

## Report to the Future Melbourne Committee

Agenda item 6.4

### Little Streets Shared Zone Review

4 April 2023

**Presenter:** Roger Teale, General Manager Property Infrastructure and Design

#### Purpose and background

1. The purpose of this report is to respond to the Future Melbourne Committee (FMC) resolution from 7 June 2022 for management to prepare a report:
  - 1.1. on the extent to which the objectives of the 'Little Streets transformations' project have succeeded,
  - 1.2. as well as any recommendations for improvements to the Little Streets treatments over time consistent with the 'Future Streets Framework', be presented to this Committee for consideration by March 2023".

#### Key issues

2. Action 3 of the City of Melbourne's Transport Strategy 2030 seeks to "Convert parts of 'Little' streets into pedestrian priority zones with lower speed limits".
3. Between September 2020 and August 2021, trial 20km/h Shared Zones and associated traffic calming treatments were implemented in Lt Lonsdale Street, Lt Bourke Street, Lt Collins Street (Spring Street to King Street ) and Flinders Lane (Spring Street to Market Street) as part of the city activation and COVID-19 recovery initiatives.
4. An external consultant was engaged in November 2022 to conduct a review of the outcomes of changes to the Little Streets to find out if the goals to achieve pedestrian priority and lower speed limits have been achieved, including to inform the Future Streets Framework.
5. The Review (Attachment 2) found that treatments have reduced traffic volumes and speeds in Little Streets. While most streets have seen a reduction in traffic volumes and speeds, both were still high for an effective shared zone. More should be done to further reduce both these measures to make the streets fully functional as shared zones.
6. For the most part, a key finding was that pedestrians and drivers were unaware of the priority rules within the shared zone.
7. Zebra crossings have been installed within shared zones to facilitate and reinforce pedestrian priority at footpaths closed due to building construction activity. These zebra crossings may have added to the confusion of how shared zones should operate.
8. Temporary infrastructure such as flexible bollards and line marking were installed as quick build and cost effective treatments. Pedestrians were not using these spaces and therefore these treatments need to be reviewed and formalised to improve the street environment.
9. The 20km/h shared zones were approved by the Department of Transport, now the Department of Transport and Planning on a trial basis. Speeds on all Little Street segments in 2020 (i.e. pre-implementation) were significantly below the then 40km/h posted speed limit. As such, the speed limits on the Little Streets should remain at 20km/h, even if in the future the 'shared zone' designation is removed from particular segments.
10. To ensure the Little Streets are working towards their intended performance goal, a number of actions that are cost effective and achievable are recommended for action in the short term. These include surface treatments, signage and line marking, permanent road humps, bicycle movements, street network adjustments to reduce through traffic and extent of shared zones within blocks.
11. The review identifies four street typologies including potential design treatments that correspond to the conditions of each block. These recommendations will be considered as part of the Future Streets Framework and assist in identifying priority projects for design and delivery.

## **Recommendation from management**

12. That the Future Melbourne Committee:
  - 12.1. Notes the findings of the Little Streets Shared Zone Review.
  - 12.2. Notes management's intention to implement appropriate short and medium term interventions to further improve pedestrian safety and accessibility including a refresh of the treatments to improve the streetscape.
  - 12.3. Supports the 20km/h speed limit in Little Streets and notes management's intention to seek Department of Transport and Planning's approval to make this speed limit permanent.
  - 12.4. Notes that the findings of this report will be referred to the development of Council's Future Streets Framework to inform permanent design changes for the medium and long term.

### **Attachments:**

1. Supporting Attachment (Page 3 of 87)
2. Little Streets Shared Zone Review Consultants Report (Page 4 of 87)

## Supporting Attachment

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### Legal

1. The Victorian *Road Safety Road Rules 2017* for shared zones state the following:
  - 1.1 Rule 24 requires drivers to drive at the designated speed limit.
  - 1.2 Rule 83 requires drivers driving in a shared zone to give way to any pedestrian in the zone.
2. The trial shared zones and associated 20km/h speed limit were approved by the Department of Transport and Planning in August 2020 as part of the COVID-19 city reactivation fast-tracked infrastructure improvements for walking and cycling.

### Finance

3. These works would currently fall within the Widen Footpath and Pedestrian Priority in Little Streets capital works program with a combined total annual budget of \$1.5 million.

### Conflict of interest

4. No member of Council staff, or other person engaged under a contract, involved in advising on or preparing this report has declared a material or general conflict of interest in relation to the matter of the report.

### Health and Safety

5. Community Health and Safety:

Little Streets Shared Zones facilitate pedestrianisation of street spaces and provide priority access, safety, planning for future growth, creating attractive walking environments, permeability and reducing delay to pedestrians. The benefits of walking include: improved physical and mental health outcomes, increased opportunities for social interaction and a vibrant public realm, improved pedestrian safety and security and reduced pollution, improved air quality and amenity for pedestrians where private vehicle use is reduced.

### Stakeholder consultation

6. Intercept surveys and site observations were undertaken by the transport consultant as part of the review.

### Relation to Council policy

7. Action 3 of the City of Melbourne's Transport Strategy 2030 seeks to "Convert parts of 'Little' streets into pedestrian priority zones with lower speed limits".

### Environmental sustainability

8. Private vehicle trips contribute to transport emissions in the municipality. Improved walking conditions, and encouraging a modal shift helps reduce car journeys. Any decrease in car travel would mean a potential reduction in air pollution and a positive impact on the health of the city.





# City of Melbourne

## Little Streets Pedestrian Priority/Shared Zones Review







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## Executive Summary

The City of Melbourne's Transport Strategy 2030 includes an action to “Convert parts of ‘Little’ streets into pedestrian priority zones with lower speed limits”. Treatments were implemented in 2020 to convert the Little Streets into shared zones with 20km/h speed limits.

This project has reviewed the outcomes of these changes to the Little Streets to see if the goal to achieve pedestrian priority and lower speed limits has been achieved. Motor vehicle volumes and speeds were found to have decreased on the Little Streets, most likely due to a combination of the treatments and changes to travel behaviour post-COVID-19. Further measures are recommended to reduce motor vehicle volumes and speeds to bring conditions on the Little Streets in line with shared zone guidance.

A safety review was conducted on each segment of the Little Streets for morning, evening and night-time periods to assess if the streets were operating as shared zones. It was found that for the most part, pedestrians and drivers were unaware of the priority rules within the shared zone. Pedestrians generally waited for cars to pass before crossing the street, and drivers were rarely observed yielding to pedestrians. There were some exceptions in locations that had higher pedestrian volumes due to a north-south desire line, such as Degraeves Street on Flinders Lane. Here, pedestrians were observed confidently crossing the street without yielding to cars. This movement was aided by the fact that the street is raised to footpath level at this location, making the transition across the street accessible and seamless.

It is recommended that the treatments within the shared zone are strengthened to further slow down vehicles and reinforce pedestrian priority on the Little Streets. Design responses to achieve this objective have been recommended, based on the existing conditions on each segment. These conditions were used to identify four street typologies, and designs have been developed for each typology. Due to the changing nature of land use and access demands in the city, it is recommended that these typologies and design responses be regularly re-examined to ensure they align with current street conditions.







## Introduction

Stantec has been commissioned by the City of Melbourne to review the Little Streets pedestrian priority/shared zones and evaluate the appropriateness and effectiveness of the implementation of these designs to the Hoddle Grid.

The key elements that were considered in this assessment were:

- Safety of all street users, particularly people walking and riding a bike
- Adherence to lowered speed limits
- Pedestrian priority
- Installation and operation of street furniture
- Condition and efficacy of stencil markings and signage



## Project background

The Little Streets of the Hoddle Grid were originally designed to service the properties on the larger parallel streets. As the city changed over time, businesses were established on the Little Streets and they have now become high-activity streets. Many blocks of the Little Streets have high volumes of pedestrian traffic, despite limited changes to the design of the street.

The City of Melbourne's Transport Strategy 2030 has an action to "Convert parts of 'Little' streets into pedestrian priority zones with lower speed limits". This action was implemented in 2020 with the introduction of shared zones across the Little Streets in the Hoddle Grid. This included lowering speed limits and making changes to increase the safety and amenity for pedestrians.

The following changes were made in September 2020:

- Threshold treatments on the entry to each Little Street (gated speed limit signs, pavement stencils, spike down speed cushions, tree planter boxes).
- Mid-block repeater treatments (repeated speed limit signs, repeater pavement stencils, spike down speed cushions, removal of zebra crossings (some of which have since been reinstated due to construction)).
- Approach to intersection treatments (protected bike lanes at intersections, "End Shared Zone" signage).

In March 2021, further changes ('**Stage 2**' treatments) were made to Little Collins Street between Spring Street and Russell Street, and Little Bourke Street between Russell Street and Swanston Street.



Threshold treatment at block entry



Mid-block repeater treatments of shared zone and speed limit signs



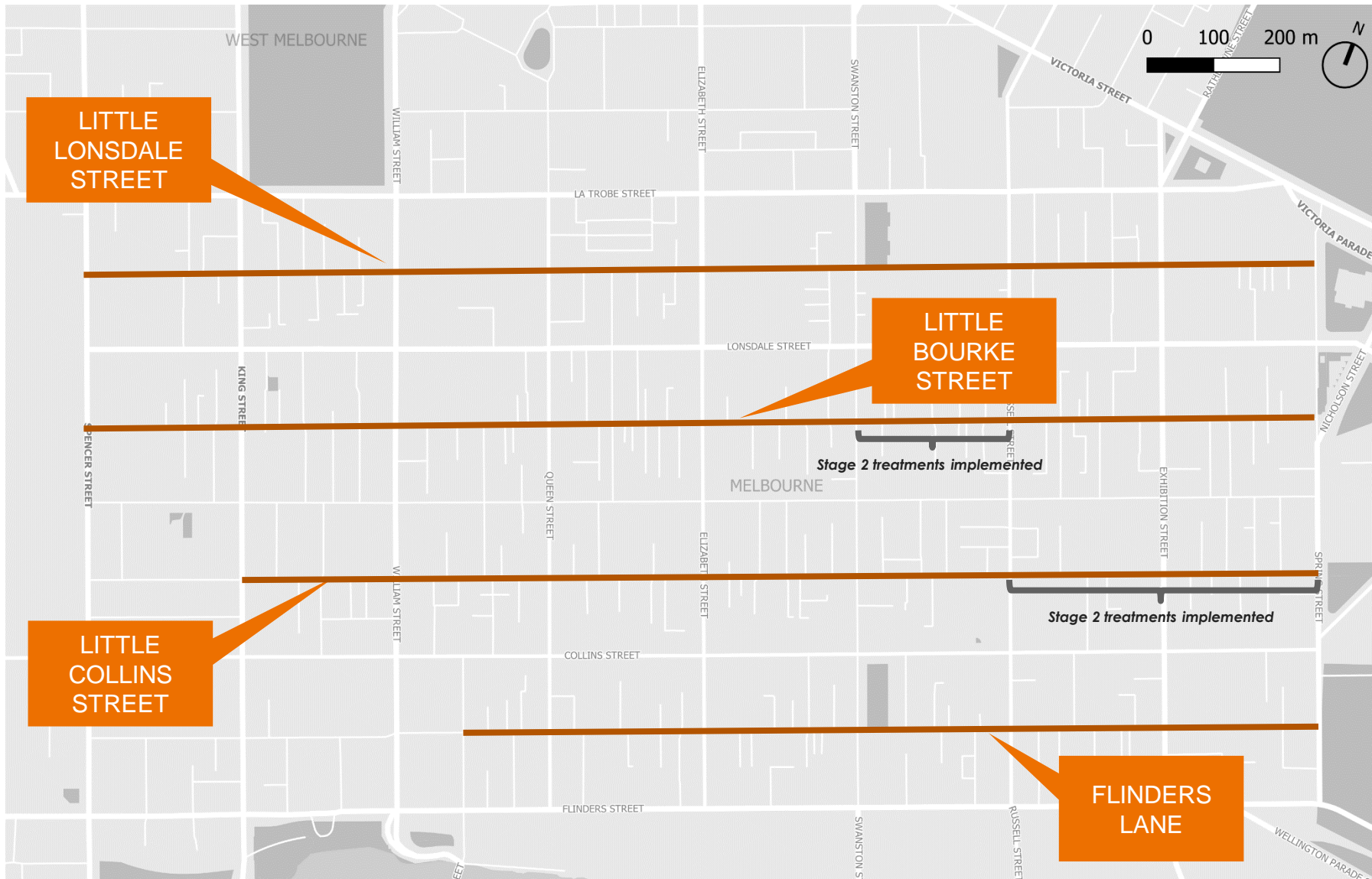
Mid-block repeater treatments of speed cushions and stencils



Intersection approach treatment



# Little Streets Review Project Sites





## Methodology and Assessments

Several assessments were undertaken to capture an overall review of the Little Streets, as outlined below.

Assessment	Data Source
Frequency and severity of crashes	Crash data supplied by the Department of Transport and Planning (covering the period June 2015 – May 2022)
Vehicle speeds and volumes	2020, 2021 and 2022 survey data supplied by the City of Melbourne
Street safety & street user behaviour review	Evaluation of street safety & street user behaviour at agreed times using bespoke checklist approved by the City of Melbourne
Intercept surveys	Surveys of people on the Little Streets
Stakeholder feedback and perspectives	Stakeholder engagement to be undertaken following City of Melbourne review of findings from above assessments







## Review of Traffic Volumes & Speeds



## Entire Street Length Traffic Volumes & Speeds

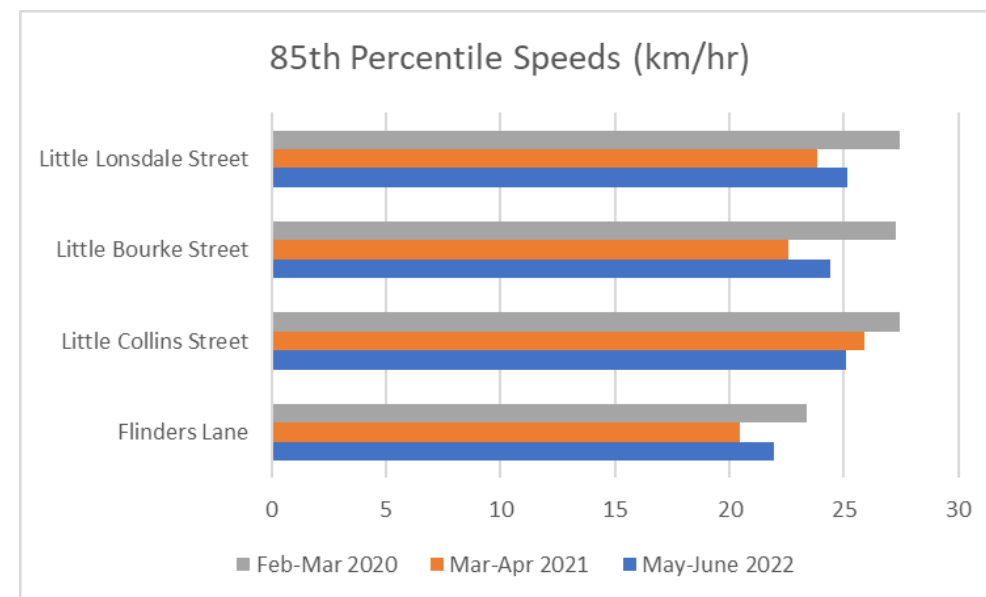
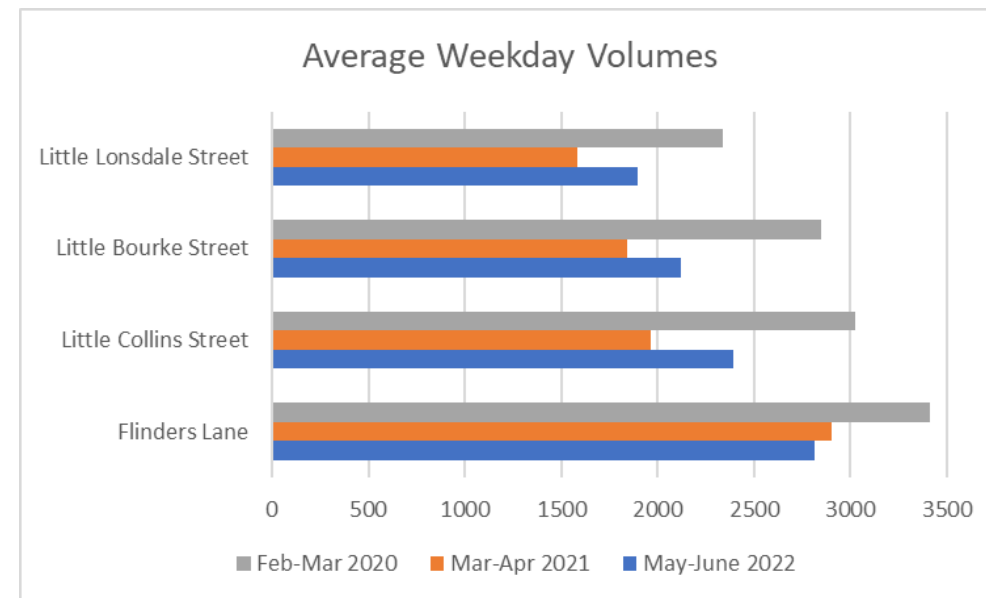
The traffic volume and speed analysis was based on seven-day pneumatic tube count surveys provided by the City of Melbourne, which were undertaken during three time periods as follows:

- February – March 2020 (i.e., pre-implementation)
- March – April 2021 (i.e., immediately post-implementation)
- May – June 2022 (i.e., post-COVID-19 and one-year post-implementation)

It is noted that all surveys were undertaken outside of COVID-19 public health lockdown periods. Nonetheless, we acknowledge that the changes in traffic volumes and speeds are likely influenced by non-treatment factors such as changes in travel behaviours post-COVID.

### Entire Street Length Findings

- All four Little Streets show a decrease in both average weekday traffic volumes and 85<sup>th</sup> percentile speeds<sup>1</sup> between 2020 and 2021 (i.e., immediately post-implementation).
- Apart from the Flinders Lane traffic volumes and the Little Collins Street 85<sup>th</sup> percentile speeds, the results show increases in traffic volumes & speeds between 2021 and 2022. Nonetheless, the 2022 values are still lower than the 2020 values.
- The survey data shows that 85<sup>th</sup> percentile speeds in 2020 (i.e., pre-implementation) on all Little Streets were significantly below the then 40km/h posted speed limit.
- The 2022 survey data shows the following 85<sup>th</sup> percentile speeds:
  - 21.9 km/h for Flinders Lane, only slightly above the speed limit
  - 24.4 km/h to 25.1km/h for the other three streets, materially greater than the speed limit



[1] The 85<sup>th</sup> percentile speed represents the speed at or below which 85 percent of surveyed motorists travelled on a street segment.



