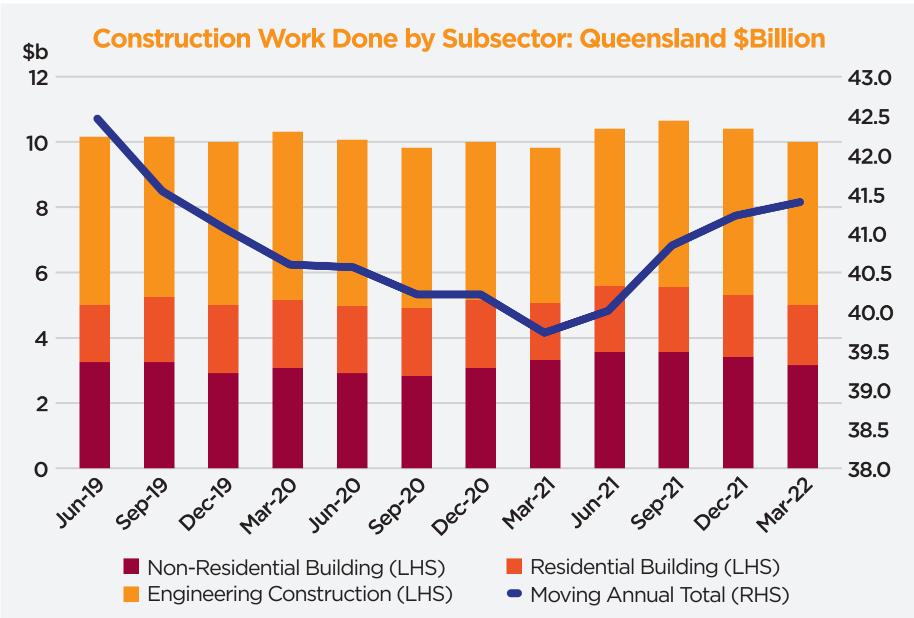
QUEENSLAND CONSTRUCTION OUTLOOK

Queensland's construction sector has experienced volatile cycles in activity over the past two decades. Activity surged in the early 2010s, reaching a record-high $70b in 2013-14 (in 2018-19 constant prices), a figure yet to be surpassed by any other state or territory.

This unprecedented growth was driven by exceptional resources investment (particularly coal and LNG projects), with strong increases in productivity and population growth (particularly via net overseas migration) providing critical supply-side support. The end of the boom saw a sharp decline in construction activity in subsequent years. Despite a pickup in 2016-17 and 2017-18, led by the NBN rollout and investment in renewable generation to meet 2020 targets, the Queensland construction industry struggled to achieve sustained growth.



ABOVE: Constant 2018/19 Prices. Source: BIS Oxford Economics, ABS



ABOVE: Constant 2018/19 Prices. Source: BIS Oxford Economics, ABS data.

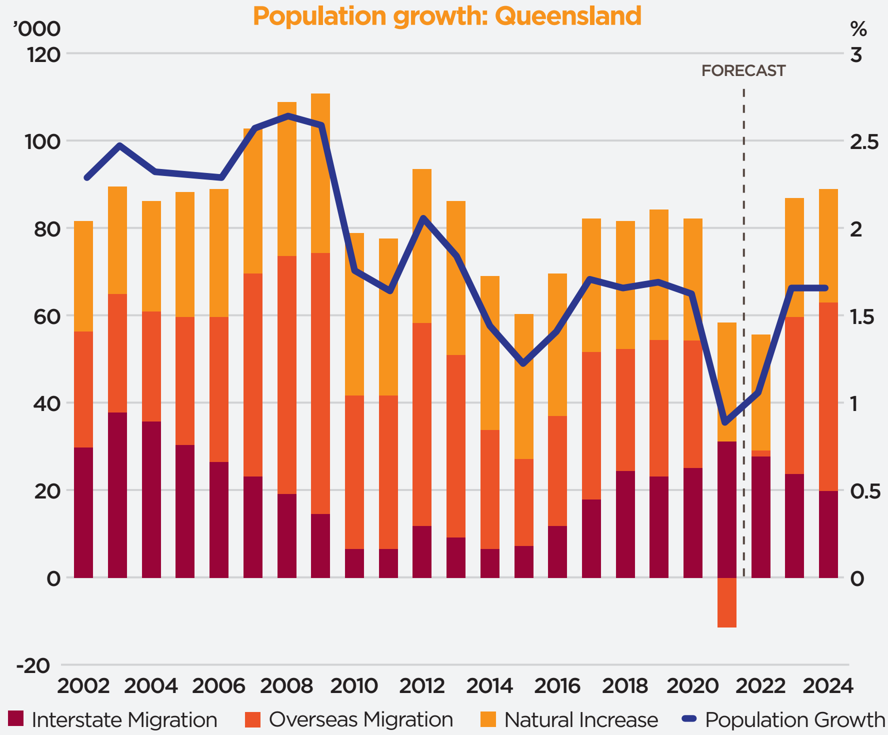
Construction activity picks up during Covid-19

