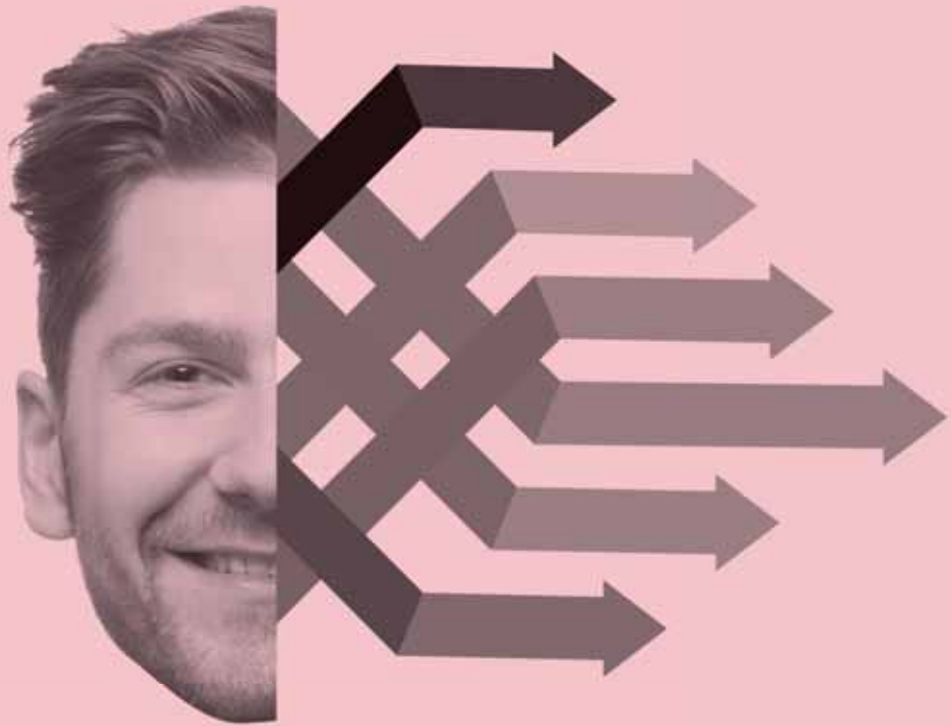


LAST KILOMETRE FREIGHT BACKGROUND REPORT

FEBRUARY 2015



CITY OF MELBOURNE



A CONNECTED CITY

We manage movement in and around our growing city to help people trade, meet, participate and move about safely and easily, enabling our community to access all the services and opportunities the municipality offers.

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Issue 1 - Last Kilometre Freight

27 February 2015

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Last Kilometre Freight

Introduction

The City of Melbourne is growing with more people living, working and visiting the central city. As a result, more people are using the city's roads and footpaths on foot or bicycle, in cars, trucks, vans and on public transport and the number of deliveries are increasing with more freight going into shops and offices to provide the things that people want and need such as food, drink, office supplies and retail goods. These deliveries are known as 'last kilometre freight'. Without efficient last kilometre freight the dynamism and prosperity of our city could suffer.

Data challenges

There is relatively little data available about last kilometre freight in Melbourne and around the world. Every day there is a huge variety of goods being delivered via a wide variety of delivery agents ranging from single private delivery vans to professional logistics firms. Freight receivers occupy a wide range of premises with varying amounts of on-site storage, staff available to receive goods and times of operation. Detailed knowledge of freight operations is limited and there are few cities which have attempted to change the way last kilometre freight is delivered. Those that have addressed last kilometre freight have usually done so as a response to significant pressures. These include very high levels of traffic congestion, the difficulty

of getting last kilometre freight into historic town centres with often narrow streets and possibly delicate historic buildings or those cities addressing last kilometre freight as a response to one-off major events which have a significant impact on freight movement, such as the Olympic Games.

In contrast, we have significant knowledge of personal travel behaviour patterns in Melbourne through the Census, the Victorian Integrated Survey of Travel and Activity (VISTA) and the City of Melbourne's Melbourne Transport Survey. No similar data sets exist for freight traffic. This adds to the complexity of the task in identifying current patterns of last kilometre freight delivery in the central city and in choosing appropriate actions to improve it.

Background Report

This report compiles existing information which will further our understanding on last kilometre freight. This will inform the development of the Last Kilometre Freight Plan, as outlined in Figure 1. This report:

- Outlines the policy content;
- Identifies other work being undertaken;
- Illustrates the changing central city;
- Provides an overview of the transport network and the demand for central city street space;

- Identifies the relevant provisions of the Melbourne Planning Scheme; and
- Provides an overview of current City Of Melbourne operating procedures in relation to last kilometre freight practice.

This report highlights the complexity of the freight task in the central city. The primary purpose of this document is to provide information to help inform decisions and consolidate an understanding of the task today.

The central city is defined as the area shown in Figure 2.

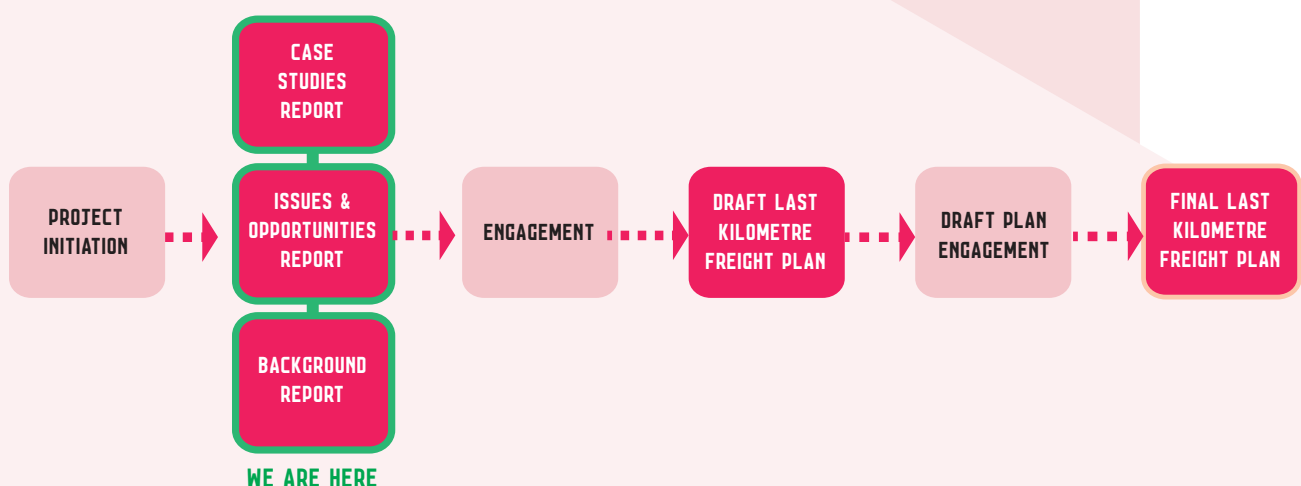


Figure 1 – Overview of the Last Kilometre Freight Project



Figure 2 – Central city

Policy context

Introduction

State Government and the City of Melbourne have produced numerous policy documents which reference the importance of last kilometre freight.

The following section identifies the policies and strategies that are most relevant to this project and the policy that will inform the development of the Last Kilometre Freight Plan, as illustrated in Figure 3.

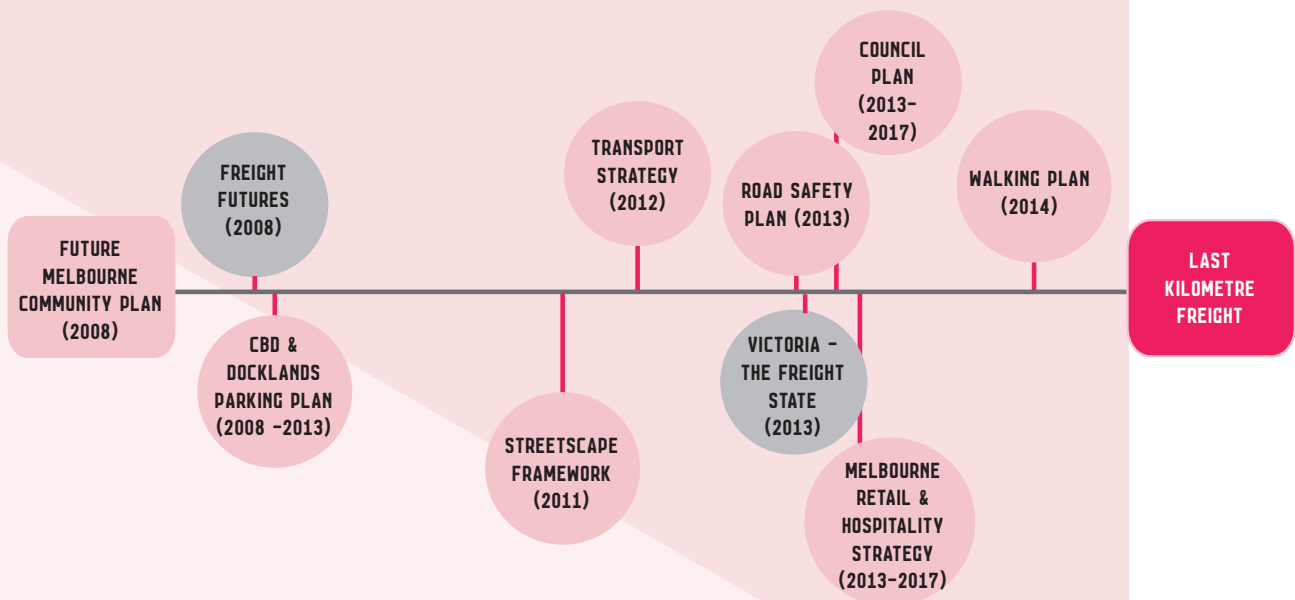


Figure 3 –State and City of Melbourne Policy

State Government

'Victoria – the Freight State' (2013)

Victoria – the Freight State is a long-term strategy targeted at improving connectivity. Direction 8 – using spare overnight network capacity is relevant to last kilometre freight. As existing road infrastructure is underused at night, this direction identifies the opportunity to shift freight movements to night time when demand from other users is lowest. This strategy was released by the previous Victorian State Government. The new State Government, elected on 29 November 2014, has not indicated its position on Victoria – the Freight State.

The Metropolitan Freight task is identified in Figure 4. Whilst the information within Figure 4 applies to all of Metropolitan Melbourne it helps further our understanding of the freight task for trucks and light commercial vehicles, with light commercial vehicles being most relevant within the central city.

This document cites the success of an overnight delivery pilot trialled in New York as evidence of the potential of night time delivery (p51). Actions under Direction 8 include:

- “Working with industry, local councils and relevant planning authorities to encourage the development of a network of 24/7 freight terminals operating in strategic location around metropolitan Melbourne”; and
- “Working with local government to encourage the adoption of more flexible and consistent regulation of vehicle access (e.g. delivery curfews) across local council areas” (p52).

Direction 15 – managing freight delivery in urban areas – acknowledges the impact of freight in urban areas and emphasises the importance of balancing delivery efficiency with amenity impacts. In order to balance freight efficiency with community amenity, the strategy suggests that innovative solutions need to be trialled and implemented (p.67).

It cites two international ‘best practice’ case studies; an urban consolidation centre trialled in 2008 in a single city in the Netherlands which has since spread to another eight cities, and the Fleet Operator Recognition Scheme (FORS) in London which offers access to discounted best practice equipment, training and business services for operators. Actions under this direction include:

- “Working cooperatively with the Ministerial Freight Advisory Council, local councils and key freight customers and operators to improve the consistency of freight delivery access arrangements across the metropolitan area, in terms of both types of vehicles that can be used and the time of day network access is allowed” (p69).
- “Working cooperatively with interested local councils to investigate opportunities to assess and trial approaches to consolidation of deliveries to the CBD...and to encourage more off peak/overnight deliveries” (p69).
- “Working cooperatively with interested local councils to trial the establishment of ‘Supply Chain Stakeholders forums’ for the CBD...” (p69).

Freight Futures: Victorian Freight Network Strategy for a more prosperous and liveable Victoria (2008)

Freight Futures was released in 2008. This document identifies the significant contribution freight makes to Gross State Product (an estimated 14.7 per cent) along with its role in job creation. Growth in the Victorian economy generates growth in freight. This growth needs to be managed. Freight Futures identified 20 strategic directions to shape the freight network, the most relevant of which is Direction 6 – Improve planning for the ‘last kilometre’ of freight journey. This direction identifies issues with local freight deliveries and stresses the importance of supporting local government in working towards more efficient and sustainable freight outcomes. Actions under this direction include:

- Developing a Victorian “best practice manual for last kilometre freight delivery solutions, which also includes the use of quiet vehicle technology” (p43); and
- “Support trialling of environmentally sustainable electric or hybrid freight vehicles to assess the suitability of this technology for the last kilometre delivery task in major retail precincts such as the City of Melbourne” (p43).

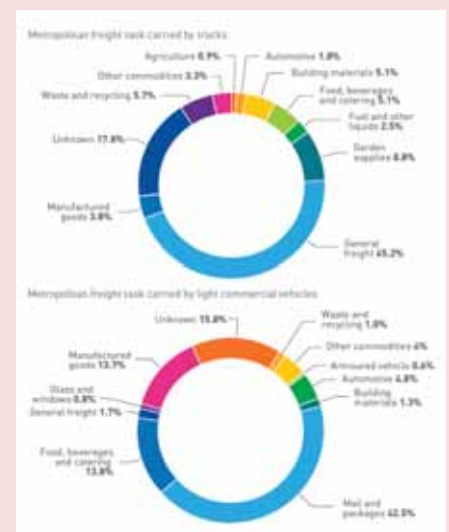


Figure 4 - Metropolitan Freight Task

City of Melbourne

Walking Plan (2014a)

The Walking Plan proposes improvements to the safety and amenity of the walking environment and improved convenience for pedestrians. Its pedestrian street hierarchy establishes that last kilometre freight is an important function of streets in the central city including streets that will become increasingly pedestrianized. Changes to streets – such as greater pedestrianisation – may have implications for freight through changes and barriers to access in various locations around the central city. Such changes should be considered when planning for future freight demand.

