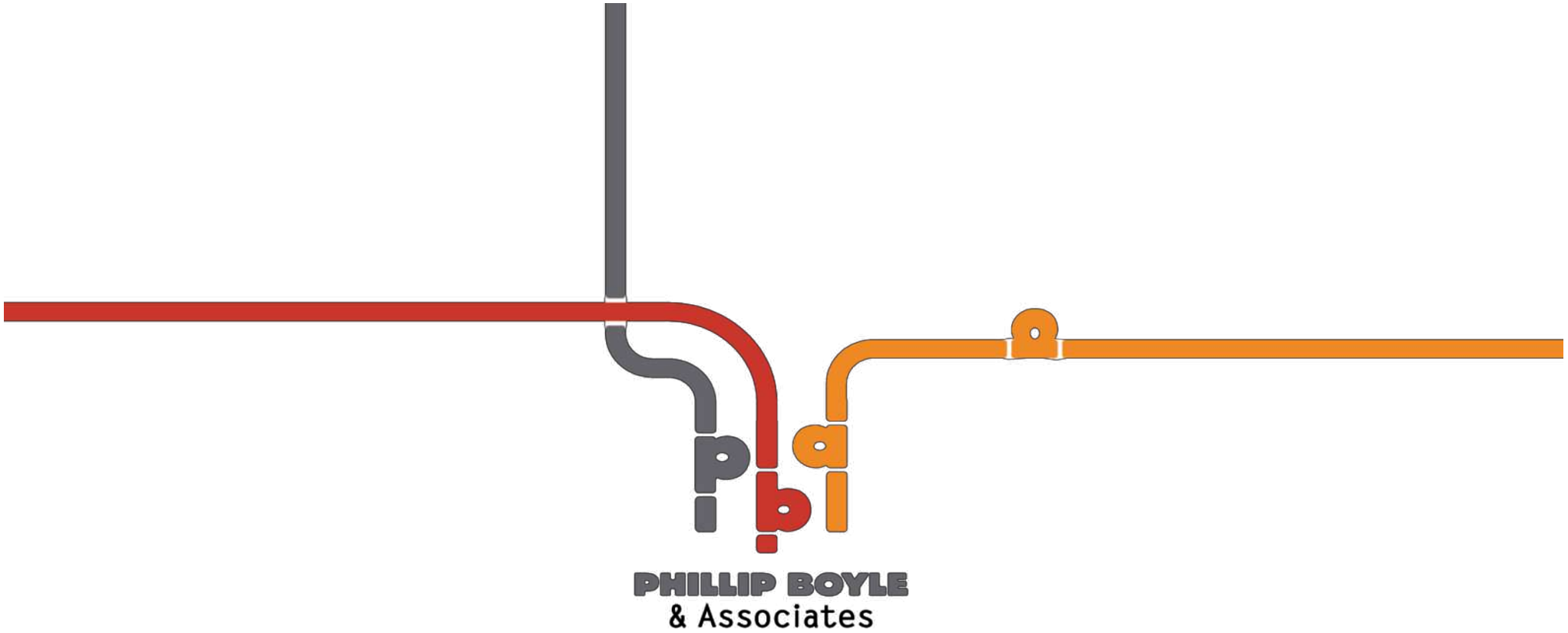


Footpath obstacle survey

City of Melbourne

4 December, 2018

CONTENTS

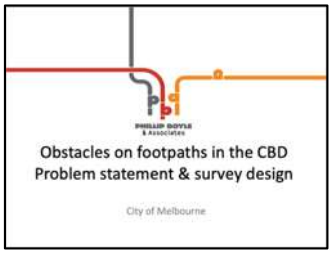
Abstract

- Growth in population and jobs in central Melbourne is putting increasing pressure on footpaths in the central city
- People can be observed overflowing footpaths and intersections and walking on roadways
- This study was commissioned to identify obstacles that are reducing the effective width of the current footpaths
- Flow
  - The study observed flows of people walking along blocks and across intersections in the central city during the AM peak and weekday lunchtimes and rated the flows on a scale
  - People were walking on the kerbstone or road on 14% of the blocks that were observe
  - People were storing and walking outside the crossing areas at a majority of the intersections observed
- Obstacles
  - Obstacles on blocks were defined as objects that caused people deviate from their path
  - When people were observed to deviate in their path to avoid an object, the object was recorded as an obstacle.
  - Obstacles were recorded in four categories: people, temporary objects, lightly fixed objects and major fixed objects
  - Temporary and lightly fixed objects were found to be the most common obstacles found across most locations at at both times.
  - People and major fixed objects were found as obstacles at both times but less frequently and on fewer blocks
- Responses
  - By closing and narrowing roads in order to widen footpaths the Council can provide more space for pedestrians flows
  - In the immediate and short term the removal and relocation of obstacles from blocks and intersections, especially objects from the two most common categories of obstacles on blocks, will increase the effective width of the footpaths in the central city enabling these areas to support increased flows of pedestrians

SUMMARY OF FINDINGS

The survey identified where flows of pedestrians are high and the type of obstacles in their way

How flow on Blocks was rated	How flow at Intersections was described	The potential obstacles that were observed on footpaths
1 Comfortable walking	Flow – people walking inside or outside the crossing area	**People**. People getting in the way of other people including when collecting money, wheeling things or standing around waiting or talking.
2 Uncomfortable walking	Storage – whether people were waiting inside or around the poles on the footpath	**Temporary objects**. Objects that are not attached to anything and that could be moved or picked up including loose rubbish, 'wheely' bins, café equipment, street trading, A-boards, frame signs for motorists, freight, personal effects, parked motorcycles, cars.
3 Walking on the kerbstone	Obstructions – the number of poles in the pedestrian ramps	**Lightly-fixed objects**. Objects fixed to the ground or other objects that could be removed with tools including rubbish bins, post boxes, telephone pillars, kiosks, parked bicycles and bicycle parking rails, signs, bollards, planter boxes, poles and seats.
4 People walking on the road in one direction		**Major fixed objects**. Objects that are strongly connected by cables, wires or roots and that would therefore be difficult to move. Examples include tram overhead poles, traffic signals, control boxes, trees, Art, construction structures
5 People walking on the road in both directions		



The full problem statement, survey design and method behind these findings is reported in the companion document.

PHILLIP BOYLE & Associates

Pedestrians are overflowing the footpaths on 14% of the observed blocks

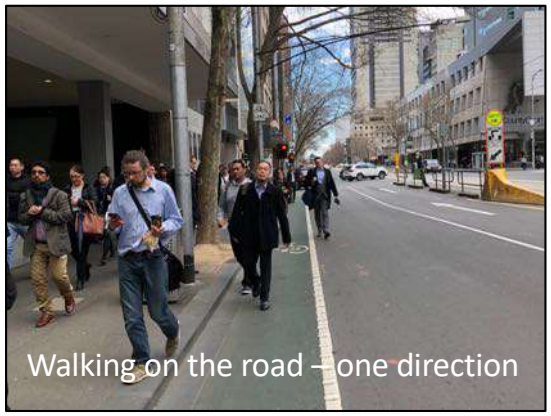
Overflowing is defined as:

- Walking on the kerbstone
- Walking on the road

The videos (left) show people overflowing the footpath in two locations.

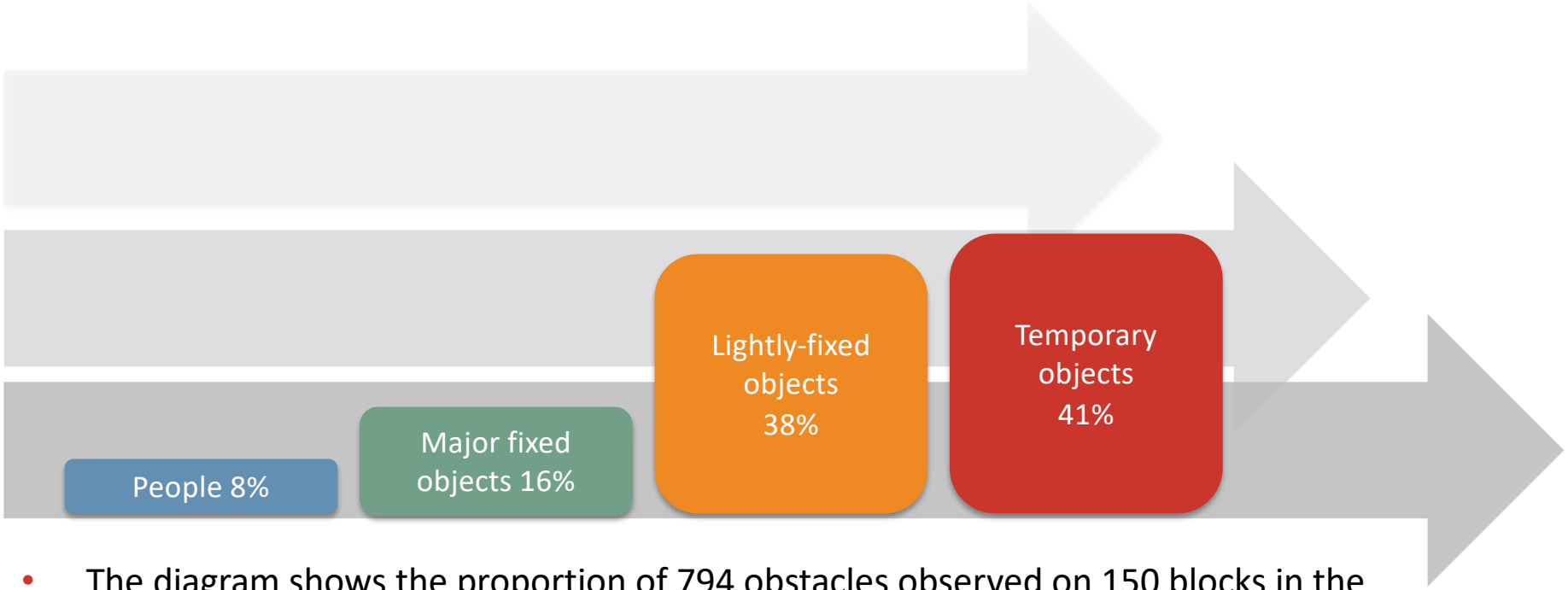
It is likely that this risky behaviour would not occur if:

- The footpaths wider
- There fewer obstacles on the existing footpath.