## By Segment Traffic Volumes & Speeds – Little Lonsdale & Little Bourke Streets

Little Lonsdale Street		Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring	Average	
Feb-Mar 2020	Average Weekday Volumes	-	2,388	2,443	2,388	2,382	2,456	-	2,002	<b>2,343</b>	/day
Mar-Apr 2021		-	1,908	1,452	1,468	1,999	1,849	1,102	1,335	<b>1,588</b>	/day
May-June 2022		-	2,474	1,819	2,258	2,367	2,079	1,045	1,235	<b>1,897</b>	/day
% Change (2020 to 2021)		-	-20.1	-40.6	-38.5	-16.1	-24.7	-	-33.3	-28.9	% change
% Change (2020 to 2022)		-	3.6	-25.5	-5.4	-0.6	-15.4	-	-38.3	-13.6	% change
Feb-Mar 2020	85th Percentile Speed	-	27.0	30.6	25.1	23.4	27.5	-	31.2	<b>27.5</b>	km/hr
Mar-Apr 2021		-	26	23.0	28.2	17.3	25.6	21.6	25.3	<b>23.8</b>	km/hr
May-June 2022		-	23.9	28.8	25.2	23.6	24.3	24.3	25.8	<b>25.1</b>	km/hr
% Change (2020 to 2021)		-	-4.1	-24.8	12.4	-26.1	-6.9	-	-18.9	-11.4	% change
% Change (2020 to 2022)		-	-11.5	-5.9	0.4	0.9	-11.6	-	-17.3	-7.5	% change
Feb-Mar 2020	Mean Speed	-	20.3	23.7	18.6	17.9	20.5	-	23.8	<b>20.8</b>	km/hr
Mar-Apr 2021		-	20	17.5	21.7	13.7	19.1	17.3	19.2	<b>18.3</b>	km/hr
May-June 2022		-	17.3	22.9	18.5	18.3	18.6	19.1	20.2	<b>19.3</b>	km/hr
% Change (2020 to 2021)		-	-2.5	-26.2	16.7	-23.5	-6.8	-	-19.3	-10.3	% change
% Change (2020 to 2022)		-	-14.8	-3.4	-0.5	2.2	-9.3	-	-15.1	-6.8	% change
May-June 2022	Percentage of Commercial Vehicles	-	9%	6%	14%	12%	13%	17%	7%	<b>11%</b>	percent

Little Bourke Street		Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring	Average	
Feb-Mar 2020	Average Weekday Volumes	2,429	3,052	2,991	3,537	3,474	3,374	2,209	1,737	<b>2,850</b>	/day
Mar-Apr 2021		1683	2,164	1,473	1,637	1,746	2,526	1,690	-	<b>1,846</b>	/day
May-June 2022		2023	3,021	1,544	2,322	2,483	2,787	1,658	1,159	<b>2,125</b>	/day
% Change (2020 to 2021)		-30.7	-29.1	-50.8	-53.7	-49.7	-25.1	-23.5	-	-38.7	% change
% Change (2020 to 2022)		-16.7	-1.0	-48.4	-34.4	-28.5	-17.4	-24.9	-33.3	-25.6	% change
Feb-Mar 2020	85th Percentile Speed	28.9	26.9	31.5	27.2	25.3	24.9	29.7	23.7	<b>27.3</b>	km/hr
Mar-Apr 2021		21.1	25	23.0	15.4	22.1	24	27	-	<b>22.6</b>	km/hr
May-June 2022		22.1	27.8	23.8	21.7	27.4	23.2	24.5	24.6	<b>24.4</b>	km/hr
% Change (2020 to 2021)		-27.0	-5.6	-27.0	-43.4	-12.6	-3.6	-9.1	-	-16.9	% change
% Change (2020 to 2022)		-23.5	3.3	-24.4	-20.2	8.3	-6.8	-17.5	3.8	-9.6	% change
Feb-Mar 2020	Mean Speed	21.2	20.6	23.9	20.3	19.3	19.1	21.9	17.4	<b>20.5</b>	km/hr
Mar-Apr 2021		16.7	20	17.8	12.3	17.6	18.5	20.8	-	<b>17.7</b>	km/hr
May-June 2022		17.3	21.3	18.7	16.7	21.6	17.7	18.4	18.2	<b>18.7</b>	km/hr
% Change (2020 to 2021)		-21.2	-2.4	-25.5	-39.4	-8.8	-3.1	-5.0	-	-15.1	% change
% Change (2020 to 2022)		-18.4	3.4	-21.8	-17.7	11.9	-7.3	-16.0	4.6	-7.7	% change
May-June 2022	Percentage of Commercial Vehicles	7%	11%	11%	8%	23%	13%	8%	13%	<b>12%</b>	percent

Legend: Change in Volumes/Speed	
<span style="background-color: red; width: 15px; height: 10px; display: inline-block;"></span>	Any increase
<span style="background-color: orange; width: 15px; height: 10px; display: inline-block;"></span>	0% to 5% decrease
<span style="background-color: yellow; width: 15px; height: 10px; display: inline-block;"></span>	5% to 10% decrease
<span style="background-color: lightgreen; width: 15px; height: 10px; display: inline-block;"></span>	10% to 15% decrease
<span style="background-color: green; width: 15px; height: 10px; display: inline-block;"></span>	15% to 20% decrease
<span style="background-color: darkgreen; width: 15px; height: 10px; display: inline-block;"></span>	20% or greater decrease





## By Segment Traffic Volumes & Speeds – Little Collins Street & Flinders Lane

Little Collins Street		Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring	Average (King to Spring only)	
Feb-Mar 2020	Average Weekday Volumes	-	3,352	2,687	3,041	2,547	3,583	3,281	2,716	<b>3,030</b>	/day
Mar-Apr 2021		3162	2,542	1,468	2,043	1,599	2,473	2,012	1,635	<b>1,967</b>	/day
May-June 2022		2623	3,114	2,002	2,617	1,886	2,848	2,414	1,880	<b>2,394</b>	/day
<b>% Change (2020 to 2021)</b>		-	<b>-24.2</b>	<b>-45.4</b>	<b>-32.8</b>	<b>-37.2</b>	<b>-31.0</b>	<b>-38.7</b>	<b>-39.8</b>	<b>-35.6</b>	% change
<b>% Change (2020 to 2022)</b>	-	<b>-7.1</b>	<b>-25.5</b>	<b>-13.9</b>	<b>-26.0</b>	<b>-20.5</b>	<b>-26.4</b>	<b>-30.8</b>	<b>-21.5</b>	% change	
Feb-Mar 2020	85th Percentile Speed	-	30.0	28.0	26	28	28	26	26	<b>27.4</b>	km/hr
Mar-Apr 2021		23.7	32	22.8	27.5	25.5	25.5	25.3	22.5	<b>25.9</b>	km/hr
May-June 2022		36.7	30.6	22.9	27.2	24.5	24.9	22.5	23.2	<b>25.1</b>	km/hr
<b>% Change (2020 to 2021)</b>		-	<b>6.7</b>	<b>-18.6</b>	<b>5.8</b>	<b>-8.9</b>	<b>-8.9</b>	<b>-2.7</b>	<b>-13.5</b>	<b>-5.7</b>	% change
<b>% Change (2020 to 2022)</b>	-	<b>2.0</b>	<b>-18.2</b>	<b>4.6</b>	<b>-12.5</b>	<b>-11.1</b>	<b>-13.5</b>	<b>-10.8</b>	<b>-8.5</b>	% change	
Feb-Mar 2020	Mean Speed	-	22.3	21.3	18.9	21.2	20.2	19.9	18.8	<b>20.4</b>	km/hr
Mar-Apr 2021		24.9	26	18.2	20.7	19.8	19.8	19.9	18.3	<b>20.3</b>	km/hr
May-June 2022		28.3	24.1	17.9	20.3	18.7	18.8	16.8	17.6	<b>19.2</b>	km/hr
<b>% Change (2020 to 2021)</b>		-	<b>14.3</b>	<b>-14.6</b>	<b>9.5</b>	<b>-6.6</b>	<b>-2.0</b>	<b>0.0</b>	<b>-2.7</b>	<b>-0.3</b>	% change
<b>% Change (2020 to 2022)</b>	-	<b>8.1</b>	<b>-16.0</b>	<b>7.4</b>	<b>-11.8</b>	<b>-6.9</b>	<b>-15.6</b>	<b>-6.4</b>	<b>-5.9</b>	% change	
May-June 2022	Percentage of Commercial Vehicles	9%	8%	12%	10%	11%	12%	7%	7%	<b>10%</b>	percent

Flinders Lane		Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring	Average (Queen to Spring only)	
Feb-Mar 2020	Average Weekday Volumes	3,871	5,642	2,875	3,951	3,028	2,693	3,937	3,459	<b>3,414</b>	/day
Mar-Apr 2021		-	-	1,852	3,075	2,623	2,688	3,155	2,973	<b>2,903</b>	/day
May-June 2022		-	5,268	1,565	2,844	2,220	2,853	3,261	2,913	<b>2,818</b>	/day
<b>% Change (2020 to 2021)</b>		-	-	<b>-35.6</b>	<b>-22.2</b>	<b>-13.4</b>	<b>-0.2</b>	<b>-19.9</b>	<b>-14.1</b>	<b>-13.9</b>	% change
<b>% Change (2020 to 2022)</b>	-	<b>-6.6</b>	<b>-45.6</b>	<b>-28.0</b>	<b>-26.7</b>	<b>5.9</b>	<b>-17.2</b>	<b>-15.8</b>	<b>-16.3</b>	% change	
Feb-Mar 2020	85th Percentile Speed	33.0	33.0	30.0	25	18	21	28	25	<b>23.4</b>	km/hr
Mar-Apr 2021		-	-	26.4	20.9	17.4	18.9	24.1	20.9	<b>20.4</b>	km/hr
May-June 2022		-	36.0	25.5	24.4	21.3	20.1	23.3	20.6	<b>21.9</b>	km/hr
<b>% Change (2020 to 2021)</b>		-	-	<b>-12.0</b>	<b>-16.4</b>	<b>-3.3</b>	<b>-10.0</b>	<b>-13.9</b>	<b>-16.4</b>	<b>-12.0</b>	% change
<b>% Change (2020 to 2022)</b>	-	<b>9.1</b>	<b>-15.0</b>	<b>-2.4</b>	<b>18.3</b>	<b>-4.3</b>	<b>-16.8</b>	<b>-17.6</b>	<b>-4.5</b>	% change	
Feb-Mar 2020	Mean Speed	23.7	25.2	23.3	19.2	13.6	16.8	20.5	18.3	<b>17.7</b>	km/hr
Mar-Apr 2021		-	-	20.8	16.4	13.8	15.4	18.2	16.2	<b>16.0</b>	km/hr
May-June 2022		-	28.0	19.2	18.5	16.1	15.3	17.3	15.7	<b>16.6</b>	km/hr
<b>% Change (2020 to 2021)</b>		-	-	<b>-10.7</b>	<b>-14.6</b>	<b>1.5</b>	<b>-8.3</b>	<b>-11.2</b>	<b>-11.5</b>	<b>-8.8</b>	% change
<b>% Change (2020 to 2022)</b>	-	<b>11.1</b>	<b>-17.6</b>	<b>-3.6</b>	<b>18.4</b>	<b>-8.9</b>	<b>-15.6</b>	<b>-14.2</b>	<b>-4.8</b>	% change	
May-June 2022	Percentage of Commercial Vehicles	-	8%	11%	15%	13%	13%	10%	9%	<b>12%</b>	percent

Legend: Change in Volumes/Speed	
<span style="background-color: red; width: 15px; height: 15px; display: inline-block;"></span>	Any increase
<span style="background-color: orange; width: 15px; height: 15px; display: inline-block;"></span>	0% to 5% decrease
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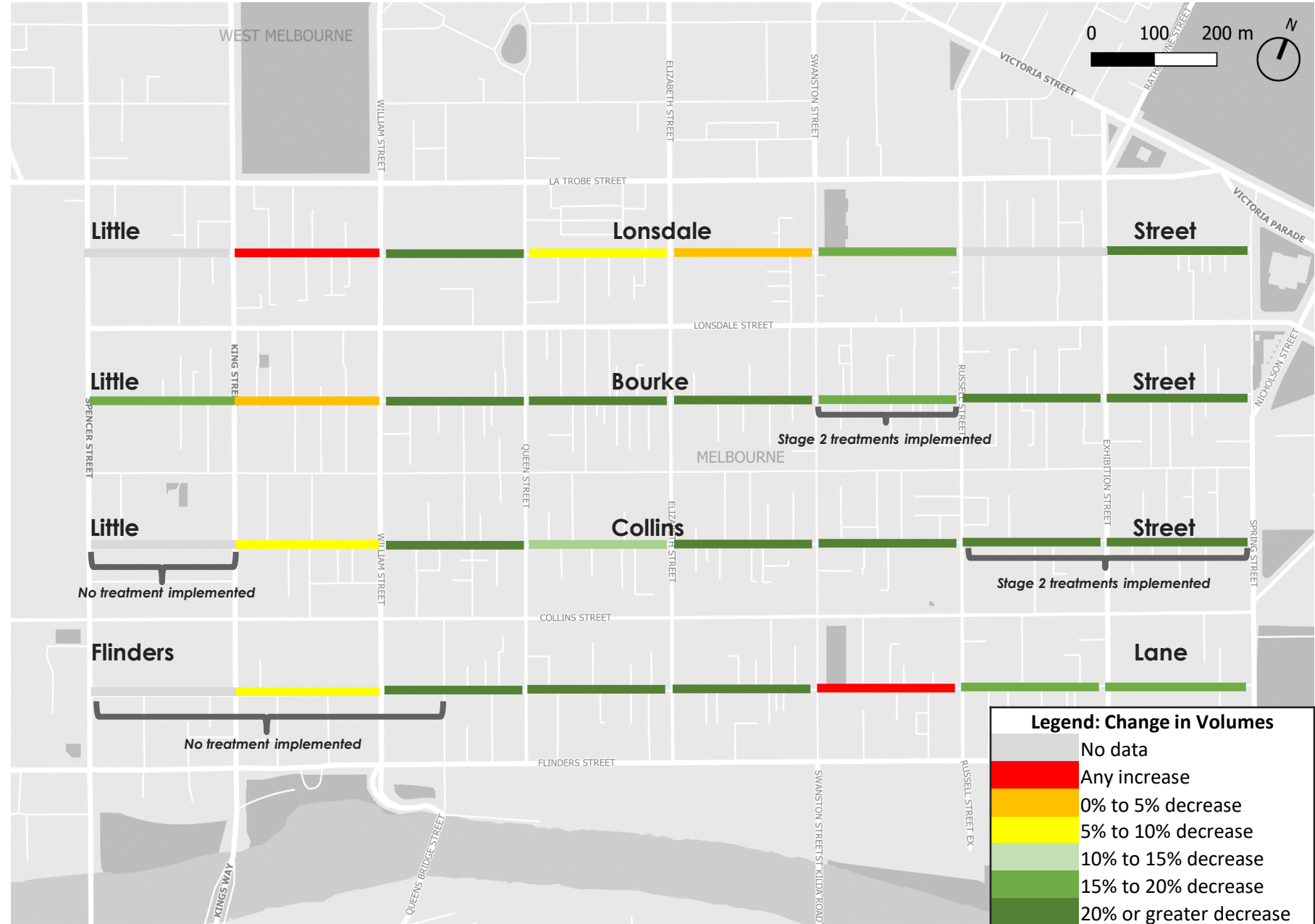


# Change in Average Weekday Traffic Volumes (2020 to 2022)

## By Segment Findings

- With the exception of two segments, all segments saw a decrease in average weekday volumes, with many of these decreases greater than 10%.
- The two segments with increased traffic volumes saw only minimal increases:
  - Little Lonsdale Street between King Street and William Street: 3.6% increase
  - Flinders Lane between Swanston Street and Russell Street: 5.9% increase.

Overall, average weekday traffic volumes have significantly decreased since the implementation of treatments.







# Change in 85<sup>th</sup> Percentile Speeds (2020 to 2022)

## By Segment Findings

- There are eight segments with treatments that saw increases in 85<sup>th</sup> percentile speeds, with these segments spread across the four little streets. These segments tend to be between King Street and William Street and between Queen Street and Swanston Street.
- The segments to the east of Swanston Street and between William Street and Queen Street tended to see decreases in 85<sup>th</sup> percentile speeds.
- These results indicate that the treatments have not significantly reduced 85<sup>th</sup> percentile speeds, noting that speeds were already low pre-implementation.

Overall, further traffic calming measures could be investigated, particularly on the streets with increases in 85<sup>th</sup> percentile speeds.







# Change in Mean Speeds (2020 to 2022)

## By Segment Findings

- These results are similar to the 85<sup>th</sup> percentile speed results – the same eight segments with treatments which saw increases in 85<sup>th</sup> percentile speeds also saw increases in mean speeds.
- These results indicate that the treatments have not significantly reduced mean speeds, noting that speeds were already low pre-implementation.

Overall, further traffic calming measures could be investigated, particularly on the streets with increases in mean speeds.





