



14 August 2015

Australian Infrastructure Audit  
Infrastructure Australia  
GPO Box 5417  
SYDNEY NSW 2001

Via email: [AIA@infrastructure.gov.au](mailto:AIA@infrastructure.gov.au)

### SUBMISSION: AUSTRALIAN INFRASTRUCTURE AUDIT

Cement Concrete & Aggregates Australia (CCAA) is the peak industry body representing the heavy construction materials industry in Australia, including the cement, pre-mixed concrete and extractive industries.

CCAA members account for 85% of total industry output, which contributes nearly \$12 billion to Gross Domestic Product, employ 18,000 Australians directly and supporting the employment of a further 85,000 people.

CCAA members produce and supply the heavy construction materials that are used to construct Australia's infrastructure. Providing both the raw material and finished product, heavy construction materials contribute to the construction of our roads, railways, bridges, ports, airports and dams.

The Cement Industry Federation (CIF) is the national body representing the Australian cement industry, and comprises the three major Australian cement producers - Adelaide Brighton Ltd, Boral Cement Ltd and Cement Australia Pty Ltd. Together these companies account for 100 per cent of integrated clinker and cementitious supplies in Australia.

CIF member companies have five integrated manufacturing facilities located in Berrima (NSW), Gladstone (Queensland), Railton (Tasmania) and Birkenhead and Angaston (South Australia).

CIF members also have five stand-alone cement mills, eight limestone mines and a national distribution network to move raw materials, as well as our intermediary and finished products.

Sales of cementitious materials were 9.4 million tonnes in 2013-14, with an annual industry turnover of \$2.3 billion. The cement industry is also a key employer with over 5,000 directly and indirectly employed in Australia, and many thousands more involved in the downstream production and distribution of concrete.

CCAA and CIF support the development of the *Australian Infrastructure Plan* to include a series of infrastructure reforms that will deliver a strong and consistent pipeline of infrastructure projects and raise the nation's economic competitiveness. In particular, this submission will focus on the reforms around the demand, supply and cost of heavy construction materials utilised in public infrastructure.

In Australia, these materials are typically the single biggest cost component in the infrastructure delivery chain. For instance, they have a larger impact on cost than labour and equipment.

In this regard, it is vital to have an efficient and local supply of these materials to contribute to affordable infrastructure projects. We recommend a **4 point plan for Australia's extractive industry** that should be included in the proposed *Australian Infrastructure Plan* and that will assist in the affordable supply of heavy construction materials. These are:

- Clear and timely planning processes.
- Long term resource protection from incompatible development.
- Sensible environmental regulation.
- Strategic and accountable governing processes.



Regulatory reform in these broad areas, as detailed in the attached submission, will assist in the provision of affordable public infrastructure projects, such as WestConnex in Sydney and the Western Distributor in Victoria.

CCAA and CIF thank Infrastructure Australia for this opportunity to make a submission and we look forward to future consultations.

Yours sincerely



**KEN SLATTERY**  
Chief Executive Officer  
Cement Concrete & Aggregates Australia



**MARGARET THOMSON**  
Chief Executive  
Cement Industry Federation

## **SUBMISSION: AUSTRALIAN INFRASTRUCTURE AUDIT**

### **1 DEMAND FOR HEAVY CONSTRUCTION MATERIALS AND PUBLIC INFRASTRUCTURE**

Heavy construction materials, namely cement, aggregates and concrete, are utilised in all public infrastructure. Without these materials we would not have our roads, railways, bridges, ports, airports or hospitals.

The demand for public infrastructure and heavy construction materials is commensurate with growth. As our country grows, it requires more public infrastructure and therefore more heavy construction materials.

Demand for heavy construction materials is high, for example:

- Each Australian requires 7 tonnes per annum of quarry materials to support the building of roads, houses and infrastructure to service their needs.
- One kilometre of highway uses up to 25,000 tonnes of crushed rock.
- One kilometre of suburban roadway requires 5,000 tonnes of crushed rock, 750 tonnes of concrete for footpaths, kerbs and gutters and 450 tonnes of asphalt for road surfacing.
- One kilometre of railway requires 2,000 tonnes of aggregate.
- A high-rise building can use up to 1,000 tonnes of aggregate per floor.
- Construction of a typical house, including driveway and landscaping, uses about 110 tonnes of aggregate and 53 m<sup>3</sup> of concrete.

According to the Australian Bureau of Statistics, Australia's population is expected to grow from 22.3 million in 2011 to 30.5 million in 2031. This is one of the highest growth rates in the OECD countries with much of this growth focused in our largest cities. The provision of infrastructure to meet this growth will require an increase in the supply of heavy construction materials.