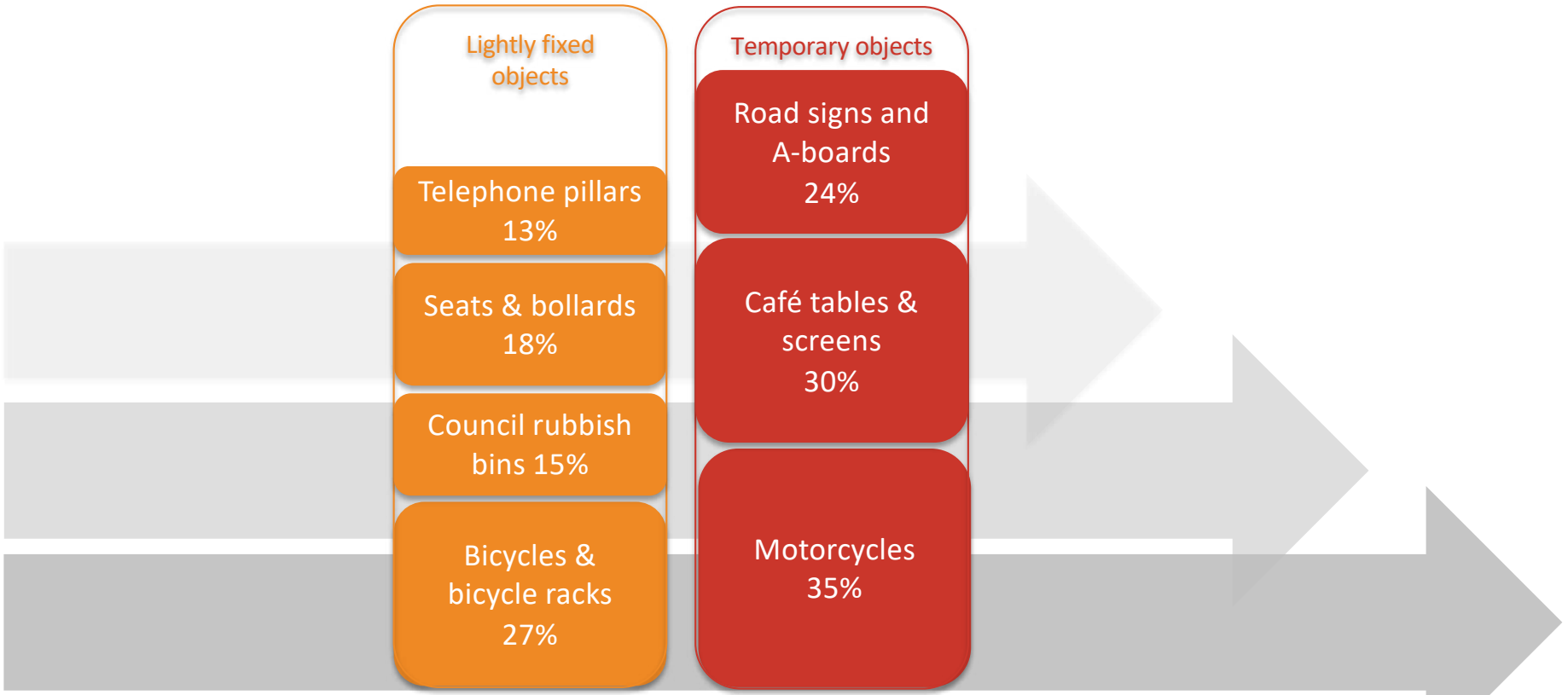
PHILLIP BOYLE & Associates

The study found that the main obstacles to pedestrians on footpaths in the central city are temporary and lightly-fixed objects



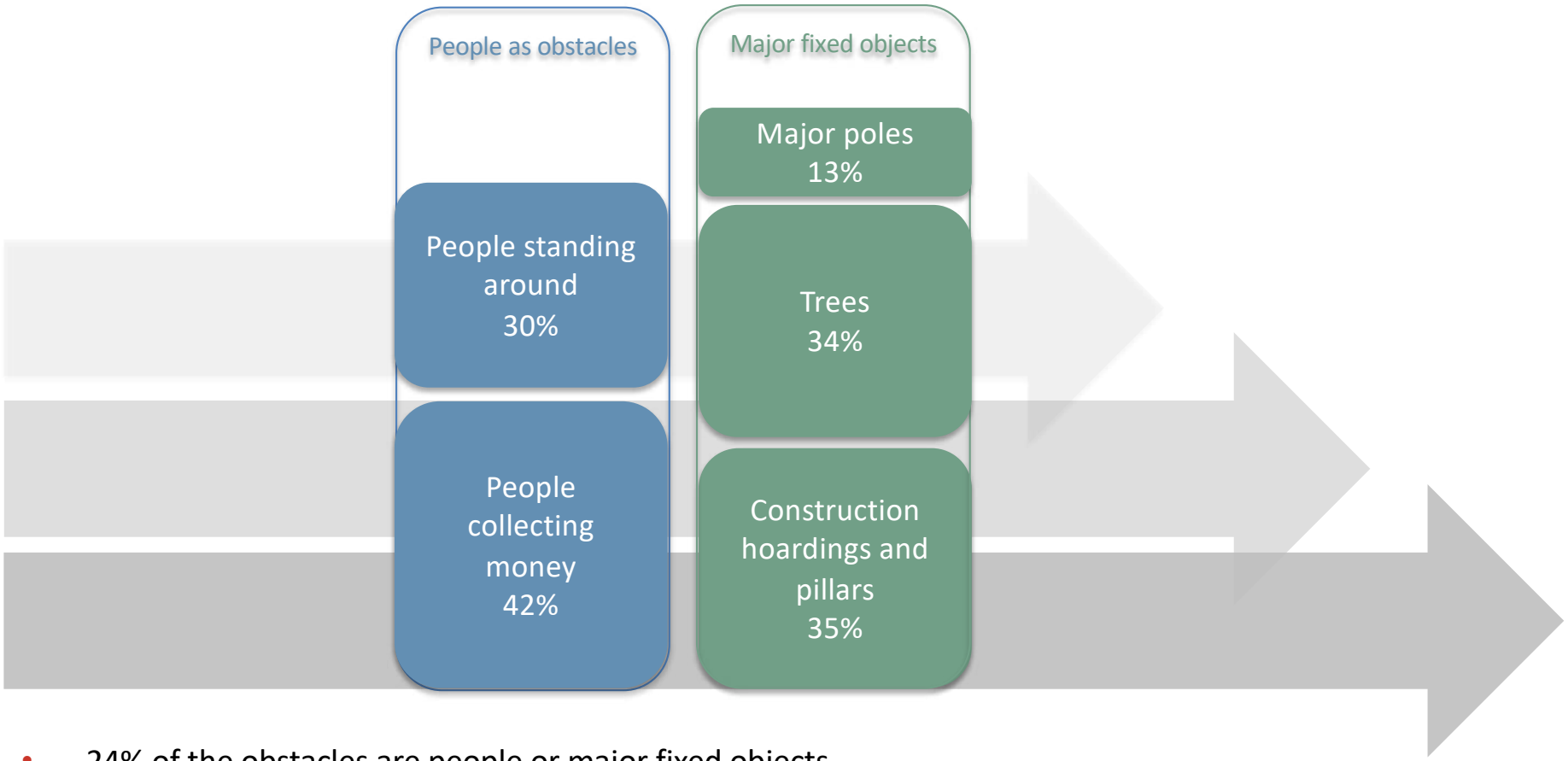
- The diagram shows the proportion of 794 obstacles observed on 150 blocks in the AM peak and lunchtimes in the central city
- Most of the obstacles (79%) fall into two categories: temporary items and lightly-fixed objects.

Many of the temporary and lightly fixed obstacles are motorcycles, bicycles & bicycle racks



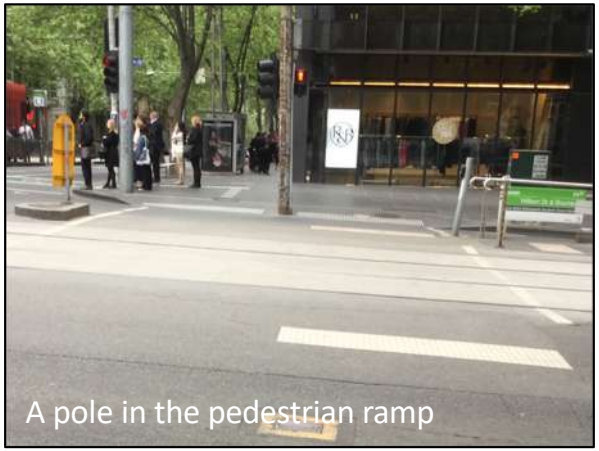
- Motorcycles, café equipment and temporary signs account for 89% of the temporary obstacles
- Bicycles and bicycle parking racks, bins, seats, bollards and telephone pillars account for 73% of the lightly fixed obstacles

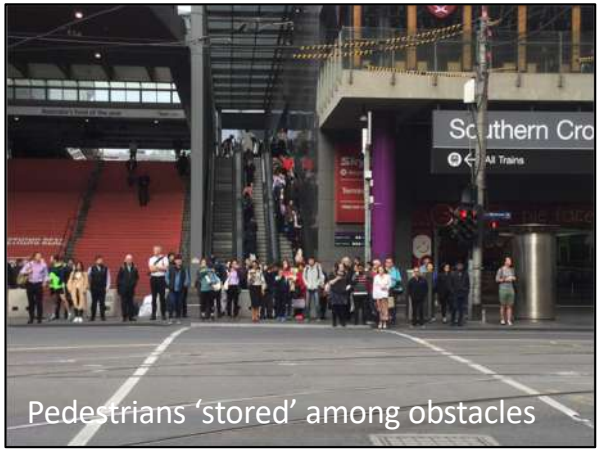
Some of the people obstacles and major fixed obstacles are people collecting money & construction structures



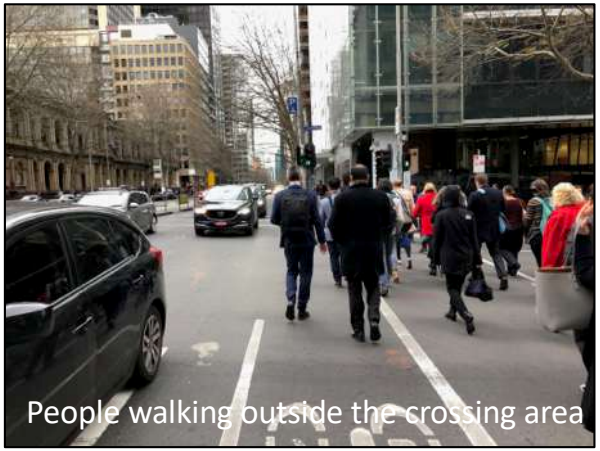
- 24% of the obstacles are people or major fixed objects
- People collecting money and standing around account for 72% of the people obstacles
- Construction structures, trees and major poles account for 82% of the major fixed obstacles

People overflow the capacity of most intersections. Most intersections have obstructions in the ramp.


A pole in the pedestrian ramp



Pedestrians 'stored' among obstacles

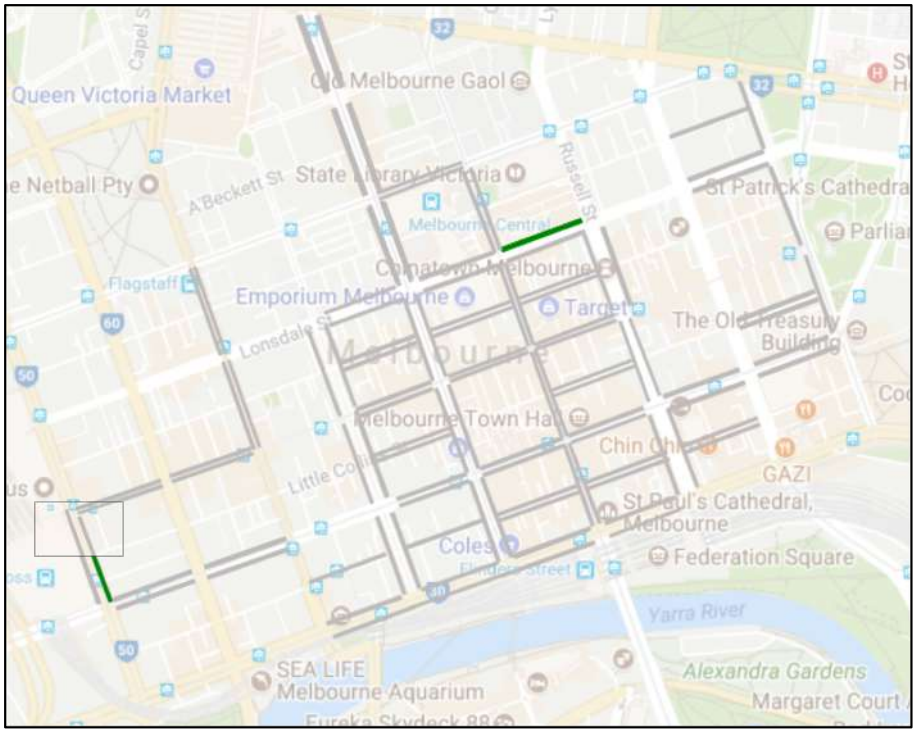

People walking outside the crossing area

- People overflow most intersections
  - Most of the intersections observed (65%) have high levels of storage (people waiting in among poles and other obstacles)
  - At most intersections (70%) people walk outside the crossing lines
- More than half the intersections (62%) are obstructed (at least one pole in the pedestrian ramp)