Zero Net Emissions by 2020 – Update 2014 (2014b)

Zero Net Emissions establishes a vision for Melbourne to become a carbon neutral city and identifies an opportunity to reduce carbon emissions from freight (p8). The plan proposes to “work with others to develop options for improving freight in the central city area” (p26) and suggests that “preferential treatment should be given to low emissions...freight vehicles” (p26).

Council Plan 2013-2017 (2013a)

The Council Plan details what the City of Melbourne will do to achieve the community's vision of a ‘bold, inspirational and sustainable city in the Council's elected term (four year period). It identifies the priority actions to be undertaken during the term as well as identifying the outcomes to be measured in order to assess whether the goals that underpin this vision are being realised. The Council goals and four-year priorities most relevant to last kilometre freight are:

- 3. A prosperous city - Improve the retail and hospitality experience in laneways and shopping strips through good design, cultural and artistic activities and infrastructure.
- 5. An eco-city- Embed municipal-wide waste management practices to increase recycling, reduce waste generation and lessen amenity impacts.
- 6. A connected city - Foster innovative, low-impact freight and delivery in central Melbourne.

Melbourne Retail and Hospitality Strategy 2013-2017 (2013b)

This strategy has developed objectives aimed at supporting and developing the retail and hospitality industry within the City of Melbourne. Under the ‘environmental sustainability’ objective is a goal to “develop options for improving freight efficiency in the central city” (p51). This includes educating businesses on the benefits of choosing sustainable transport and encouraging “low emissions delivery systems such as hand-operated vehicles and freight consolidation centres for new developments” (p51).

Road Safety Plan (2013c)

The Road Safety Plan is a strategy for improving the safety of all road users, with a particular emphasis on those most vulnerable; pedestrians, cyclists and motorcyclists.

In an effort to protect and improve the amenity of given areas of the City, regulatory outcome 11 proposed to “investigate restrictions to motor vehicle access in areas of high pedestrian and cyclist activity” (p41). Such changes are likely to have implications for freight movements within the central city and this needs to be planned for.

This plan also investigated the number of truck crashes in the municipality and cites a 41 per cent increase between 2007 and 2011 (p59), with the most common type of crash involving trucks being in ‘rear-end’ collisions. This raises concerns over how the central city will cope with increased freight and what the implications will be on vehicle crash rates.

Transport Strategy (2012a)

The Transport Strategy sets key directions and policy goals to meet transport needs for projected growth in the City of Melbourne to 2030. It examines changes in the use of different modes of transport for getting to and moving within the municipality, developing policy to support the continued success and liveability of Melbourne.

The Transport Strategy has a dedicated chapter on “Central City freight and delivery” (p108), which acknowledges the important role of freight in supporting a vibrant central city economy and the issues and barriers it faces. The strategic goal for this chapter stresses the importance of using research, collaboration and international best practice in achieving “efficient freight, delivery and waste systems in the central city” (p108). This is further supported by Key Direction 6 “Foster innovative, low impact freight and delivery in central Melbourne”.

Streetscape Framework (2011a)

The Streetscape Framework emphasises how great streets underpin great cities and establishes a step by step approach for streetscape improvements. This guidance document assists in the analysis of why a street might need to change (identifying catalysts), what should be changed and how you might go about changing it; through the creation of a project brief and an approach for prioritising proposals. The Streetscape Framework also links the reader to other documents for further guidance – for example, within the chapter on ‘Overall approach to street redevelopment’ is ‘3 Research’ it refers the reader to Places for People and the Transport Strategy.

As the central city’s streets continue to evolve into more walkable and people-friendly places, changes to streetscapes also need to consider freight. Businesses still need to be serviced regardless of their location and the streetscape framework offers a means of bringing this to attention of the responsible officers. A guided approach to assessing how the proposed changes impact freight and how to design to best accommodate for delivery services may be of significance to future streetscape frameworks.



Hardware Lane

CBD and Docklands Parking Plan 2008-2013 (2008a)

This plan establishes that freight has a high priority for allocation of kerbside space, as identified in Table 1.

The Plan states that loading zone times should be short to maximise the number of deliveries and access. It guides the future management of parking in the Central Business District (CBD), informs parking priorities and sets out the series of actions necessary to support an accessible central city. Within 'Loading zone operation times', under Key Issue 31.2 – 'the operation of short-stay parking in the CBD', points 71 and 72 of the Parking Plan explain that a low overall occupancy rate is important as delivery vehicles need to park close to their destination and move between their vehicle and delivery point quickly in order to keep to schedule.

During the consultation period, the possibility of restricting on-street delivery at lunchtimes and peak periods was discussed. In response to this, a major stakeholder, the Transport Workers Union stated "any time restrictions on their activities would have a dramatic impact on CBD business activity" (p14).

The plan notes that no change to the current process for managing loading zones is necessary (p14).

Future Melbourne Community Plan (2008b)

Future Melbourne Community Plan is a plan that lays out the goals and aspirations for the City of Melbourne. It is the "community's vision for the management, development and direction of [the] city to 2020 and beyond". This plan prepares for challenges such as population growth, climate change and resource shortages whilst working towards the vision of a "bold, inspirational and sustainable city" which maintains a high standard of liveability and continues to prosper.

The Future Melbourne Community Plan identifies six goals to achieve this vision:

- A city for people
- A creative city

PRIORITY	TYPE OF KERB SPACE USE	DEFINITION OF KERB SPACE USE
1	Safety	Clearance required for safe operation of streets including fire hydrants, pedestrian crossings and sight lines (includes footpath widening to cater for large pedestrian volumes)
2	Sustainable transport	Typically tram and bus stops, taxi ranks and cycling facilities
3	Servicing properties	Short-stay parking for drop-off/pick-up e.g. 5 and 15 minute loading zone) typically associated with commercial activities
4	People with disabilities	On-street parking bays provided in locations suitable for people with disabilities
5	Emergency vehicles	Police, Fire and Ambulance requirements
6	Clearways (including Bus Lanes)	Space is provided for through traffic (e.g. typically during peak hours
7	Short-stay parking	Typically 1P or 2P parking for visitors
8	Medium-stay parking	Typically 3P or 4P parking for visitors
9	Commercial	Using road space for commercial activities (by widening the footpath) such as 'al fresco' dining
10	Long-stay parking	All day provision of parking for employees and residents

Table 1 - Hierarchy for on-street parking usage (City of Melbourne 2008a)

- A prosperous city
- A city of knowledge
- An eco-city
- A connected city

Under the 'Connected City' strategy, there are six sub-goals; including 'Innovative urban freight logistics', which sets directives to "reduce amenity degrading freight" and support "low impact and efficient central city 'last-mile' freight".

A sub-goal within the 'Prosperous City' is for the City of Melbourne to be 'Supportive of business', which includes providing businesses with information and support to develop an "informed and proactive business community" and facilitate change. Given the role freight plays in the daily operations of city

businesses, this goal is supportive of City of Melbourne's efforts to work with businesses on the making and receiving of deliveries; informing them of future challenges and potential solutions.

Another sub-goal under 'Prosperous City' is for 'A stimulating and safe 24-hour city'. This sub-goal emphasises that in order to be a prosperous city, Melbourne needs to be a stimulating and safe 24-hour city. The city is targeted to enable a greater mix of activities at all hours of the day and these activities and their infrastructure need to be well managed. Freight is part of this story as a city open at all hours of the day may influence demand for freight and impact upon the ability of freight vehicles to access certain parts of the city.

The central city

Daily Visitation

844,000 people entered the City of Melbourne on a daily basis in 2012. It is projected that this could rise to 1.256 million people per day in 2030 (City of Melbourne, 2013d) (refer to Figure 6).

The increase in activity in the central city reinforces the need to manage the public realm to ensure the requirements of all those living, visiting and moving within the central city are planned for and that our businesses continue to be served efficiently.

The number of people visiting the city each day is also highly relevant to the freight story – the increase in the number of people competing for space in the public realm influences the ability of freight vehicles to navigate the city – with the potential for more roads closed to traffic, greater access restrictions, more vehicles on the roads and increased competition for parking spaces.

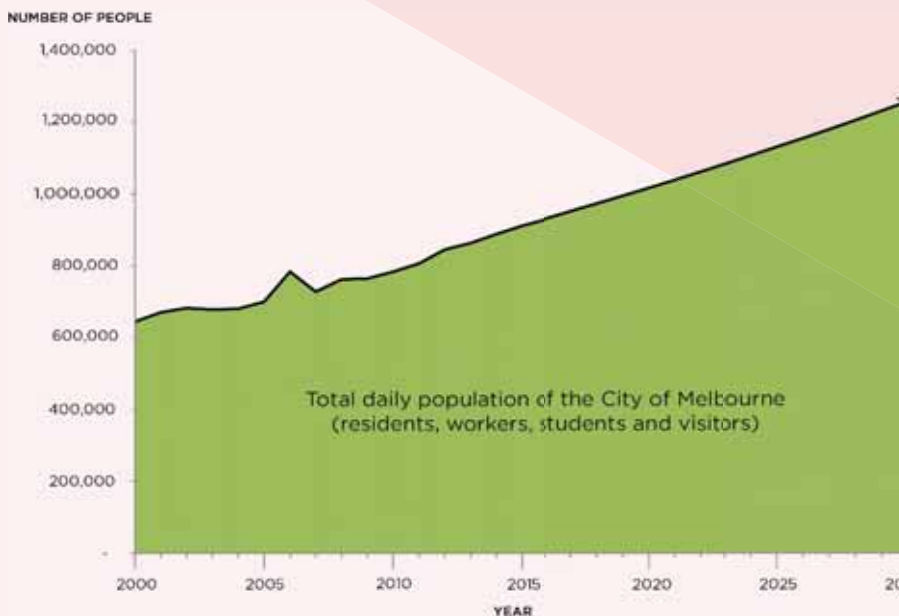


Figure 6 – Daily visitors to the City of Melbourne



Figure 7 – Central city CLUE area analysis (Melbourne CBD)

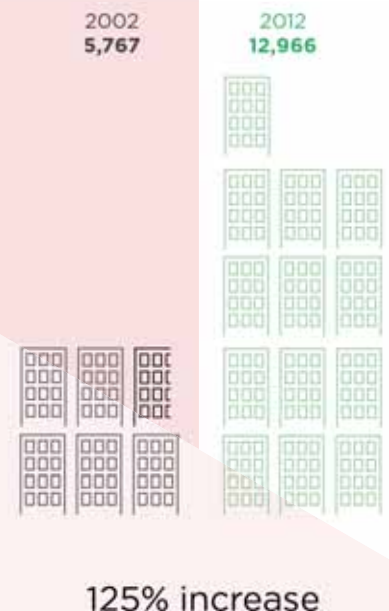


Figure 8 – Residential apartment growth in the central city

Residential Population

The central city is experiencing unprecedented growth, with the residential population of Melbourne's CBD increasing by 23 per cent in the year to June 2013 (The Age, 2014). Last kilometre freight must be managed to maintain the economic prosperity of the central city, safeguard liveability for the rapidly expanding residential population and ensure an amenable environment for all users of the central city.

The demographic data in this section considers the central city to be the area identified in Figure 7 and is drawn from the Census of Land Use and Employment (CLUE) (City of Melbourne, 2012c).

As illustrated in Figure 8 the number of residential apartments in the central city had a 125 per cent increase in the ten years to 2012, rising from 5767 dwellings in 2002 to 12,966 apartments in 2012.

This supported an increase of 149 per cent in the residential population which was 23,867 in 2012 up from 9592 in 2002, see Figure 9.

The growth in residential dwellings is spatially represented in Figure 10. It is to be noted that the below images also include Docklands and Southbank which are beyond the scope of this project however, the density of accommodation in the central city is relevant to this project to determine where dwellings are concentrated.



