

Managing Vulnerable Road User Safety in Urban Environments during Construction of Major Transport Infrastructure Projects

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Abstract

Australia is experiencing an unprecedented infrastructure boom in its largest capital cities through the construction of major transport infrastructure projects. Delivering these projects involves a significant logistics task of transporting millions of tonnes of excavated spoil and construction materials throughout urban road environments using heavy vehicles.

Introducing heavy vehicle traffic to road environments shared by popular urban modes of transport such as cycling and walking has the potential to increase road safety risks. This paper provides an overview of the safe systems approach developed on two major transport infrastructure projects to manage road safety during construction.

Background and Context

Introducing significant heavy vehicle traffic to urban areas presents numerous challenges to the road network, particularly with respect to the safety of vulnerable road users (VRUs). The UK's Transport Research Laboratory (TRL) documented these challenges following the high incidence of VRU fatalities involved with heavy vehicles servicing projects during London's recent construction boom (TRL, 2012). Their findings led to the development of the Construction Logistics and Community Safety (CLOCS) and Fleet Operator Recognition Scheme (FORS). Each scheme aims to create a holistic framework for the management of work-related road risk through improving vehicle safety, driver training and education, and traffic and logistics management.

Current and future projects in Australia are of similar scale and complexity, introducing construction heavy vehicles to CBD and inner-urban regions of Sydney and Melbourne where VRUs are over-represented in casualty crashes. Introducing construction heavy vehicle traffic to road environments currently shared by popular urban modes of transport such as cycling, walking and motorcycling, can introduce undesired road safety risks due to the incompatibility of heavy vehicle design for urban roads and the unprotected nature of VRUs.

Safe System Approach during Construction

Drawing from the success of CLOCS and FORS and contextualizing these learnings for the Australian environment, Transport for NSW (TfNSW) and Melbourne Metro Rail Authority developed holistic management frameworks, by applying the safe systems approach to road safety, to ensure the safety of public road users interfacing with the construction heavy vehicle traffic generated from the Sydney and Melbourne Metro rail projects (TfNSW, 2016; Victorian State Government, 2016).

Each project has focused on improving heavy vehicle safety standards and technology on the project; heavy vehicle driver training and competency; raising public road safety awareness of sharing the road safely with heavy vehicles; alternative methods to spoil removal and developing risk-informed construction traffic and logistics plans coupled with increased assurance and enforcement of haulage operations.

For example, recent engagements with the construction road transport industry has seen innovative improvements made to urban heavy vehicle design to minimise vehicle blind spots and fit underrun protection as depicted in Figure 1. Collaboration between industry and government has allowed for development and widespread promotion of TfNSW's Be Truck Aware campaign reaching over 4.4 million people in NSW in 2017.

Early engagement and collaboration with road safety agencies within government, VRU groups and the heavy vehicle industry has supported the development and application of the safe system's elements. This has demonstrated the collective desire to improve road safety standards for the immediate project that have long lasting benefits to the industry and community.



Figure 1. Construction heavy vehicle fitted with blind spot technology and side underrun protection

Lessons Learned and Future Considerations

Future long-term major projects should embed a safe system approach to road safety into construction delivery, particularly where road transport operations have the potential to impact public safety. Early engagement and collaboration with industry, government and regulatory authorities is crucial to ensure successful implementation. Considering the pipeline of major infrastructure projects about to commence, establishing the safe system now provides benefits not only during major project delivery, but to local and state governments, industry and all road users, creating a safer road transport system during and beyond construction.

References

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