The most common obstacles are the same during the AM peak and Lunchtime

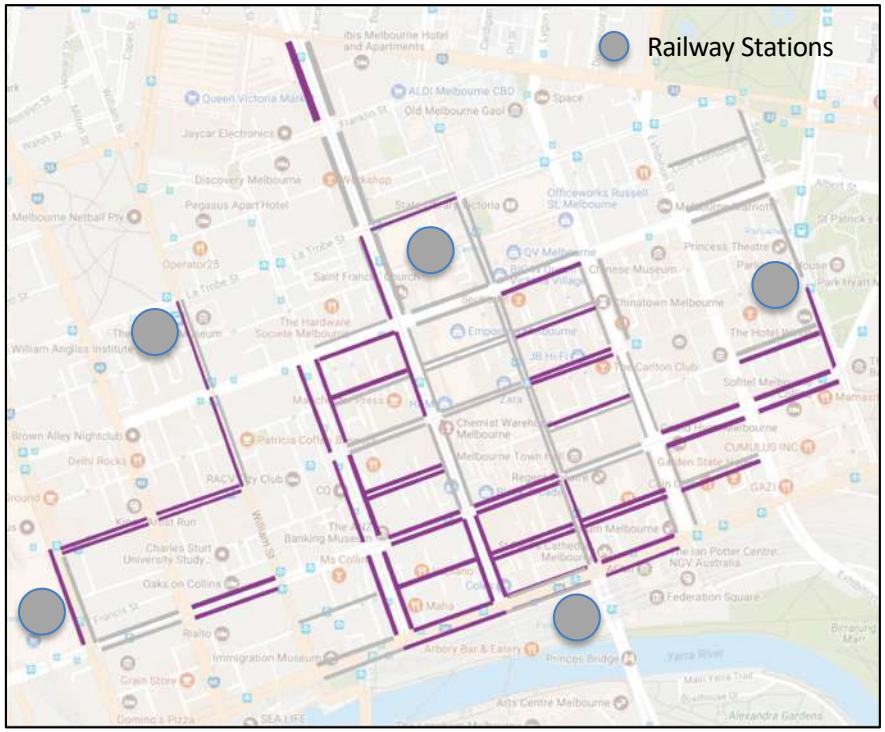
Type of obstacle	AM Peak (0730 – 0930)	Lunchtime (1200 – 1400)
Blocks		
People	People asking for money 62% of all people obstacles	People 'standing around' 48% of all people obstacles
Temporary object	Motorcycles 37% of all temporary obstacles	Motorcycles 33% of all temporary obstacles
Lightly fixed object	Bicycles and bicycle parking rails 29% of all lightly fixed obstacles	Bicycles and bicycle parking rails 26% of all lightly fixed obstacles
Major fixed object	Trees 41% of all major fixed obstacles	Construction hoardings and pillars 35% of all major fixed obstacles
Intersections		
Obstructions in the pedestrian ramp	Obstructions in the pedestrian ramp are similar at both times of day	
Storage at the kerb	Storage is high at 65% at both times of day	

The most common obstacles are found on most blocks in many locations



The map above shows in green the one-and-a-half blocks with no obstacles at any time.

- People obstacles are found on 34% of blocks
- Temporary obstacles are found on 87% of all blocks
- Lightly fixed obstacles are found on 81% of all blocks
- Major fixed obstacles are found on 56% of all blocks



The map above shows in purple the blocks with:

- both temporary and lightly fixed obstacles
- at both times

Many of these blocks are near railway stations

Summary of recommendations – the problem can be addressed in three complementary ways

1 Widen walking areas	2 Reduce the number of obstacles (in order of frequency)	3 Other initiatives
1.1 Permanent closure of roads: • Close T-intersections at railway stations	2.1 Relocate motorcycles away from footpaths with high pedestrian flows	3.1 Increase the walking area near trees
1.2 Permanent narrowing of roads to extend kerbs: • Widen footpaths especially near railway stations	2.2 Reduce width and footprint of café equipment especially when not in use	3.2 Explore the collection of money in the AM peak
1.3 Temporary closure of roads: • Introduce & extend temporary lunchtime closures on 'Little' streets • Introduce temporary road closures near railway stations in the AM peak	2.3 Require all temporary signs including those for motorists to be placed on roadways or existing major poles	3.3 Develop a policy that restricts advertising on footpaths
1.4 Develop multi-use space • Influence the design and location of tram stops to avoid/reduce 'single use space' at tram platforms (such as in Elizabeth Street and integrate tram passenger waiting and loading areas with footpaths (as in Swanston Street).	2.4 Relocate bicycles & bicycle parking away to kerb outstands and away from footpaths with high pedestrian flows	3.4 Design space efficient multi-purpose street equipment
1.5 Upgrade intersections by: • Reducing storage time • Providing an 'early start' phase for pedestrians • Increasing kerb area with kerb outstands & tighter turn radius • Widening pedestrian crossings including reduction of fences • Consolidating uses on a single pole • Relocating traffic signals and other poles	2.5 Relocate Council rubbish bins, seats, signs and information pillars that are acting as obstacles	3.5 Investigate: • Removal of fences at crossing • Ways to reduce the incidence of motor vehicles blocking the cross walk
	2.6 Require construction structures to occupy the roadway not the footpath	

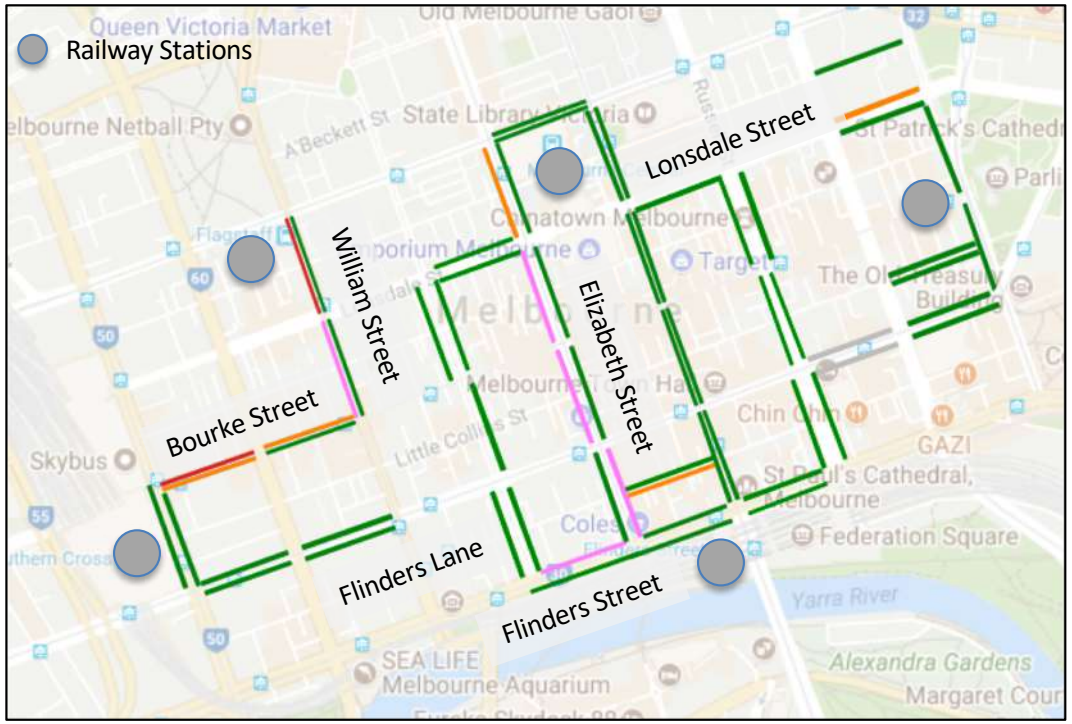
Flows

Obstacles

FINDINGS IN DETAIL

FLOWS

Some high flows were observed along blocks in the AM peak (0730 - 0930)



The map shows the 64 blocks where flows were rated in the AM peak.

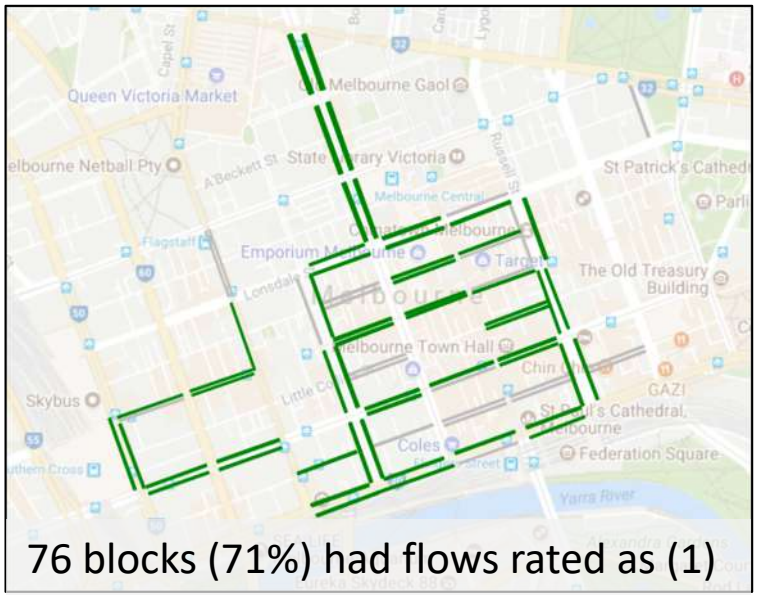
81% of blocks were rated (1) comfortable walking.

- The survey in the AM peak concentrated on footpaths near railway stations.
- The location, time and duration of all peak flows is not known as the observations were made 'on the move' between blocks. Higher (or lower) levels of flow may have occurred unobserved in these locations.

12 blocks (19%) had flows above (1)

- It appears that the footpaths are currently adequate around Melbourne Central Station – perhaps because the Station has entrances on both Elizabeth and Swanston Streets. Pedestrian flows are likely to increase when the Melbourne Metro opens
- The wider footpaths on Swanston Street absorb the AM peak flows from Flinders Street and Central Stations.
- Elizabeth Street does not absorb flows in the AM peak
- Footpaths overflow around Southern Cross, Flagstaff and Parliament Stations.
- Blocks on Bourke and William Streets were rated at (4).
- The Level 5 flows filmed on blocks near Parliament and Flagstaff Stations were not observed during the survey.

Some high flows were observed along blocks at Lunchtime (1200 - 1400)

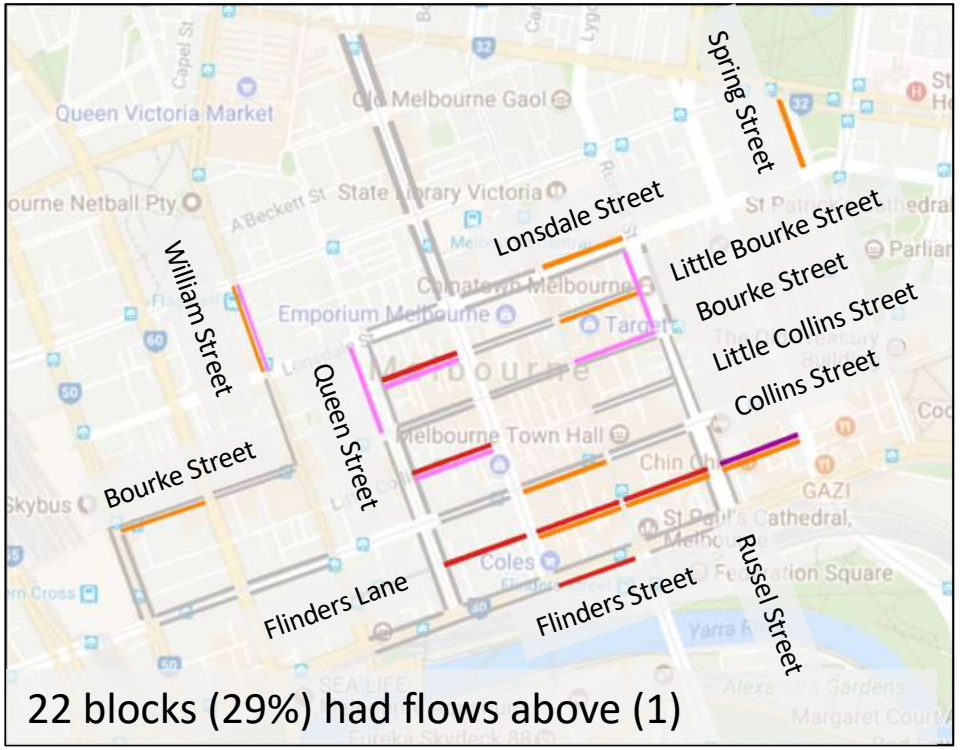


76 blocks (71%) had flows rated as (1)

The map shows in green the 76 blocks where flows were rated as (1) in lunchtimes.