Figure 9 - Residential population growth in the central city

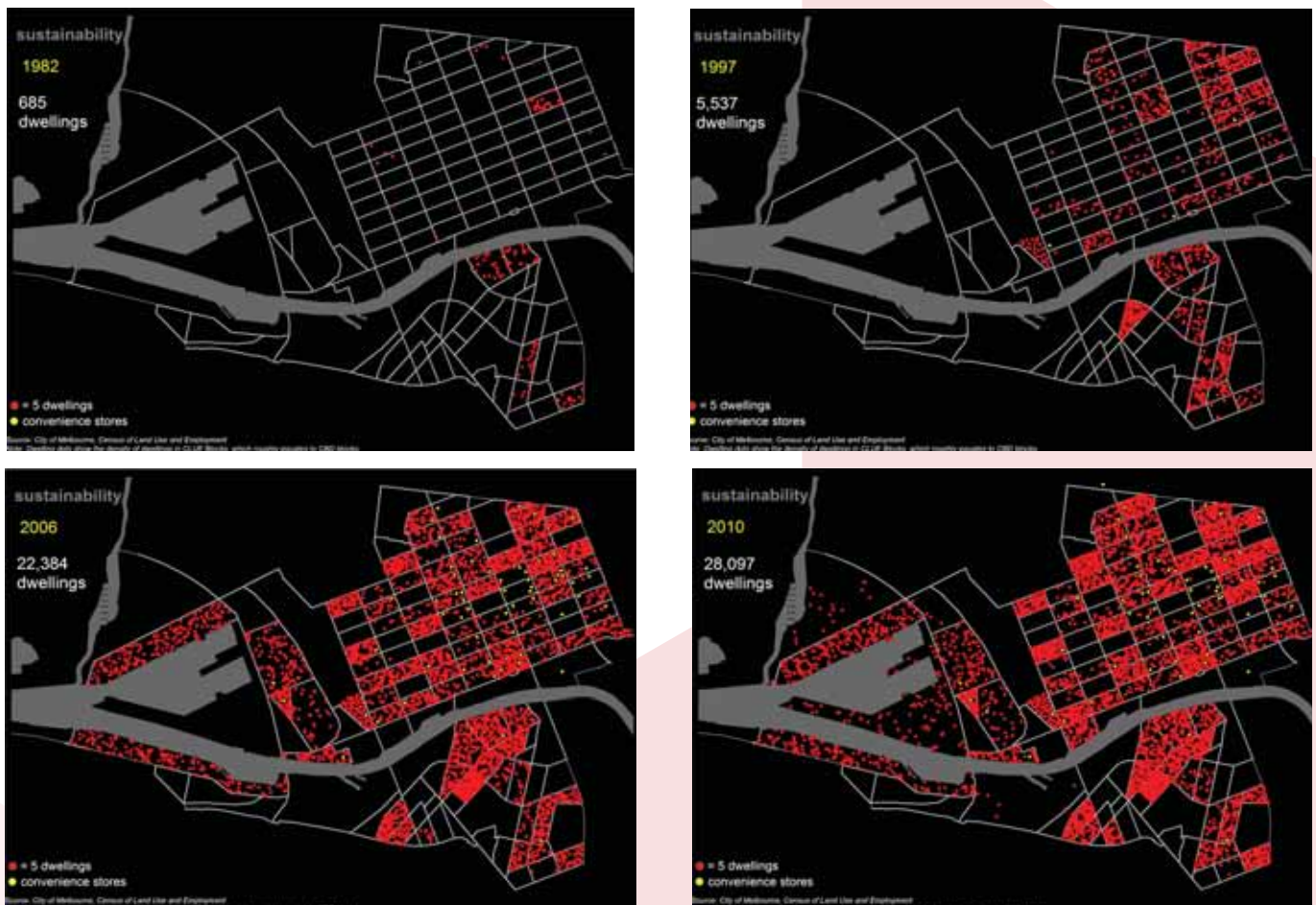


Figure 10 - Dwelling growth in the expanded central city

Land use and economy

The CLUE is conducted by the City of Melbourne biennially and provides comprehensive information on land use, employment and economic activity across the municipality. The following information shows how the central city has changed in the ten years to 2012. They are drawn from the most recent report for 2012 and are compared with figures from 2002 (City of Melbourne, 2012c). The data refers specifically to the central city and not the City of Melbourne as a whole, see Figure 7.

From the figures it is evident that the central city has experienced substantial growth over the 10 years to 2012. During the period between 2002 and 2012, employment increased by 25.1 per cent (see Figure 11) and built space by 20.5 per cent (Figure 12). Figure 13 identifies the structure of the built space in the CBD in 2014 and thereby identifies the industries which have the largest presence by floor-plate in the central city. The number of food and beverage establishments increased by 66 per cent (Figure 14) and as illustrated in Figure 15 business service establishments (largely comprised of legal services, management advice and other consulting services, accounting services, and computer system design and related services) grew by 30 per cent over the same time period.

The significant increase in food and beverage establishments, which in 2012 nearly equalled the number of retail establishments (refer to Figure 17), will have caused a marked increase in demand for deliveries, as will the increase in the residential population, particularly if online shopping trends continue to rise.

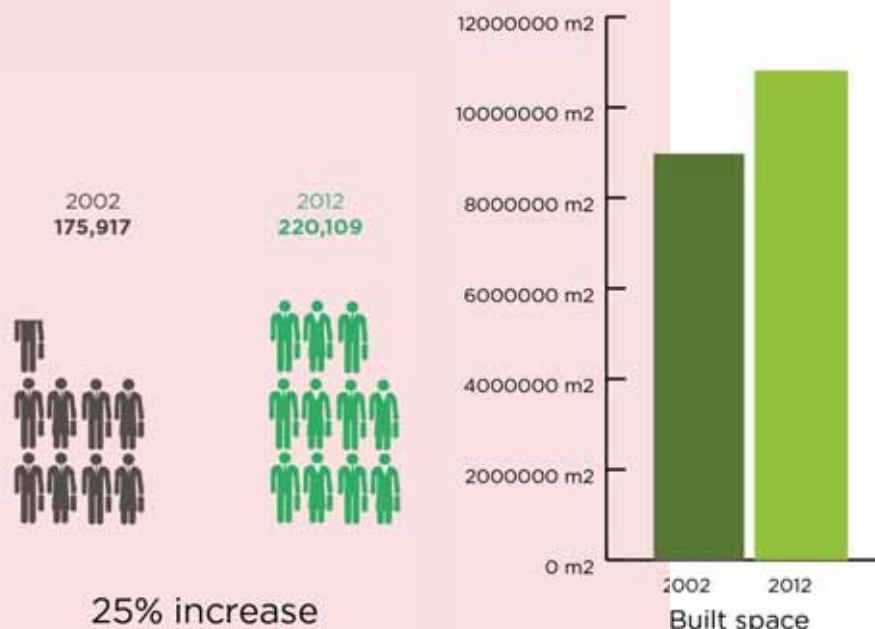


Figure 11 - Employment in the central city

Figure 12 - Built space in the central city

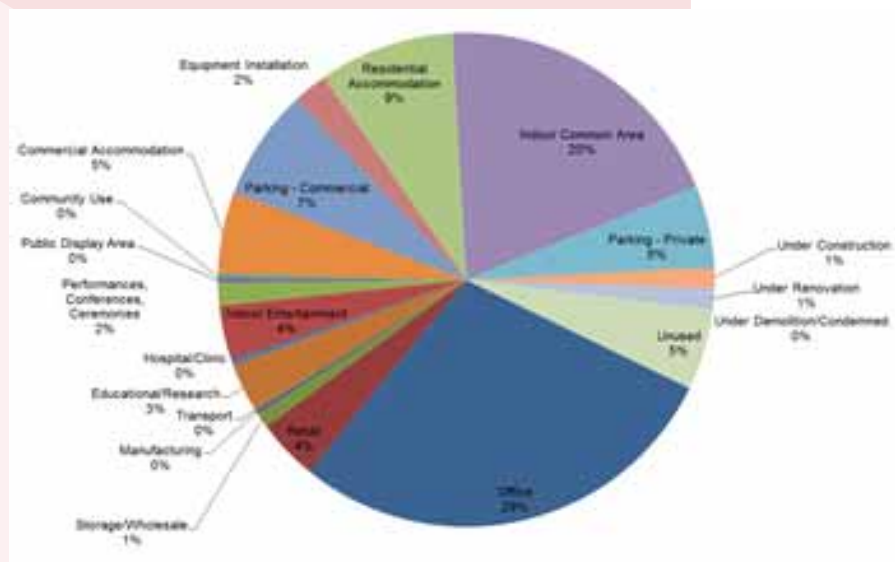


Figure 13 - Structure of the built space in the central city 2012

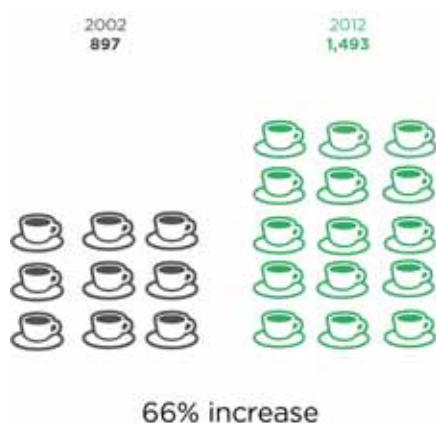


Figure 14 – Food and beverage establishments in the central city

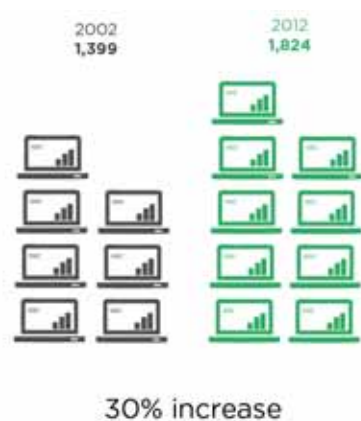


Figure 15 – Business services establishments in the central city

Food and beverage growth in the central city

The growth in food and beverage establishments is spatially represented in Figure 16. It is to be noted that the below images also include Docklands and Southbank which are beyond the scope of this project however, the density of food and beverage establishments in the central city is relevant to this project to determine where these are concentrated for consideration of servicing the requirements of these businesses



Figure 16 – Food and beverage establishment growth in the expanded central city

Retail

The biggest impact on last kilometre freight is the growth of the central city. The intensification of land use, the increase in pedestrians and the increased competition for street space will impact on the movement of goods to retailers.

Alongside the growth in the central city the retail industry has also grown and changed. Between 2002 and 2012 the number of retail establishments in the City of Melbourne increased by 38 per cent. In the central city retail establishments increased by 18 per cent (see Figure 17).

In 2012 the combined economic output of all City of Melbourne retail establishments was \$2.83 billion (City of Melbourne, 2013b, p23).

The growth in retail establishments is spatially represented in Figure 18. It

is to be noted that the below images also include Docklands and Southbank which are beyond the scope of this project however, the density of retail establishments in the central city is relevant to this project to determine where these are concentrated for consideration of servicing the requirements of these businesses.

Consumer behaviour has also changed over this time with the rise in online shopping. Additionally, customers now expect that major chains will move stock between stores to make the shopping experience easier and are also looking for hassle-free, affordable return processes for unwanted goods bought online (Teezon, 2014). More people visiting, living, and working in the city increases the demand for goods and an increase in the amount of deliveries made to the central city is needed to supply this demand.



Figure 17 – Retail establishments in the central city

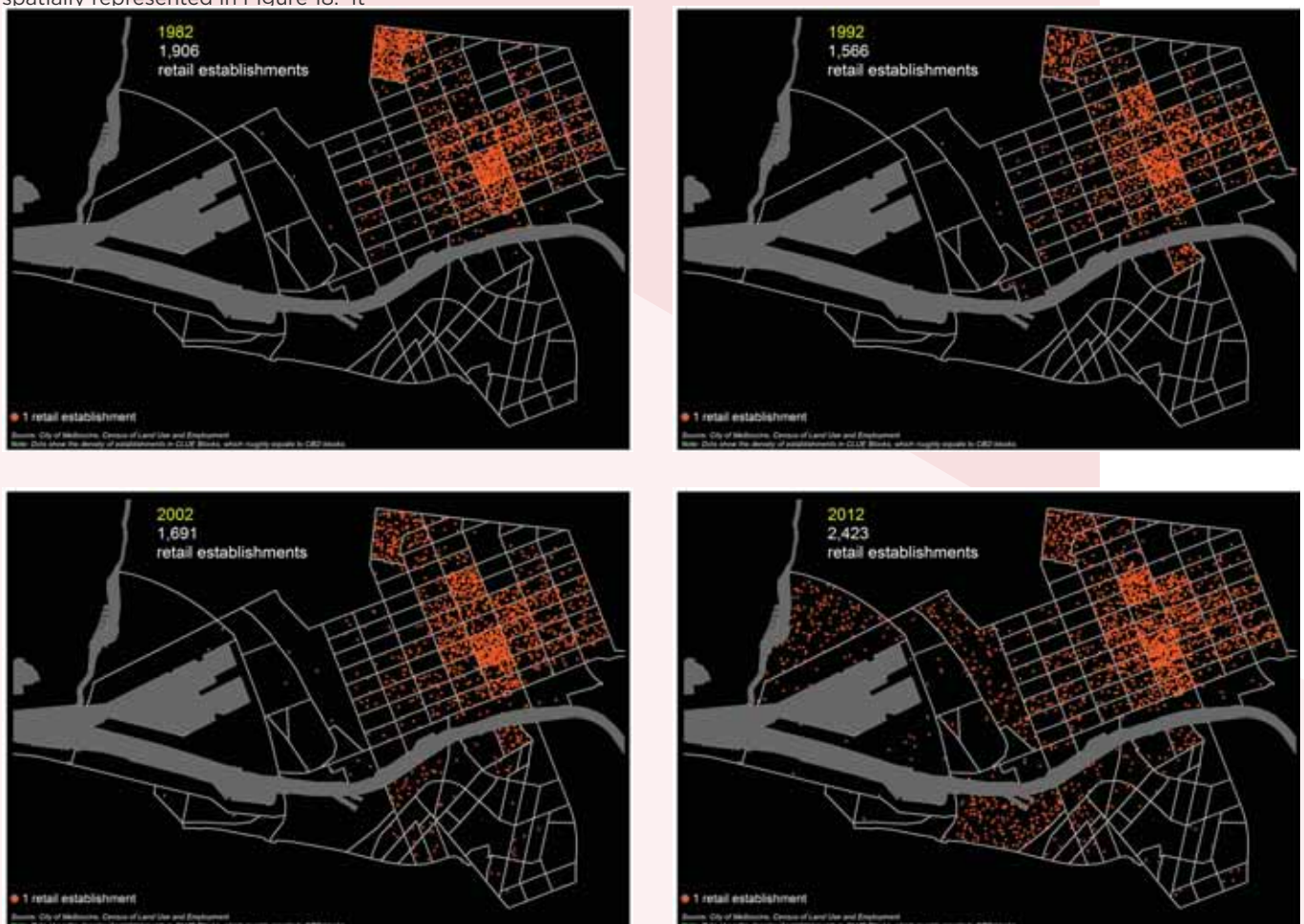


Figure 18 – Retail establishment growth in the expanded central city

Late night trading

Melbourne has a goal to become, and is evolving into, a 24-hour city with retail and hospitality venues staying open later to align with consumer habits. City events, such as White Night, the Comedy Festival and the Fringe Festival, also encourage people to stay and spend later into the night and retailers have responded by extending their trading hours. An extension in trading hours and an increase in late night crowds has implications for freight – deliveries need to be made to these businesses to serve their extended hours. This also presents the opportunity to shift some deliveries to the late-evening / night time period when on-road demand is lower, as more stores will now be staffed at this time and these stores may be able to receive late night deliveries. This needs to be managed with the consideration of the potential noise generation.