# Overall Results – Changes in Vehicle Volumes & Speeds (2020 to 2022)

## Overall Findings

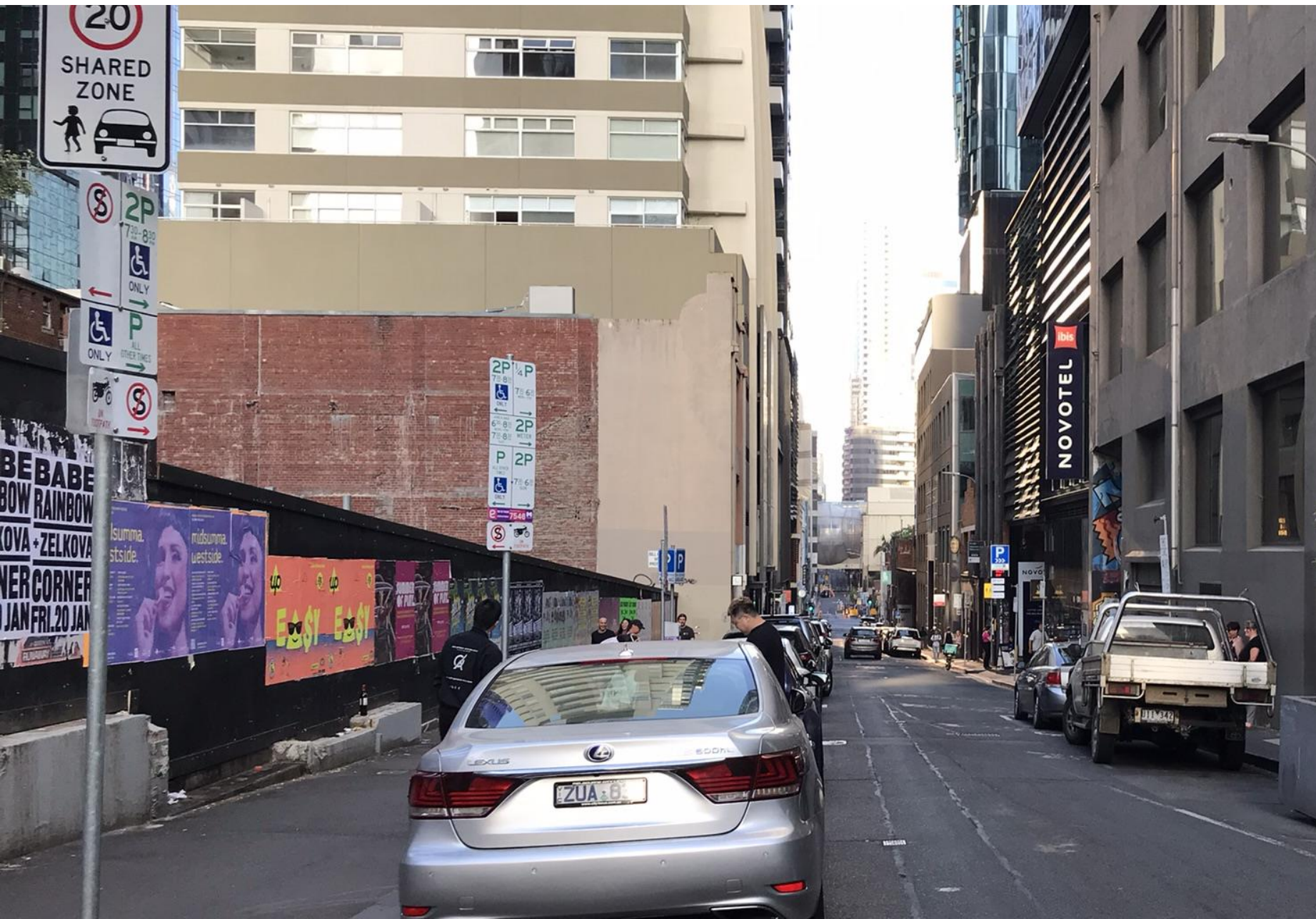
- The survey results indicate that weekday traffic volumes have significantly decreased between 2020 and 2022
- The survey results indicate that mean or 85th percentile speeds have not significantly decreased, noting that speeds were already low pre-implementation.
- All segments with Stage 2 treatments saw decreases in traffic volumes and speeds.

## Conclusions and Recommendations

- Further traffic calming measures could be investigated, particularly on segments with increases in mean or 85th percentile speeds.
- The survey data indicates that the 85th percentile speeds on all Little Street segments in 2020 (i.e. pre-implementation) were significantly below the then 40km/h posted speed limit.
- Noting the above, we consider there to be an acceptable basis for the speed limits on the Little Streets to remain at 20km/h, even if in the future the ‘shared zone’ designation was removed from particular segments.







## Review of Crash Data

## Comparison Between Pre- and Post-Implementation (Entire Street Length)

Crash volumes on the four Little Streets were reviewed for pre- and post-implementation time periods.

Our analysis was based on Department of Transport and Planning crash data (June 2016 – May 2022), with the crash volumes split between pre (June 2016 – May 2019) and post (June 2021 – May 2022) Little Streets treatments implementation.

We note that the crash data analysed included all types of crashes. That is, both crashes between drivers only and crashes between drivers and other street users.

### Entire Street Length Findings

- There have been no fatal crashes on the Little Streets during the analysed dates.
- There has been a decrease in average yearly crashes for all streets, for a total average 53% reduction in crashes.
- The greatest reduction in crashes occurred on Little Collins Street while the smallest reduction occurred on Flinders Lane.

Street	Year	Fatal	Serious	Other	Total	Percentage Decrease
Little Lonsdale Street	Average yearly crashes between June 2016 and May 2019	0	3	4.7	7.7	61%
	Crashes between June 2021 - May 2022	0	2	1	3	
Little Bourke Street	Average yearly crashes between June 2016 and May 2019	0	3	4.7	7.7	22%
	Crashes between June 2021 - May 2022	0	3	3	6	
Little Collins Street	Average yearly crashes between June 2016 and May 2019	0	3.3	3.7	7	71%
	Crashes between June 2021 - May 2022	0	0	2	2	
Flinders Lane	Average yearly crashes between June 2016 and May 2019	0	3.3	0	3.3	70%
	Crashes between June 2021 - May 2022	0	1	0	1	
Total	Average yearly crashes between June 2016 and May 2019	0	12.7	13	25.7	53%
	Crashes between June 2021 - May 2022	0	6	6	12	





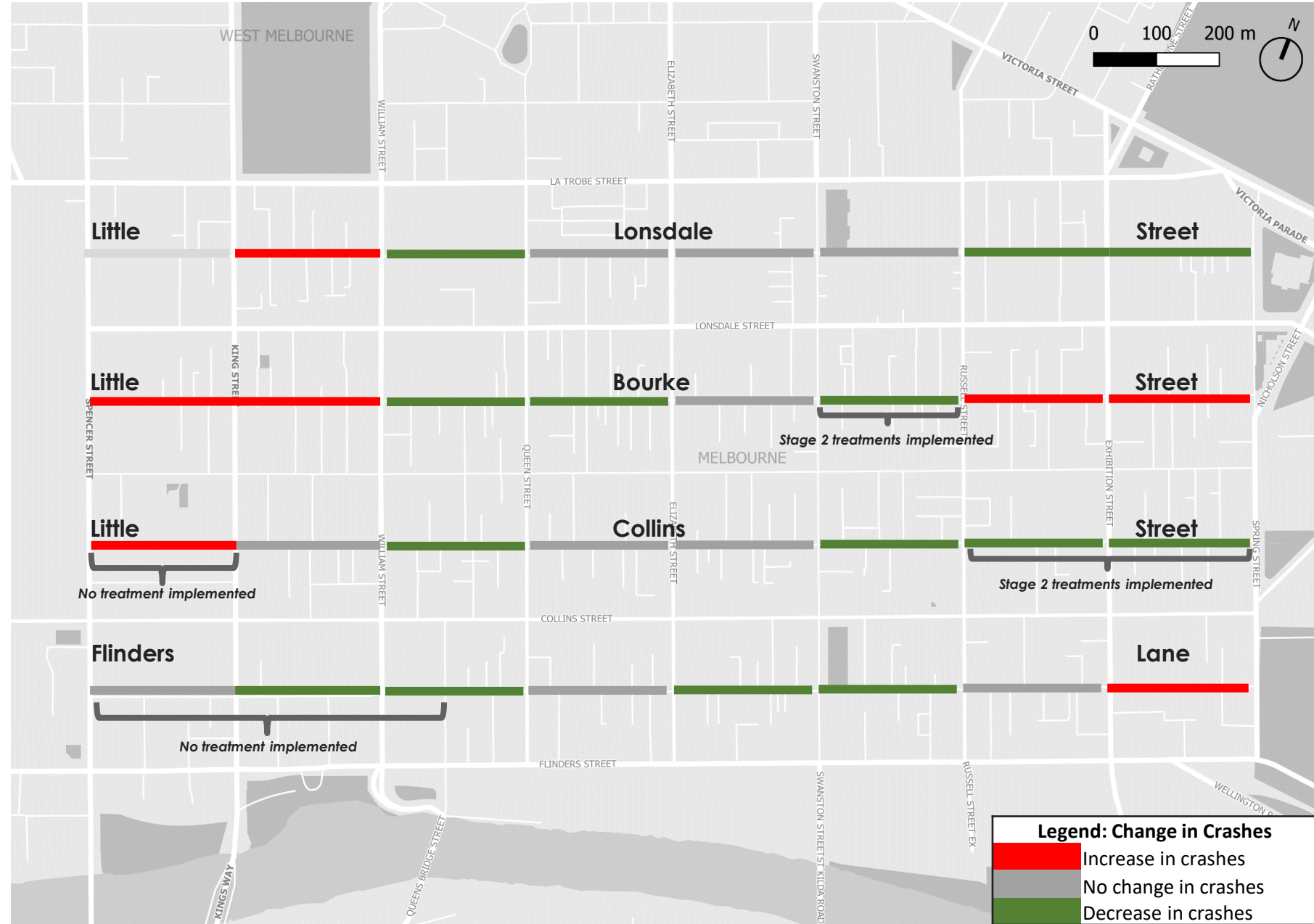
## Comparison Between Pre- and Post-Implementation (By Segment)

Street		Time Period		Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring	Total	Percentage Decrease (Treatment Segments Only)
Little Lonsdale Street	Crashes from Jan 2019 – Dec 2019	0	0	1	1	0	1	1	1	1	1	5	40%
	Crashes from June 2021 – May 2022	0	1	0	1	0	1	0	0	0	0	3	
Little Bourke Street	Crashes from Jan 2019 – Dec 2019	0	1	1	2	0	2	0	0	0	0	6	0%
	Crashes from June 2021 – May 2022	2	2	0	0	0	0	1	1	1	1	6	
Little Collins Street	Crashes from Jan 2019 – Dec 2019	0	0	2	0	0	2	1	1	1	1	6	83%
	Crashes from June 2021 – May 2022	1	0	1	0	0	0	0	0	0	0	1	
Flinders Lane	Crashes from Jan 2019 – Dec 2019	1	3	2	1	2	1	0	0	0	0	4	50%
	Crashes from June 2021 – May 2022	1	0	1	1	0	0	0	0	1	1	2	

# Comparison Between Pre- and Post-Implementation (By Segment)

## By Segment Findings

- This analysis compares crashes in January 2019 – December 2019 (pre-implementation) to June 2021 – May 2022 (post-implementation), noting that the post-implementation period is affected by COVID-19.
- There has been a decrease in the number of crashes post-implementation on Little Lonsdale Street, Little Collins Street and Flinders Lane.
- The greatest decrease in crashes occurred on Little Collins Street, with a reduction from 6 crashes to 1 crash.
- There has been no overall reduction in crashes along Little Bourke Street.
- There has either been a decrease or no change in crashes on all four Little Streets between William Street and Russell Street.
- Although these results show an overall significant reduction in crashes post-implementation, it is important to consider the effects of COVID-19 (and potentially other non-project factors). This is explored in the following slides.





## Controlling for COVID-19 by Reviewing the Parallel ‘Main’ Streets and the Municipality

To appropriately evaluate the safety benefits of the treatments, it is important to consider the effects of COVID-19 and other non-project factors. By doing so, it is possible to assess if a reduction in crashes on the Little Streets can be attributed:

- entirely to the treatments
- entirely to the effects of COVID-19 (and potentially other non-project factors)
- both to the treatments and to COVID-19 (including impact proportions).

As such, to benchmark against the effects of COVID-19, crash volumes on the four ‘main’ streets parallel to the Little Streets were reviewed, as well as crash volumes across the City of Melbourne (excluding the Little Streets).

We note that benchmarking against the wider network (e.g. all of Metropolitan Melbourne) was not undertaken as it is considered that travel patterns in the City of Melbourne (and the Hoddle Grid in particular) are different from the wider network.

This analysis was based on Department of Transport and Planning crash data (June 2016 – May 2022), with the crash volumes split between pre (June 2016 – May 2019) and post (June 2021 – May 2022) Little Streets treatments implementation.

### Key Findings

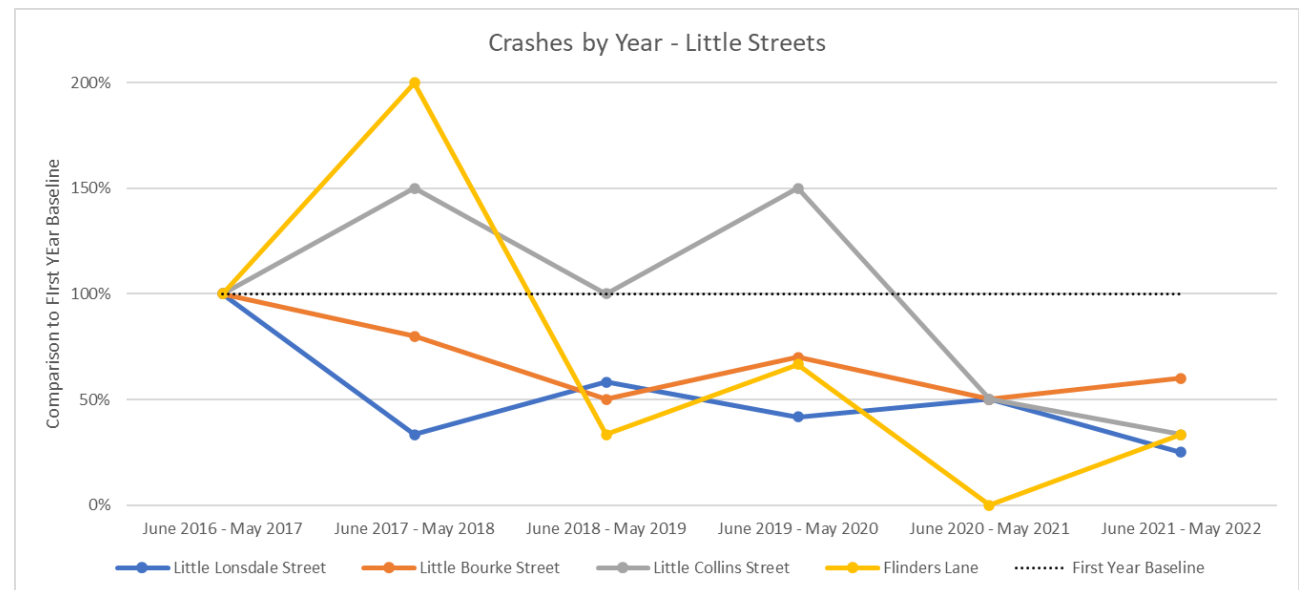
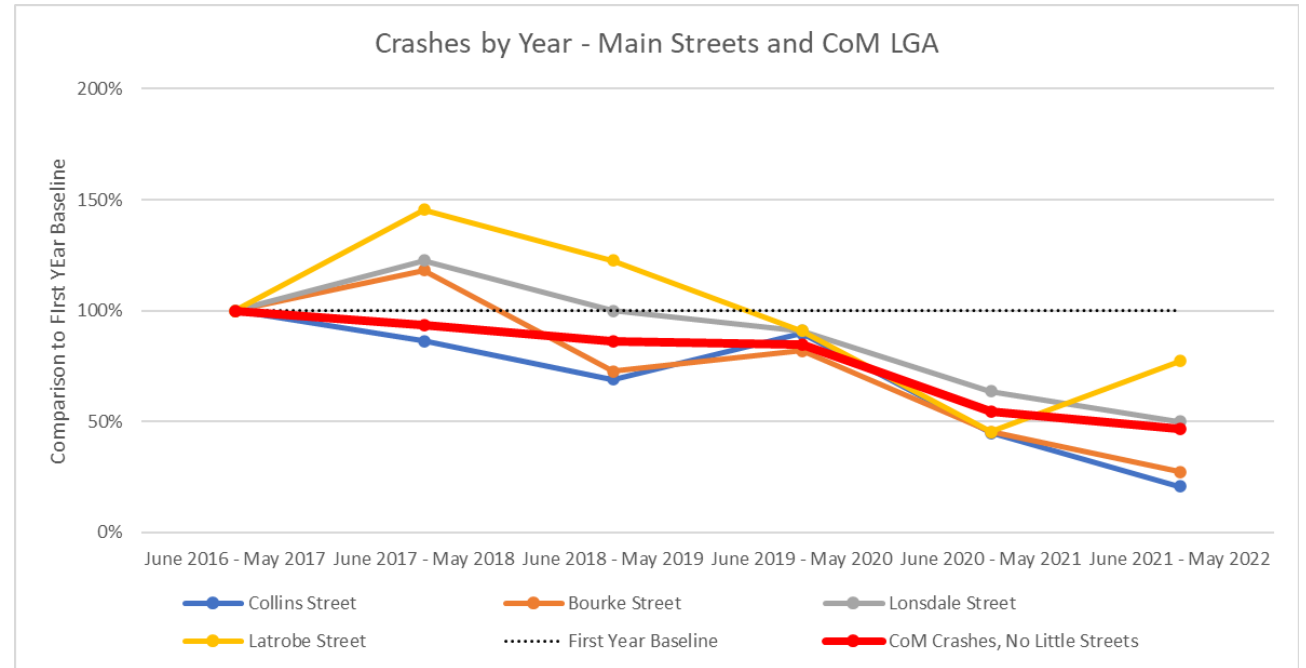
- Crashes have been steadily decreasing on the four parallel east-west ‘main’ streets (57% percentage decrease in crash volumes).
- Latrobe Street saw the lowest decrease, at 37%, while Collins Street saw the greatest decrease, at 76%.
- There has been a similar decrease in crash volumes across the entire municipality, with a 50% decrease in crashes observed.

Overall, these results indicate that for both the parallel ‘main’ streets and the entire municipality, there was a significant reduction in crashes, likely impacted by the effects of COVID-19 (and potentially other non-project factors).

Street	Time Period	Fatal	Serious	Other	Total	Percentage Decrease
Total for Little Streets	Average yearly crashes June 2016 – May 2019	0	12.7	13	25.7	53%
	Crashes June 2021 – May 2022	0	6	6	12	
Parallel Main Streets	Average yearly crashes June 2016 – May 2019	0	23.3	62.7	86	57%
	Crashes June 2021 – May 2022	0	13	24	37	
City of Melbourne municipality (excluding Little Streets)	Average yearly crashes June 2016 – May 2019	3	261	440.3	703.7	50%
	Crashes June 2021 – May 2022	3	83	268	354	

## Crash Analysis Overall Findings

- A review of crash data between June 2016 and May 2022 has indicated that there has been a significant reduction in crashes following the implementation of the Little Streets treatments.
- Nonetheless, the post-implementation data is likely impacted by the effects of COVID-19 – a review of both the parallel ‘main’ streets and the entire City of Melbourne municipality found that they also saw a significant reduction in crashes during the same time period.
- Noting the above, it is likely that the reduction in crashes within both the ‘main’ streets, the City of Melbourne municipality and the Little Streets should be primarily attributed to the effects of COVID-19, and not the effects of the treatments.
- It is also likely that broader transport network and behavioural changes within the City of Melbourne are contributing to a reduction in crashes (e.g., the rollout of protected cycling infrastructure and the associated likely uptake in cycling mode share). Indeed, a review of annual crash volumes between June 2016 and May 2022 indicates a downward trend in annual crashes on both the parallel ‘main’ streets, the entire City of Melbourne municipality and the Little Streets.







## Street Safety & Street User Behaviour Review





## Development and Use of Street Safety & Street User Behaviour Checklist

### Development of Checklist

To evaluate the treatments, it is important to assess how the Little Streets are used post-implementation (i.e., do users consider them to be shared zones?) and to review the treatments from a street safety perspective, with consideration for loading vehicles, drivers, cyclists and pedestrians.

Noting the above, a checklist was developed with input from a Senior Road Safety Auditor at Stantec.