The Australian extractive industry currently produces about 130 million tonnes of aggregate per year and the cement industry produces about 9 million tonnes of cement. These materials are mixed to produce some 24 million cubic metres of concrete.

If current demand trends with population growth by 2056 the Australian industry will need to produce some 210 million tonnes of aggregate, 14 million tonnes of cement and 37 million cubic metres of concrete per year.

The increasing population growth is the underlying driver for increasing demand for heavy construction materials, especially around major cities.

### **2 COST OF HEAVY CONSTRUCTION MATERIALS**

There are two significant factors that influence the cost of infrastructure. The first being the upfront delivery cost and the second being the whole of life asset cost.

As discussed in the section below heavy construction materials are typically the single biggest cost component in the infrastructure delivery chain. However, while they may contribute to a higher than usual initial cost, the whole of life asset cost of infrastructure built using concrete, for example, leads to significant value gains over time.

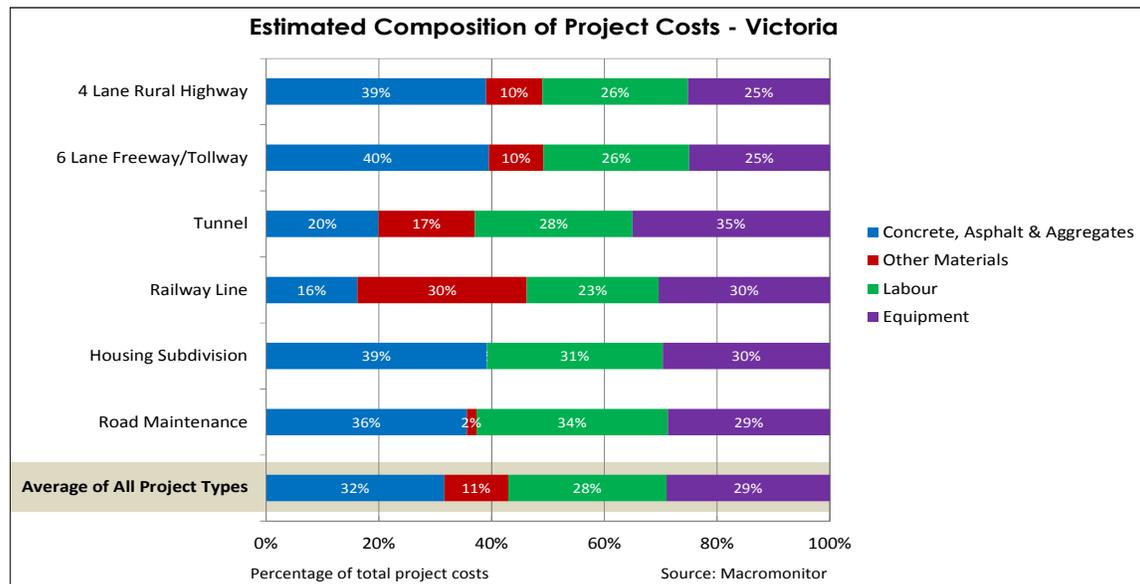
The predominant features of heavy construction materials that contribute to their superior performance under life cycle analysis are their strength, durability, low maintenance and resistance to aggressive exterior environments (i.e. extreme weather events).

Concrete roads for example, are highly durable, have a typical service life of over 40 years and require very little maintenance in comparison to other road pavements. Consequently, with their initial construction cost spread over a longer period combined with a lower annual maintenance requirement their whole-of-life cost produces the most economical form of pavement on a life-cycle cost basis.

Similarly for bridges, concrete provides for a long life, typically up to 100 years, and high strength solution. Strong, durable bridges are critical links in the road network and help to improve transport connectivity, reduce transport costs for freight and increase productivity.

## 2.2 Delivery cost of heavy construction materials in public infrastructure

CCAA recently commissioned Macromonitors<sup>1</sup> to analyse the cost impacts on constructing infrastructure in Victoria. This report found that the single biggest cost component in the infrastructure delivery chain in Victoria is heavy construction materials, as illustrated in Figure 1 below:

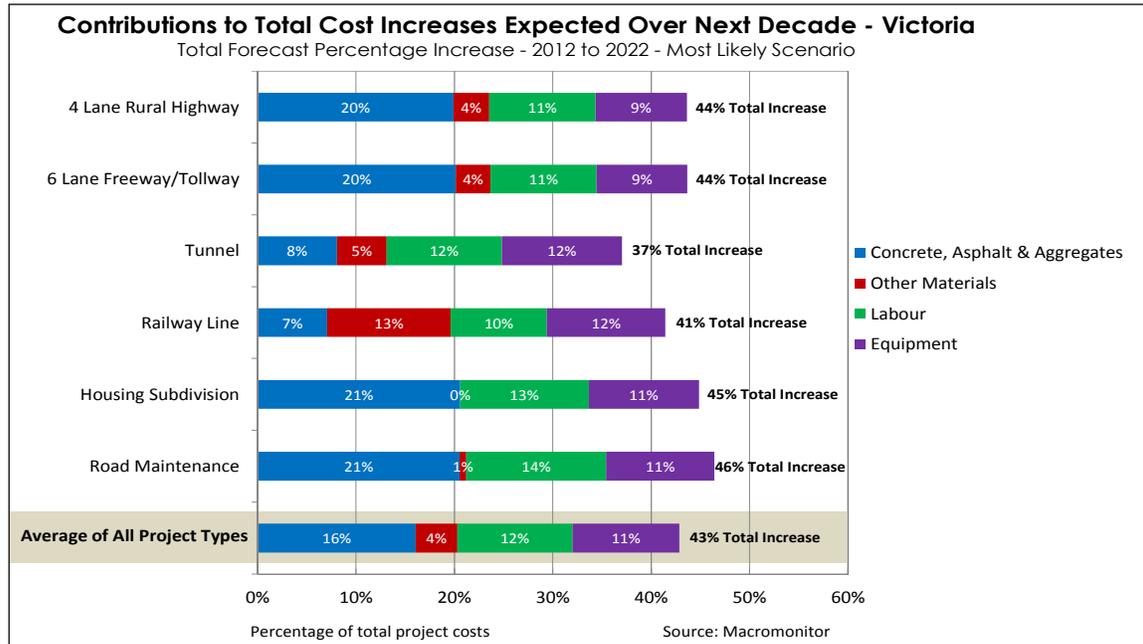


**Figure 1 – Estimated Composition of Project Costs - Victoria**

Source: The Impact of Heavy Construction Materials Prices on Infrastructure Costs in Victoria, Macromonitors, June 2013.

The Macromonitors report also forecasts that infrastructure delivery costs will most likely increase on average at 3.6 per cent per year over the next 10 years in Victoria. In addition, heavy construction materials costs will be the single biggest contributor to these future infrastructure project cost increases, contributing on average 37 per cent of the total cost increase over the decade, as illustrated Figure 2.

<sup>1</sup> The Impact of Heavy Construction Materials Prices on Infrastructure Costs in Victoria, Macromonitors, June 2013.



**Figure 2 – Contributions to Total Cost Increases Expected Over the Next Decade - Victoria**

Source: The Impact of Heavy Construction Materials Prices on Infrastructure Costs in Victoria, Macromonitors, June 2013.

The Victorian examples provided above are indicative of the cost of infrastructure throughout Australia; illustrating that the cost of meeting future demand for public infrastructure will increase and that supplying heavy construction materials to meet this demand will have a significant impact on this cost increase.

Macromonitors have developed a calculator that forecasts the financial impacts of increases in the cost of heavy construction materials on major public infrastructure projects in Australia, such as:

- An extra \$1.1 to 1.3 billion could be added to the cost of the \$9 to 11 billion Melbourne Metro rail tunnel.
- The \$8.5 billion North West Rail Link in Sydney could be increased by \$400 to 500 million.
- A further \$1.4 to 1.7 billion could be added to the \$10 billion WestConnex project in Sydney.

### 3 SUPPLY OF HEAVY CONSTRUCTION MATERIALS FOR PUBLIC INFRASTRUCTURE

To meet future demand for affordable public infrastructure, best practice procurement principles must be achieved, including an efficient supply of heavy construction materials. The efficiency of the supply chain for heavy construction materials is largely determined by location. If the aggregate source is too far from the market, then the transport cost may exceed the ex-gate cost of the aggregate.

The high-bulk, low-value nature of the materials means that transportation costs have a significant impact and the closer the materials are to their market the less impact transportation has on the cost. For example, the average national haulage distance for aggregate from quarry to end-user is 64 km, costing \$13/tonne. If the haulage distance were to increase to 100 km due to urban encroachment or poor planning policies, the additional 40 km haulage will increase transport costs by 35% to \$20/tonne<sup>2</sup>. Given the large volumes of aggregate required for construction, this represents a substantial cost increase for major projects.