Online shopping

Online shopping has grown significantly in Australia, challenging the local retail sector to adapt to competition with overseas markets. The City of Melbourne's Retail and Hospitality Strategy (2013b) attests that physical shops still have a strong foothold in the market and this is unlikely to waiver; a statement supported by the growth in the number of retail establishments in Melbourne.

The number of sales made online increases the number of deliveries made to the residential dwellings where the order was placed. There is also a high incidence of individuals sending personal deliveries to their workplace (Woodards, 2013). In turn, the return of goods purchased online when customers are unsatisfied with the product, is a frequent and additional source of freight movement within the retail industry. With a high density of residences and work places located within the central city, along with a number of local retailers sending packages out of the City, demand for freight services is set to increase significantly as the City continues to grow.

Summary of retail

Ultimately retail in Melbourne is changing to accommodate more shops, cater to increases in online orders and returns and move stock between stores and storage centres in response to customer demands. All of these trends point towards more stock moving through the central city and more freight vehicles on the roads to carry them. A change in the collective approach to freight may ensure the central city successfully navigates this increasing demand.

What does this mean for freight?

More people living, working and doing business in the city means more deliveries to supply increasing demand. How the freight deliverers, receivers and the city will navigate this demand in the face of a more consolidated city centre is central to this project.

City of Melbourne precincts

Within the central city, there are a number of precincts each contributing unique character and charm. This project provides the opportunity to work with the precincts (see Figure 19) to determine what the most important factors are for their businesses in a growing central city and to facilitate, where practical, their economic growth and efficiency, improved business health and vitality and improved amenity in areas where freight is delivered.



Figure 19 –City Precincts

Movement and transport

Introduction

In the context of freight over the last kilometre, it is important to understand the role of each of the streets in the central city and the increasingly difficult task they will have in moving people and goods as the central city becomes busier.

The existing transport network is illustrated in Figure 20. This figure highlights the competition for space on streets within the existing transport network and the multiple functions many streets already play in the distribution of goods and people in the central city.

Public Transport

Figure 20 highlights the stress placed on transport infrastructure, by identifying the tram stops which are likely to be over capacity by 2030 (City of Melbourne, 2014a). This highlights that business as usual is not a viable long term option in the central city, with increasing competition for space causing stress on the carrying capacity of our streets (including pedestrians) and the existing infrastructure. This is further supported by the mode by which people travel to work in the City of Melbourne as identified in Figure 21. This identifies a percentage decrease in vehicles and an increase in people using public transport, cycling and walking to work in the City.

The decrease in vehicle trips for work purposes can assist the delivery of freight by 'freeing up' road space for freight vehicles accessing the central city. However, the increase in other modes can add additional stress on our streets, this due to greater competition for street space including footpaths and changes to transport infrastructure to accommodate greater numbers (such as tram level access stops) which can lead to road narrowing and potential removal of on-street car spaces. Tram stops also need to be upgraded to be made compliant with the Disability Discrimination Act; these will be larger and take up more space. It is important to note that whilst the individual modes may have experienced an increase or decrease in percentage of trips, overall numbers may still be rising as more people are coming into the central city.

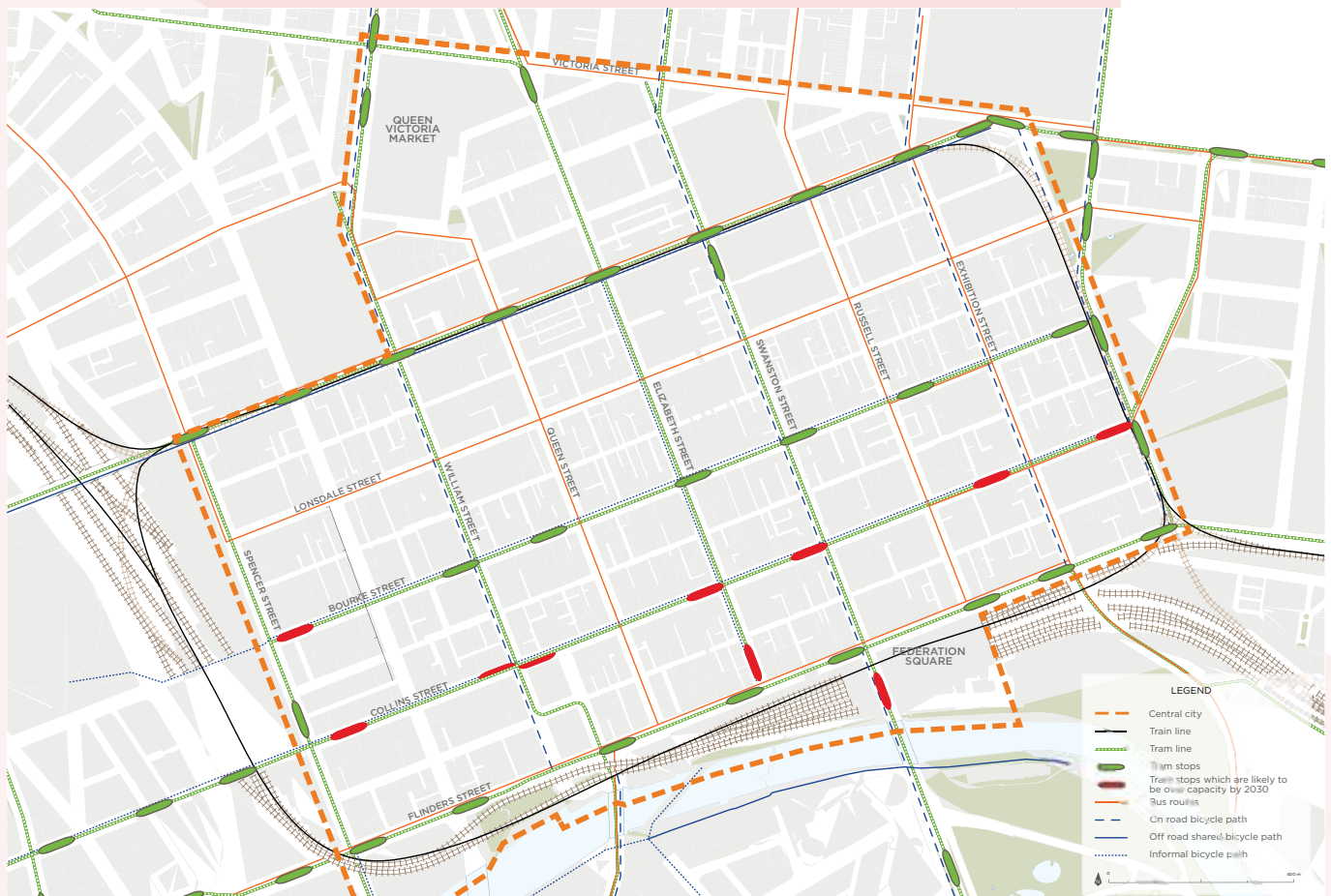


Figure 20- Transport in the central city

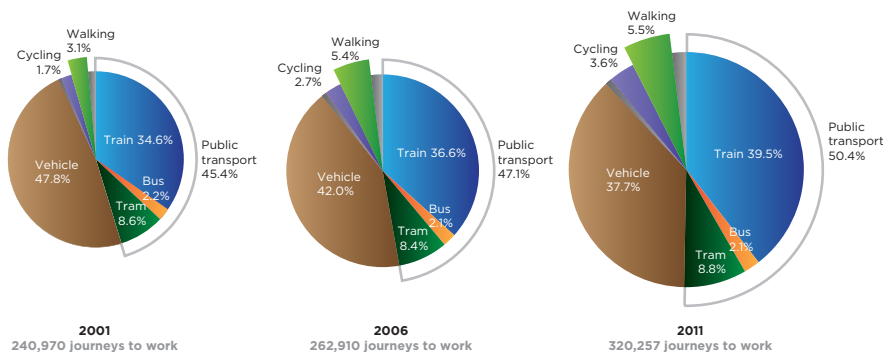


Figure 21 – Method of travel to work places in the City of Melbourne, 2001, 2006, 2011

Australian Bureau of Statistics, 2011, 2006, 2001

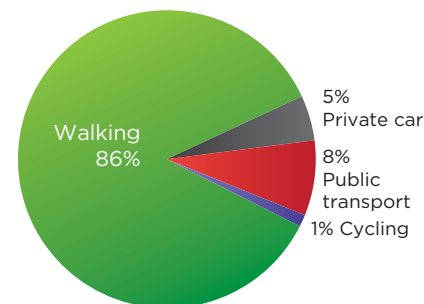


Figure 22 –Trips within the Hoddle Grid and Docklands by mode, average weekday 2009/2010

Source: City of Melbourne, 2014a.

Pedestrians

Whether accessing the central city by private vehicle, public transport or active transport, walking is a key part in all trips. In the Hoddle Grid and Docklands 86 per cent of all trips are walking only trips, as illustrated in Figure 22.

Walking is also an essential component of the freight delivery task particularly for deliveries made from on-street parking (loading zone or other). The relationship between freight and people walking will become increasingly important as the central city gets busier.

The pedestrian network volumes in the central city are mapped in Figure 23. This network identifies those streets in the central city, which move a greater number of people over the course of the day.

Consideration of this will be beneficial in determining the best times and locations to undertake deliveries into the central city.

The Walking Plan identifies the need to adapt a pedestrian street hierarchy and provide direction for the operation of streets based on this hierarchy. This will be achieved whilst maintaining access for delivery and service vehicles. All street levels on the pedestrian street hierarchy have the ability to provide for deliveries. Table 2 identifies the characteristics and management of streets within the proposed hierarchy.

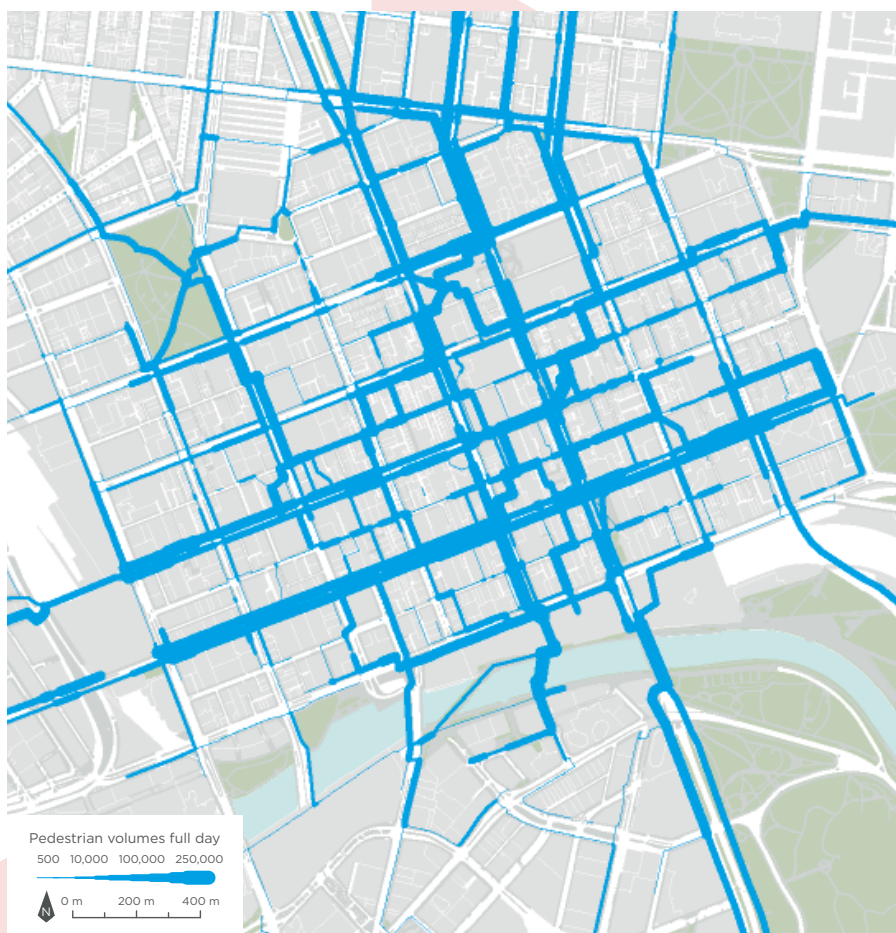


Figure 23 – Pedestrian network volumes

CBD pedestrian dynamic based on approximate modelled network volumes. Generated by the Pedestrian Network Model, using ABS, VISTA, CLUE and Pedestrian Counting Program information (City of Melbourne, 2014a).