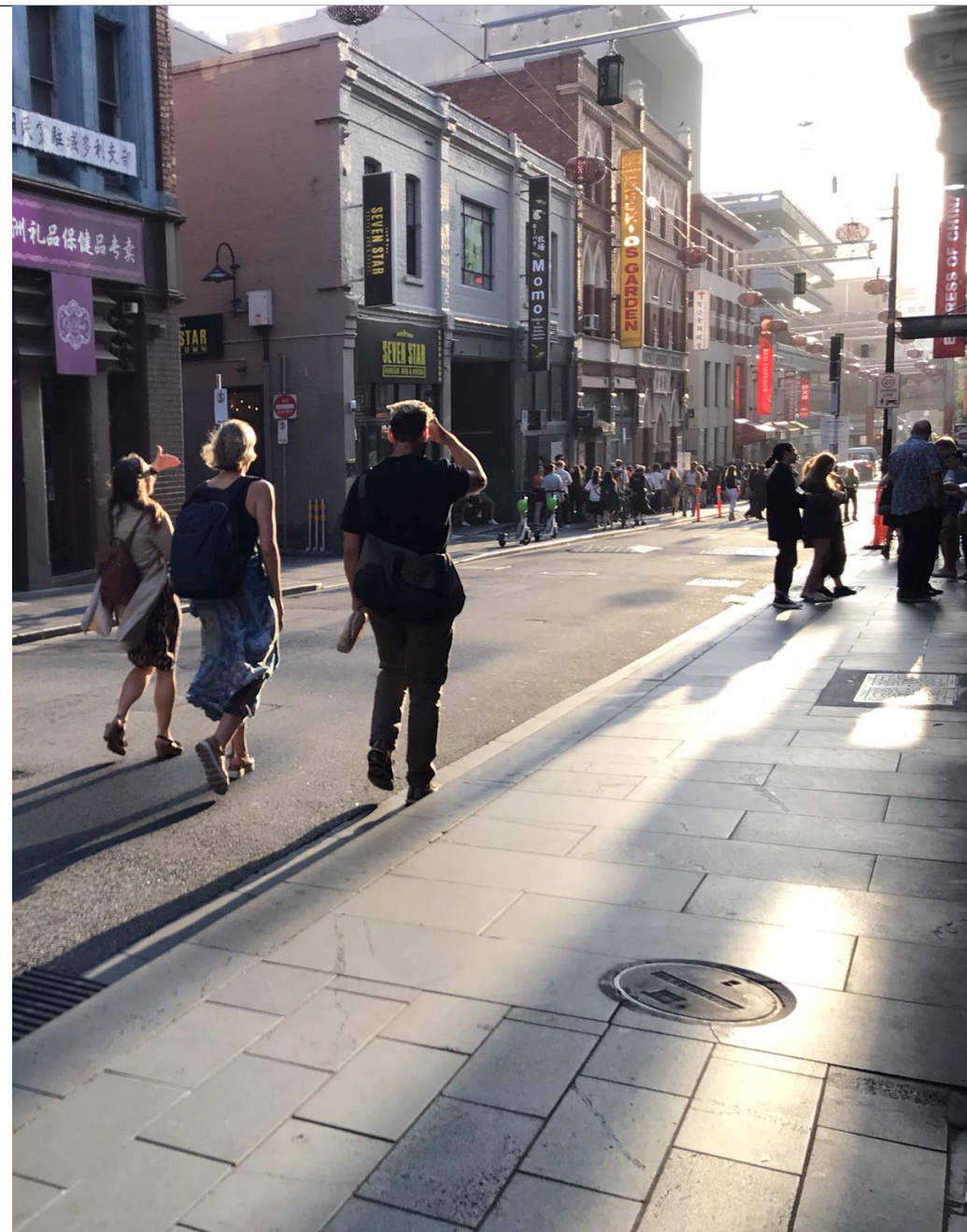
### Use of Checklist

The checklist was completed for each street segment via a site inspection by Stantec staff. Separate checklists were completed for the night-time pedestrian peak and the AM and PM commuter peak hours. These were chosen to capture typical operations during peak periods.

Site inspections were undertaken between 20 December 2022 – 23 December 2022 and 9 January 2023 – 12 January 2023.

Site inspections were conducted via walking only, to most appropriately appreciate if the objective of the treatments (i.e., pedestrian priority and comfort) have been achieved.

It is noted that these reviews were not formal Road Safety Audits undertaken in accordance with the Austroads Guide to Road Safety Part 6: Road Safety Audit (2022).





## The checklist captured observations on three themes and 12 items, with each item given a low, medium or high evaluation/risk score

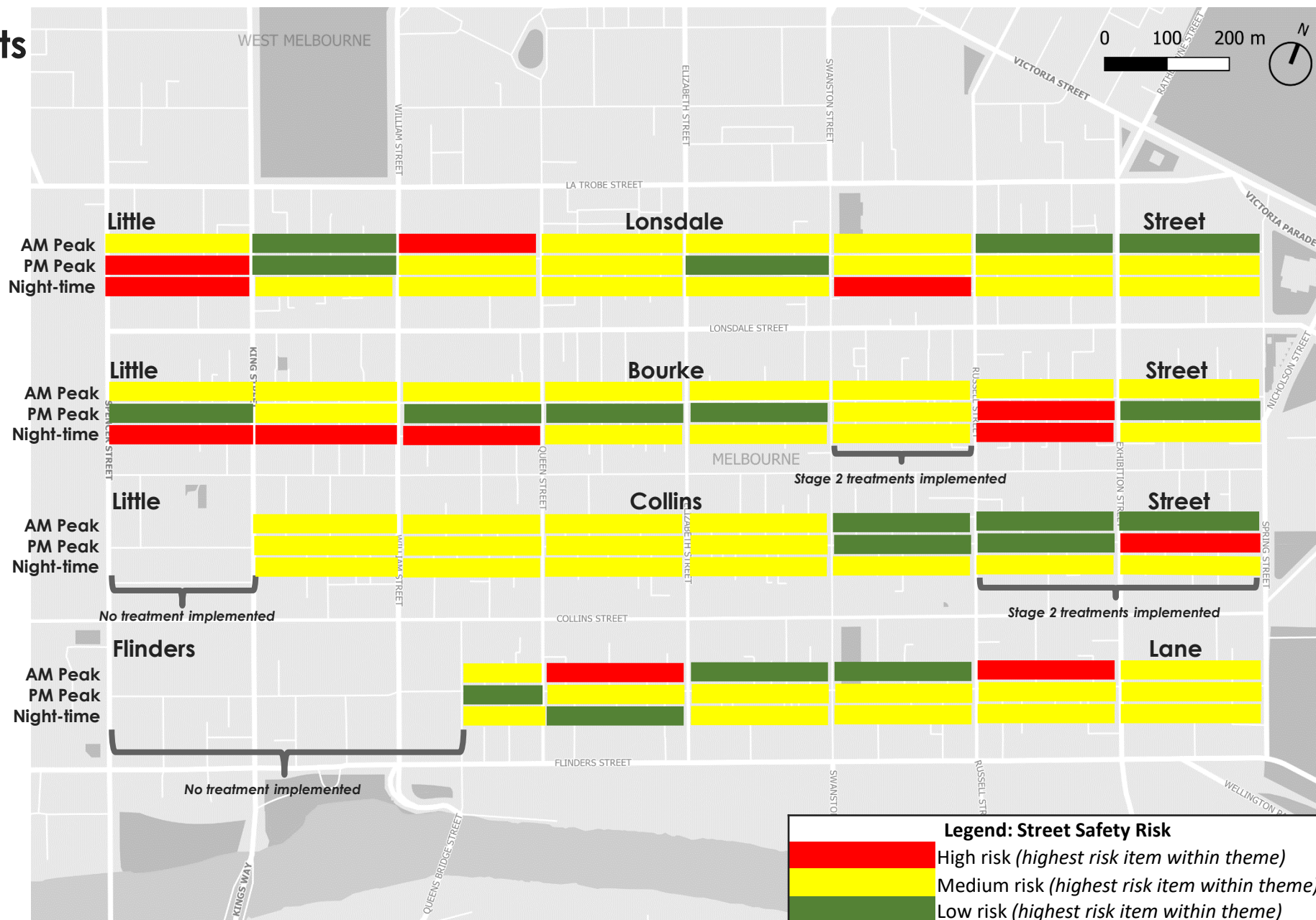
Theme	Item	Sample of Matters Considered <i>(Full Checklist Provided Separately)</i>
Treatment Adequacy	Sightlines (general)	Are there planters, parklets, large trees or other items which block or obstruct sightlines between drivers, cyclists and pedestrians? How often does this occur?
	Sightlines (at intersections)	Are adequate sightlines available at intersections, including visibility between pedestrians, cyclists and drivers, visibility of traffic signals and signage and line marking?
	Signage and line marking	Is there appropriate and visible signage and line marking indicating to street users that the street is a 20km/h shared space, particularly at the start of each street segment? Does the signage and line marking make it clear to pedestrians that cars must give way to them?
	Traffic calming	Is appropriate traffic calming installed to signal caution and slower speeds to drivers?
	Vehicle Circulation	Are vehicles able to adequately access and navigate through the street? For example, are there any fixed items that unreasonably restrict vehicle access or vehicle circulation / manoeuvrability?
Pedestrian & Cyclist Safety	Vehicle reversing movements	Do drivers regularly undertake reversing movements and with which type of vehicles (e.g. passenger vehicles or commercial trucks)?
	Footpath width	What is the general width of the footpath? Is the width of the footpath adequate to cater for the number of pedestrians?
	Crossing the street	Are pedestrians able to cross the street safely, without discomfort and conveniently? Are there crossing points where the street is level with the footpath? If not, are a suitable number of kerb ramps provided?
	Vehicle turning movements	Are pedestrians adequately protected from driver turning movements (e.g. to and from a car park, supermarket, commercial tenancy or a laneway)? Do drivers look for pedestrians before making the turning movement and do they give way to pedestrians?
	Pedestrians/cyclist interaction	Are cyclists travelling on footpath or on the street? When on the street, do cyclists give way to pedestrians? Do cyclists travel at an appropriate speed on the street to share the space with pedestrians?
	Cyclist/Driver interaction	Are cyclists able to adequately navigate the space? Are drivers overtaking cyclists safely (i.e. leaving more than 1m passing distance)?
Street User Behaviour	Pedestrian Comfort / Operation as shared space	Do pedestrians walk along the street? If so, do they appear to feel safe and comfortable doing so? (e.g. are pedestrians looking behind them often to check for vehicles?) Are pedestrians generally giving way to cars or are drivers generally giving way to pedestrians?



# Street Safety Review Results (Treatment Adequacy)

## Key Findings

- Across the three surveyed time periods, we found that most segments were low or medium risk for this theme.
- For the segments which we found to be high risk, these mostly occurred during night-time, when there were high volumes of both pedestrians and drivers.
- For the segments that were found to be medium or high risk, these risk ratings were primarily due to the 'signage and line marking' or 'traffic calming' items.
- The vast majority of segments found to be low risk occurred during the AM and PM commuter peak surveys.
- Full details of the risk scoring of each item is provided at the Appendix.



**Legend: Street Safety Risk**

- High risk (highest risk item within theme)
- Medium risk (highest risk item within theme)
- Low risk (highest risk item within theme)

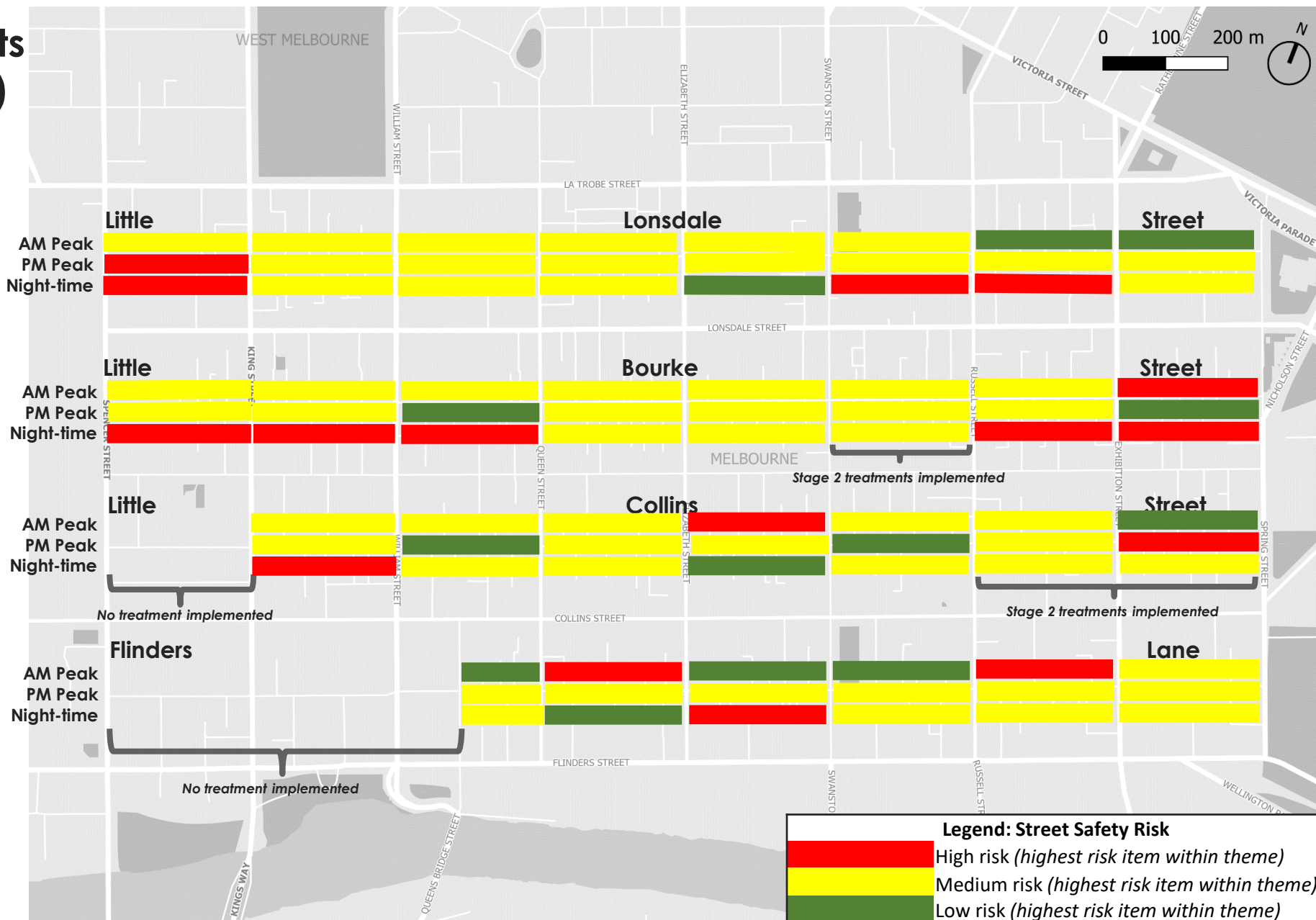




# Street Safety Review Results (Pedestrian/Cyclist Safety)

## Key Findings

- Across the three surveyed time periods, we found that most segments were medium risk, with similar amounts of low and high risk segments for this theme.
- For the segments which we found to be high risk, these mostly occurred during night-time, when there were high volumes of both pedestrians and drivers.
- Full details of the risk scoring of each item is provided in the Appendix.



## Project Wide Safety Review – Sightlines

### Observations

- In general, fixed treatment elements (i.e., parklets, planters, benches) were placed such that they did not obscure sightlines between drivers and pedestrians.
- Nonetheless, we regularly observed parked loading or waste collection vehicles or parked private vehicles impeding sightlines for pedestrians crossing the street.
- Construction activity also obstructed sightlines at several locations.
- In general, there were no obstructions with sightlines at intersections.

### Conclusions

We found that the treatments did not create significant issues with sightlines.



Parklets/planters not obstructing sightlines  
(Flinders Lane, Exhibition to Spring)



Parked cars obscuring sightlines  
(Flinders Lane, Queen to Elizabeth)



Plant protection obscuring sightlines  
(Little Collins Street, Exhibition to Spring)



Large bin obscuring sightlines  
(Little Bourke Street, Queen to Elizabeth)



## Project Wide Safety Review – Signage and Line Marking

### Observations

- In general, each segment had a consistent entry treatment, comprising:
  - Shared zone and 20km/h speed limit signs posted on both sides of the street
  - 20km/h speed limit and ‘give way to pedestrians’ line marking
  - Planter box(es) and two speed cushions, with a gap between the cushions
- Signage and line marking elements were repeated along each segment.
- In general, we did not observe strong messaging at the end of each shared zone segment, with many segments having an ‘End Shared Zone’ sign only on one side of the street and no line marking.
- Posters explaining the changes were at times provided, but only on a few segments and only on one side of the street, reducing their effectiveness.
- In a few sections we observed speed limit signs misaligned in height or angled away from the street, reducing their visibility.
- Many mid-block speed limit signs were placed only on one side of the street, and in many cases were blocked by parked cars, reducing their effectiveness.
- We observed that the shared zone signs were quite small, sometimes placed too high and were frequently located among parking signs (leading to clutter), likely reducing their effectiveness. In addition, many of the laneways accessed from the Little Streets have their own ‘Shared Zone’ and ‘End Shared Zone’ signs, which may lead to confusion.
- In some segments we observed that the shared zone line marking had been paved over, faded, chipped or was otherwise in poor condition, likely reducing its effectiveness.

### Conclusions

Signage and linemarking should be audited and refreshed as necessary (e.g. signs facing the right direction, linemarking reinstated following construction).



Example of entry treatment  
(Little Collins Street, Exhibition to Spring)



Example of exit treatment  
(Little Bourke Street, Elizabeth to Swanston)



Example of treatment explanation poster



Example of mid-block treatment  
(Little Bourke Street, Swanston to Russell)



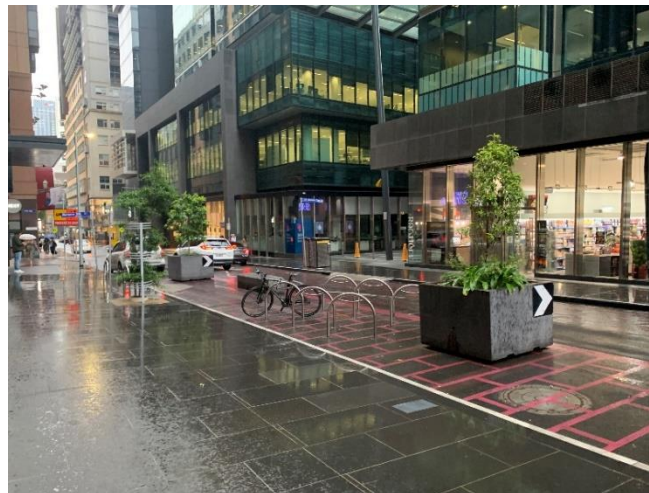
## Project Wide Safety Review – Traffic Calming

### Observations

- Traffic calming was generally implemented by means of the following elements:
  - Two speed cushions with a gap in the middle, at the entry to each segment and at mid-block locations.
  - Fixed items placed on the street to narrow the carriageway. These items primarily consisted of planter boxes and parklets, but also included benches and bicycle parking in some segments.
  - Kerb buildouts/extensions
- We generally found the traffic calming elements to be effective at attenuating vehicle speeds. Nonetheless, due to the gaps in the speed cushions, they were ineffective at reducing cyclist and motorcyclist speeds, who were able to travel at speed through the gap.
- In many segments, construction activity also provided traffic calming, especially when barriers or fencing were placed on the street carriageway.
- Speed cushions and speed humps were also obstacles for people walking along or across the street.