The above scenario is exemplified in the cost difference of extractive materials in Melbourne and Sydney. The Melbourne market has many quarries located in the metropolitan area and the average

<sup>2</sup> Centre for International Minerals and Energy Law, 2014, *Best Practice for Access to and Supply of Aggregate in Australia: A Regulatory Assessment*. University of Queensland Law School.

transport distance from quarry to concrete batch plant is 30 km, whereas, in Sydney, which has one remaining metropolitan quarry, the average transportation distance is 60 km.

This increase in haulage distance means the delivered cost of extractive materials in Sydney is 70% greater than that of Melbourne.

This position is supported by the *2014 Productivity Commission report on Public Infrastructure* which stated:

***“Failure to allow new quarry developments or expansions, particularly close to cities, could lead to future scarcity of some key inputs into many infrastructure projects.”***

Furthermore:

***“A lack of quarries near key areas of major construction work has the potential to inflate the costs of infrastructure.”***

The logistics and supply challenge is again demonstrated with concrete. Once mixed at the batch plant concrete is required to be onsite within approximately 40 minutes in order for its discharge and placement to meet Australian Standards. Effective transport networks and urban planning linking concrete plants to market are vital to enabling industry to meet these obligations.

The location of cement plants, concrete batching plants and quarries is determined by jurisdictional planning systems and resource access regimes. It is vital that these regulatory frameworks recognise the importance of locally supplied heavy construction materials to the provision of affordable public infrastructure. A clearer link between infrastructure planning and the supply of construction materials needs to be built into infrastructure strategies to ensure heavy construction materials are available to meet Australia's future infrastructure needs.

#### **4 REGULATORY CHALLENGES**

The industry is faced with significant regulatory challenges across a range of areas and does not believe the current regulatory frameworks that exist in many State jurisdictions are well designed. This results in approval delays and difficulties for the industry in planning for Australia's long term infrastructure needs. Key issues include:

- Inadequate protection of quarrying resources (including transport routes) from incompatible development, such as residential development.
- Disproportionate, overly prescriptive conditions and delays on planning approvals.
- NIMBYism and the consequential inability of local governments to make timely planning decisions for the broader community interest.
- Lack of strategic State Government oversight, proper extractive area resource mapping, and a lack of a clear link within State Government infrastructure plans for quarry materials.
- Inconsistent approaches to environmental regulation and management from regulatory bodies and significant costs associated with environmental offset requirements.
- Inadequate understanding by key government decision-makers and influencers about the extractive industry.

CCAA recently commissioned a study by the Centre for International Minerals and Energy Law at the University of Queensland Law School (internationally renowned as a leading centre of knowledge in resource law) into the legal and policy frameworks for the extractive industry. The report concludes,

***“the current regulatory framework for access to and the supply of aggregates in Australia is not optimal and that the regulatory system for the extractive industry is likely to struggle significantly in the future to meet increased demand for aggregate due to increases in population significant infrastructure projects.”***

These conclusions are also similar to the *2014 Productivity Commission report on Public Infrastructure* which noted the raft of social and environmental regulation affecting quarries, some of which may impose undue costs and restrict supply.

## **5 EFFICIENT REGULATORY FRAMEWORKS AND PUBLIC INFRASTRUCTURE**

We consider there to be four main areas of regulatory improvement that will directly impact on the industry's capacity to supply affordable materials for public infrastructure, these are:

- Clear and timely planning processes.
- Long term resource protection from incompatible development.
- Sensible environmental regulation.
- Strategic and accountable governing processes.

The Productivity Commission's 2013 report, *Major Project Development Assessment Processes*, made a number of recommendations that support action in these four areas.

### **5.1 Clear and timely planning processes**

CCAA & CIF believe that the planning and development systems in Australia need to be streamlined to provide more efficient and effective decision making and that the following principles should be included in all planning frameworks:

- Timely, predictable and transparent decision-making.
- Competent, credible and accountable decision-making bodies.
- Proportionate, risk based and long term conditions on planning approvals.
- Robust process for State-interest checks through statutory planning processes to ensure state interests are properly taken into account.

The Victorian Government's Parliamentary Economic Development and Infrastructure Committee (EDIC) *Inquiry into Greenfields Mineral Exploration and Project Development in Victoria* (see Appendix 2) recognised these principles and provides a commendable blueprint for streamlining planning mechanisms in Australia.

The EDIC inquiry recognised the need for strategic land use planning for construction materials and a streamlined planning mechanism through the provision of a one-stop-shop framework to facilitate the provision of affordable public infrastructure. Such a lead agency should aim to provide consistency across government levels, and provide provision for a "one-stop-shop" between Commonwealth and State Governments (e.g. through bilateral agreements).