Increasing pedestrian function

		Characteristics	Street management
Hardware Lane	 Street as Place (Local street)	<ul style="list-style-type: none"> Pedestrians move freely over the street People linger on the street, at cafes, on public seating or to play Amenity increased by providing spaces for people to be in Low traffic function 	<ul style="list-style-type: none"> Can be used as a place permanently or during specific times (such as lunch times or in evenings) Can operate as a shared zone to provide traffic access Provide for deliveries, property servicing, cycling and access to off-street car parking.
Little Collins Street	 Walking Street (Local street)	<ul style="list-style-type: none"> Pedestrians move freely over the street Key transport link for pedestrians Amenity and safety increased by reducing crowding Low through traffic function 	<ul style="list-style-type: none"> Can be used as a walking street permanently or during specific times (such as lunch times or in evenings) Can operate as a shared zone to provide traffic access Provide for deliveries, property servicing, cycling and access to off-street car parking.
Swanston Street	 High Mobility Walking Street (Public transport corridor)	<ul style="list-style-type: none"> Streets shared by trams, buses, bikes and pedestrians High frequency public transport corridor Low traffic function Significant interchange between public transport and walking network 	<ul style="list-style-type: none"> Provide for deliveries, property servicing, cycling and access to off-street car parking.
Flemington Road	 High Mobility Street (Public transport corridor)	<ul style="list-style-type: none"> Streets shared by trams, buses, private vehicles (including bikes) and pedestrians High frequency public transport corridor Traffic function 	<ul style="list-style-type: none"> Trams, buses and pedestrians have priority under SmartRoads Provide for deliveries, property servicing, cycling and access to off-street car parking.
Lygon Street	 Other streets used by pedestrians	<ul style="list-style-type: none"> Streets shared by private vehicles (including bikes) and pedestrians Examples include shopping strips, local residential streets or arterial roads Traffic function 	<ul style="list-style-type: none"> Varies depending on use Provide for deliveries, property servicing, cycling and access to off-street car parking.

Table 2 – Pedestrian Street Hierarchy Characteristics and Street Management
(City of Melbourne, 2014a)

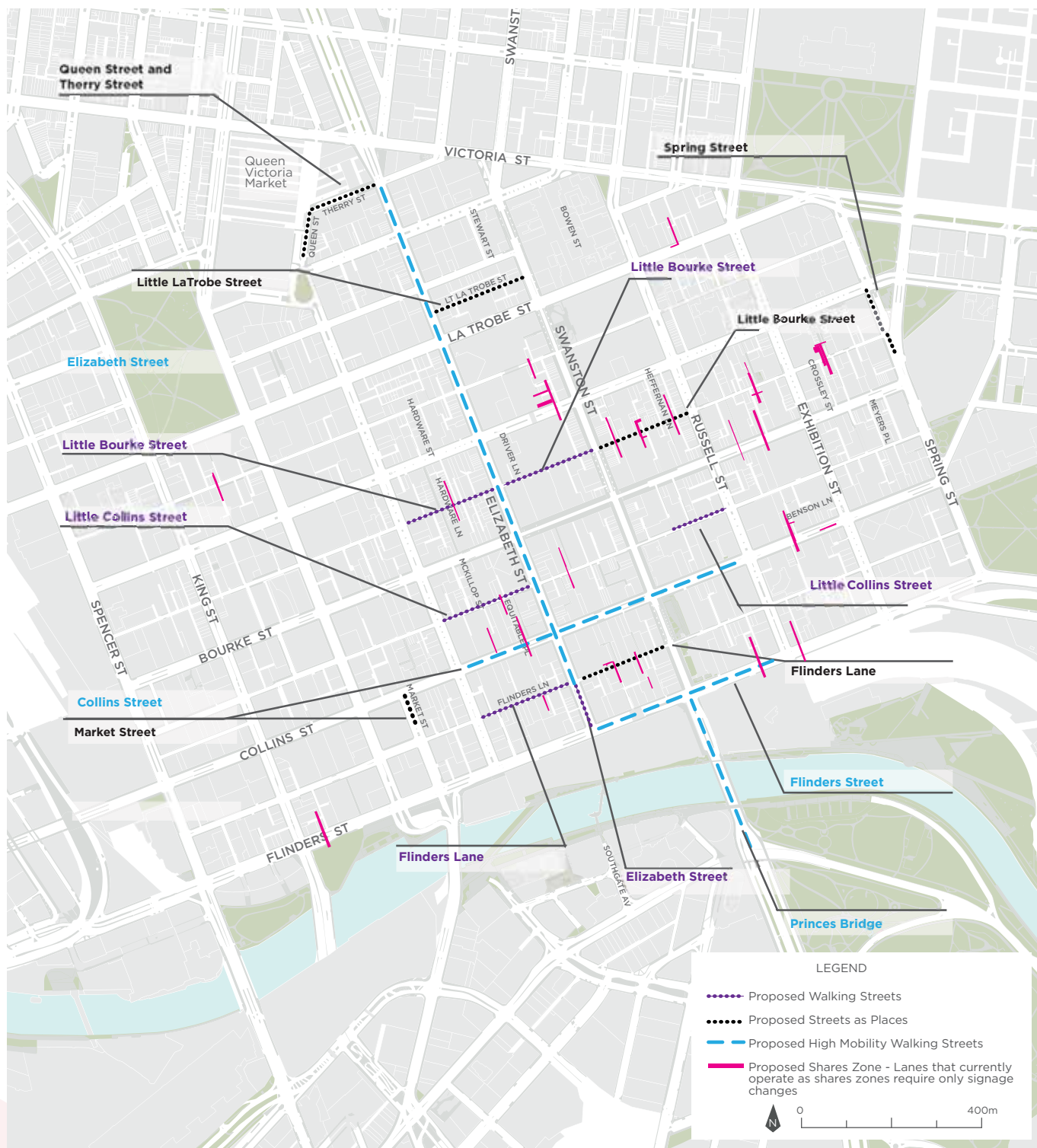


Figure 24 – Proposed Pedestrian Street Hierarchy

(City of Melbourne, 2014a)

Bicycle Network

On-street bicycle lanes are a consideration for last kilometre freight deliveries as they interact with other road infrastructure, as illustrated in Figure 20.

An increase in people cycling to the central city will be supported by bicycle infrastructure. Freight deliveries need to be mindful of the location of this infrastructure. An increase in the number of bike riders in the central city has the potential to lead to improved and expanded infrastructure which can assist in the deliveries of goods within the central city by changes to the street environment.

The Bicycle Plan 2012-2016 (City of Melbourne, 2012d) has the aim of making all roads managed by the City of Melbourne safe for cycling.

As well as identifying streets for capital investment the Plan also identifies the need to investigate whether the little streets in the central city can play a greater role in accommodating cyclists to alleviate the pressure on other streets such as Collins which is a constricted space for cyclists due to competition for space with other road users. In terms of cyclist safety in the central city, Collins Street and Elizabeth Street recorded the highest number of reported injuries from car doorings. This needs to be considered when identifying an appropriate street management plan to achieve our aim of lively, convivial and safe streets as identified in the Last Kilometre Freight Issues and Opportunities Report 2015 (City of Melbourne, 2015a).

The Bicycle Plan actions most relevant to last kilometre freight in the central city include:

- Investigate options for converting a number of car parking spaces to bicycle parking at locations around the municipality. Locations will include Federation Square, the University of Melbourne, RMIT, Queen Victoria Market, Bourke Street near Spring Street, the northern end of Exhibition Street and on many of the little streets. An evaluation of these bicycle parking areas will include a cost benefit analysis.
- Investigate partial road closures to enable cyclists to trial new bicycle routes.



Figure 25 – Local bicycle network, existing and proposed routes 2012-16

City of Melbourne, 2012d.

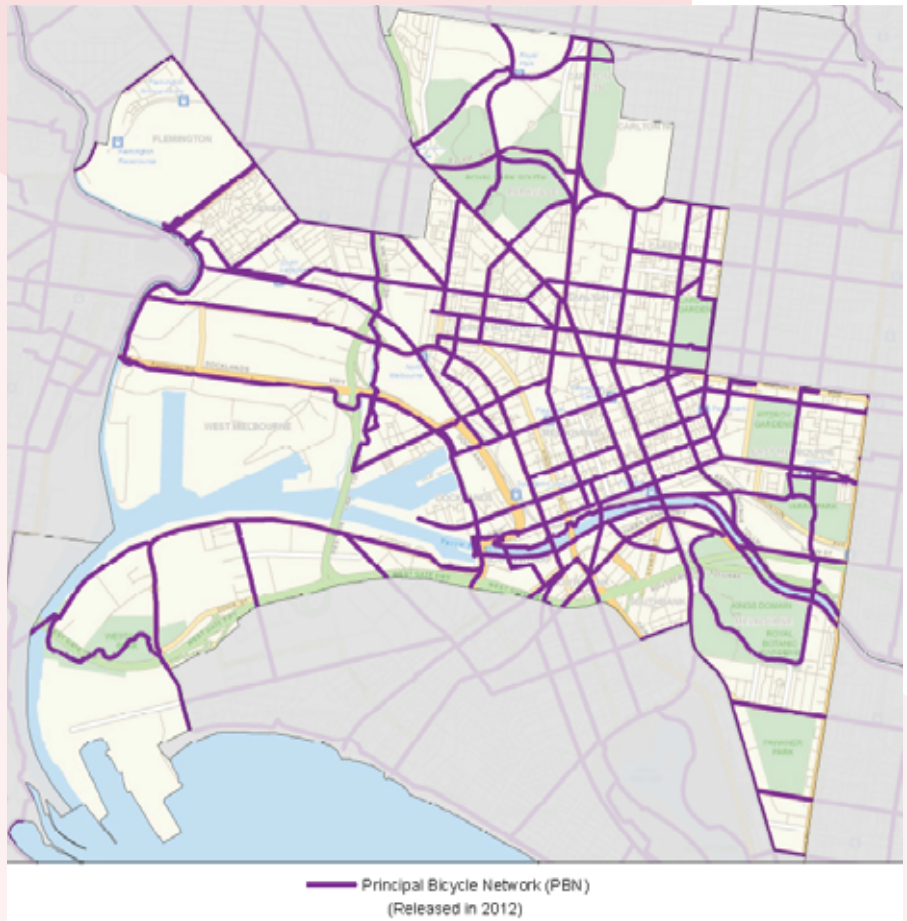


Figure 26 – Principal Bicycle Network (VicRoads, 2012)



Figure 27 – Commercial (public) and private (commercial) car parks 2010

Car parking

Figure 27 shows commercial (public car parking) 2010 and private parking (commercial) as well as intermittent street closures. In the longer term, these off-street car parks may provide opportunities for last kilometre freight innovation and should be investigated as part of this project.

Summary

The central city is a system of which the delivery of goods is one component. Freight uses the same street network which accommodates walking, cycling, public transport and private vehicles as well as the other functions that streets play in the central city. The movement of people and goods is critical in maintaining the prosperity and liveability of our central city and must be carefully managed to ensure we reach our goal as a bold, inspirational and sustainable city.

Planning scheme provisions

Melbourne Planning Scheme

The state and local sections of the Melbourne Planning Scheme include information on freight including amenity, urban design considerations and the requirements to include loading bays in developments.

Local Planning Policy Framework

Municipal Strategic Statement

Clause 21.09 of the Municipal Strategic Statement (MSS) acknowledges Melbourne's role as a key freight hub and gateway in Australia and the role this plays in supporting business. It emphasises the need to minimise the impact of freight vehicles on the amenity of mixed use areas in the City. Clause 21.09 - 6 Port and Freight Movement includes the following freight-orientated objective:

- Objective 3 - To reduce the amenity and environmental impacts of road based service, delivery and waste freight vehicles.

Local Policies

Clause 22.01 - Urban design within the Capital City Zone states that "access to car parking and service areas should minimise impact on street frontages". These requirements have implications for the inclusion of internalised loading bay facilities in new buildings. The urban design standards may conflict with the locating of accessways to loading bays.

State and Local Planning Provisions

The planning scheme addresses freight by requiring loading areas to be included and detailed in applications to construct a building or construct or carry out works, relevant extracts are identified in Table 2.