The surveys concentrated on areas in the 'pedestrian core'. Little Collins Street is closed to traffic at this time and was not surveyed. The location, time and duration of all peak flows is not known as the observations were made 'on the move' between blocks. Higher (or lower) levels of flow may have occurred unobserved in these locations.

1	Comfortable walking
2	Uncomfortable walking
3	Walking on the kerbstone
4	Walking on the road (one way)
5	Walking on the road (both directions)



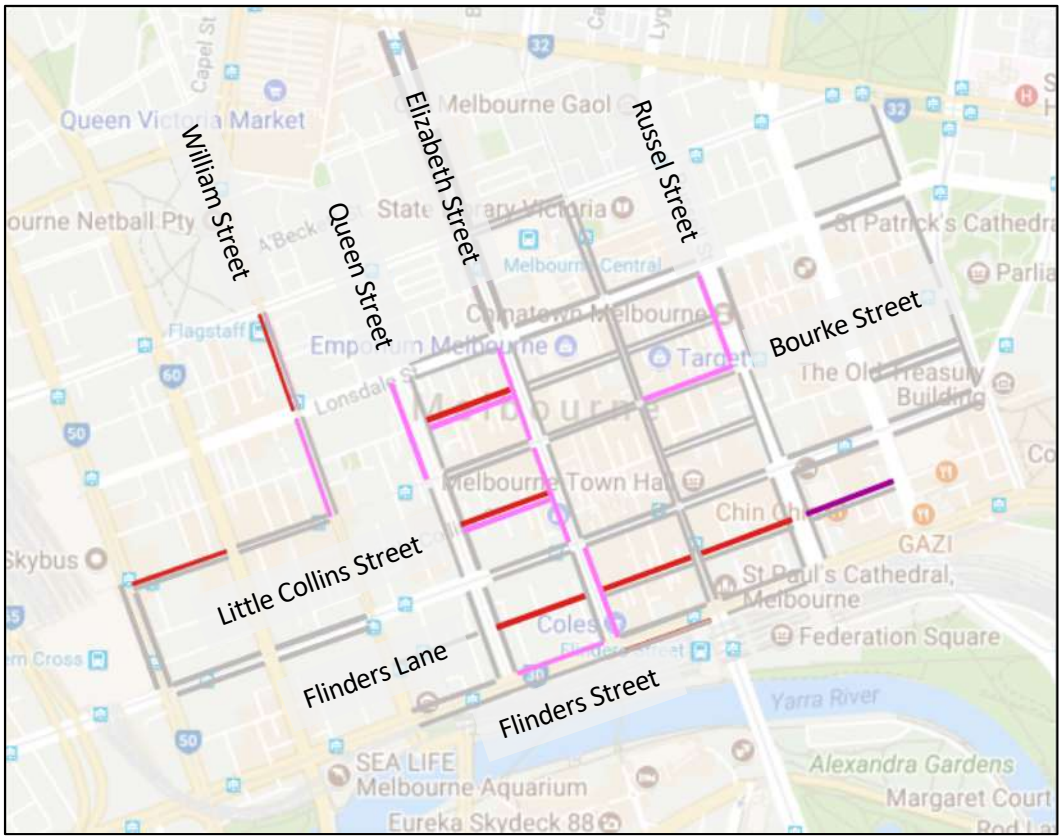
22 blocks (29%) had flows above (1)

The map shows the rating of the flow on blocks in lunchtimes where the flow was greater than (1)

- Flinders Lane is stressed at this time.
- Most of the stressed blocks (12) are in 'Little' Streets
- The most stressed blocks are in 'Little' Streets.

PHILLIP BOYLE & Associates

14% of all blocks surveyed had high flows at one time



1 Comfortable walking
2 Uncomfortable walking
3 Walking on the kerbstone
4 Walking on the road (one way)
5 Walking on the road (both directions)

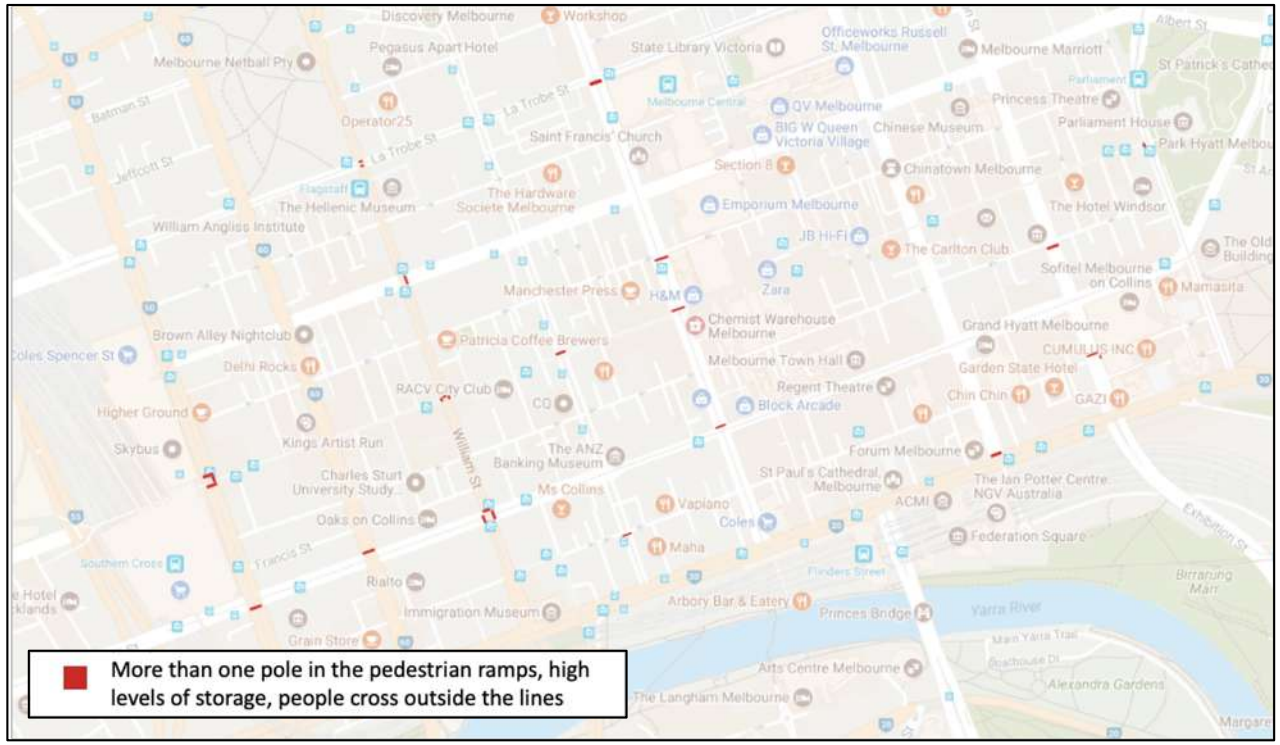
The map shows 20 blocks (14%) where flows were rated 3 – 5 either in the AM or lunchtime.

On these blocks people were:

- Walking on the kerbstone (11 blocks)
- Walking on the road (8 blocks)
- Walking on the road in both directions (1 block)

(In preparation for the survey, walking on the road in both directions (5) was also observed in William and Spring Streets.)

Many intersections ‘legs’ are stressed. Some were observed to have each category of stress.



The map shows the highly stressed intersections in the central area where all three factors (storage, obstructions and overflowing) were negative in the same location.
Most intersections have some level of stress:

- More than half the intersection legs (62%) are obstructed
- Most of the intersection legs observed (65%) have high levels of storage
- People overflow most intersection legs (70%) by walking outside the white lines

No location pattern has been found with stressed intersections. In Elizabeth Street, for example, at both times:

- Some intersections have unobstructed ramps, low levels of storage and are wide enough for people to walk between the lines
- Some intersections have more than one pole in the pedestrian ramp, high levels of storage and are not wide enough for people to walk between the lines. (see map)

It is appropriate therefore to begin to improve all intersections by:

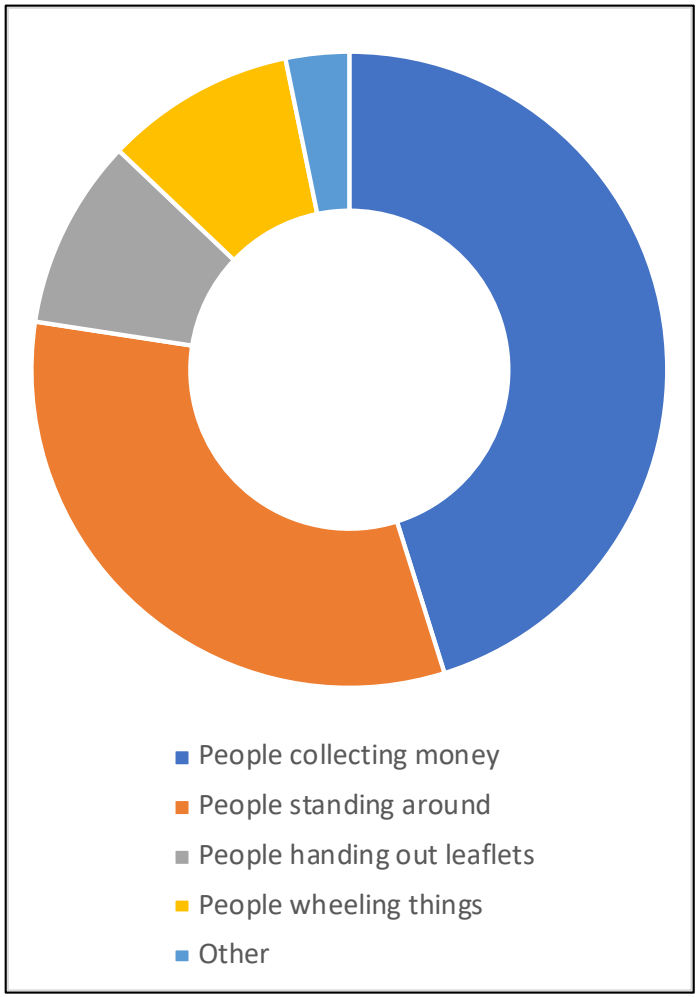
- Reducing storage time
- Providing an ‘early start’ phase for pedestrians
- Increasing kerb area with kerb outstands and tighter turn radius
- Widening pedestrian crossings including by reducing tram stop fences
- Consolidating uses on multi-use poles
- Relocating traffic signals and other poles

OBSTACLES

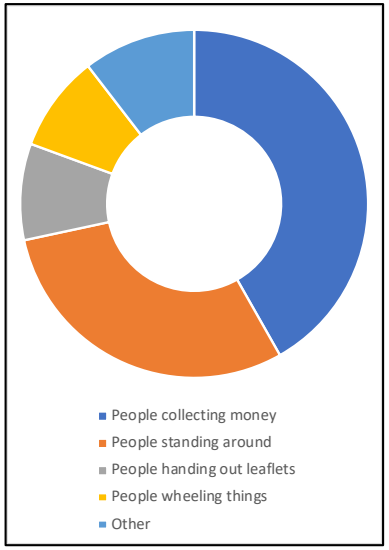
People can be obstacles but they are the least common type of obstacle

