



## **Inquiry into National Freight and Supply Chain Priorities**

Thank you for the opportunity to respond to the issues and questions raised in the Discussion paper – May 2017 for the Inquiry into National Freight and Supply Chain Priorities. Please find below a summary of key issues and areas that I would like to raise.

Associate Professor Russell G. Thompson  
Leader, Volvo Centre of Excellence in Sustainable Urban Freight Systems (CoE-SUFS)  
Department of Infrastructure Engineering  
Melbourne School of Engineering  
The University of Melbourne  
[rgthom@unimelb.edu.au](mailto:rgthom@unimelb.edu.au)

### **Key Issues**

There are a wide range of growing challenges relating to the efficiency of freight transport within Australia's major cities. Population growth in Melbourne is causing congestion and peak spreading on major urban road networks which is adding to the operating costs for carriers and reducing the reliability for shippers. Disruption to road and rail networks from construction projects including residential towers and Metro systems in Sydney and Melbourne are increasing distribution costs.

Load factors are decreasing in urban areas due to the increase in e-commerce and rising land values. There is a need to increase the consolidation of loads in freight vehicles to reduce congestion and freight operation costs. To address this issue, a number of initiatives such as Urban Consolidation Centres, Public Logistics Terminals and Joint Distribution Systems have been implemented in many European and Japanese cities.

There are major health impacts to communities living nearby terminals from freight transport. Emission and noise from trucks are adding to the burden of disease for residents living near freight routes. There is a need to address emission and noise standards of freight vehicles that are allowed to operate in urban areas to reduce the impacts of freight on communities.

Studies should be undertaken to investigate initiatives for granting priority for trucks, such as allowing trucks to use transit lanes on freeways and main roads. Signal systems can also be configured to detect and adjust settings to minimise delays for freight vehicles. Dedicated rail freight lines would also allow freight to move more efficiently in urban areas without having to incur the delays associated with congested road and rail lines in major cities.

### **Reservation Systems**

Reservation systems for coordinating access to terminals, loading docks and loading zones to minimise delays and congestion around ports and activity hubs should be promoted. The MobileDOCK system has been successfully implemented in several activity hubs in Sydney and Melbourne to improve the efficiency of deliveries at loading docks. This type of technology could be adapted to on-street loading zones and construction sites to minimise congestion in inner city areas.

### **Alternative Fuel Vehicles**

Alternative Fuel Vehicles (AFVs) such as CNG and electric vans and trucks provide substantial less environmental impacts in cities. Incentives for promoting their use such as lower registration costs should be considered. There is a need to identify barriers and design promotion programs to encourage the use of AFVs for freight transport in urban areas where there is a high level of exposure of residents to the impacts of freight vehicles.

### **Establishment of Partnerships**

Formal partnership and platform programs within major cities and regional areas that all promote interaction between industry, government and Universities should be established. Many countries have adopted the Freight Quality Partnership scheme that originated in the UK. More recently this has shifted to Business Improvement Programs which government and academics work with local businesses to look for opportunities to implement innovative solutions to improve the economic conditions

in areas. Such partnerships also create opportunities for obtain a wide range of data for improving understanding of industry.

## **Logistics Sprawl**

Efforts should be made to protect logistics zones and facilities in inner urban areas to minimise the effects of logistics sprawl. The loss of logistics areas in central city and inner metropolitan areas has considerably increased the number and distance of freight movements with our major cities, adding to the costs of goods as well creating more congestion and externalities from freight transport.

## **City Logistics**

City Logistics is an area that is receiving much attention internationally as an approach for tackling the growing issues associated with urban freight networks. A number of organisations such the OECD, Institute for City Logistics and the World Road Association have been promoting initiatives that can improve the sustainability of goods movement in cities. Approaches for developing partnerships between key stakeholders have been developed. A wide range of schemes have been trialled and implemented in European, US and Asian cities. A program of trials should be developed for our major cities.

## **Performance Indicators**

There is a need to develop a set of freight network performance indicators based on values, goals and objectives of the freight system. This should integrate a range of values and be based on government strategies, industry consultation and planning policies. Goals could be defined to consider how the national freight network can be adapted to reduce freight operation costs, increase supply chain efficiency, minimise community impacts and improve health and safety. Identification of existing data sources as well as cost effective monitoring systems should also be considered.