CLAUSE/ SCHEDULE	EXTRACT RELEVANT TO FREIGHT
32.04 - 11 Mixed Used Zone	<p>Application requirements</p> <p>Buildings and works associated with a Section 2 use</p> <p>An application to construct a building or construct or carry out works must be accompanied by the following information as appropriate:</p> <p>All proposed driveway, car parking and loading areas</p>
33.01 - 4 Industrial 1 Zone 33.03 - 4 Industrial 3 Zone	<p>Building and works -</p> <p>Application requirements</p> <p>An application to construct a building or construct or carry out works must be accompanied by the following information, as appropriate</p> <p>Driveways and vehicle parking and loading areas</p>
34.01 - 6 Commercial 1 Zone	<p>Building and works</p> <p>Application requirements</p> <p>An application to construct a building or construct or carry out works must be accompanied by the following information, as appropriate</p> <p>All driveway, car parking and loading areas.</p>
34.02 - 5 Commercial 2 Zone	<p>Buildings and works</p> <p>An application to construct a building or construct or carry out works must be accompanied by the following information, as appropriate:</p> <p>The layout of existing and proposed buildings and works.</p>
37.01 - 4.2 Schedule 2 to the Special Use Zone	<p>Application requirements</p> <p>An application to construct a building or construct or carry out works must be accompanied by the following information as appropriate:</p> <p>A plan drawn to scale which shows:</p> <p>Provision for the loading and unloading of vehicles and storage areas.</p>
37.01 - 3.0 Schedule 4 to the Special Use Zone	<p>Application requirements</p> <p>An application to construct a building or construct or carry out works must be accompanied by the following information, as appropriate:</p> <p>A plan drawn to scale which shows:</p> <p>Driveways and vehicle parking and loading areas</p>

Table 3: Melbourne Planning Scheme - loading bays

CLAUSE/ SCHEDULE	EXTRACT RELEVANT TO FREIGHT
37.01 – 4.0 Schedule 4 to the Special Use Zone	<p>Application requirements</p> <p>An application to construct a building or construct or carry out works must be accompanied by the following information, as appropriate:</p> <p>A plan drawn to scale which shows:</p> <p>Construction details of all drainage works, driveways and vehicle parking and loading areas</p>
37.02 Schedule 2 to the Comprehensive Development Zone	<p>Application requirements</p> <p>An application to construct a building or to construct or carry out works must be generally in accordance with the CDP and the masterplan.</p> <p>An application to construct a building or to construct or carry out works should include the following information, as appropriate:</p> <p>Location and layout of loading and unloading areas / facilities</p>
37.04 Schedule 1 to the Capital City Zone	<p>Buildings and Works</p> <p>Decision Guidelines</p> <p>Before deciding on a permit application under this schedule the responsible authority must consider, as appropriate:</p> <p>The provision of car parking, loading of vehicles and access to parking spaces and loading bays.</p>
37.05 – 4 Docklands zone	<p>Buildings and Works</p> <p>Application requirements</p> <p>An application to construct a building or construct or carry out works must be accompanied by the following information as appropriate:</p> <p>Provision for vehicle loading areas, including the location of rubbish storage and removal facilities.</p>
43.02 – 2.3 Schedule 26 to the Design and Development Overlay	<p>Noise Measurement – General Requirements for Preconstruction and Verification Testing... For the purpose of this Schedule, noise shall be measured to:</p> <p>Include only those sounds occurring when the sound level meter indication correlates with aurally identified industrial noise and noise from the loading and unloading of vehicles on public roads abutting industrial premises within and in the vicinity of the Laurens Street North Melbourne Industrial Area</p>
43.03 - 4.4 Schedule 1 to the Incorporated Plan Overlay	<p>General requirements</p> <p>b) The loading and unloading of service vehicles and the delivery of goods, plant and materials shall at all times take place within the curtilage of the land</p>
43.04 -Development Plan Overlay	<p>Requirements for Development Plan</p> <p>The development plan must include, to the satisfaction of the responsible authority: ...</p> <p>A movement and parking plan which shows:</p> <p>Identification of roads, pedestrian, cyclist, watercraft and vehicular access locations, including parking areas and nominal loading bays.</p>
Schedules 2, 3, 4, 5, 6, 7	

Table 3: Melbourne Planning Scheme - loading bays (continued)

CLAUSE/ SCHEDULE	EXTRACT RELEVANT TO FREIGHT
45.09 Schedule 3 to the Parking Overlay	<p>Design standards for car parking</p> <p>The 160 car spaces for short stay public parking specified in Clause 2.0 of this schedule must comply with the following:</p> <p>... Loading and unloading and vehicle access to the site must be provided via Lonsdale Street in accordance with the plan known as 'Proposed Lonsdale Street Access Configuration; Ref No 98093/T/07/P2'.</p>
45.09 Parking Overlay Schedules 6, 7, 8, 9, 10, 11	<p>Decision guidelines for permit applications</p> <p>Before deciding on an application to use or develop land for car parking, the responsible authority must consider, as appropriate:</p> <p>The provisions for parking and loading of vehicles and access of parking spaces and loading bays on land and water.</p>
52.20 Convenience restaurant and take away food premises	<p>Decision guidelines</p> <p>Whether the site layout and the design of buildings, noise attenuation measures, landscaping, car parking, vehicle access lanes, loading bays, rubbish bins, plant and equipment, lights, advertising signs, drive through facilities and playgrounds are designed to prevent significant loss of amenity to adjoining land due to noise, emission of noise, emission of light or glare, loss of privacy, litter or odour.</p>

Table 3: Melbourne Planning Scheme - loading bays (continued)

Clause 52.07 Loading and unloading of vehicles, is specifically related to setting aside land for "loading and unloading commercial vehicles to prevent loss of amenity and adverse effect on traffic flow and road safety". This Clause sets requirements for the provision of loading and unloading space and the minimum space required for both the space and its access driveway. It also explains that a permit may be granted to reduce or waive these requirements.

Floor area of a building - 2,600 square metres (sq m) or less in single occupation

Area	27.4 sq m
Length	7.6 m
Width	3.6 m
Height clearance	4.0 m

For every additional 1,800 sq m or part
- Additional 18 sq m

The references in Table 4 do not directly refer to loading bays but have implications for delivery vehicle access in the central city.

CLAUSE/ SCHEDULE	EXTRACT	EXPLANATION
43.02 Schedule 1 to the Design and Development Overlay	<p>ACTIVE STREET FRONTAGES – CAPITAL CITY ZONE</p> <ul style="list-style-type: none"> To ensure ground floor frontages are pedestrian oriented and add interest and vitality to city streets. To provide continuity of ground floor shops along streets and lanes within the retail core. To ensure ground floor frontages contribute to city safety by providing lighting and activity. <p>Area 1 - Retail Core</p> <p>Buildings with ground-level street frontages in the retail core must contribute to the appearance and retail function of the area to the satisfaction of the responsible authority, by providing:</p> <ul style="list-style-type: none"> At least 5 metres or 80% of the street frontage (whichever is the greater) as an entry or display window to a shop and/or a food and drink premises. Built scale appropriate to the street and pedestrians. Clear glazing (security grilles must be transparent). <p>Area 2 - Major Pedestrian Areas and Key Pedestrian Routes Within CCZ1 and CCZ2</p> <p>Buildings with ground-level street frontages to major pedestrian areas must present an attractive pedestrian oriented frontage to the satisfaction of the responsible authority, by providing:</p> <ul style="list-style-type: none"> At least 5 metres or 80% of the street frontage (whichever is the greater) as an entry or display window to a shop and/or a food and drink premises, or At least 5 metres or 80% of the street frontage (whichever is the greater) as other uses, customer service areas and activities, which provide pedestrian interest and interaction. Built scale appropriate to the street and pedestrians. Clear glazing (security <p>Area 3 – Major Pedestrian Areas And Key Pedestrian Routes Within CCZ3</p> <p>Buildings should provide a positive architectural response when viewed from street level and provide active street frontages and opportunities for engagement with pedestrians, by providing:</p> <ul style="list-style-type: none"> At least 5 metres or 80% of the street frontage (whichever is greater). 	<p>This overlay sets requirements for the amount of active street frontage new developments with certain uses are expected to provide. This is intended to create a safe and lively street front, but may also restrict the ability of developments to provide street crossovers and access to internal loading vehicle parking.</p>

Table 4: Melbourne Planning Scheme - related planning provisions

CLAUSE/ SCHEDULE	EXTRACT	EXPLANATION
43.02 Schedule 3 to the Design and Development Overlay	<p>TRAFFIC CONFLICT FRONTAGE – CAPITAL CITY ZONE</p> <p>1.0 Design objectives</p> <ul style="list-style-type: none"> To promote pedestrian flow, safety and amenity. To improve opportunities for the enhancement of roads for pedestrian use by discouraging further access to off-street car parking across traffic conflict frontages. To minimise conflict between pedestrians and vehicles on footpaths. <p>Vehicular ingress or egress points, excluding loading and unloading bays, should not be constructed on a traffic conflict frontage or in a lane leading off a traffic conflict frontage</p>	This overlay is intended to minimise vehicle crossovers in the streets identified; an abundance of vehicle crossovers restricts pedestrian flow and safety. It is important to note that loading and unloading bays are given leeway. There may be a grey area for ingress and egress points which cater for both loading vehicles and general parking.
52.06-8 Design standards for car parking	<p>Design Standard 5: Urban Design-</p> <p>...Ground level car parking, garage doors and accessways must not visually dominate public space”.</p>	This design standard may influence the ability of new developments to provide internal loading bay facilities due to the visual impact of accessways on the abutting street.

Table 4: Melbourne Planning Scheme - related planning provisions (continued)

Planning schemes in other places

The planning scheme and bylaw loading bay requirements of Sydney (City of Sydney, 2012), Perth (City of Perth, 2013), Brisbane (Brisbane City Council, 2014), Auckland (City of Auckland, 2008), Vancouver (City of Vancouver, 2012) and Toronto (City of Toronto, 2014) have been reviewed in the preparation of this report. As the applicability of the planning laws and the means by which they are triggered and applied vary from city to city it is difficult to make a direct comparison with the loading bay requirements of the Melbourne Planning Scheme.

- The City of Sydney requires 1 loading space per 50 hotel bedrooms, or par thereof, up to 100 bedrooms then 1 space per 100 additional bedrooms (and so on).

Comparatively, the Melbourne Planning Scheme doesn't put a figure to the number of loading bays required by a particular use. It asserts that some plans (dependent on the applicable zone and schedule) must display the designated area for loading and unloading vehicles, but it is at the discretion of the planning authority to determine whether or not the number of loading bays provided by the applicant is sufficient.

Analysis

In general terms, many cities have more prescriptive loading bay requirements when compared to the Melbourne Planning Scheme. For example:

- City of Vancouver's parking bylaws require at least one 'Class A' loading bay spaced for a hotel sleeping a minimum of 150 sleeping, dwelling or housekeeping units up to a maximum of 249 units and a minimum of one 'Class B' space for a hotel with less than 75 sleeping, housekeeping or dwelling units (and so on).



city of melbourne

Current operating procedures

Loading zones

Introduction

Loading zones play a critical role in servicing businesses and residences in the central city. "The use of loading zones is restricted to those vehicles that are picking up or setting down goods or passengers associated with a company or business. Loading Zones are provided to:

- Ensure efficient and orderly delivery of goods and documents where parking space is limited.
- Improve road safety and traffic flow by providing specific areas for loading and unloading.

Courier and delivery vehicles are defined in the Road Rules and must have signs displayed on them in a specific manner" (City of Melbourne, 2015b).

Allocation

City of Melbourne has control over the installation of loading zones under the Local Government Act 1989 S207 Clause 8 of Schedule 11 (Parliament of Victoria, 1989). In the municipality the allocation of loading zones works on market demand, we assess whether more bays are needed within a given area based on requests from users or receivers. An assessment of the need will be undertaken to determine if the existing spaces nearby can meet the demand. There is no target or quota for the number of loading zones the City provides, however our aim is to achieve 50 per cent or less occupancy rates for loading zones in the peak loading times. Our aim for general parking is to achieve around 75 per cent occupancy, to accommodate a motorist finding a convenient location. Occupancy of 50 per cent for loading zones ensures that at the busiest times around half of the loading zones will be available for delivery drivers to occupy.

Figure 28 shows preliminary mapping that was undertaken in 2014, covering around 60 percent of the central city. The indicative map shows those areas that were operating as a loading zone at any time, with not all available 24 hours a day (e.g. some were partial loading zone operation only). It is an example of work that could be undertaken to ensure we have up to date parking information, the information in this map presents a particular moment in time and the parking and loading zones presented in Figure 28 may have since changed.

Some loading bays function exclusively as loading bays over the entire day. Others are only designated as loading bays for a given period, and then switch to being private vehicle car parking spaces.

New buildings should not require additional on-street loading zones as loading bays are to be provided.