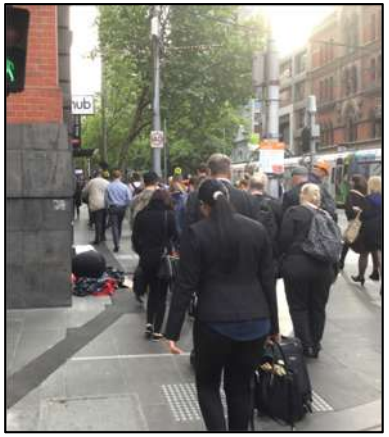
- This category provided the smallest number of obstacles
- The chart (right) shows the proportion of people obstacles observed in both the AM peak & lunchtime

AM Peak	Results
People obstructions noted	66
Blocks where People were an obstruction	48
Proportion of blocks with People obstructions	34%
Total blocks	140



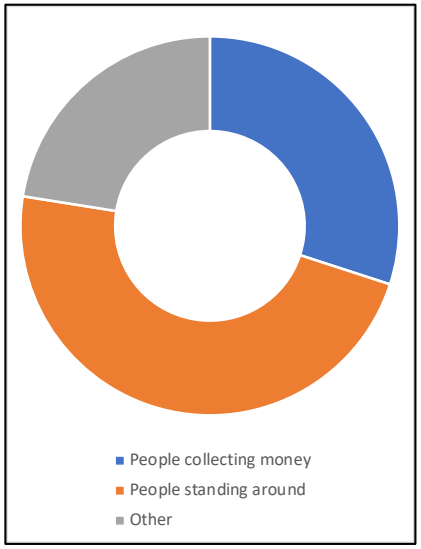
People collecting money is a commonly observed ‘people’ obstacle





The main people obstruction in the AM peak is people collecting money

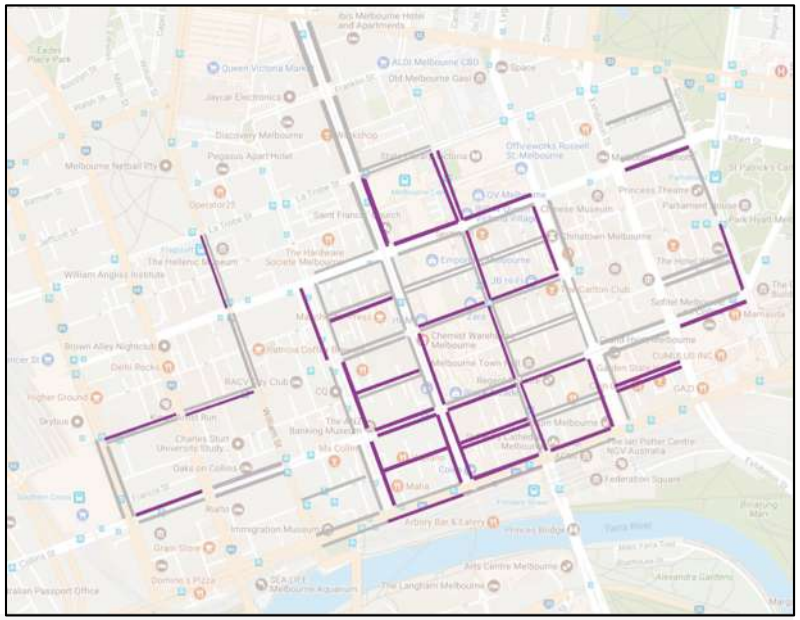
AM Peak	Results
People obstructions noted	26
Blocks where People were an obstruction	19
Proportion of blocks with People obstructions	30%
Total blocks	64



The main people obstruction at lunchtimes is people ‘standing around’

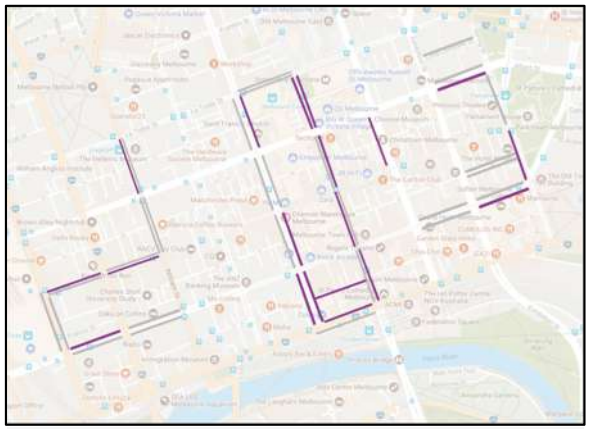
Lunchtime	Results
People obstructions noted	40
Blocks where People were an obstruction	29
Proportion of blocks with People obstructions	38%
Total blocks	76

People obstacles are near railway stations in the AM peak and in the core at lunchtimes



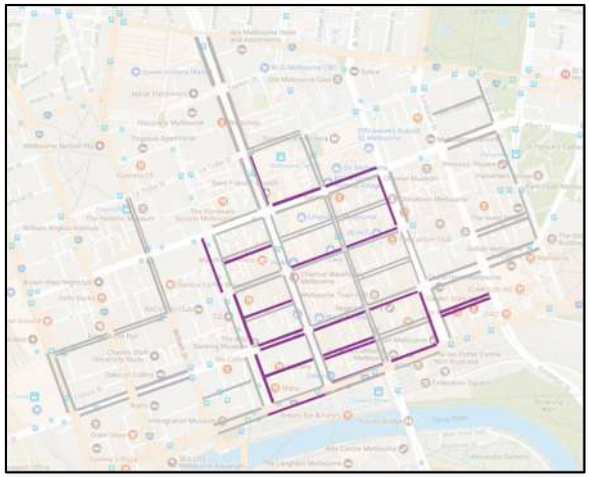
Both times – purple bars show the blocks where people were observed to be obstacles

People were observed as obstacles in 48 blocks (purple bars) at both times



AM peak – purple bars show the blocks where people were observed to be obstacles

The people obstacles were near the railway stations in the AM peak.



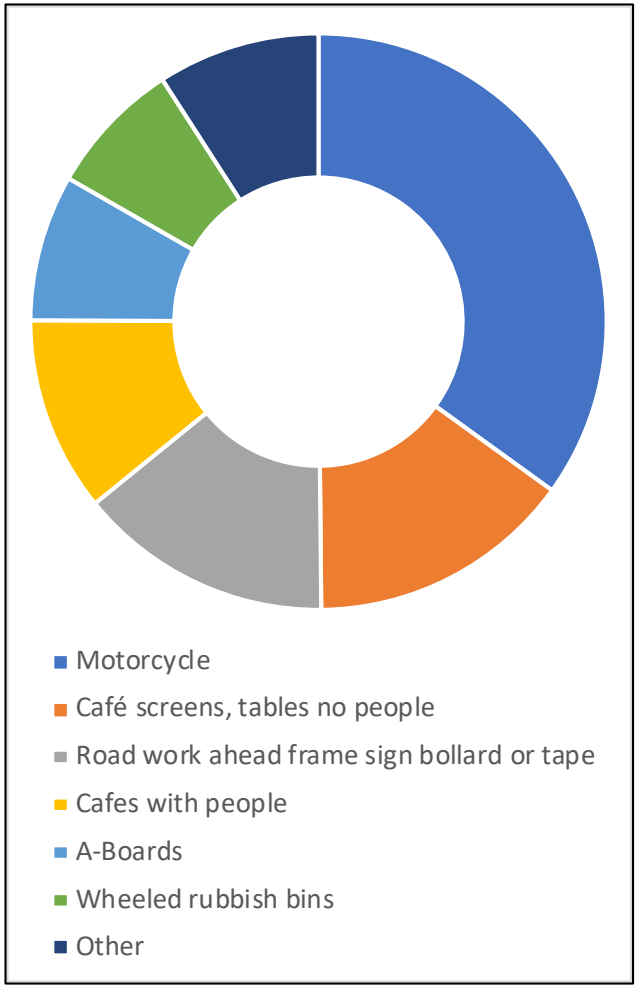
Lunchtime – purple bars show the blocks where people were observed to be obstacles

The people obstacles were in the core at lunchtimes.

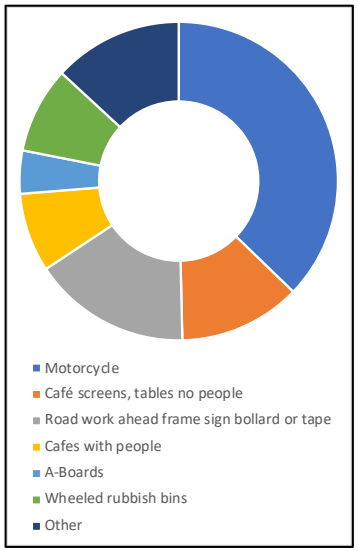
Temporary objects are the main type of obstacles

- This category provided the largest number of obstacles
- The chart (right) shows the proportion of temporary obstacles observed in both the AM peak & lunchtime
- (Note that café equipment is recorded under two headings – the second largest category of temporary objects was café equipment that was not in use.)

AM Peak	Results
Temporary obstructions (TO) noted	329
Blocks where TO were an obstruction	122
Proportion of blocks with TO obstructions	87%
Total blocks	140

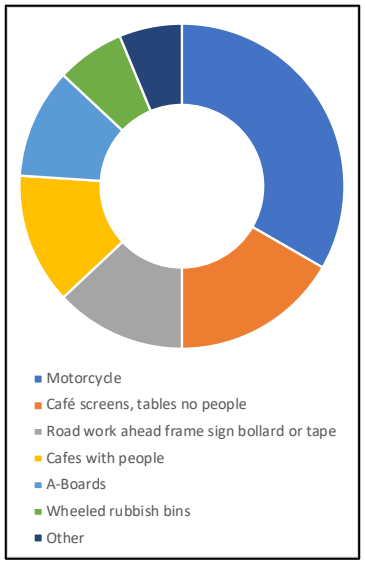


Motorcycles are the most commonly observed temporary object obstacle



The main temporary object obstruction in the AM peak is motorcycles

AM Peak	Results
Temporary obstructions (TO) noted	137
Blocks where TO were an obstruction	56
Proportion of blocks with TO obstructions	88%
Total blocks	64

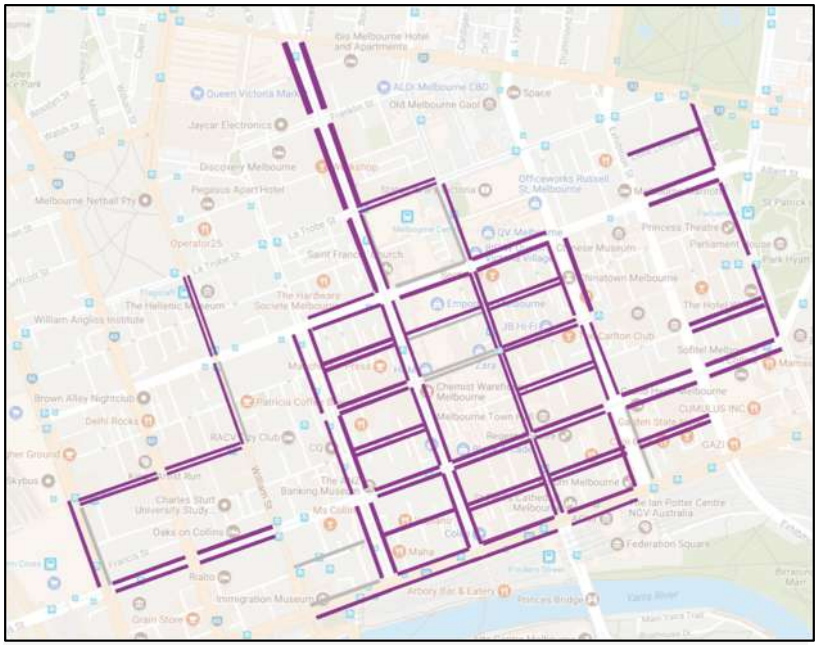


The main temporary object obstruction at lunchtimes is motorcycles

Lunchtime	Results
Temporary obstructions (TO) noted	192
Blocks where TO were an obstruction	66
Proportion of blocks with TO obstructions	87%
Total blocks	76

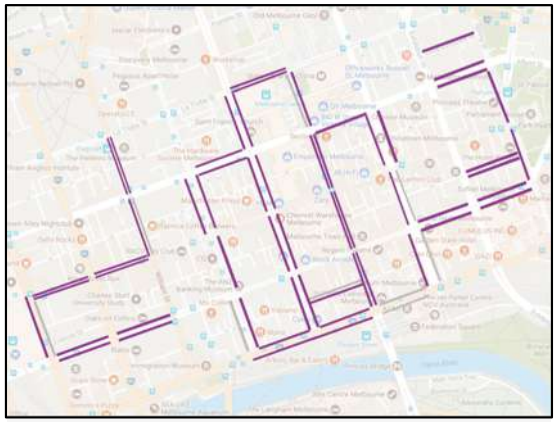
PHILLIP BOYLE & Associates

Temporary obstacles are on most blocks at both times



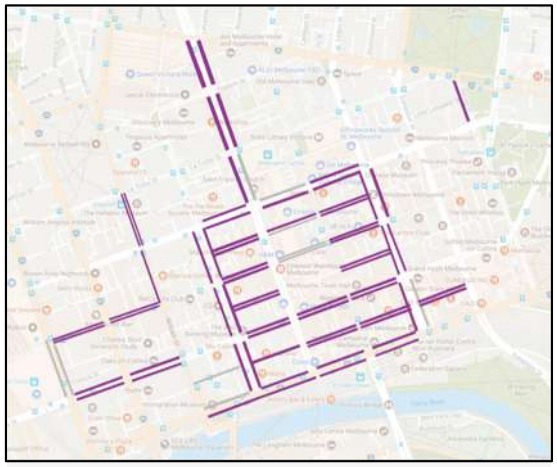
Both times – purple bars show the blocks where temporary objects were observed to be obstacles

Temporary objects were observed as obstacles in 122 blocks (purple bars) at both times



AM peak – purple bars show the blocks where temporary objects were observed to be obstacles

Temporary objects are obstacles on most blocks in the AM peak.