### Conclusions

- Overall, we found the traffic calming elements implemented to adequately attenuate vehicle speeds where speed cushions were present, although the speed cushions are ineffective for cyclists and motorcyclists.
- We would recommend considering replacing the speed cushions with pedestrian-friendly traffic calming elements that do not prevent people from walking along or across the street, such as pinch-points or horizontal deflection.



Example of fixed items placed on carriageway  
(Little Collins Street, Russell to Exhibition)



Example of construction narrowing the carriageway  
(Little Collins Street, Elizabeth to Swanston)



Example of speed cushions  
(Flinders Lane, Swanston to Russell)



Example of speed hump  
(Little Bourke Street, Elizabeth to Swanston)



## Project Wide Safety Review – Vehicle Circulation & Reversing

### Vehicle Circulation

- Overall, we did not observe any issues with vehicle circulation due to the treatments. Vehicles were able to adequately access and navigate the Little Streets, including larger vehicles like emergency, waste and delivery vehicles.

### Vehicle Reversing Movements

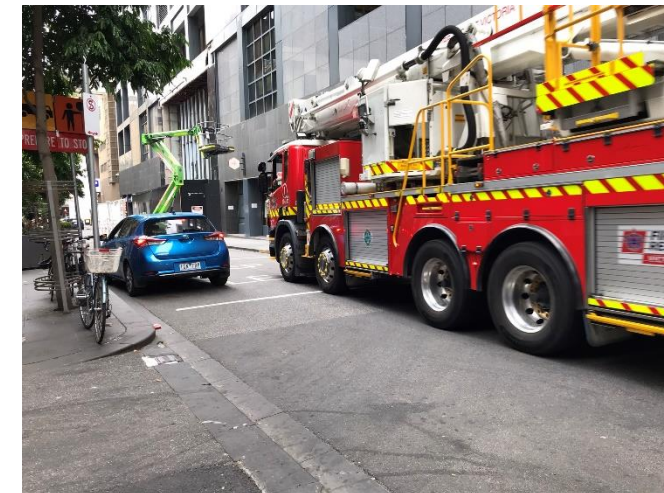
- In some segments, occasional loading activity was observed during the AM peak, with loading vehicles entering and exiting the laneways accessed from the Little Streets.
- In these segments, we occasionally observed the following movements:
  - Trucks reversing into the laneway from the Little Street carriageway. Due to the length of the trucks, we observed instances of the truck driving onto the footpath to facilitate the reverse movement.
  - Trucks turning into the laneway via a forward movement and then reversing out onto the Little Streets.
- We observed movements being undertaken both with and without a spotter. For the movements without a spotter, we observed truck drivers having difficulty in adequately seeing pedestrians. We consider both movements to represent a significant risk to pedestrians, especially if they are undertaken without a spotter.
- We do not consider it desirable for any reversing movements to be undertaken by commercial vehicles without spotters.
- We also consider it highly preferable that loading activity be undertaken during periods of minimal pedestrian activity.

### Conclusions

Overall, we would recommend a further review of the loading activity operation occurring on the Little Streets.



Example of a commercial vehicle  
(Little Bourke Street, Queen to Elizabeth)



Emergency vehicle able to navigate street  
(Flinders Lane, Russell to Exhibition)



Van reversing out of laneway  
(Little Bourke Street, Elizabeth to Swanston)



Vehicle reversing out of car park  
(Little Bourke Street, Swanston to Russell)



## Project Wide Safety Review – Vehicle Turning Movements

### Observations

- We observed the following factors restricted the turning speeds of vehicles:
  - Kerb geometry for turning movements is generally tight and the carriageway is narrow, ensuring drivers take care when turning to prevent damage to their vehicle
  - There is generally a level change required for a turning movement, ensuring slower vehicle speeds
- However, some carpark or laneways had wide carriageways and drivers were able to turn in or out at higher than appropriate speeds.
- We observed that drivers generally look for pedestrians and give way to them before making a turning movement.
- However, we frequently observed drivers exiting from a car park or laneway onto a Little Street would focus on checking for other vehicles instead of pedestrians. Drivers would block the footpath while waiting for a turning gap.
- In general, footpath pavement treatments contrasting with the street surface were not provided and the footpath was dropped to street level. This does not signal to drivers that they are crossing a pedestrian space. Nonetheless, at some segments the footpath was flush with the street and a red stencil pavement treatment was provided.
- At some segments we observed columns blocking visibility at the car park exit.

### Conclusions

Overall, further work could be undertaken at specific segments to reinforce pedestrian priority at footpath and car park or laneway interfaces. This could include contrasting pavement surface treatments and continuous footpaths.



Example of tight kerb geometry  
(Flinders Lane, Exhibition to Spring)



Example of column restricting visibility  
(Flinders Lane, Exhibition to Spring)



Red stencil treatment across car park access  
(Little Collins Street, Russell to Exhibition)



A driver pulling out of a car park across the footpath  
(Little Lonsdale, Swanston to Russell)



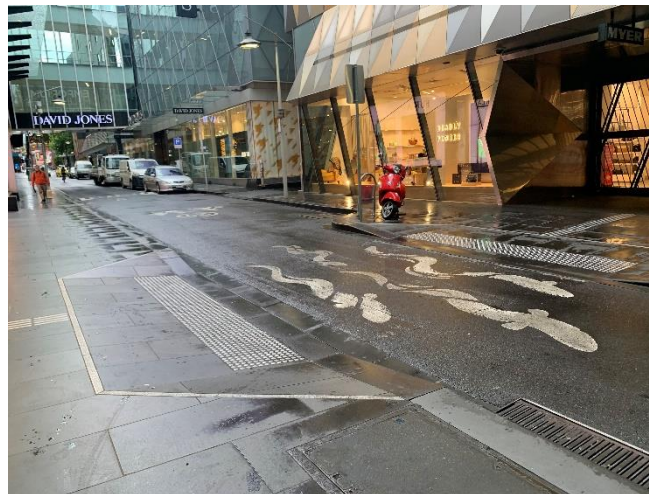
## Project Wide Safety Review – Crossing the Street

### Observations

- Various treatments were present to facilitate crossing the street, including zebra crossings, courtesy crossings and kerb ramps.
- Kerb ramps and buildouts generally supported zebra and courtesy crossings.
- Where zebra crossings were present, we observed that most pedestrians would cross at that point. Although zebra crossings provide a controlled crossing point, they are inconsistent with shared zone principles. Where they were applied on Little Streets, it was for construction purposes.
- At zebra crossings, pedestrians generally crossed the street confidently, without first checking that drivers are slowing down.
- At courtesy crossings, pedestrians were generally observed to check that drivers were slowing down before crossing. We observed that most drivers would give way to people waiting at courtesy crossings.
- Where no crossings are provided, pedestrians would cross the street at any point. However, pedestrians would first allow cars to pass before attempting to cross; we observed only a few instances where a pedestrian would confidently step in front of a car.
- Kerb ramps were not regularly provided on many segments. In addition, bullnose ramp designs were generally provided at driveway and laneway crossovers. We observed that these factors made crossing the street difficult for people in wheelchairs or people with prams.
- Crossings were not provided at some key desire lines, forcing pedestrians to detour if they wanted to use a controlled crossing.

### Conclusions

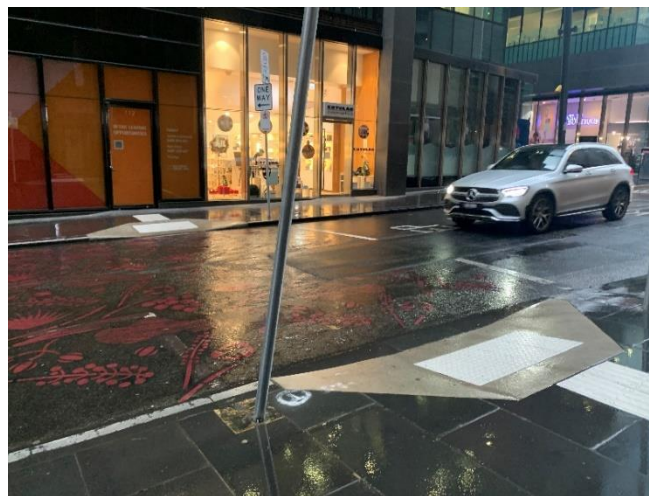
Pedestrian crossing comfort and safety could be improved by raising the street at locations with higher crossing volumes. Shared zone rules could also be made clearer to drivers and pedestrians to ensure awareness of pedestrian priority. We recommend that driveway and laneway crossovers have flush DDA compliant ramps to facilitate access for people in wheelchairs or people with prams.



Example of courtesy crossing  
(Little Bourke Street, Elizabeth to Swanston)



Example of raised courtesy crossing  
(Flinders Lane, Swanston to Russell)



Example of kerb ramps  
(Little Collins Street, Russell to Exhibition)



Example of a temporary zebra crossing installed for construction  
(Flinders Lane, Russell to Exhibition)



## Project Wide Safety Review – Footpath Width and Usage

### Observations

- The footpath width varies considerably, across streets and within individual blocks. The footpath width ranges between approx. 0.5m and 3.5m.
- We generally observed the footpath width to be too narrow (~1–1.5m) for two people to comfortably pass each other.
- We observed many obstacles such as signposts, rubbish bins, pay machines, planter boxes, outdoor dining, parking and construction which further restricted footpath width. Obstacles often meant people needed to stop to wait for others to pass.
- In general, mobility devices were not observed and appeared to not be catered for.
- Busy areas with well-used footpaths meant pedestrians stepped out into the street to pass each other, sometimes in completely unprotected areas with cars moving past and other times on kerb buildouts which gave them space to step out without being concerned about moving cars.
- We observed that parked cars and planter boxes prevented pedestrians from spilling onto the street.
- The space taken up by parked cars limits the feasibility expanding footpaths to meet the needs of pedestrians. A hierarchy of parking priority should be developed to reduce pressure on the limited space on the Little Streets.
- In general, we observed that the separation between the footpath and street was made clear by the gutter and the need to step down into the carriageway. People stepping on the street to pass others generally checked for cars before doing so.

### Conclusions

Most Little Streets had at least a section of the footpath that was too narrow for the volume of pedestrians. On segments with lower pedestrian volumes, this could be a pinch-point of as little as 0.5m, while on sections with higher volumes even 2m wide footpaths were inadequate. Footpaths should be widened to at least 1.8m to enable two people using mobility devices to pass one another, and wider in sections with higher volumes.



Example of narrow footpaths  
(Little Bourke Street, King to William)



Example of wide footpaths  
(Little Lonsdale Street, Russell to Exhibition)



Example of footpath obstacles – bins on footpath  
(Little Collins Street, Elizabeth to Swanston)



People stepping into street to pass people on footpath  
(Little Bourke Street, Russell to Exhibition)



## Project Wide Safety Review – Cyclist and E-scooter Rider Interactions

### Observations

- Overall, we observed few cyclists using the Little Streets. Most cyclists were observed ‘taking the lane’ to avoid being overtaken by drivers.
- Little interaction between cyclists and pedestrians occurred during our assessments, however, when observed, pedestrians would yield to cyclists.
- On streets with a downhill gradient cyclists tended to travel faster than appropriate. Otherwise, they would travel at an appropriate speed and were generally observed to manoeuvre around the speed cushions.
- Some cyclists were observed on the footpaths and in some segments bikes, e-bikes and other micromobility vehicles were parked on the footpath.
- Cyclists were occasionally observed using the Little Streets in a contraflow fashion (i.e., against the flow of traffic). This mostly took place when no cars were present, however, when traffic was flowing cyclists would pull over between parked cars and yield to oncoming drivers
- We observed little interaction between cyclists and drivers. When they did interact, there were varying responses:
  - In most cases, drivers gave way to cyclists e.g., did not overtake cyclists and drove slowly behind them.
  - Cyclists filtered past stationary cars where needed.
  - In other cases, the street was wide enough that drivers would overtake cyclists, even though it was still not possible to give the 1m passing distance required by law.
- Some e-scooter riders were observed on the Little Streets, and tended to have similar interactions with pedestrians. E-scooter riders were also observed using the Little Streets in a contraflow manner

### Conclusions

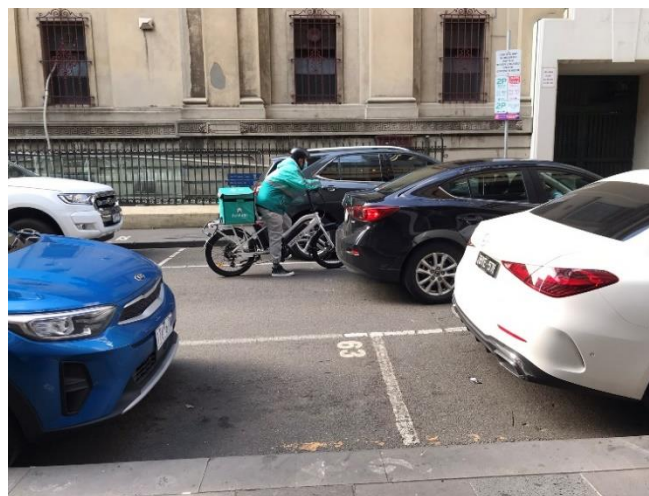
On low speed, lower volumes streets like the Little Streets, contraflow cycling can be introduced with street widths as low as 2.6m. Implementing contraflow cycling would shorten cycling distances across the city and facilitate safer and easier journeys for cyclists, including the large numbers of food delivery riders.



Example of pedestrians giving way to cyclists (Little Bourke Street, Queen to Elizabeth)



Example of cyclists traveling in the centre of street (Little Bourke Street, Queen to Elizabeth)



A cyclist unable to filter due to congestion and car parking (Little Lonsdale Street, Swanston to Russell)



Example of cyclists on the footpath (Little Lonsdale Street Spencer to King)



## Site Specific Safety Review – Lunar New Year Celebrations

Little Bourke Street between Swanston Street and Exhibition Street was closed to cars on Sunday 22<sup>nd</sup> January to create space for the Lunar New Year celebrations. The safety review was repeated for these two blocks of Little Bourke Street during this period.

### Observations

- With no cars present and the street clearly designated as a pedestrian zone, people freely and confidently used the entire street.
- Despite high volumes of pedestrians, in general people were able to easily navigate the street.
- In some sections, the street width was constrained due to preparation for spectacles or the spectacles themselves (e.g., lion dancing). This meant people had to file through pinch points, such as between the building and the base of the Chinatown arches.
- Vehicle access was retained on an as-needed basis, with one security vehicle and one delivery van observed using the street. The vehicles were able to progress slowly through the crowds, with people moving to the side and then moving back onto the street once the vehicle had passed.

### Conclusions

Removing motor vehicles from the street allows people to freely and comfortably use the entire street. The behaviour observed while the street was closed to cars was different to all other time periods and all other segments, with the street fully operating as a pedestrian priority zone.



People walking along the street  
(Little Bourke Street, Swanston to Russell)



People gathering to watch spectacles on the street  
(Little Bourke Street, Russell to Exhibition)



People on the footpath at the start of the road closure  
(Little Bourke Street, Russell to Exhibition)



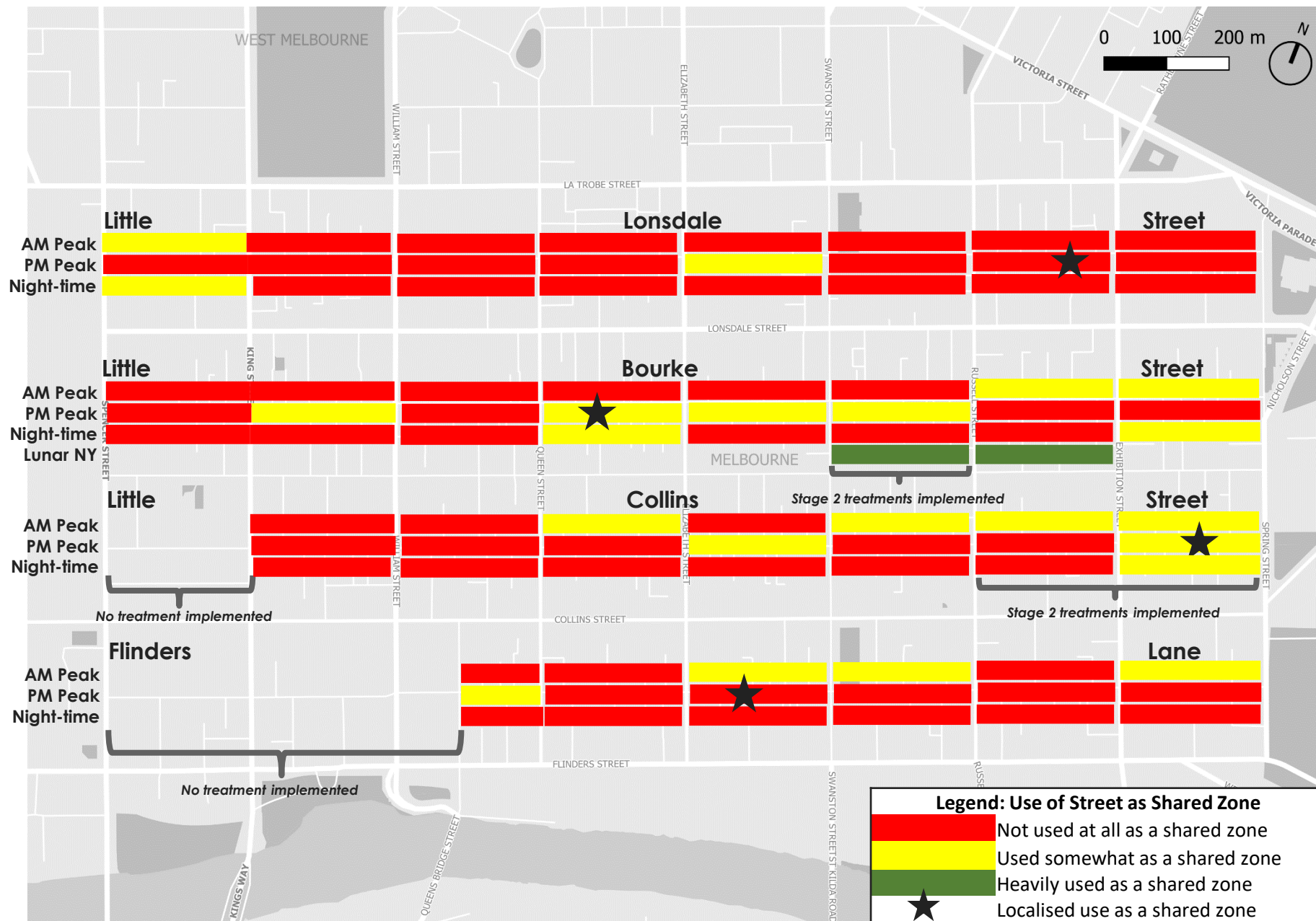
People walking and gathering along the street  
(Little Bourke Street, Swanston to Russell)



# Street User Behaviour Review

## Key Findings

- Most segments were not used as a shared zone across all three time periods.
- A few segments were used somewhat as shared zones at certain time periods.
- No segments at any time period were heavily used as shared zones, except the Little Bourke Street segments that were closed to cars during the Lunar New Year celebrations.
- These results are expected, given the following:
  - The treatments did not meaningfully change the operation of the Little Streets. In particular, the existing kerb line and the paving of the carriageway were unchanged.
  - There was a lack of consistent explanation of the changes
  - Signage and line marking were observed to be implemented in ways that reduced their effectiveness
- Some locations with high north-south pedestrian volumes operated as localised shared zones due to the difference between the number of pedestrians and the number of cars. These included Flinders Lane at Degraves Street, Little Lonsdale Street at Exploration/Jones, Little Collins Street at Meyers Place and Little Bourke Street at Hardware Lane. These locations are marked with a star on the map.