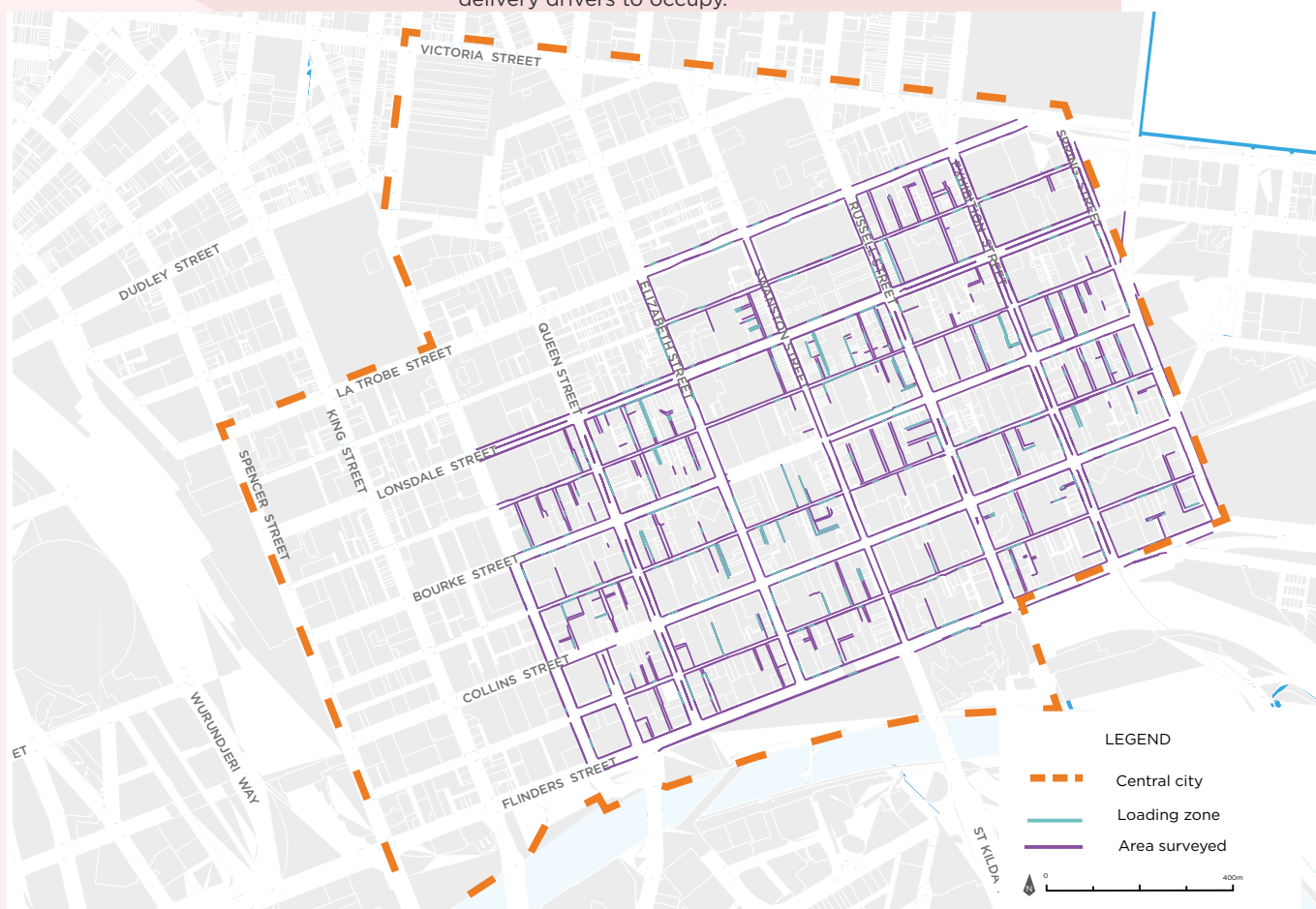


Figure 28 – Potential to map loading zones in the central city

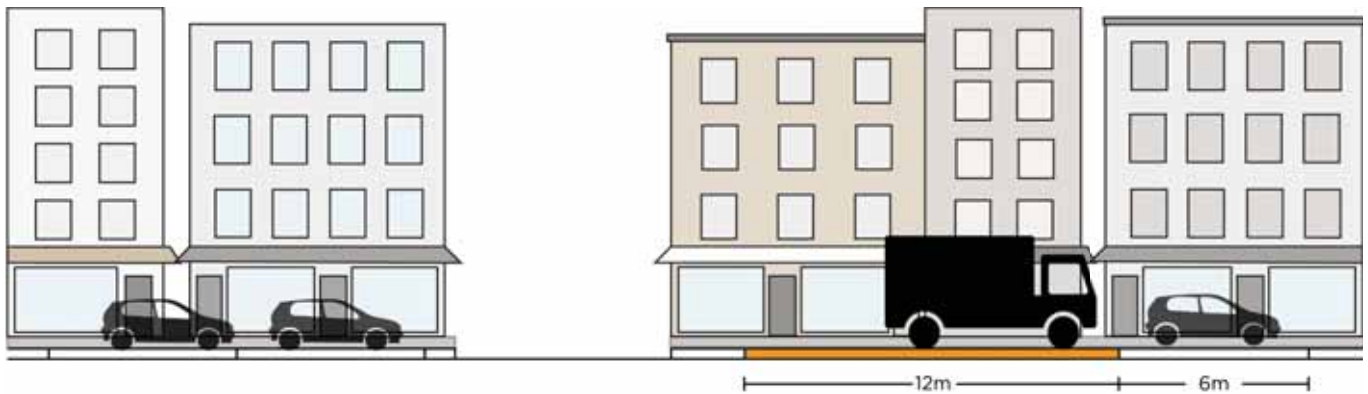


Figure 29 – Location of loading zones

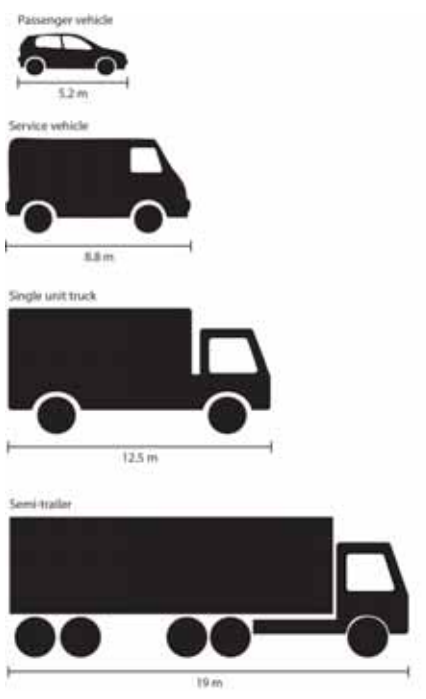


Figure 30 – Varying vehicle size

internally in accordance with the Melbourne Planning Scheme.

As identified in Appendix 2 of the CBD and Docklands Parking Plan 2008 – 2013 (City of Melbourne, 2008a):

“Loading zones 12 metres in length are usually provided immediately before or after an intersection so that delivery vehicles can use the space easily. City of Melbourne officers avoid designating single loading zones, as delivery drivers need to know that there is a high probability of getting a space. Placing two loading zones beside each other also ensures that other drivers are less likely to use the space – as their car would look conspicuous. The City of Melbourne aims to achieve up to 50 per cent occupancy of loading zones in the peak loading times.” (p30).

It is preferable to cluster loading zones, locating them at either end of a line of general parking bays, as illustrated in Figure 29.

This makes parking easier, more convenient and accommodates for vehicles of varying sizes as illustrated in Figure 30.

The length of the loading zone bay depends on demand and is usually related to truck size - in locations where larger trucks need to make deliveries; the zones will be longer in length. Larger freight suppliers may deliver to a group of retailers from a single parking bay. This may be more efficient but it has flow on implications for other delivery vehicles and general traffic - other delivery vehicles may double park or park in 'No Standing' zones in response to not being able to access the occupied bay.

The City of Melbourne rarely removes loading zones or designates new loading zones. When a change is necessary it needs to be justified through comprehensive research and usually involves a consultation with stakeholders. If loading zones are removed, it is most commonly on the condition that additional loading bays will be added elsewhere.

Public realm

In order to provide for internal loading bays a large entrance is often required. This can result in a large 'hole' in the building façade and can have a detrimental impact on the public realm through the creation of blank and inactive facades. This is not consistent with the urban design outcome the City wishes to achieve, therefore it is considered preferable to have loading bay entrances located off smaller streets. In addition to Clause 22.01 Urban Design within the Capital City Zone, Design and Development Overlay (DDO) Schedule 1 Active Street Frontages – Capital City Zone and DDO Schedule 3 – Traffic Conflict Frontage – Capital City Zone guide the designation of vehicular access to new buildings, as mapped in Figure 31, DDO1 and Figure 32, DDO3. In circumstances where this cannot be achieved, alternative loading may be considered, however this is not encouraged, minimum service standards still must be met in accordance with the Melbourne Planning Scheme.

Parking surveys

In the past the City of Melbourne conducted detailed parking surveys. These surveys recorded if the vehicle was residential (local), commercial, if it had overstayed the parking limit, was a non-commercial vehicle in a loading zone, etc. Parking surveys continue to be undertaken when there is a demand for more detailed parking information than what can be obtained through other means such as the in ground parking sensors.

Operation of loading zones

Loading zone times in the City are usually for 15 minutes, however there are a number of one hour bays to accommodate for larger deliveries (e.g. near large pubs). The default time for loading zones (where no time is displayed on the sign) is 30 minutes. Ideally all of these default times would be displayed on these signs in the central city, leaving little room for interpretation and confusion.

No Stopping zones

In addition to official loading zones, the City of Melbourne uses 'No Stopping' signage in some laneways, with an exception for loading and unloading vehicles. This allows both residents and freight services to quickly load or unload their vehicle without committing a road rule violation. It is expected the driver will be within earshot of the vehicle so that a compliance officer can ask them to move on if required. The compliance officer will wait a sufficient length of time to allow the driver time to return to the vehicle, if no driver is present after this time a traffic violation infringement will be issued.

Loading zone enforcement

The monitoring of loading bays is part of general parking monitoring. Loading zones require active patrol and Authorised Officers will issue fines where use of loading zones has been breached and where possible will request the drivers or unauthorised vehicles to move out of loading bays.

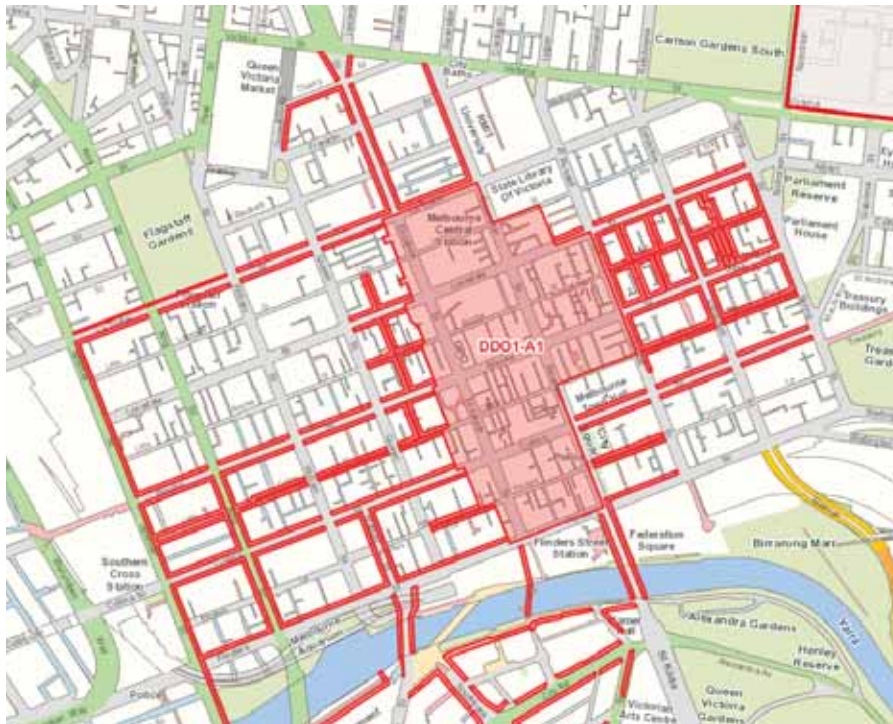


Figure 32 - Melbourne Planning Scheme DDO1



Figure 32 - Melbourne Planning Scheme DDO3

Vehicle Access Permit Scheme

Introduction

The Vehicle Access Permit Scheme controls vehicle access and parking in areas that are for the primary use of pedestrians. These areas, shown in Figure 33, are:

- Bourke Street Mall, between Elizabeth and Swanston streets
- Swanston Street between Flinders and La Trobe streets.

Delivery vehicles may be granted a Vehicle Access Permit to enter these zones at given times of the day. The cost of a permit is \$11 per vehicle and is valid for 12 months.

Access

Swanston Street and Bourke Street have different access rules and times and a separate permit is required for access into each area. Non-permit delivery and service vehicles (classified 'G' class vehicles by VicRoads) are still allowed into Bourke Street Mall but not between 7:30 am - 9:30 am and 10:30 am - midnight. Non-permit vehicles are not permitted to enter Swanston Street at any time, refer to Figure 34.

The Vehicle Access Permits grants holders a broad range of access times. For Swanston Street, permit holders are prohibited between 7.30 am and 9.30 am, noon and 2 pm, and 4 pm and 7 pm, and only allow parking for up to 30 minutes. For Bourke Street Mall the Vehicle Access Permits are not valid between 7.30 am and 9.30 am, 11 am and 2 pm, and 4 pm and 7 pm, and only allow parking for up to 30 minutes, refer to Figure 34. The permit does not allow the holder to park in bus stops, construction zones, taxi ranks, 'People with Disabilities' zones or "No Stopping areas".

Permits

In October of 2014 a total of 483 permits were issued for Bourke Street Mall and a total of 811 were issued for Swanston Street. Of these permits 418 were issued for both areas under the same vehicle registration number indicating a high degree of cross over demand, refer to Figure 35. That is, vehicles seeking access to Bourke Street Mall are generally also seeking access to Swanston Street's Vehicle Access Permit zone.



