

# Last Mile Freight

## Critical Policy Brief

This briefing draws upon the expertise of RMIT's transport research community to inform policy makers and the wider community on critical challenges facing Victoria's freight sector.

**The volume of Victoria's freight is expected to more than double by 2050.<sup>1</sup> Freight movement across Melbourne will become more challenging as delivery vehicles negotiate higher levels of traffic congestion, particularly in the "last mile" of freight delivery. To meet this challenge, we need to reconsider how freight can be better integrated into city planning and how we can best use new logistics technologies to improve freight efficiency and reduce impacts on liveability.**

### Overview

Road congestion will increasingly impact upon the functioning of Melbourne's freight network, with time spent on congested roads projected to increase by 20 per cent by 2030.<sup>2</sup> This presents a considerable challenge in maintaining freight efficiency, productivity and liveability. The recently released Victorian freight strategy, *Delivering the Goods*, identifies last mile freight – the final stage of delivery to the customer's door – as being one of the most significant impediments to Victorian freight movement.<sup>3</sup> The City of Melbourne has also identified this as a priority in planning for future freight movement to reduce congestion and impacts upon liveability.<sup>4</sup>

This policy brief highlights four areas in which government can address last mile freight obstacles: integrating last mile freight in land use planning; establishing last mile distribution and consolidation centres; facilitating freight industry uptake of transport logistics technologies; and developing the capacity for real-time freight management and planning.

### Integrate last mile freight in land use planning

The need to integrate transport planning with urban planning is well acknowledged.<sup>5</sup> The last mile freight challenge can be best addressed at a city-wide level through integrated urban



Photo credit: kohlmann.sascha on Visualhunt.com / CC BY-SA

### Key Messages

- Efficient freight movement requires integrated urban planning. A last mile freight zoning strategy and last mile freight corridors along Melbourne's main arterial freight routes would support more efficient freight movement across Melbourne and improve public safety.
- The creation of last mile freight distribution and consolidation centres would improve freight distribution and alleviate congestion, enabling goods to be consolidated and redistributed for delivery into fewer freight vehicles.
- The fragmented nature of Victoria's freight industry impedes the uptake of logistics technologies that can enable more efficient freight movement and operational planning. Government could facilitate greater uptake of these technologies in collaboration with industry, especially exploring the potential to develop a shared data platform.
- Government and industry would mutually benefit from collaborative development of a crowdsourced online platform. A crowdsourced platform can connect customers to dispatch or pick-up services, as well as monitoring real-time freight movement to inform government and industry planning.

planning.<sup>6</sup> A last mile freight zoning strategy could better regulate freight movement across Melbourne by establishing off-street loading and unloading provision requirements, guiding local government planning. A designated zone in the planning scheme would provide clarity on land use, help industry to improve resource and asset sharing, and support government in strategic planning for future growth. The creation of peak-hour freight-free zones in central Melbourne and activity centres would alleviate road congestion and provide for more efficient freight delivery.

Last mile freight corridors can also improve efficiency along Melbourne's main arterial freight routes, linking key business hubs.<sup>7</sup> A dedicated delivery corridor with window-based loading and unloading restrictions would ease traffic bottlenecks and resolve conflicts between last mile freight trucks and other road users. This would reduce operational costs for freight businesses and lower the freight carbon footprint.

## Establish last mile distribution and consolidation centres

Last mile delivery is especially inefficient due to unconsolidated distribution, delays at loading bays, low load factors and empty running. Distribution and consolidation centres built specifically for last mile freight can improve coordination of freight distribution and encourage resource sharing,<sup>8</sup> enabling goods to be de-bundled and redistributed for delivery into fewer freight vehicles. From these centres, freight destined for the central business district and activity centres can also be loaded onto more sustainable forms of transport, such as electric vehicles or cargo bikes. A micro-distribution platform for last mile delivery of parcels has been piloted in several European city centres using electric tricycles.<sup>9</sup>

Mobile depots – large, custom-designed trailers that serve as storage and sorting centres – could also be established to distribute goods with greater agility in response to freight demand and changing traffic conditions.<sup>10</sup> Online retailers can further reduce last mile delivery impacts by promoting greater use of dispatch or pick-up lockers managed through smartphone applications, similar to those used by ParcelPoint in Australia and Amazon in the United States.