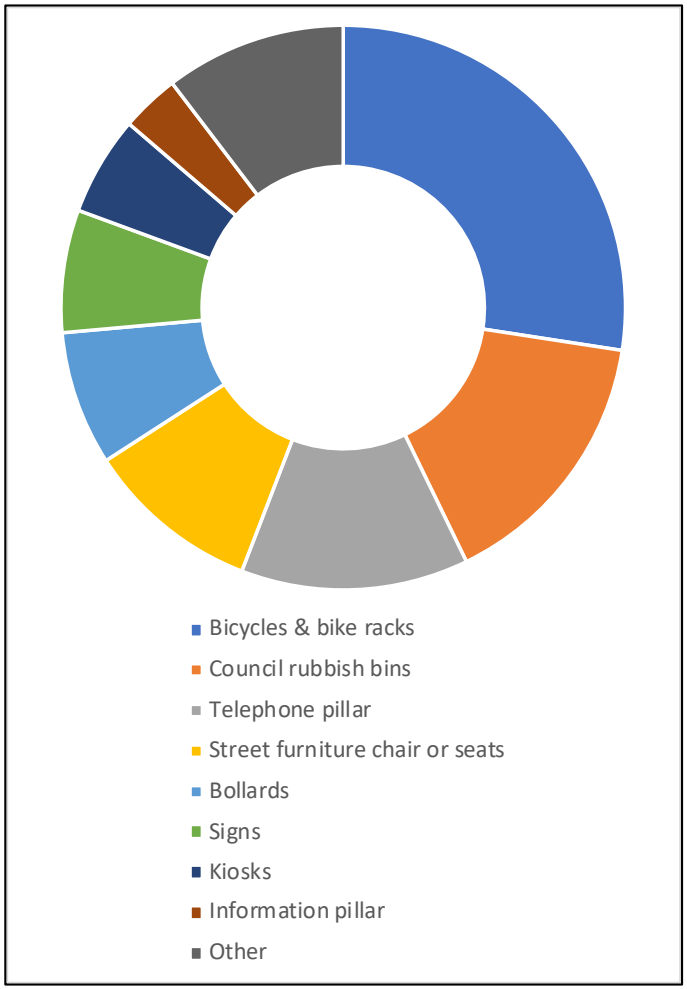
Lunchtime – purple bars show the blocks where temporary objects were observed to be obstacles

Temporary objects are obstacles on most blocks at lunchtimes.

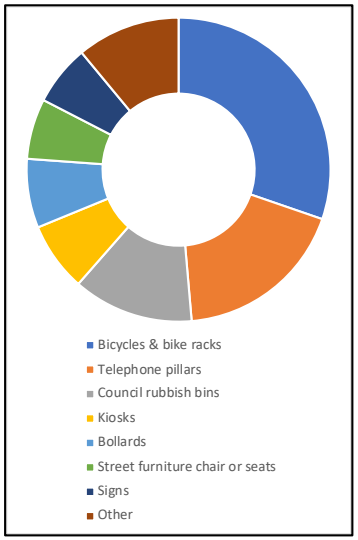
Lightly fixed objects are the second main type of obstacles

- This category provided the second largest number of obstacles
- The chart (right) shows the proportion of lightly fixed obstacles observed in both the AM peak & lunchtime
- (Note that formally and informally parked bicycles as well as empty parking rails have been combined into one category)

AM Peak	Results
Lightly fixed objects (LFO) noted	299
Blocks where LFO were an obstruction	114
Proportion of blocks with LFO obstructions	81%
Total blocks	140

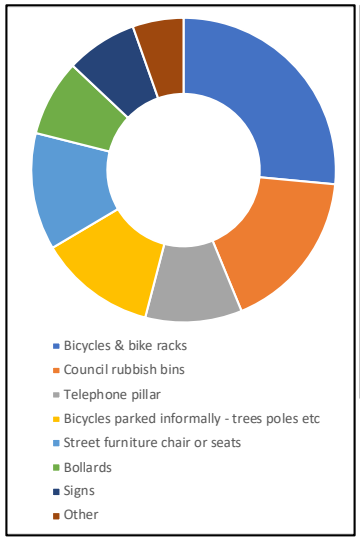


Bicycles & bicycle racks are the most commonly observed lightly fixed object obstacle



The main lightly fixed object obstruction in the AM peak are bicycles and bicycle parking rails

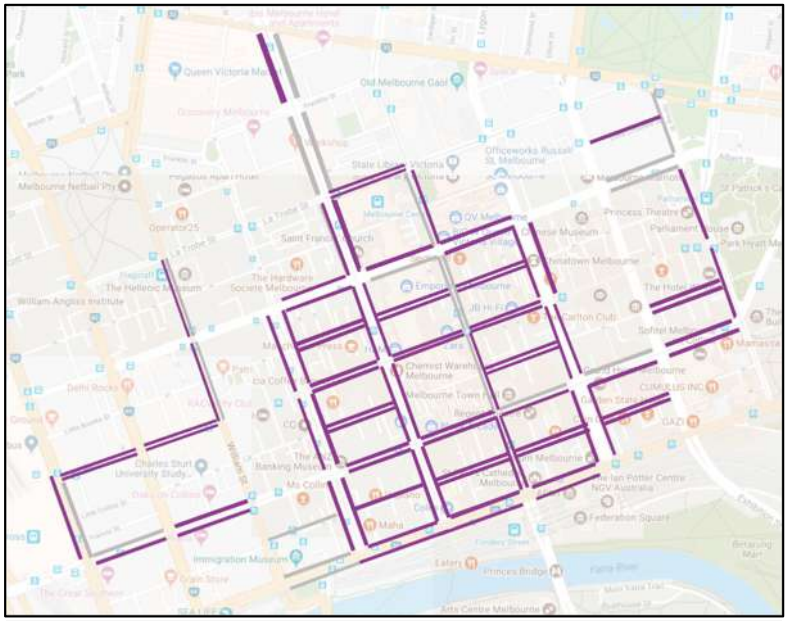
AM Peak	Results
Lightly fixed objects (LFO) noted	114
Blocks where LFO were an obstruction	53
Proportion of blocks with LFO obstructions	83%
Total blocks	64



The main lightly fixed object obstruction at lunchtimes are bicycles and bicycle parking rails

Lunchtime	Results
Lightly fixed objects (LFO) noted	185
Blocks where LFO were an obstruction	61
Proportion of blocks with LFO obstructions	80%
Total blocks	76

Lightly fixed obstacles are on many blocks at both times

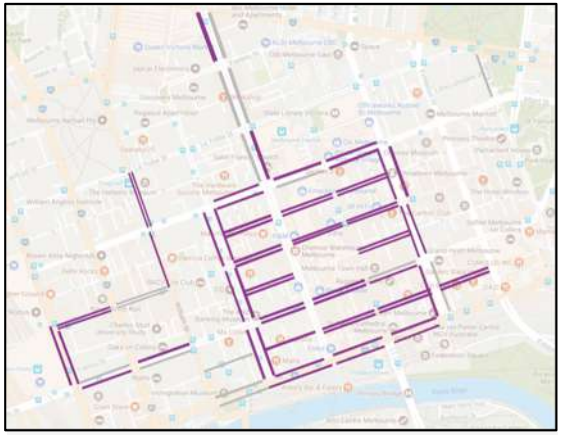


Both times – purple bars show the blocks where temporary objects were observed to be obstacles

Lightly fixed objects were observed as obstacles in 114 blocks (purple bars) at both times

AM peak – purple bars show the blocks where temporary objects were observed to be obstacles

Lightly fixed obstacles are found on many blocks in the AM peak

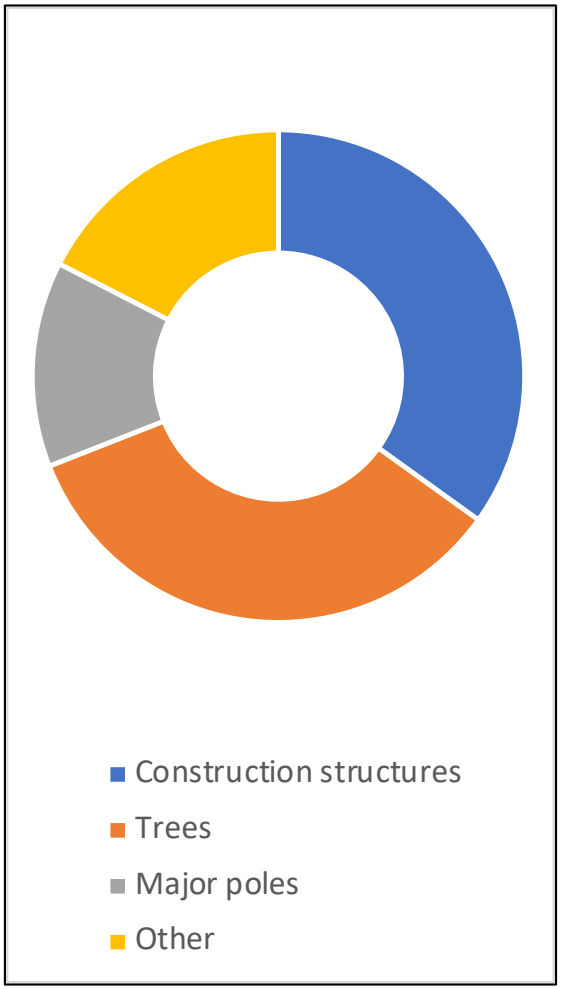


Lunchtime – purple bars show the blocks where temporary objects were observed to be obstacles

Lightly fixed obstacles are found on many blocks at lunchtimes

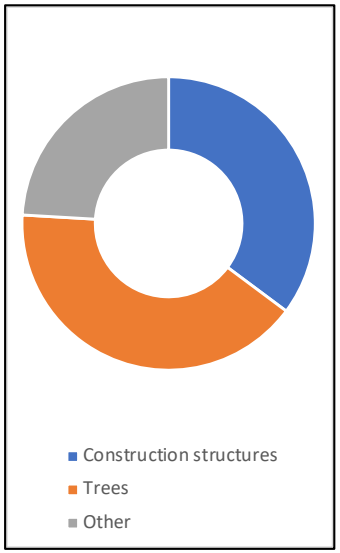
Major fixed objects are the third most frequently observed type of obstacle