Bourke Street Mall signage

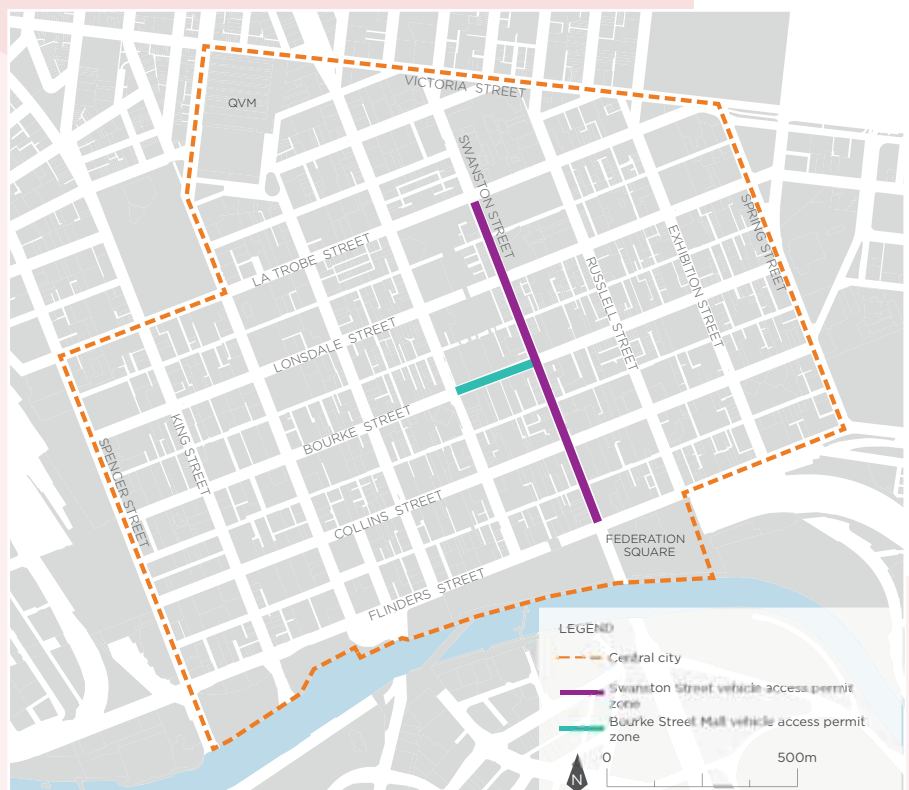


Figure 33: Vehicle Access Permit Scheme - Areas

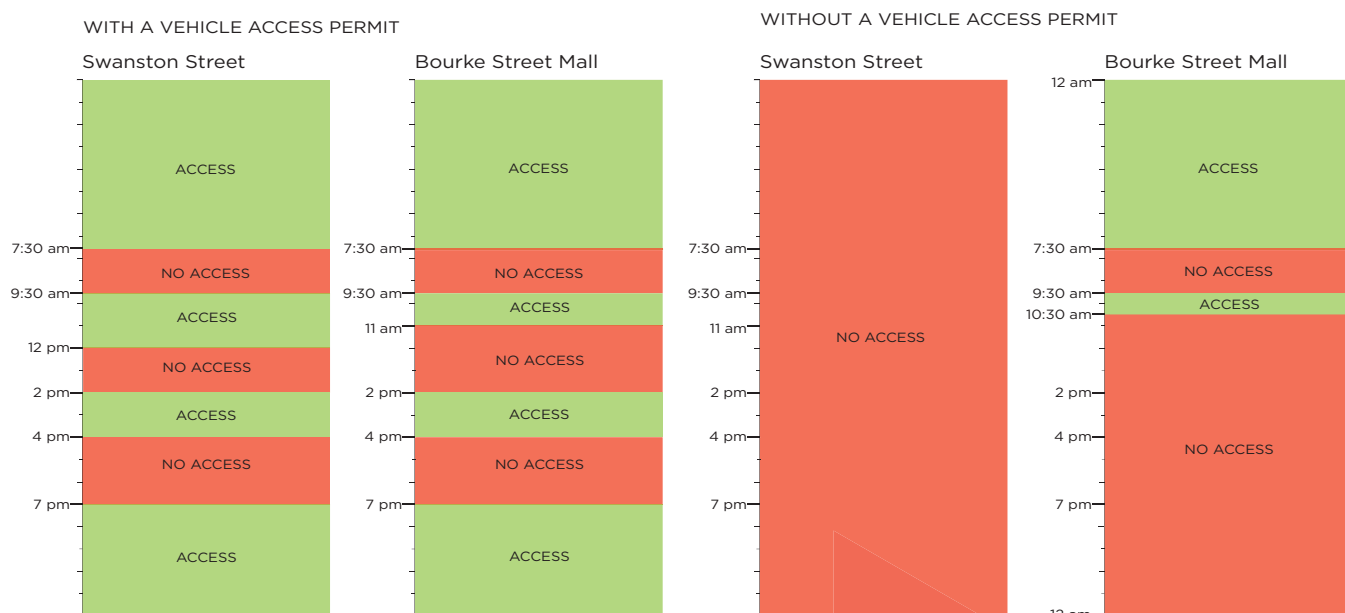


Figure 34 – 'G' Class vehicles access hours

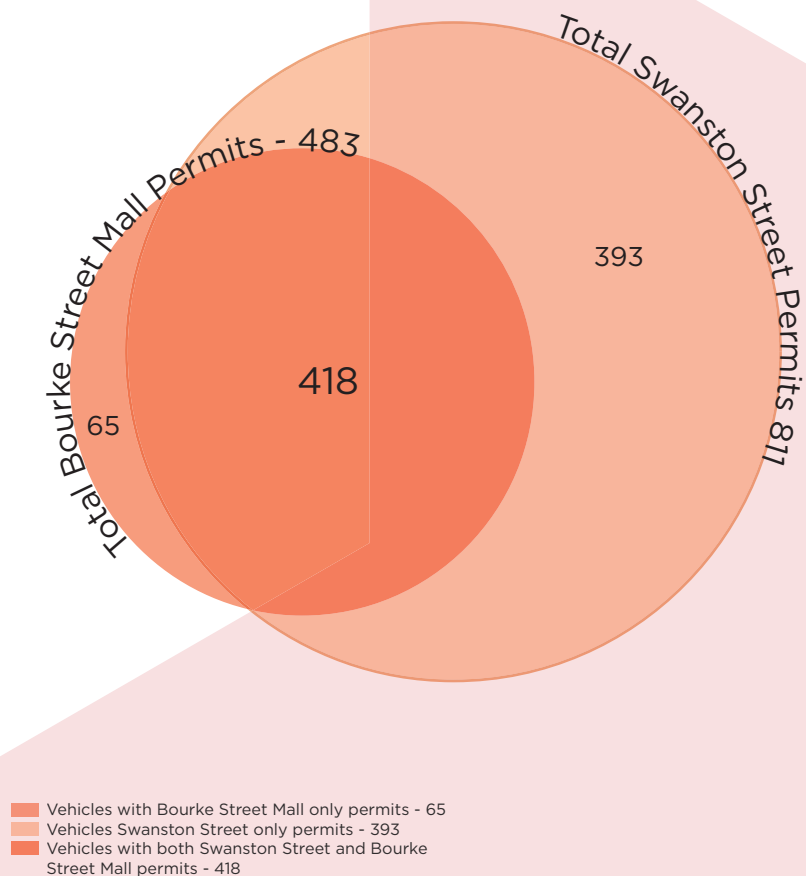


Figure 35 – Vehicle access permits issued

Waste

The removal of waste is an integral part of the central city freight cycle. The City of Melbourne has responded to the importance of the waste task by developing the Integrated Waste Management Program. This Program ensures that the issues that can be associated with waste, such as impact on the public realm and public health and safety are addressed in an integrated manner. This program can be a model for last kilometre freight, although it is recognised that the drivers that exist for waste removal are not yet matched for deliveries.

Integrated Waste Management Program

In 2011 Melbourne City Council adopted an Integrated Waste Management Program (IWMP) (City of Melbourne, 2011b) to manage the future challenges to waste management associated with projected increases in the City of Melbourne's resident, worker and visitor populations. The IWMP aims to address waste issues relating to noise, congestion, sustainability and local amenity through nine key initiatives:

1. High rise recycling program extension – infrastructure and signage.
2. RecycleBank (or similar) – rewards as part of the high rise recycling program.
3. Designated waste collection areas – shared infrastructure for commercial and industrial ('C&I') waste in selected locations.
4. C&I organics treated through mini-biodigesters – in designated waste areas.
5. Commercial waste and recycling collection contracting – service for SME's (feasibility study completed but project not completed).
6. Kerbside collection of C&I organics – in-house service to be considered when processing capacity available.
7. Stationary vacuum waste collection system – underground in nominated precincts (note: a feasibility study supported the use of this technology in new areas only, recognising that a retrofit would be too expensive).
8. Alternative waste technology facility located outside the City of Melbourne – long term alternative to current landfill disposal with end products such as energy or compost/mulch (investigation only).
9. Alternative waste technology – landfill conversion – improved landfill technology.

In relation to last kilometre freight, 'Initiative 3 – Designated waste collection areas' is of particular significance as it is part of the freight continuum as it removes the end product from the premises. This initiative focuses on improving local amenity by consolidating waste collection and reducing both truck movements and the number of bins stored in public space. It pays particular attention to small areas in the central city where businesses are unable to store bins on their premises and there are no suitable locations for the bins to be stored in the adjacent public spaces.

Since the IWMP was adopted by Council in 2011, three central city streets have been fitted with communal waste compactors. Waste compactors are capable of taking food and general waste and are accessed via a swipe card which then logs the user details and the weight of the waste deposited. The waste compactors in Bullens Lane (Chinatown precinct) and Kirks Lane (for the Hardware Lane precinct) were installed in 2013 and a Lacey Place compactor (Chinatown) was installed in 2014. A new compactor will be installed in Caledonian Lane (next to Emporium) in March 2015. Four recycling hubs have also been installed in Kirks Lane, Warburton Lane, Hardware Lane and Bullens Lane.

	KIRKS LANE	BULLENS LANE	TOTAL
Number of businesses using compactors	150	111	261
Total number of bins removed from the street	180	60	240

Table 5 - Waste compactors

Why are waste compactors important?

Between July 2011 and June 2014, the City of Melbourne received 60 noise complaints for waste removal in the central city (see 'Noise' section). Noise created by waste removal trucks can disturb residents - particularly late at night and in the early hours of the morning. A reduction in the number of bins and an increase in capacity through the use of waste compactors reduces the frequency at which trucks need to visit the area and the length of time they need to be there - the Bullens Lane compactor is emptied two or three times a week and the compactor sends out an SMS alert when it is three quarters full (as well as if it has a technical issue).

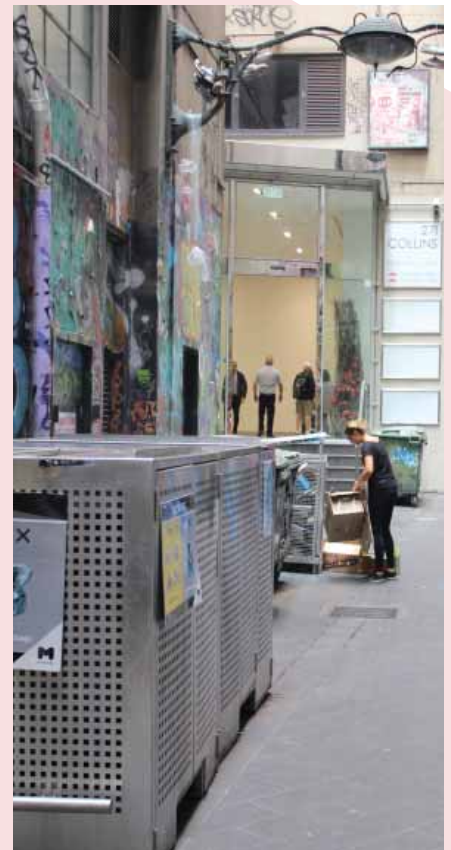
The reduction in the number of bins also increases the amenity of the area which is beneficial to businesses and the wider public. Dumped rubbish and overflowing bins attract vermin, tend to smell and create an unattractive laneway experience. Waste compactors consolidate waste and limit its impact on the surrounding local environment.

The waste compactors are provided as a free service to businesses and clearly have an important role to play in improving public amenity, reducing truck noise and congestion, and creating a more efficient and congenial environment for local businesses.

Degraves Street

In 2013, the Degraves Street precinct established a recycling facility in the basement of Ross House in Flinders Lane. With a 1.2 tonne capacity food waste dehydrator, cardboard baler and co-mingled recycling bins, the facility acts as a centralised location for recyclables, cardboard and organic materials to be separated from general waste. Organic food waste from the participating restaurants is fed into a waste dehydrator which converts it into a compost-like soil conditioner. Through this waste recycling program 75 per cent of waste generated from the participating businesses has been diverted from landfill.

The recycling facility has increased recycling and reduced the amenity and environmental impacts of waste collection and disposal in the Degraves Street precinct. The facility also allows for centralised waste collection, reducing the amount of time and space waste trucks spend in the precinct which again benefits the amenity of the street.



Degraves Street Precinct

Noise

Noise from deliveries taking place overnight does not appear to be a significant problem today. Of 424 customer service requests about noise, received in the three years between July 2011 and June 2014 by the City of Melbourne, only four were complaints about late night or early morning truck deliveries. For the purpose of this report, service requests are logged between the hours of 11 pm and 6 am.

During the study period, there were 60 noise complaints related to waste removal in the central city, suggesting this is a more pressing concern for central city residents. In some instances, it is the noise generated from the physical removal of waste that is reported to be the problem (e.g. crashing bottles), where in others it is the presence of the truck itself (e.g. reversal beeping). However, as the exact cause of the offending noise was not consistently recorded or reported, it is difficult to draw conclusions on the predominant source of the offending noises.

Whilst late night deliveries do not currently present as a major issue, it is not to say that an increase in the number of late night deliveries would not reduce amenity to inner city residents. There is currently no record of the number of late night deliveries taking place. Rather, at their current level of occurrence, late night deliveries are not judged to be an issue. There may be capacity to increase the number of late night deliveries in the central city, assuming an effort is made to keep noise to a minimum. Examples of late night delivers, including a case study on New York City, can be found in the Last Kilometre Freight Case Studies Report 2015 (City of Melbourne, 2015c).

Public realm analysis

Our streets are one of the City of Melbourne's greatest assets. Streets are essential to the movement of people and goods, they provide spaces for people to interact and keep our city lively. Without people our public realm suffers.

The position of freight in our streets is of great importance, freight vehicles and delivery drivers have the potential to shape our city. Off-street loading access can have a detrimental impact on the street interface and this needs to be assessed and managed carefully as identified in the Melbourne Planning Scheme. Delivery drivers moving throughout our city streets, add to the vitality of the streetscape.

The City of Melbourne is currently preparing an update to Places for People. Places for People is a long-term study to explore and document how our city's urban environment is changing.

	NOISE COMPLAINTS (INCLUDING DELIVERY VEHICLES)	NOISE COMPLAINTS - COMMERCIAL WASTE COLLECTION	COMBINED TOTAL
Whole of City of Melbourne	236	188	425
Central Melbourne Only	4	60	64

Table 6 - Noise complaints (July 2011 - June 2014)



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