## Street Safety & Street User Behaviour Review

### Overall Findings

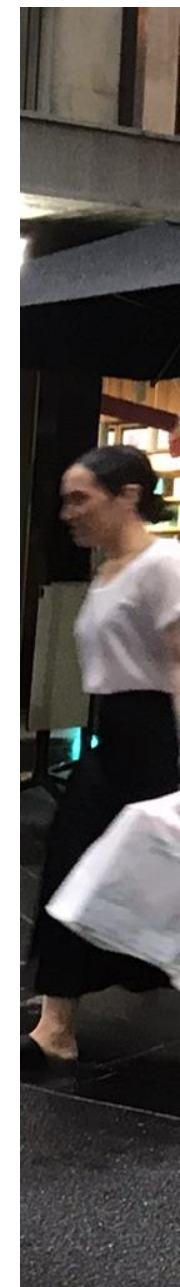
- The Little Streets were not observed to be used as shared spaces following implementation of the treatments.
- We recommend that changes be made to signage and line marking on the Little Streets to ensure that they are visible, clearly communicate the changes and do not provide any conflicting messaging. Any changes to signage need to consider urban design outcomes and there should be a focus on consolidating and strengthening signage rather than adding more signs.
- We would recommend considering replacing the speed cushions with horizontal deflection, which would slow down drivers, cyclists and e-scooter riders without introducing obstacles for people walking along or across the street.
- We recommend a further review of the loading activity operation occurring on the Little Streets.
- Further work could be undertaken at specific segments to reinforce pedestrian priority at footpath and car park or laneway interfaces. This could include contrasting pavement surface treatments and continuous footpaths.
- Pedestrian crossing comfort and safety could be improved by raising the street at locations with higher crossing volumes.
- We recommend that additional kerb ramps and crossing points be provided to provide regular crossing opportunities for people in wheelchairs or people with prams. We also recommend that crossings be provided on key pedestrian desire lines. We would also recommend that driveway and laneway crossovers have flush DDA compliant ramps to facilitate access for people in wheelchairs or people with prams.
- Overall, if the objective is to transform a segment into a shared zone, significant further changes will need to be implemented within that segment to influence street user behaviour in such a way that it operates as a shared zone.







## Intercept Surveys





## Intercept Surveys

Intercept surveys were conducted to gauge the views of people on the Little Streets towards the treatments. The survey questions were developed in collaboration with the City of Melbourne, and are listed below.

### Question

How did you travel to Melbourne CBD today?

What is your residential postcode?

How long did it take to get here today?

How long do you plan to spend here today?

What are your main reasons for coming here today?

How often do you typically come here?

How likely are you to recommend this street to others on a scale of 1 to 10?

Who has priority on this street?

What is the speed limit on this street?

Have you noticed any recent changes to this street?

How do you feel about the changes to this street?

Would you like to see these changes made permanent?

Do you have any further comments?

Gender of respondent (surveyor selected)

Age of respondent (surveyor selected)







## Intercept Survey Locations

Surveys were conducted across a range of Little Street types, from higher activity areas through to areas with less pedestrian activity.

The sites surveyed are shown on the map to the right, along with the number of responses at each location.

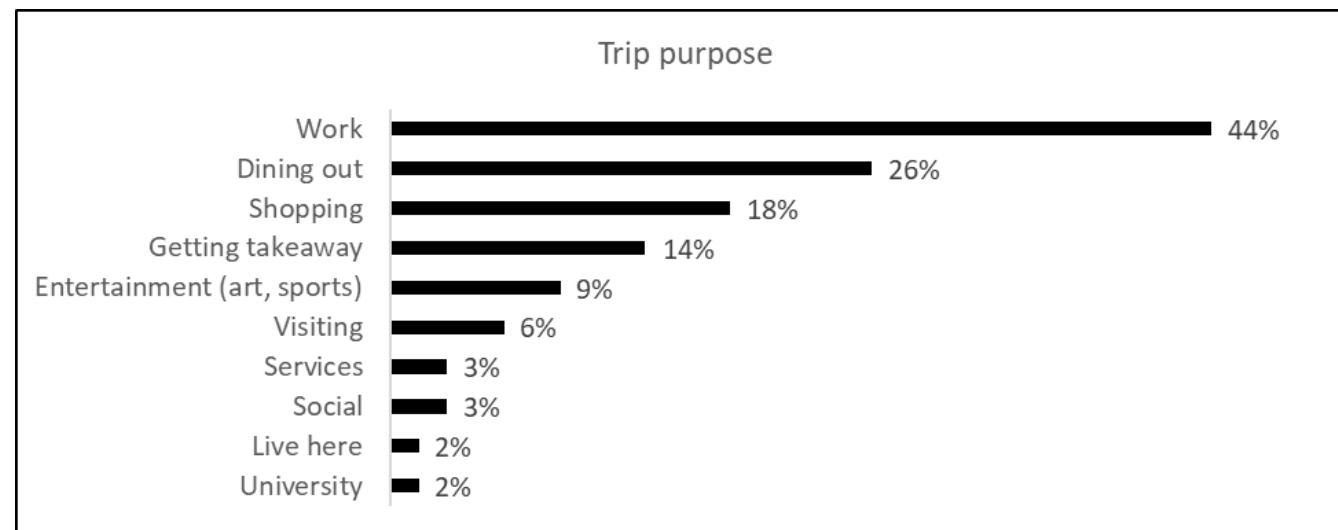
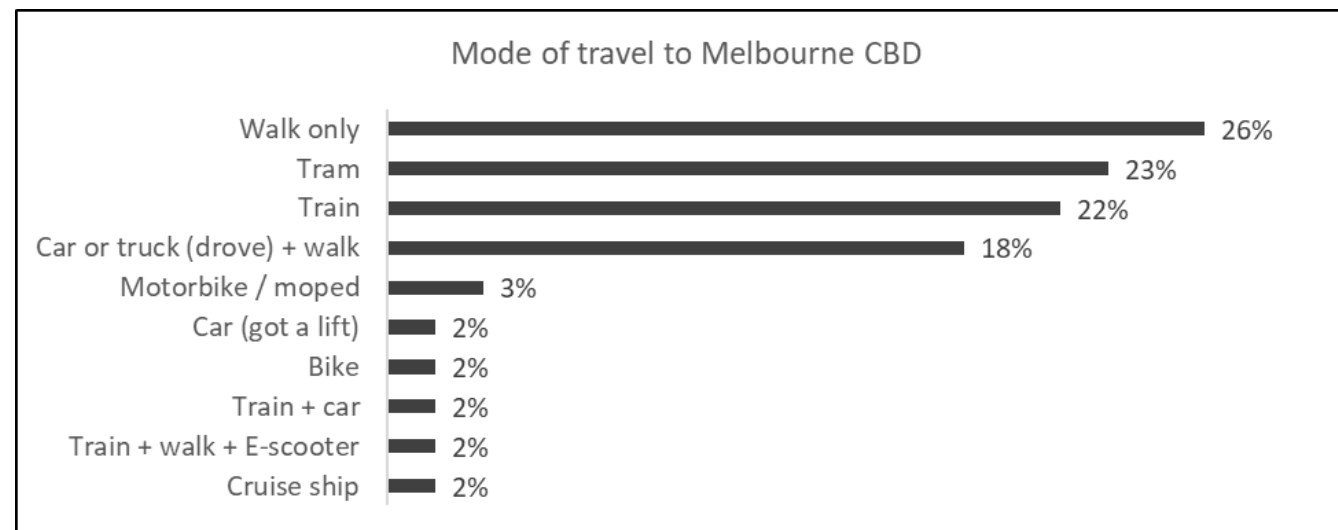


## Intercept survey findings – transport mode and trip purpose

Respondents were asked how they had travelled to Melbourne CBD that day and were allowed to select multiple modes.

The most common response was walking only (26%), followed by public transport (tram 22%, train 23%), and car combined with walking (18%). All other modes were 3% or less of respondents.

The most common trip purpose for respondents was work (44%), followed by dining out (26%), shopping (18%) and getting takeaway (14%). Several respondents were visiting Melbourne CBD to see laneway art or the tennis. The percentages for this question add up to more than 100% as some respondents selected multiple trip purposes



Respondents could select multiple trip purposes, so percentages add to more than 100%.

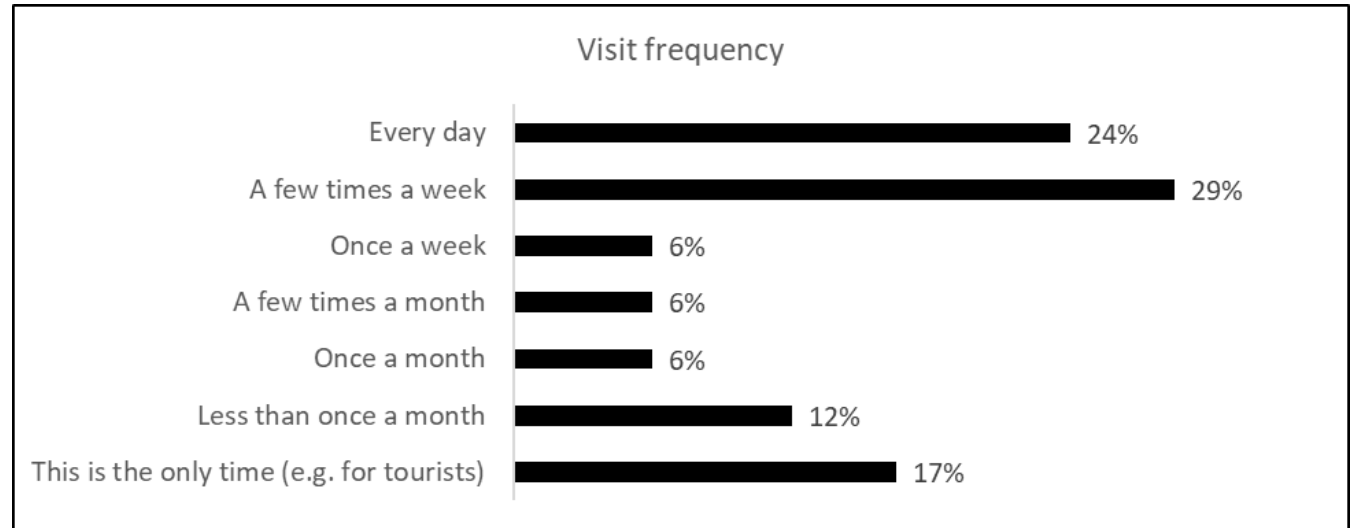
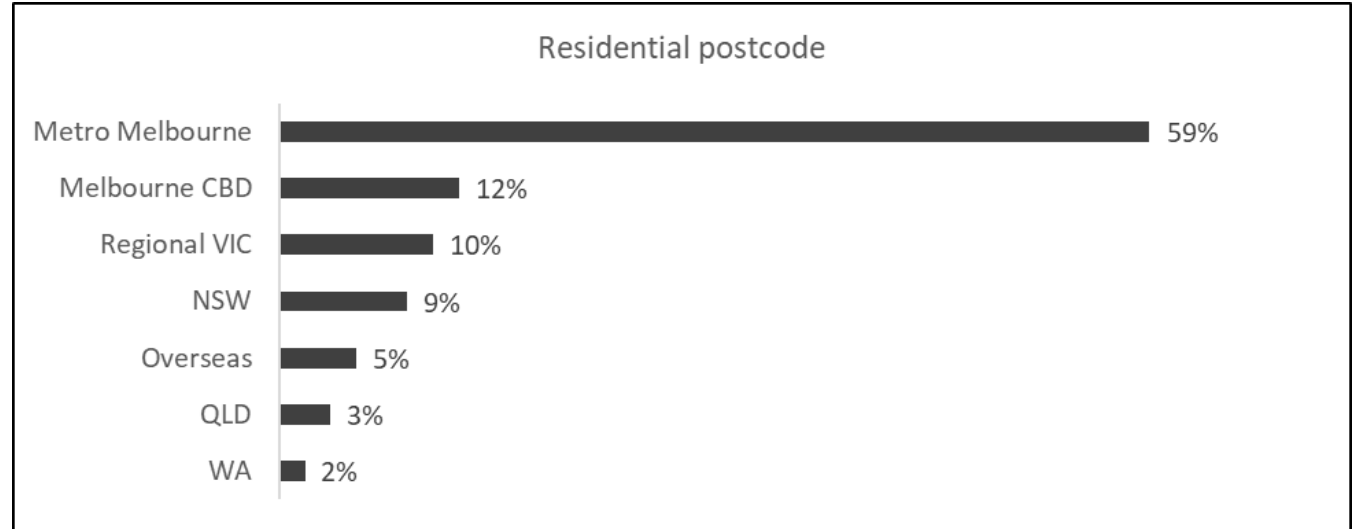




## Intercept survey findings – residential postcodes and visit frequency

The most common residential postcode was 3000 (Melbourne CBD – 12%). When grouped by category, most respondents were from Metro Melbourne (59%), with 10% from elsewhere in Victoria, 14% from interstate and 5% from overseas.

Most respondents visit the city at least a few times a week (53%), with smaller numbers visiting regularly but less frequently. 12% of respondents visit less than once a month, and for 17% of respondents this was the only time they were visiting the city.

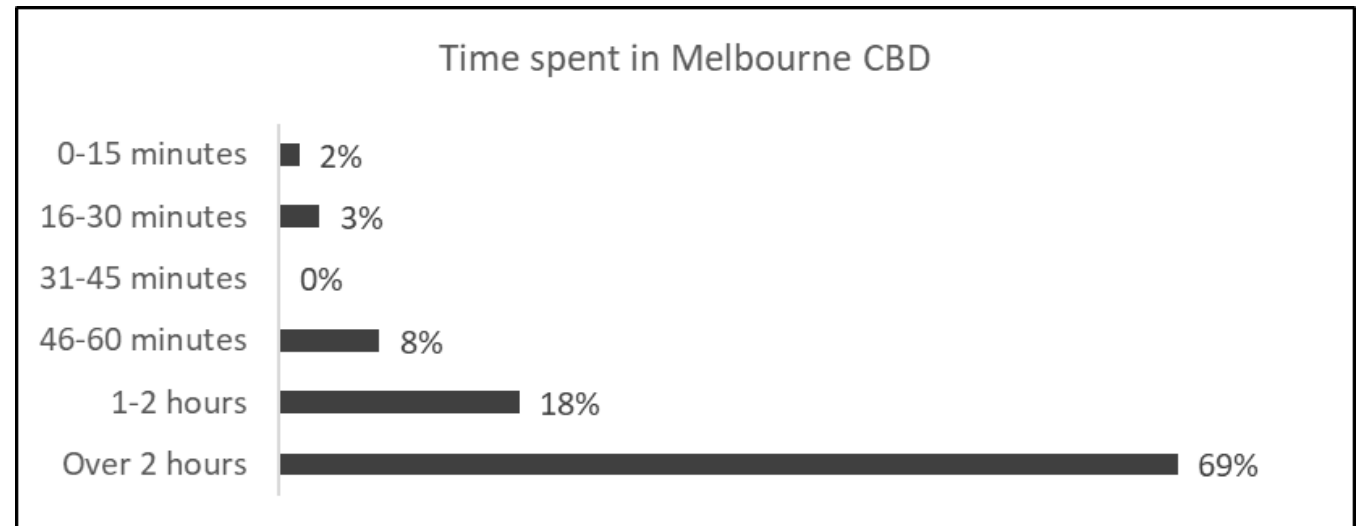
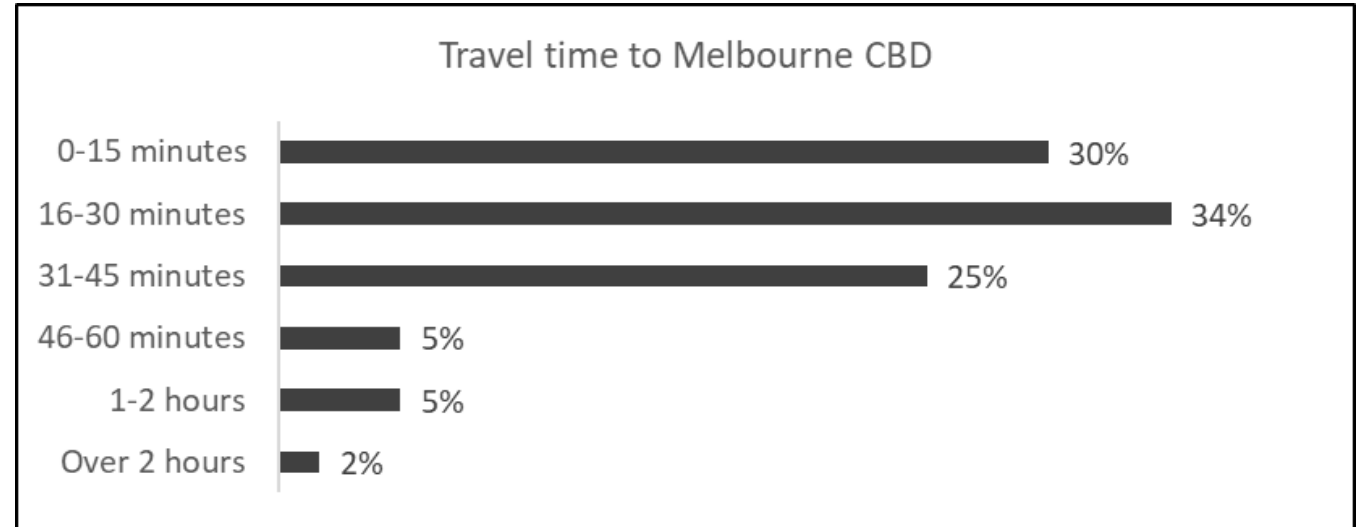


## Intercept survey findings – travel time to Melbourne CBD and time spent

Most respondents spent less than 30 minutes travelling to Melbourne CBD (64%). 30% spent 30 minutes to an hour travelling, and 12% spent over an hour travelling to the CBD.