The inquiry also recommended that a clear lead agency be established within the State Government. The agency would oversee the development and implementation of government strategies and policy development affecting construction materials and would ensure a coordinated government approach that facilitates the development of affordable public infrastructure.

Further, many of these principles have been recommended for Europe in the European Aggregates Association's 2010 Leoben Report<sup>3</sup>, which is attached to this submission (see Appendix 3). Many of the issues relevant in well populated Europe are also applicable in Australia.

The Leoben Report argues that planning and development processes are more effective when there is a simplified regulatory framework and a central agency, or 'one-stop-shop', whose role it is to lead and coordinate the planning process. This approach minimises the chance of political interference and improves the probability for efficient decision-making. This not only reduces the time taken to receive a planning approval, but also increases certainty for investment decisions and reduces risk.

In addition, investment in innovation in the sourcing and specification of heavy construction materials for infrastructure construction, especially in the area of sustainable aggregates, will assist in a sustainable supply of material.

---

<sup>3</sup> Department of Mineral Resources and Petroleum Engineering, June 2010, *Planning Policies and Permitting Procedures to Ensure the Sustainable Supply of Aggregates in Europe, Final Report*, University of Leoben, Austria.

## **5.2 Long term resource protection from incompatible development**

Associated with efficient planning mechanisms is the capacity to access new and existing resources. This is achieved through identifying the location of a resource and then protecting it from incompatible land use that sterilises the industry's capacity to access the resources, such as inappropriately located housing development.

CCAA and CIF consider the Queensland Government's Key Resource Area policy to be an appropriate planning mechanism that identifies and protects heavy construction material resources. The key principles of this policy are:

- Public identification, in the planning system, of key resource areas, processing sites and associated transport routes.
- Provision of buffer zones around the identified areas to prevent encroachment by incompatible land uses.
- Provision of a framework for local authorities to utilise in the planning process when making development assessments.

Other State jurisdictions have also began the process of identifying and protecting resources, such as South Australia's *Resource Area Management and Planning Project* which aims to address the urban encroachment and incompatible land use for its current and future heavy construction material resource areas.

Just as agricultural and environmental values are assessed during the strategic land use planning process, so should earth resource values. This can be achieved through the adoption of Key Resource Areas in all States and will provide strategic land use planning for heavy construction materials, which will help to guarantee a secure supply of affordable materials for future public infrastructure developments.

## **5.3 Sensible environmental regulation**

Our industry is committed to driving improved and innovative environmental performance across the industry. At the same time, inconsistent approaches to environmental regulation often result in increased costs to the industry and poor environmental outcomes. We support the following actions:

- Proportionate and risk based environmental conditions on planning approvals and environmental conditions that are not retrospective.
- When dealing with compliance related issues, the focus should be on poor environmental performers, not operators who are "doing the right thing."
- Consistency and clarity between different levels of government.
- Simplified environmental offset requirements that are proportionate, flexible and provide certainty, and take into account rehabilitation on quarry sites for offset calculations.
- Regulatory framework and approval conditions which take into account distinct, site specific elements of quarrying (compared with other industries, such as mining).
- Realistic and practical vegetation management requirements.

## **5.4 Strategic & accountable governing processes**

A holistic approach is required with State Governments focused on construction materials, which coordinates the development and implementation of government strategies impacting on construction materials and ensures a clear linkage between infrastructure strategies and long term access to extractive materials.

## 6 NEXT STEPS

Heavy construction materials, namely cement, aggregates and concrete are utilised in the construction of all public infrastructure projects, providing a range of infrastructure solutions both as raw material and finished product. As Australia's population grows, there will be an increasing demand for public infrastructure and heavy construction materials. These materials are the foundation of Australia's growth and economic future.

The affordable supply of heavy construction materials is the largest factor contributing to affordable infrastructure. There are a number of regulatory reforms that will help reduce future cost increases in these materials, including:

- Clear and timely planning processes
- Long term resource protection from incompatible development
- Sensible environmental regulation, and
- Strategic and accountable governing processes

These regulatory reforms are clearly outlined in the 2015 CCAA document *Providing the essential materials to build our nation – Policy priorities for Australia's extractive industry* (See Appendix 1).

CCAA and CIF on behalf of the heavy construction materials industry, are committed to working with the Governments of Australia to see these important reforms implemented as soon as possible. Such reforms will help deliver affordable heavy construction materials that will provide a strong foundation for Australia's future.

Thank you for the opportunity to make a submission on the *Australia Infrastructure Audit*, we look forward to the improved provision of public infrastructure in Australia.