## Promote and facilitate industry uptake of transport logistics technologies

The ongoing competitiveness of freight businesses will increasingly rely on innovation, especially the use of agile logistics to deliver goods in shorter timescales via smart distribution networks. Logistics technologies offer significant potential to coordinate supply chains and expedite deliveries. This includes: use of barcode scanning; RFID and GPS that enable real-time traceability of cargos; agile supply chain software; block chain; and artificial intelligence that can inform route and delivery planning in response

to changing traffic conditions.<sup>11</sup>

While the benefits of these technologies are recognised by industry and government,<sup>12</sup> the fragmented nature of Victoria's freight industry remains a barrier to uptake. Many freight deliverers are small-scale or sole operators undertaking contract-based delivery, who lack either awareness or resourcing to make use of logistics technologies. Government could actively promote and facilitate greater uptake of these technologies in collaboration with industry. There is potential to develop a shared data platform that all freight operators could access to plan deliveries in response to real-time traffic information as well as just-in-time demand.

## Develop capacity for real-time freight management and planning

Freight movement patterns across Melbourne are presently not well understood. An enhanced capacity to collect and interpret freight movement data from origin to destination would increase understanding of freight distribution patterns across the 24-hour cycle. This data would empower freight operators to plan for more efficient freight movement and inform State and local government planning. This requires greater industry use of vehicle sensors, linked to transport logistics technologies.

Crowdsourcing could be used to connect customers who seek flexible delivery with deliverers who can transport parcels along their daily route. Overseas, major freight operators such as DHL and Wal-Mart are utilising crowdsourcing to manage last mile freight delivery. DHL, for example, developed the MyWays platform to crowdsource last-mile deliveries throughout Stockholm, enabling customers to collect their parcels from designated pick up stations.<sup>13</sup> Government and industry would mutually benefit from collaborative development of an online platform that consolidates demand and synchronises delivery, as well as monitoring real-time freight movement to inform planning.

**For further information contact Professor Prem Chhetri**  
**[prem.chhetri@rmit.edu.au](mailto:prem.chhetri@rmit.edu.au)**

*Author: Professor Prem Chhetri*

<sup>1</sup> Victoria's freight is anticipated to increase from 360 million tonnes (in 2014) to around 900 million tonnes in 2051 (Transport for Victoria, Department of Economic Development, Jobs, Transport and Resources, Delivering the Goods: Victorian Freight Plan, July 2018, p. 7).

<sup>2</sup> Infrastructure Victoria (2018), Five-Year Focus: Immediate actions to tackle congestion, p.4.

<sup>3</sup> Transport for Victoria, Department of Economic Development, Jobs, Transport and Resources, Delivering the Goods: Victorian Freight Plan, July 2018, p. 15.

<sup>4</sup> City of Melbourne (2017), Last Kilometre Freight Plan.

<sup>5</sup> See for example Infrastructure Victoria (2015), Australia Infrastructure Audit: Our Infrastructure Challenges, Executive Summary, p. 3.

<sup>6</sup> Ewedairo, K., Chhetri, P., Jie, F. (2018), 'Estimating transportation network impedance to last-mile delivery: A case study of Maribyrnong City in Melbourne', International Journal of Logistics Management, 29, 110 – 130.

<sup>7</sup> Boyer, K.K., Prud'Homme, A.M. and Chung, W. (2009), 'The last mile challenge: evaluating the effects of customer density and delivery window patterns', Journal of

Business Logistics, Vol. 30 No. 1, pp. 185-201.

<sup>8</sup> See for example the European Commission's NOVELOG project (<http://www.novelog.eu>)

<sup>9</sup> Navarro, C., Roca-Riu, M., Furió, S., Estrada, M. (2016), 'Designing new models for energy efficiency in urban freight transport for smart cities and its application to the Spanish case', Transportation Research Procedia, 12, 314 – 324.

<sup>10</sup> TNT operates this type of mobile depot in Brussels.

<sup>11</sup> See for example European Commission projects: E-Freight - European e-freight capabilities for co-modal transport (<https://www.bmt.org/projects/project/152/e-freight>); U-TURN: Rethinking Urban Transportation through advanced tools and supply chain collaboration (<https://ec.europa.eu/inea/en/horizon-2020/projects/h2020-transport/urban-mobility/u-turn>); and NOVELOG New Cooperative Business Models and Guidance for Sustainable City Logistics (<http://novelog.eu/>)

<sup>12</sup> See for example Delivering the Goods: Victorian Freight Plan (2018), p. 36.

<sup>13</sup> Other examples of crowdsourcing are DHL's Bring.BUDDY and Wal-Mart's Wal-Mart to Go applications.