Most respondents planned to spend more than two hours in the CBD (69%), with 18% spending one to two hours and 13% spending less than one hour.

This data shows that most people live a short distance from Melbourne CBD and spend a long time in the city when they visit.





## Intercept survey findings – Net Promoter Score

Net Promoter Score (NPS) is a tool used to measure customer satisfaction. It is calculated by asking people how likely they are to recommend something on a scale of one to 10. The responses are categorised as follows:

- Detractors: (1 – 6)
- Passives: (7 – 8)
- Promoters: (9 – 10)

The NPS is calculated by subtracting the percentage of detractors from the percentage of promoters.

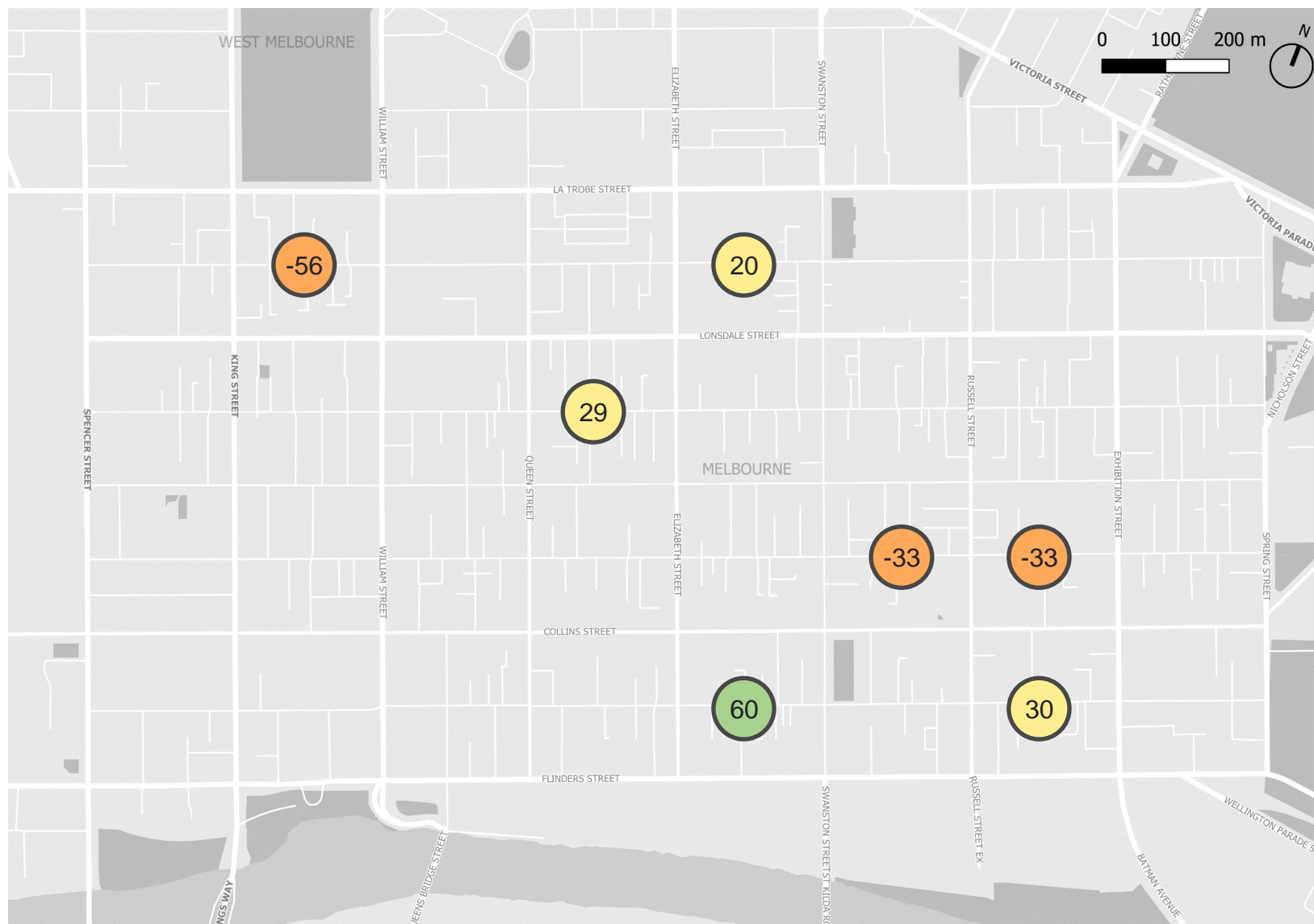
$$\text{Net Promoter Score} = \text{Promoters (\%)} - \text{Detractors (\%)}$$

An NPS above 0 indicates there are more promoters than detractors. A score over 70 means users love the product and a lot of positive word-of-mouth is being generated.

Respondents were asked how likely they would be to recommend the street they were currently on to others. As some sites had a small number of respondents, a meaningful score can only be calculated for a subset of blocks.

The highest score (60) was on Flinders Lane at Degraves Street (Elizabeth to Swanston). Three sites had scores around 30 (Little Lonsdale Street, Little Bourke Street and Flinders Lane) and three sites had negative scores:

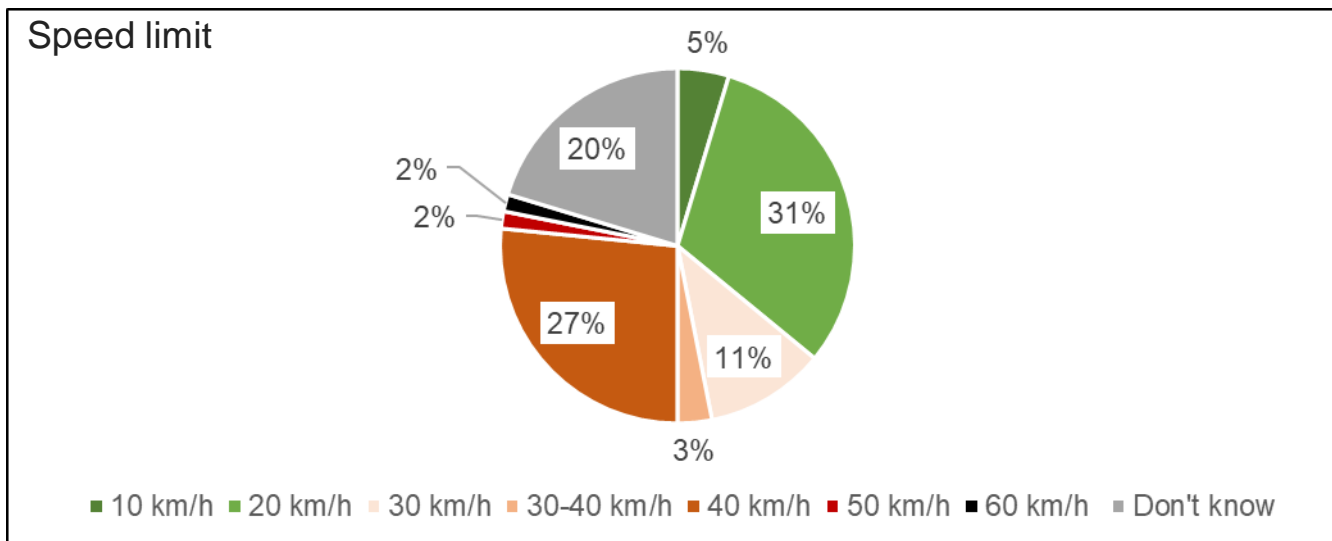
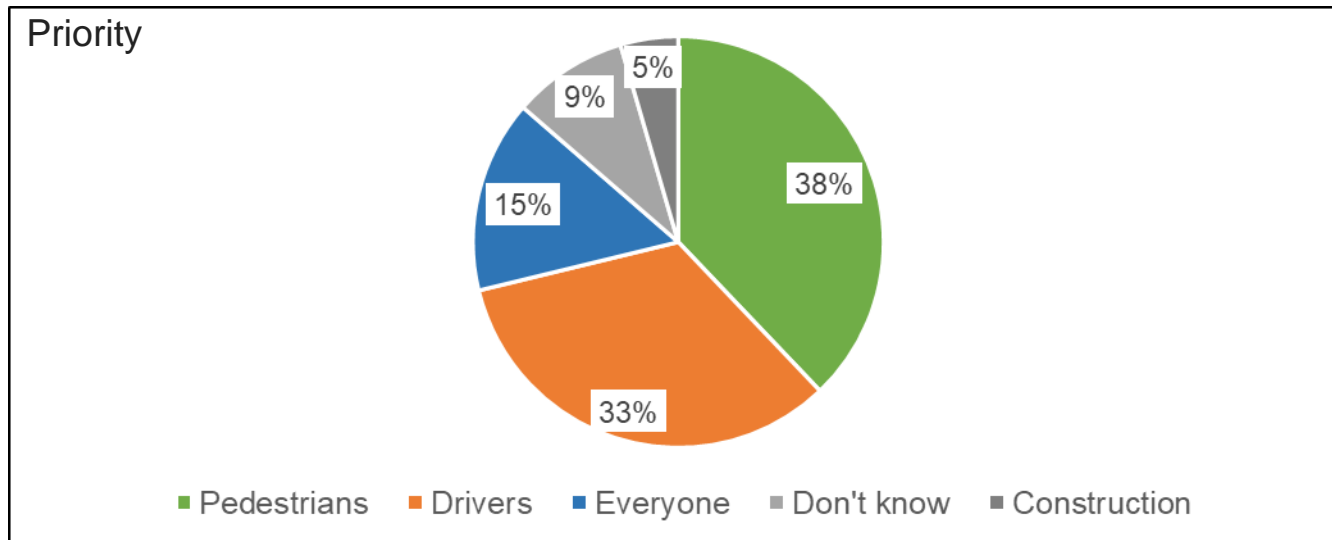
- Little Collins Street, Swanston-Russell (-33)
- Little Collins Street, Russell-Exhibition (-33)
- Little Lonsdale Street, King-William (-56)



## Intercept survey findings – perceived priority and speed limit

Respondents were asked who they thought had priority on the Little Street. The most common response was pedestrians (38%). However, the fact that this was still a minority of respondents indicates that the messaging about pedestrian priority could be improved. A third of respondents said drivers had priority, and 15% said that everyone had priority. 9% of respondents either did not know or were not sure who had priority, and 5% said that construction had priority. These responses were from sites with construction activity, such as Little Collins Street and the west end of Little Lonsdale.

Respondents were also asked what they thought the speed limit was on the Little Street. Once again, the most common response was the correct answer, with 31% saying 20 km/h. However, this means less than a third of street users are aware of what the speed limit is. While this may be partly due to the fact that most people accessed the street by modes other than driving, so would not need to know the speed limit, it shows there is still room for clear messaging and promotion of the new speed limits. 44% of respondents said a speed limit higher than 20 km/h (30 – 60 km/h), and 20% of respondents did not know or were not sure.



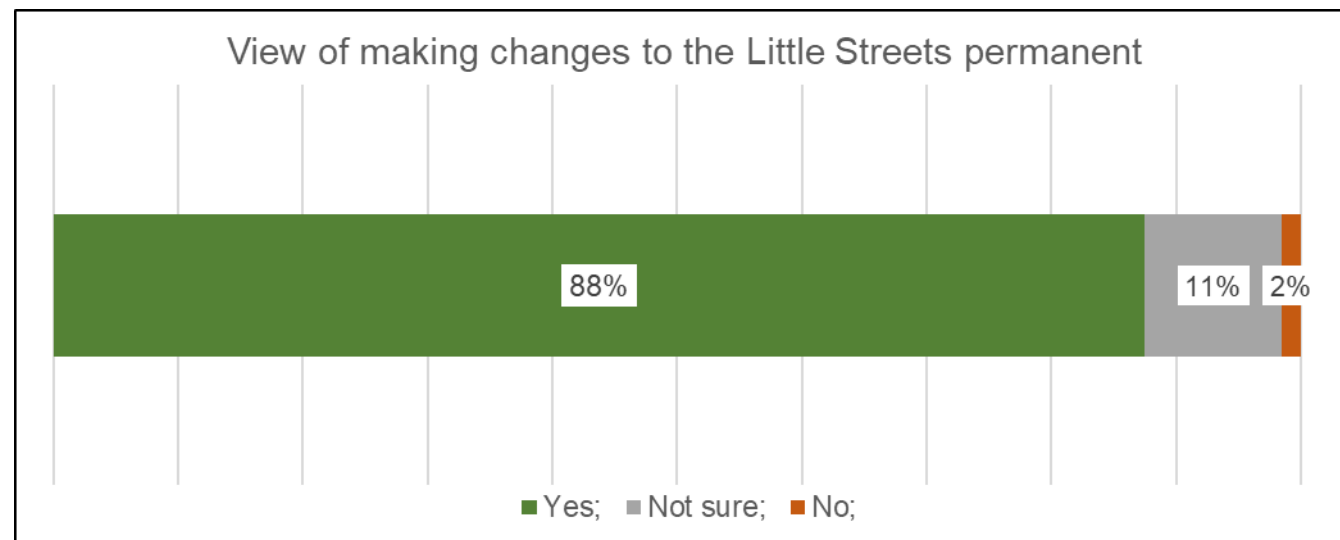
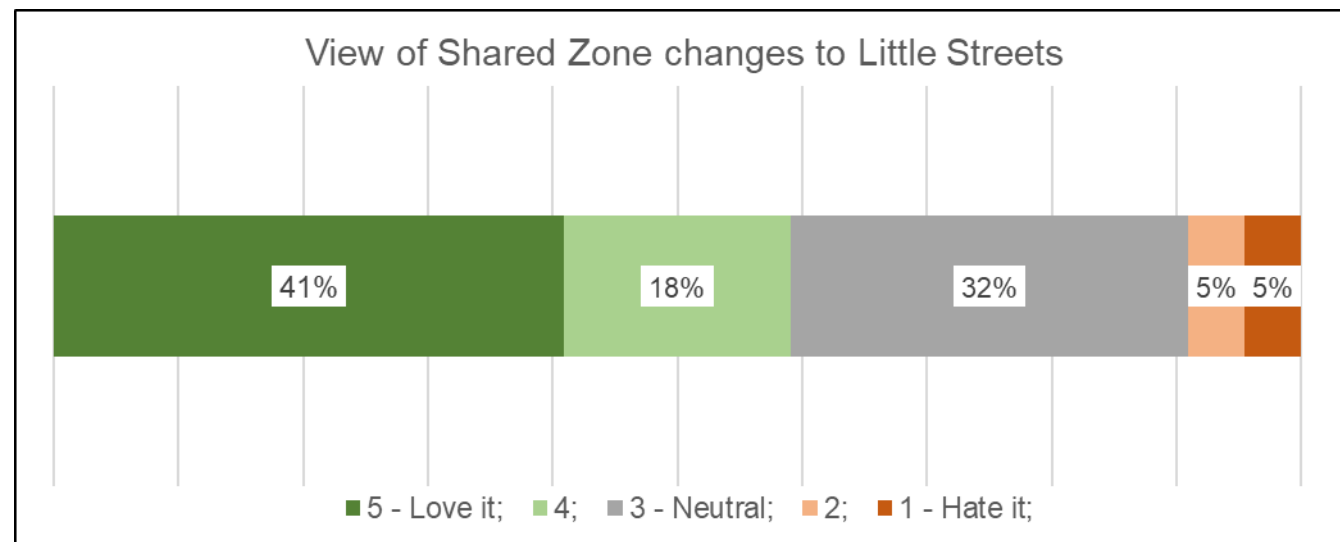


## Intercept survey findings – perception of changes to the Little Streets

Respondents were asked if they had noticed any recent changes to the Little Street. Most people (57%) had not noticed any recent changes, while 41% had noticed changes that were not related to the shared zones on the Little Streets (construction, more visitors, outdoor dining). Only one respondent specifically mentioned the shared zone.

Given the low number of people who were aware of changes to the Little Streets, the surveyor explained to the respondent what changes had been made and pointed them out on the street. People were then asked how they felt about these changes. Most people felt positive about the changes, with 41% saying they loved it and 18% saying they liked it (59% total positive). Some people provided reasons for their positive score, which included that the changes were good for pedestrians and that it was good that cars were de-emphasised. 32% of people were neutral about the changes and 10% of people had a negative view. Reasons provided for a negative response included that it is hard to find parking and that there is no need for a shared street when there is a footpath.

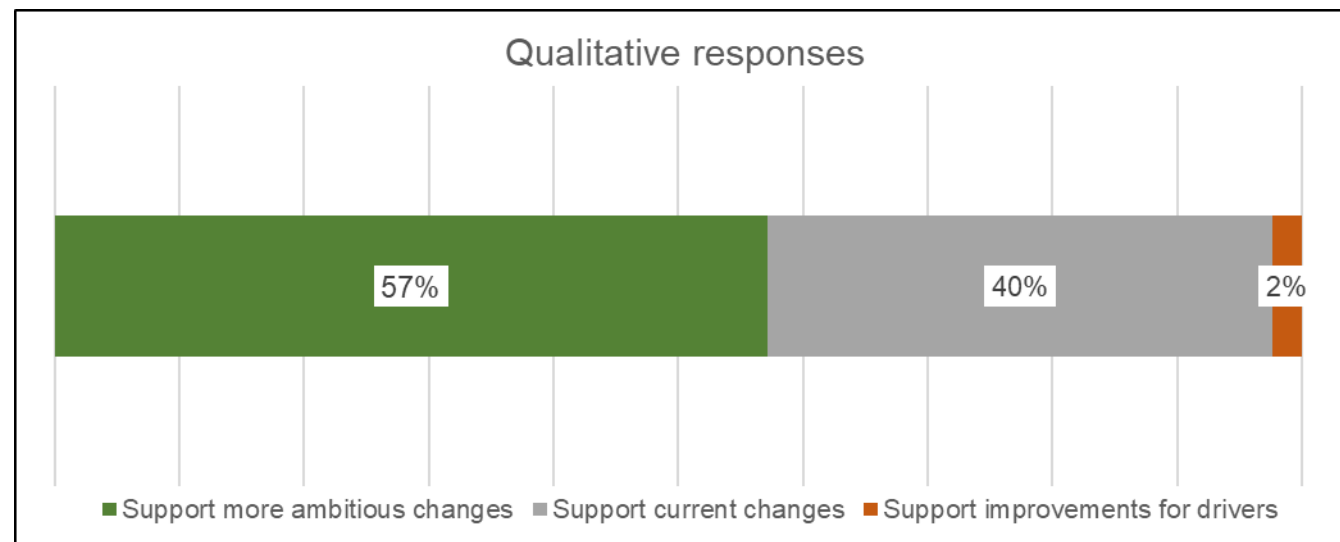
When asked if the changes should be made permanent, 88% of respondents said yes, with 11% saying they were not sure and only 2% saying no. When saying they supported the changes being made permanent, some additional feedback was that the streets should be more oriented towards pedestrians, and that permanent changes should go further. People who were not sure about making the changes permanent said that cars still need to get through and that the streets should be kept the way they are.