Despite two consecutive years of Covid-19-related disruptions, Queensland's construction sector has remained resilient. As at the March quarter 2022, construction activity was 4.2% greater year-to-date than the March quarter 2021 – with Queensland construction work completed exceeding $41.4b. Queensland's success in dealing with the pandemic and the national vaccine rollout in late 2021, has enabled industry to maintain levels of activity, whilst a favorable demand side setting comprised of Homebuilder stimulus, transport investment and stronger than expected population inflows, has helped prop up demand.

Despite increased supply side disruptions and risks (as well as surging construction costs which may yet constrain activity) the Queensland construction market is still set for healthy and robust growth in the coming years. A large pipeline of publicly funded transportation and privately backed energy projects, aided by prominent growth in residential building construction, is expected to see construction activity peak in 2025 at $57.5b.

- Residential building will be backed by strong fundamentals. This includes developing housing stock pressure, robust population growth, and a relative affordability advantage over other markets.
- Non-residential building will see growth in publicly funded projects in the education and health sectors, whilst privately funded sectors of retail and offices will experience more modest growth over 2022-23.
- Engineering construction will benefit from considerable publicly funded transport projects, for which the funding has been crystallised in the 2022-23 Queensland state budget ($29.7b over four years). Additionally, privately funded renewable energy projects represent a positive upside risk to the outlook. Further growth potential will be spurred on by construction related to the 2032 Olympic Games, which will likely sustain the upswing well into the second half of the 2020s.

"An acceleration in construction activity now expected."



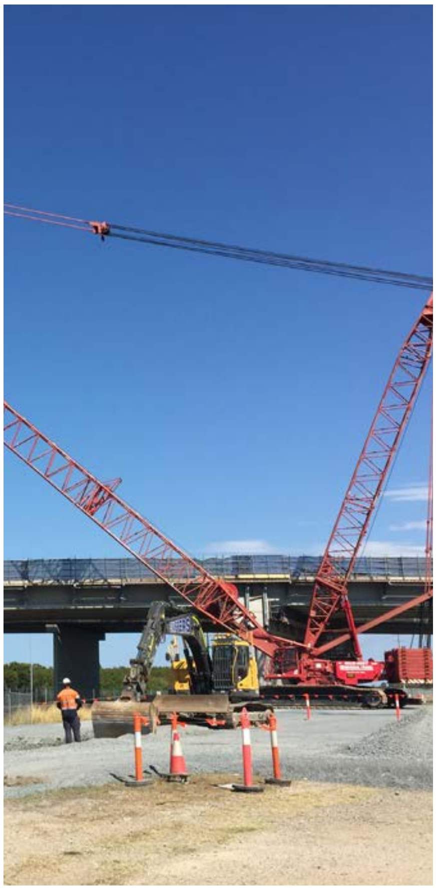
Source: BIS Oxford Economics, ABS data

Robust population growth relative to other states and territories during Covid-19 is expected, and for the coming years ahead, as Net Overseas Migration (NOM) recovers and is a key driver of the rosy construction sector outlook. Queensland's population is expected to expand by over 1.5% in both 2022/23 and 2023/24, as the recovery in NOM easily outpaces a slight drop in Net Interstate Migration (NIM) from its relatively high levels (over 35,000 persons) over 2020/21 and 2021/22. Stemming from an accelerated shift in preferences towards lifestyle locations such as the Gold Coast, a housing affordability advantage, and a strengthening labour market, NIM is still expected to remain elevated in the medium term. This will result in Queensland recording the fastest population growth rate of all the states and territories over 2022/23.