## **Road Pricing/Tolls**

There is an increasing number of toll roads being operated within Australia. Rising toll levels is leading to avoidance of toll roads by freight vehicles that is causing substantial social problems (eg. noise and safety) as well as environmental impacts (eg. emissions). There is a need to understand more about the balance of power between shippers, receivers & carriers. Presently there is little knowledge of impacts of types of tolls (eg. flat, time-of-day & responsive) for freight vehicles. The transport

industry considers that it “already pays” recovery costs. Tolls are considered an extra tax, adding costs to carriers, can increase price of goods. Currently, there seems to be little basis for determining toll levels apart from maximising revenue in Australian cities.

There seems to be a wide range of attitudes towards tolls by carriers since the freight transport industry not homogeneous (Hire & Reward, Owner operator; fleet size & type of goods). Current toll rates are largely determined by distance (not travel time) and there is little discrimination on the type of freight vehicle and the utilisation of weight and volume capacity of vehicles. Incorporating these factors would make a link between tolls charged, road maintenance costs and efficiency. There is also a reluctance to explore discounts for off-hours that would encourage more large trucks to use urban tolled freeways at night.

Studies have identified that truck drivers have an extremely *low willingness to pay* even a token toll for time savings. Toll levels are often considered too expensive by freight carriers. In many cases the travel time benefits of toll roads cannot be *monetized* (especially for small owner operators) and are not well perceived. Owner operators often do not value travel time savings and cannot use them productively. Many carriers are not reimbursed (eg. For-hire, FTL). For many small owner operators, toll costs cannot be passed onto shippers or 3<sup>rd</sup> party brokers. For private carriers, toll costs are often absorbed as part of operating cost within company’s overall transport costs. Many carriers have a limited ability to absorb costs, so they pass the toll costs onto receivers. This adds to the price of goods and effects the competitiveness of our exports.

Our studies have found that toll charges are determined without any acceptable basis and methodology is not transparent to users. As mentioned earlier there’s a trend in the world to charge HVs profoundly. CityLink in Melbourne is one of the most recent examples of that. CityLink toll charges are significantly higher and leads to more externalities being produced due to toll avoiding nature of HVs. Ignoring this fact, CityLink increased toll charges for HVs during the year 2016, which makes the conditions difficult for many freight operators. Recently they have increased the toll charges by 125% from 1<sup>st</sup> of April 2017 to support new infrastructure development. This has led to a noteworthy social dialog being initiated among the truck community and other stakeholders recently in Australia.

### **The Australian Integrated Multi-Modal System (AIMMS)**

The School of Engineering at the University has established the Australian Integrated Multi-Modal System (AIMMS) that is the world’s first urban laboratory (testing

ecosystem) for implementing and testing of emerging connected transport technologies at large scale and in complex urban environment.

AIMMS will facilitate the development of a common vision and roadmap for deployment, develop system wide pilots and facilitate collaboration between government, industry and academia. It covers an area of 1.2 km<sup>2</sup> comprising 7 km of roadways and will be densely instrumented with the suite of intelligent sensors (over 1000 sensors). Already 35 industry partners are involved in the development and operation of AIMMS.

AIMMS is providing an opportunity for new technologies to be tested for freight and logistics. Current projects include signal priority for trucks considering the value of loads being carried as well as loading zone reservation systems. We are interested in utilising AIMMS as a testbed for developing and trialling new and advanced technologies and services for improving the efficiency and productivity of freight and logistics.

### **New Logistics Infrastructure**

There is a need to develop a range of new logistics infrastructure such as urban consolidation centres and public logistics terminals in Australian cities to improve the efficiency and productivity of freight networks and sustainability of our urban areas.

Urban Consolidation Centres (UCCs) have been implemented in a number of European cities to reduce the costs of distribution for carriers. UCCs also provide a higher level of service for receivers and reduce congestion in central city areas.

Public Logistics Terminals (PLTs) have been used in Japanese cities for transferring goods from regional areas to metropolitan areas. In Australia, such facilities could integrate HPV and PBS vehicles with rigid trucks to dramatically increase consolidation levels.

Applications of the concept of the Physical Internet (PI) where a network of terminals and exchange hubs are created to efficiently move freight in, out and around cities should be investigated. Development of cross-docking centres and short term storage hubs would allow small and medium sized transport companies as well as ancillary transport to achieve far more productive freight networks.

The Volvo Centre of Excellence in Sustainable Urban Freight Systems (CoE-SUFS) at the University of Melbourne is currently working with industry and government on

a number of studies that address the above issues. We are most willing to elaborate on these areas and to explore opportunities to work closer with government to address the challenges facing freight and logistics in Australian cities.