- This category provided the third most frequently observed type of obstacles
- The chart (right) shows the proportion of major fixed obstacles observed in both the AM peak & lunchtime



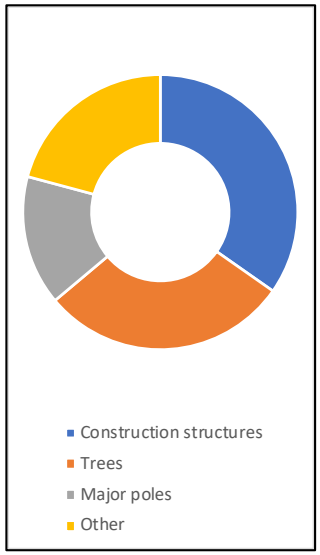
AM Peak	Results
Major fixed objects (MFO) noted	126
Blocks where MFO were an obstruction	79
Proportion of blocks with MFO obstructions	56%
Total blocks	140

Constructions structures are the most commonly observed major fixed object obstacle



The main major fixed object obstruction in the AM peak is trees

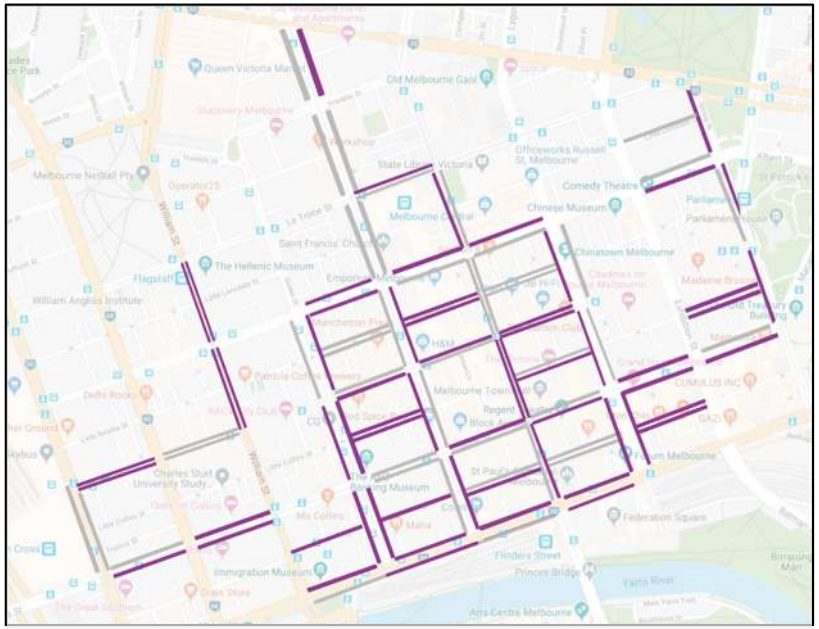
AM Peak	Results
Major fixed objects (MFO) noted	54
Blocks where MFO were an obstruction	37
Proportion of blocks with MFO obstructions	58%
Total blocks	64



The main major fixed object obstruction at lunchtimes is construction structures

Lunchtime	Results
Major fixed objects (MFO) noted	72
Blocks where MFO were an obstruction	42
Proportion of blocks with MFO obstructions	55%
Total blocks	76

Major obstacles are on some blocks at both times

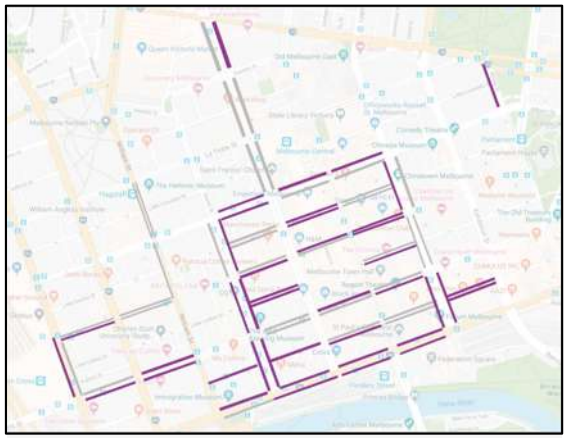


Both times – Purple bars show the blocks where major fixed objects were observed to be obstacles

Temporary objects were observed as obstacles in 79 blocks (purple bars) at both times

AM peak – purple bars show the blocks where temporary objects were observed to be obstacles

Major fixed objects are obstacles on some blocks in the AM peak



Lunchtime – purple bars show the blocks where temporary objects were observed to be obstacles

Major fixed objects are obstacles on around half the blocks at lunchtime.

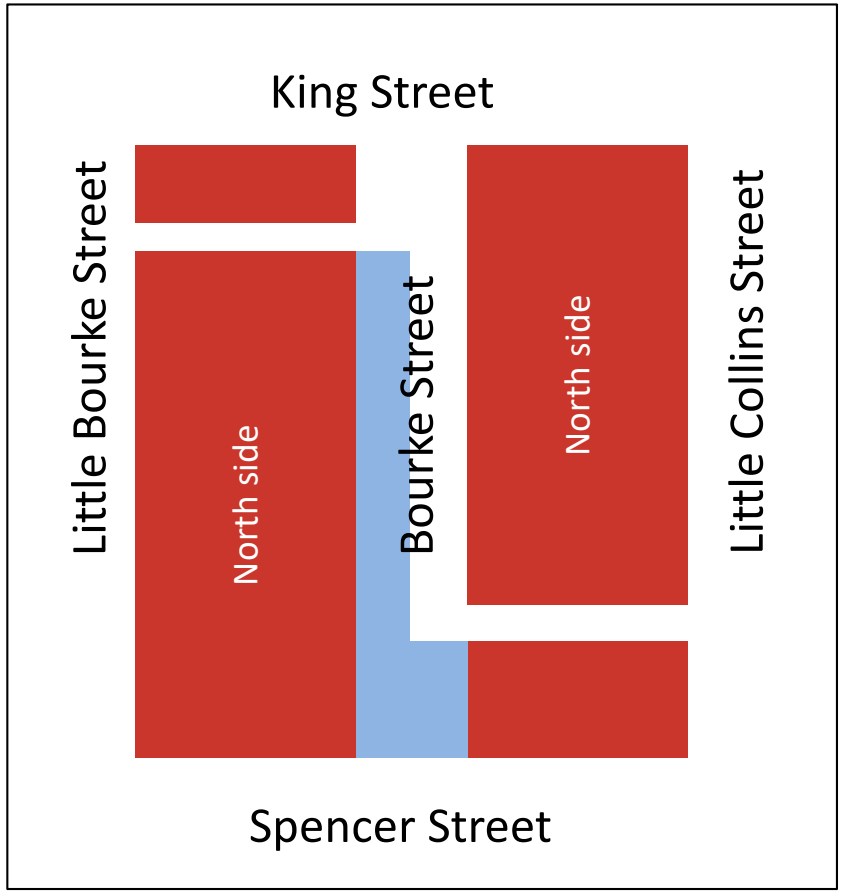
1 Widen walking areas

2 Reduce obstacles

3 Other opportunities

INTERVENTIONS & RESPONSES

1.1 Widen walking areas by permanently closing roads such as the T-intersections at railway stations



The T-intersections at railway stations can be closed to motor vehicles.

Council has already begun to upgrade the T-intersection of Elizabeth Street at Flinders Street 'to make it a better gateway for the thousands of pedestrians who use it every day.' The upgrades to the 'eastern side of the road will more than double the amount of pedestrian space in the street'.

A similar project can be undertaken at the T-intersection of Bourke Street at Spencer Street.
The area shown shaded in blue in the diagram (left) can be closed.

1.2 Widen walking areas by permanently narrowing roads & extending kerbs especially near railway stations

The section of Spring Street between Collins and Bourke Streets near an exit of Parliament Station has a high flow of pedestrians in the AM peak. The footpath in this section is narrower than the section to the south (see yellow line). This kerb needs to be extended.
Similar kerb extensions could be undertaken on the south side of Flinders Street between Swanston and Elizabeth Streets and on William Street between LaTrobe Street and Lonsdale Street.

1.3 Widen walking areas by temporarily closing roads in the AM peak especially near railway stations

William Street looking south from LaTrobe Street 8 am Thursday 6 September

This section of William Street has been observed to overflow (although not when surveyed).
The walking area could be extended by temporarily closing the north bound lane north of Little Lonsdale Street between 0700 and 1000 on working days.

Similar temporary road closures in the AM peak could be undertaken on:

- Collins Street eastbound:
  - from Exhibition Street to Spring Street
  - From Spencer Street to King Street
- Elizabeth Street in each direction between:
  - Lonsdale & LaTrobe Streets
  - Elizabeth & Bourke Streets

1.3 Widen walking areas by introducing and extending temporary lunchtime closures on ‘Little’ Streets

Photo Daniel Bowen

Lunchtime in Little Streets:

- Extend Little Collins Street temporary closure from Spring Street to William Street
- Introduce closures to sections of Flinders Lane and Little Bourke Street

1.4 Widen walking areas by integrating tram passenger waiting & loading areas with wider footpaths

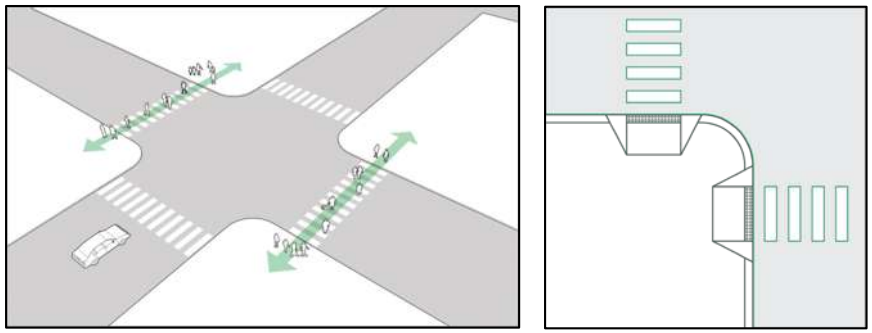
Partitioning of uses reduces the efficiency of the space
On the tram route on Elizabeth Street the passenger waiting and boarding area has been separated from the footpath. The footpath has not been extended. (Above)
When pedestrian flows are high along the street, the tram waiting and boarding area is unavailable. Nor can peaks of waiting and boarding be accommodated by the footpath.

Flexible space
On the tram route on Swanston Street the waiting and boarding area has been integrated in a wider footpath. (Right)
When pedestrian flows are high along the street the waiting and boarding area can be used. Equally, high levels of waiting and boarding can be accommodated by the footpath.

Widen footpaths on tram routes especially near railway stations by integrating the tram waiting and loading area with the footpath
This can be done on:

- Elizabeth Street
- William Street
- Spencer Street
- Bourke Street
- Collins Street
- LaTrobe Street

1.5 Upgrade intersections



Illustrations for 'early start' for pedestrians and tighter turn radius from the (US) *National Association of City Transportation Officials Urban Street Design Guide*

Intersections in the central can be steadily upgraded to increase their pedestrian 'capacity'. Typical techniques that can be used include:

- Reducing storage time by providing shorter and more frequent signal phases
- Reducing the obstacles (and conflict) caused by motor vehicles by providing an 'early start' phase for pedestrians
- Increasing the kerb area at the intersection through kerb outstands & a tighter turn radius for motor vehicles
- Widening pedestrian crossings including the removal of fences
- Consolidating uses on a single pole
- Relocating traffic signals and other poles from the footpath

Relocate traffic signals and other poles – Flinders Lane north of Russell Street

Widen pedestrian crossings by removing fences – Flinders Street west of Swanston Street

2.1 Reduce the number of motorcycle obstacles

Initiatives	Remove	Relocate	Time	Blocks	Locations
1 Motorcycles – where median parking is provided	No parking on footpath where median parking is provided	Park in the central median	All times	Blocks with motorcycle parking in the central median	Queen Street for example
2 Motorcycles - near railway stations in AM peak	No parking on footpath near railway stations in the AM peak		No parking times: 0700 – 1000	All blocks that are one block from railway station exits	One block from railway station exits
3 Motorcycles – Little Streets at lunchtimes	No parking on footpath on Little Streets at lunchtime		No parking times: 1200 - 1400	'Little' streets	Especially Flinders Lane, Little Collins and Little Bourke Streets between Spring and William Streets

Notes:

- These initiatives would extend the areas and times where motorcycles are not permitted to park on footpaths in the central city. They are consistent with the rules and guidelines that apply in the central city.
- Under the traffic regulations all the motorcycles observed to be obstacles were non compliant. (The Victorian Road Safety (Road Rules) Regulations 2009 allow motorcycles to be parked on footpaths provided the 'driver stops in a place that does not inconvenience, obstruct, hinder or prevent the free passage of any pedestrian or other vehicle' - S. 197 (1)(b).)
- Parking on the narrow footpaths of Little Streets is generally not consistent with the *Victorian Motorcycle Advisory Council Guidelines for parking motorcycles on footpaths* which recommend parking at least one motorcycle wheel diameter [60cm] back from the road kerb. Motorcycles parked 60cm back from the kerb on footpaths in Little Streets are likely to contravene the traffic regulations by hindering pedestrians.