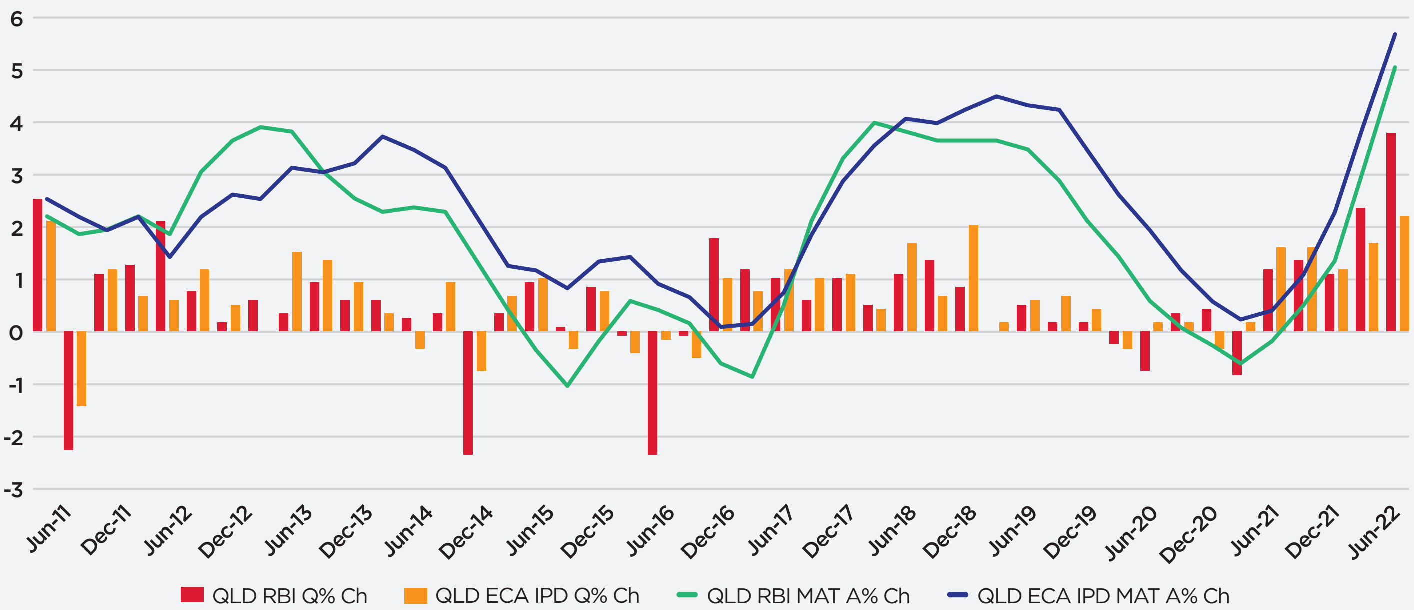
Construction costs growth surging now, but expected to ease.

Civil construction cost trends can be captured through two broad price series that are published by the Australian Bureau of Statistics (ABS):

- **The Implicit Price Deflator (IPD) for engineering construction work done**, which is derived by dividing current price (nominal) engineering construction data from the Australian Bureau of Statistics by its corresponding constant price (real) data series. This effectively isolates changes in the price of construction, as opposed to changes in activity.
- **The Road and Bridge Index (RBI) was also published by the ABS as part of the Producer Price Index**, which is available at the national level as well as for the five, largest jurisdictions in Australia: New South Wales, Victoria, Queensland, South Australia and Western Australia.



Growth in construction prices - Queensland



Source: BIS Oxford Economics, ABS data

Following quite weak growth over the first phase of the pandemic (a period when commodity prices initially fell, particularly oil prices), construction costs have accelerated sharply over the past year, with annual average growth in both indices exceeding 5% by the June quarter 2022. Much of this can be ascribed to supply side constraints (and strong growth in domestic and external demand), with prices for key construction inputs including oil, steel and timber, as well as other items, increasing by 40-50% - the fastest rate of growth for several decades. ABS producer price data shows that, as at the June 2022 quarter, steel prices are significantly higher than a year ago, with the reinforcing steel producer price increasing by 40.7% on average over the financial year. Queensland concrete, cement and sand prices saw a significant uplift in prices in the March quarter of 2021 (+8.6%) which increased average prices by 6.9% over 2021/22.

From February 2022, the war in Ukraine further exacerbated price growth for a range of commodities typically exported by Russia and Ukraine and used in the global construction industry - notably energy (oil and gas), timber products and iron and steel products. However, looking ahead, construction cost growth is expected to ease as (weakening) demand and (rising) supply rebalances for oil and steel. While strong local demand is expected to see further growth in wages as well as prices for quarry products, easing oil and steel prices will tend to dominate, seeing some deceleration – though not necessarily an outright decline – in construction costs.

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