2.2 Reduce the number of obstacles caused by café equipment

	Remove	Rationalise	Relocate	Time	Blocks	Locations
Café equipment 1 - near railway stations in the AM peak	No café equipment on footpath		Café equipment only on kerb extensions	'No equipment' times: 0700 – 1000	All blocks one block from railway station exits	One block from railway station exits
Café equipment 2 – on Little Streets at lunchtime		Use stools and narrow benches parallel to kerb, Consider 2 x2 chairs & tables rather than 4x4	Other café equipment only on kerb extensions Explore ways that permit cafes to use car parking bays over lunchtime	'Narrow equipment' times and use of car parking bays: 1200 - 1400	'Little' streets	Especially Flinders Lane, Little Collins and Little Bourke Streets between Spring and William Streets
Café equipment 3 – not in use		Tables & chairs on footpath folded/stacked when not in use		No empty tables and chairs 0700 – 1000	All blocks one block from railway station exits	One block from railway station exits
Café equipment 4		Reduce or remove setbacks from kerbs			All blocks	

Notes:

- Café equipment includes: chairs, tables, A-boards, (including A-boards on two-wheelers), gas heaters, umbrellas, screens (temporary and permanent), delivery scooters/bicycles etc
- Overall 15% of the temporary obstacles were unoccupied café-related equipment
  - AM peak – 20% of temporary obstacles were café equipment – 12% unoccupied
  - Lunchtime – 30% of temporary obstacles were café equipment – 17% unoccupied
- Setbacks appear to be reducing the effective width of the footpath for little benefit

2.3 Remove temporary signs for motorists from footpaths

	Remove	Relocate	Time	Blocks	Locations
Signs for motorists 1	No signs for motorists on the footpath	Place signs on roadway	All times	All blocks	All locations

Notes:

- Signs for motorists includes: frame signs, Variable message signs, empty frames

Example of a 'frame' sign (left), variable message board (centre) and empty frame sign (right)

2.4 Relocate bicycle parking

	Remove	Relocate	Time	Blocks	Locations
Bicycle parking 1 – Relocate bicycle parking rails to kerb outstands		Relocate parking rails from current locations to kerb outstands especially near railway stations and on narrow footpaths in Little Streets	All times Fixed parking rails	Blocks with bicycle parking in kerb outstands at intersections	Current examples of kerb outstands in Little Collins Street south of Spring Street, Little Lonsdale Street east of William Street Relocate parking in narrow sections (between Spring and William Streets) of Flinders Lane, Little Collins and Little Bourke Streets
Bicycle parking 2 – Realign parking areas	No bicycle parking areas that are not angled to reduce width or 'tucked in' to other potential obstacles such as trees	Realign all bicycle parking rails that are that are the widest obstacle in that location	All times Fixed parking rails	Case by case basis	Case by case basis

Notes:

In a similar manner kerb outstands can also be used to reduce the obstacles caused by:

- Public telephones
- Kiosks

2.5 Relocate Council rubbish bins, seats, signs and information pillars that are acting as obstacles

	Remove	Rationalise	Relocate	Time	Blocks	Locations
Rubbish bins 1 – intrusive bins	No rubbish bins that are not 'tucked in' to other potential obstacles such as trees		Move all 'stand alone' bins or bins that are that are the widest obstacle in that location	Fixed	Case by case basis	Case by case basis
Rubbish bins 2 – near railway stations and in Little Streets	Minimise rubbish bins on footpath near railway stations and in Little Streets		Relocate to blocks under less pressure	Fixed	All blocks one block from railway station exits	One block from railway station exits In Little Streets especially Flinders Lane, Little Collins and Little Bourke Streets between Spring and William Streets

- A similar approach can be taken with:
  - Street furniture such as seats
  - Signs
  - Information pillars

2.6 Reduce the number of obstacles caused by construction structures

Introduce permit conditions that require foundations for construction structures to be placed in the roadway and not on the footpath.

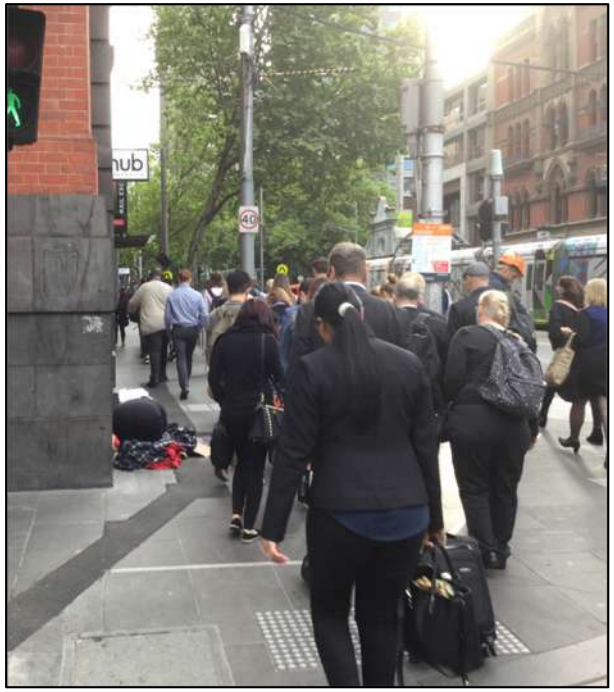
Introduce permit conditions that require the project to remove all objects fixed to the footpath and relocate them temporarily before reinstating them after the project is complete.

3.1 Increase the walking area near trees

Provide suitably protective, permeable and walkable surfaces on the ‘building side’ of tree pits

3.2 Explore the collection of money in the AM peak

Explore the issue of collecting money in the AM including whether it would be possible to relocate people collecting money in the AM peak to places where they are not obstacles to pedestrians.



This is person has chosen a location where they are an obstacle.

This is person has chosen a location where they are less of an obstacle.

3.3 Develop a policy that restricts advertising of all types on footpaths

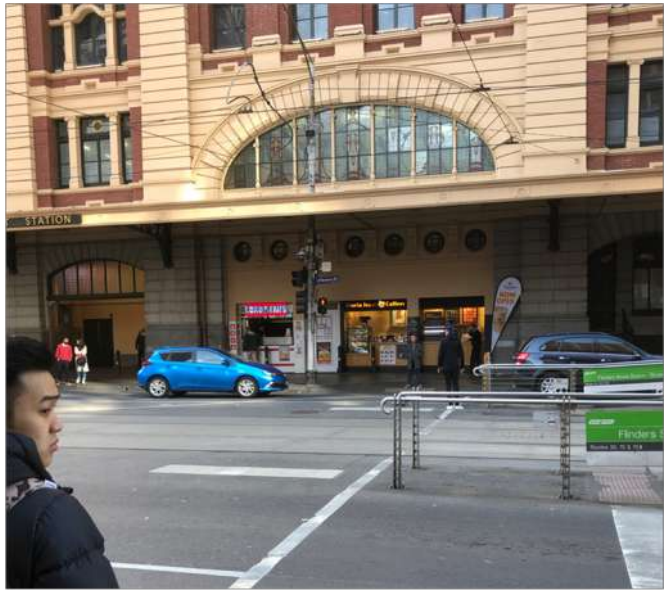
A general policy on advertising and temporary signs on the footpath would address multiple issues:

- A-boards
- Two-wheelers with advertising
- Frame signs for motorists
- Public telephones

3.4 Design space efficient equipment

- Council could design space efficient:
  - Bus shelters (similar to the design on the left) to replace the design on the right
  - Narrow stackable café tables/stools (A foldable table and stool for cafeterias is shown)
  - Brackets for signs and signals to eliminate ground mounted poles (a cantilevered traffic signal is shown)
  - Multi-purpose poles to reduce the number of poles

3.5 Further investigation



- Review fences which reduce the width of crossings and appear to be unnecessary

- Identify ways of preventing motor vehicles blocking intersections:
  - Turn bans may be appropriate
  - Enforcement may be appropriate

DATA SUMMARY

Blocks & intersections were observed and assessed for flow & obstacles

Criteria	Blocks	Intersections
Flow	1. Comfortable walking – some movement, plenty of room 2. Uncomfortable walking 3. Walking on the kerbstone 4. Walking on the road – one way 5. Walking on the road – both directions	1. People walking inside the crossing area 2. People walking outside the crossing area
Obstacles	1. People 2. Temporary objects 3. Lightly fixed objects 4. Major fixed objects	1. Unobstructed pedestrian ramp 2. Pole in the pedestrian ramp 3. More than one pole in the pedestrian ramp
Storage	*Not assessed*	1. No people waiting outside poles and other objects 2. People waiting outside poles and other objects
Location	Recorded	Recorded

150 blocks and 161 intersection legs were observed in the AM peak and at lunchtimes

Blocks

	Blocks observed AM peak 0700 - 0930	Blocks observed Lunchtime 1200 - 1400	Total
Unique blocks	64	76	140
Blocks observed	72	78	150

Intersections

	Intersections observed AM peak 0700 - 0930	Intersections observed Lunchtime 1200 - 1400	Total
Intersections	35	32	67
Legs observed	80	81	161

Flows along the blocks were rated

Criteria	Rating	Blocks observed AM peak 0730 - 0930	Blocks observed Lunchtime 1200 - 1400
Comfortable walking	1	52	54
Uncomfortable walking	2	5	9
Walking on the kerbstone	3	5	6
Walking on the road – one direction	4	2	6
Walking on the road – both directions	5	0	1
	Total blocks	64	76

Note: Each 'block' is one side of a block between major roads – for example 'west side of Elizabeth Street between Flinders and Collins Streets'

- On most blocks (86%) at both times walking is comfortable
- At some times, some blocks (14%) overflow.
- No instances of flow at level 5 in the AM peak were observed during the survey although they were observed in the development of the survey.

Obstacles on the blocks were identified

Criteria	Blocks observed AM peak 0700 - 0930	Blocks observed Lunchtime 1200 - 1400
People	26	40
Temporary objects	137	192
Lightly fixed objects	114	185
Major fixed objects	54	72
Total blocks	72	78

Each 'block' is one side of a block between major roads – for example 'west side of Elizabeth Street between Flinders and Collins Streets'

- Most obstacles are temporary objects or lightly fixed objects

Intersection flows & obstacles were recorded

	Criteria	Intersection legs observed AM peak 0730 - 0930		Intersection legs observed Lunchtime 1200 - 1400	
Flow	People walking inside the crossing area	31	39%	17	21%
	People walking outside the crossing area	49	61%	64	79%
Obstructions	Unobstructed pedestrian ramp	33	41%	29	36%
	Pole in the pedestrian ramp	39	49%	43	53%
	More than one pole in the pedestrian ramp	8	10%	9	11%
Storage	No people waiting outside poles and other objects	28	35%	28	35%
	People waiting outside poles and other objects	52	65%	53	65%

Note: Each 'leg' is one side of an intersection (north, south, east or west)

- More than half the intersections (62%) are obstructed
- Most of the intersections observed (65%) have high levels of storage
- People overflow most intersections (70%) by walking outside the white lines