## Intercept survey findings – qualitative responses

The final question in the survey asked respondents if they had any other comments. Most people (64%) provided further feedback, which is a high response rate for an intercept survey. Responses were categorised as follows:

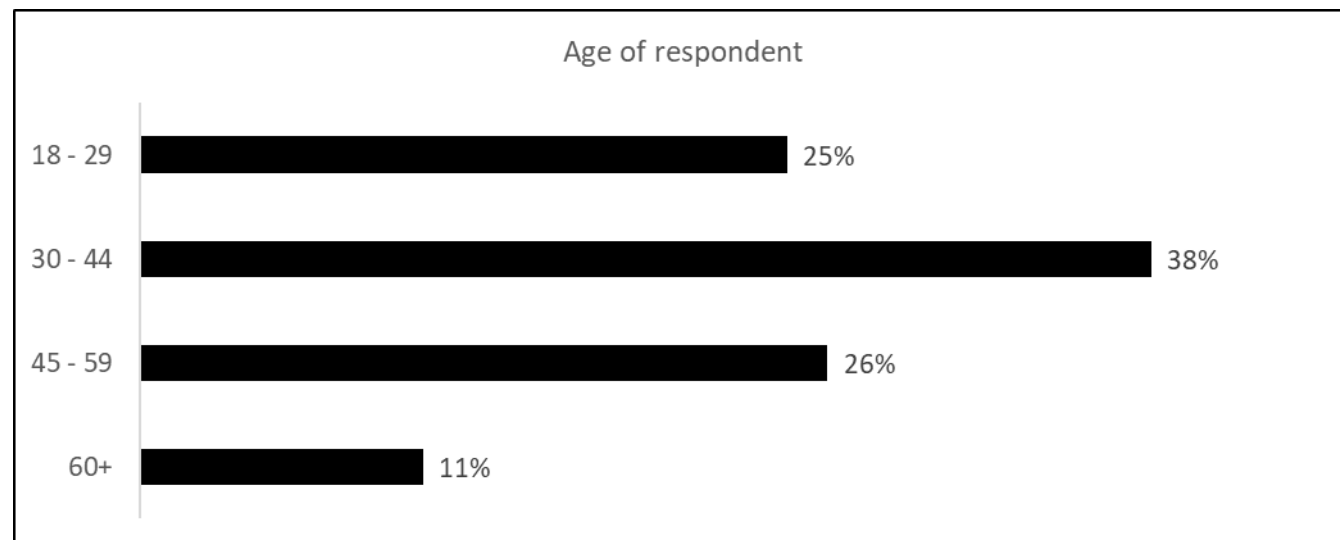
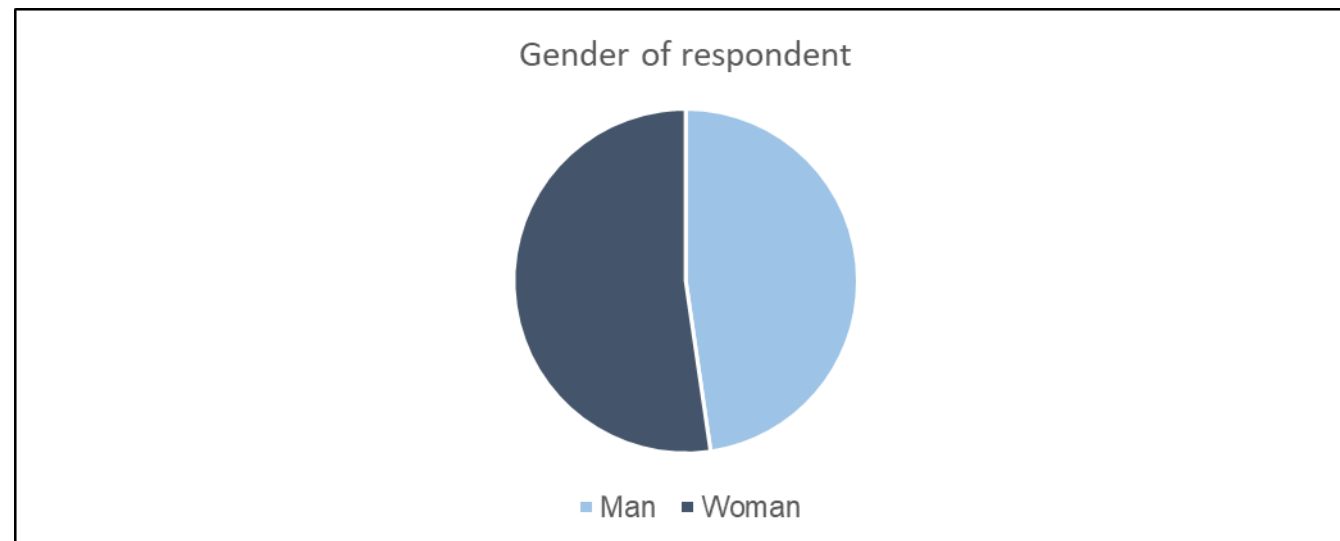
- Wanting more ambitious changes (e.g., “Remove vehicle traffic on street altogether”, “The Little Streets should be blocked off to cars entirely”, “More outdoor implementation over summer”, “More visible because cars don’t recognise it’s a shared space”). 57% of respondents fell into this category.
- Wanting changes to remain as they are (e.g., “Really love the alleyways connecting with the little streets and having the streets feel like they are for everyone”, “Cars are going so slow down the street anyway”, “Happy to have a 20km/h speed zone”). 40% of respondents fell into this category.
- Wanting changes made to improve driving/delivery (e.g., “Difficult for deliveries for business along the street”). Only one response (2%) was in this category.





## Intercept survey findings – respondent demographics

Surveyors recorded their perception of the gender and age of respondents. There was an even gender split among respondents; 52% female and 48% male. The most common age group was 30 – 44 (38%), with around a quarter of respondents each being in the 18-29 and 45-59 age groups. 11% of respondents were over 60.



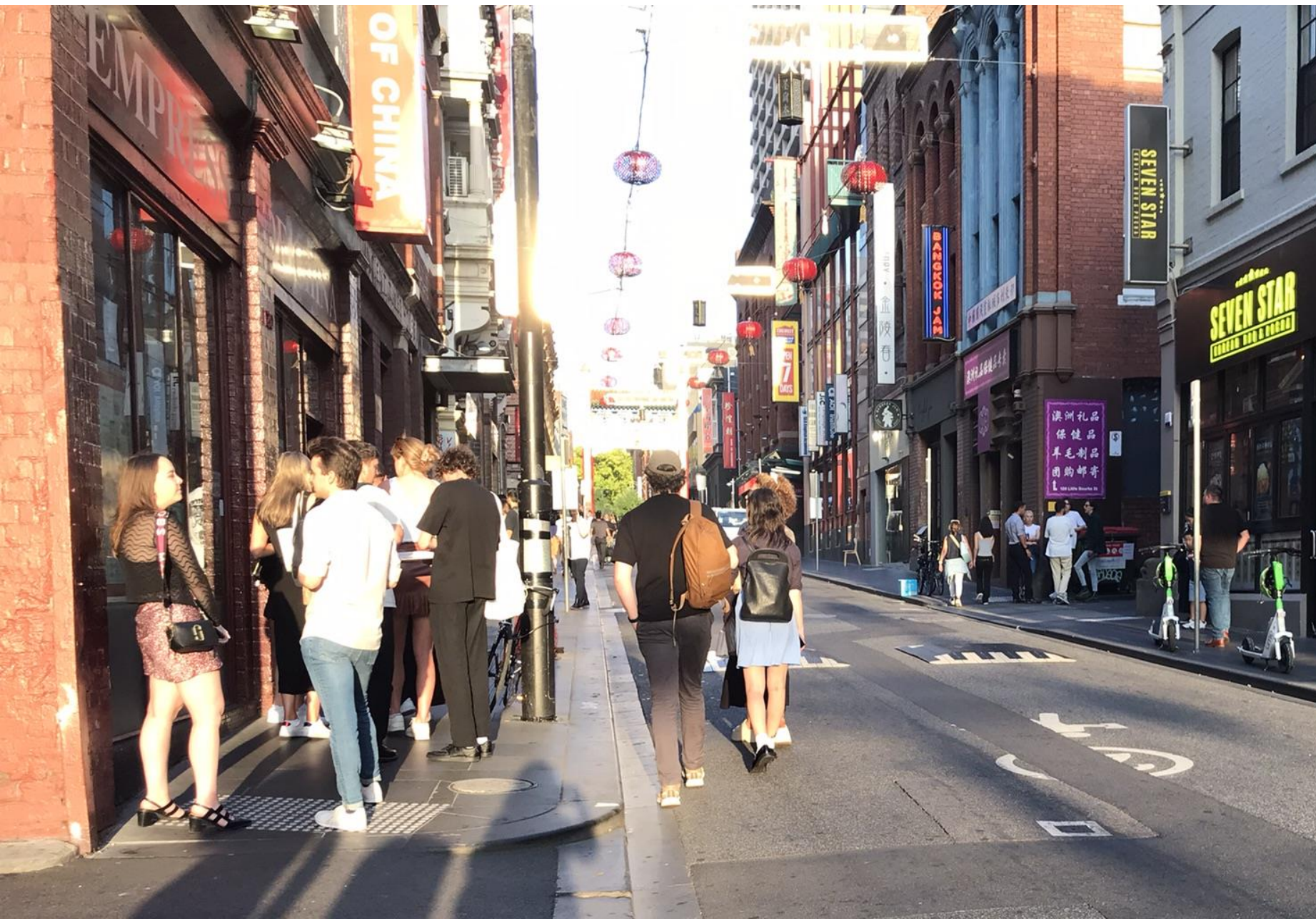
## Intercept Survey Findings and Conclusions

The intercept surveys showed that people tend to visit Melbourne CBD regularly and spend long durations of time there. Most people in the CBD live in Metro Melbourne, though the return of interstate and international visitors is also evident from these surveys.

People have not noticed the changes implemented to make the Little Streets a Shared Zone, however, they are aware of other changes such as outdoor dining and the city becoming busier again. When the Shared Zone changes were explained to people, they were supportive of these changes and most would like them made permanent. When given the chance to provide further feedback, most people said they would like more ambitious changes made to the Little Streets, such as making the Shared Zones more obvious or pedestrianising the streets completely.







## Design Responses





## Pedestrian & Vehicle Street Space Allocation

To assess the adequacy of the existing street space allocation, we have undertaken a review of the vehicle and pedestrian volumes for three Little Street sections (i.e., the sections for which pedestrian volume data is available, generally corresponding to the segments with the highest pedestrian volumes) and compared these volumes to the allocated space for each mode.

The vehicle volumes were sourced from the May and June 2022 survey data, while the pedestrian volumes were sourced for three locations for the same days via the City of Melbourne's Pedestrian Counting System. These locations are:

- Little Bourke Street between Swanston and Russell
- Little Bourke Street Russell and Exhibition
- Flinders Lane between Elizabeth and Swanston

The results of this review are provided in the following slide.







## Comparison of Pedestrian / Vehicle Volumes and Street Space Allocation

Street and Segment	Average weekday pedestrian volume	Average weekday traffic volume	Total footpath space, sq.m	Total street space, sq.m	Total building to building space, sq.m	Percentage of street space exclusively allocated to pedestrians, %	Percentage of street space allocated to vehicles, %	Pedestrian volume per weekday per sq.m of footpath	Car volume per weekday per sq.m street space
Little Bourke Street (Swanston-Russell)	16,424 [1]	2,787	1,080	874	1,954	55	45	15	3
Little Bourke Street (Russell-Exhibition)	10,594 [1]	1,045	928	1,000	1,928	48	52	11	1
Flinders Lane (Elizabeth-Swanston)	8,729 [2]	2,220	834	1,161	1,995	42	58	10	2

[1] The pedestrian sensors for these two segments only captured pedestrian activity on one side of the street. For these segments we have assumed that both sides of the street experience the same pedestrian volumes, given that active shop frontages are present on both sides.

[2] There were three pedestrian sensors on Flinders lane. These sensors captured pedestrian activity on both sides of the street and also at the pedestrian crossing. To avoid double-counting pedestrian volumes, we have subtracted the pedestrian volumes captured crossing the street.

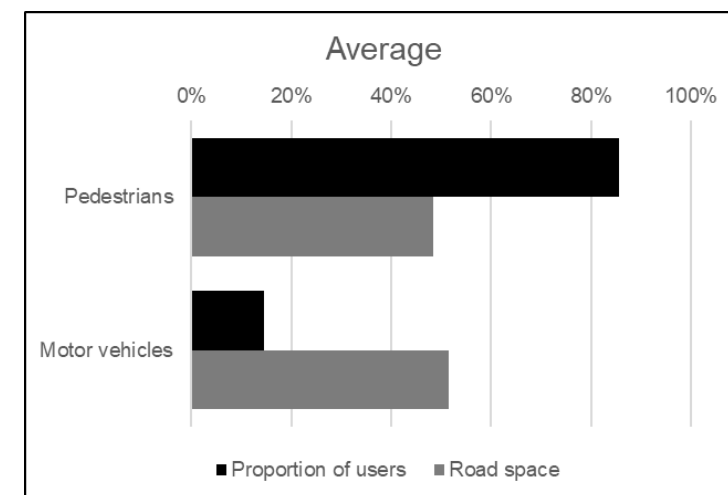
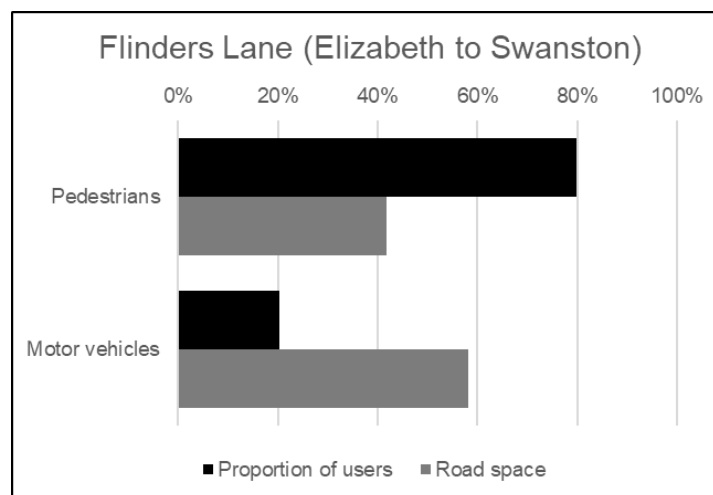
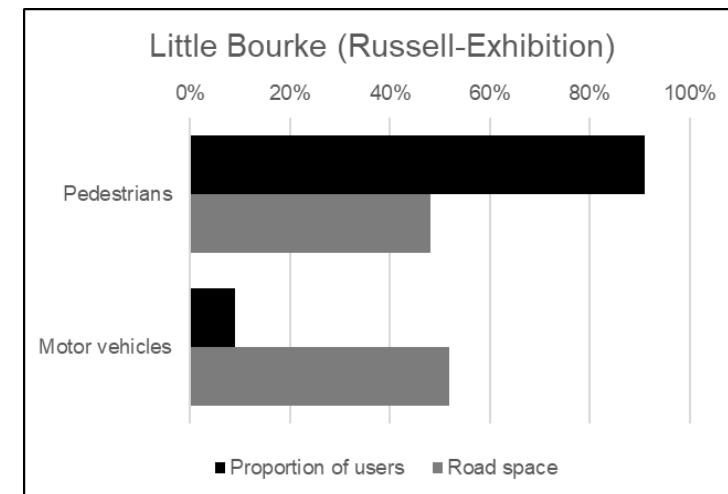
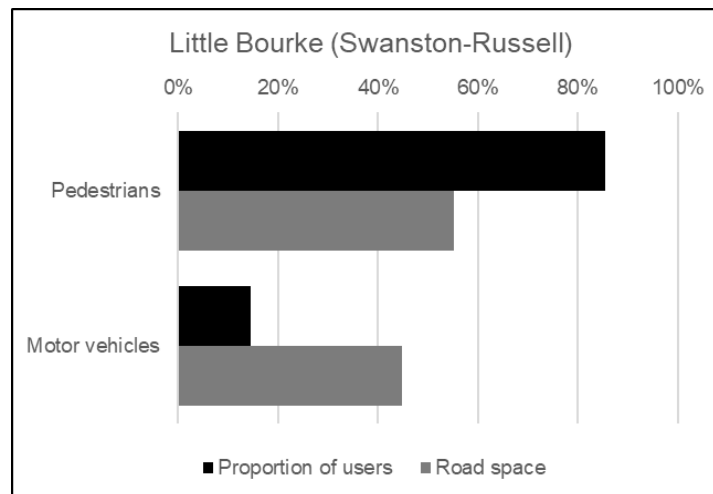
# Comparison of Pedestrian / Vehicle Volumes and Street Space Allocation

## Key findings

- For the three segments reviewed, comparing the average weekday pedestrian and vehicle volumes in May/June 2022, we can observe that pedestrian volumes are between 3.9 times to 10.1 times greater than vehicle volumes
- The percentage of street space allocated to pedestrians (assuming pedestrians do not walk on the street carriageway) was between 42% to 55%, while the space allocated to vehicles (i.e. on-street parking and the street carriageway) was between 45% and 58%
- Comparing the allocated street space to the average volumes, pedestrian volumes are between 5 times to 11 times greater than vehicle volumes per square metre of the street

Overall, we consider it reasonable for additional street space to be allocated to pedestrians on street segments with high pedestrian volumes. Footpath widths on segments with lower pedestrian volumes should still be wide enough for two people using mobility devices to pass one another comfortably (1.8m).

The design responses to create this additional space and to strengthen the messaging of the Shared Zones are outlined in this section.





## Little Street Typologies

Given the range of land uses and pedestrian and vehicle demands on the different segments of the Little Streets, the design responses need to be context-dependent. As part of this approach, the Little Street segments have been classified into typologies.

### Metrics for categorisation

Following the safety and user behaviour review, the Little Street segments were assessed for their levels of the following:

- Parking or access demand (e.g., off-street residential or public parking, loading docks)
- Pedestrian demand and volumes
- Level of on-street commercial activity (e.g., food and beverage, retail)
- Existing motor vehicle levels (2022 volumes)
- Ability of the street to accommodate contraflow cycling.

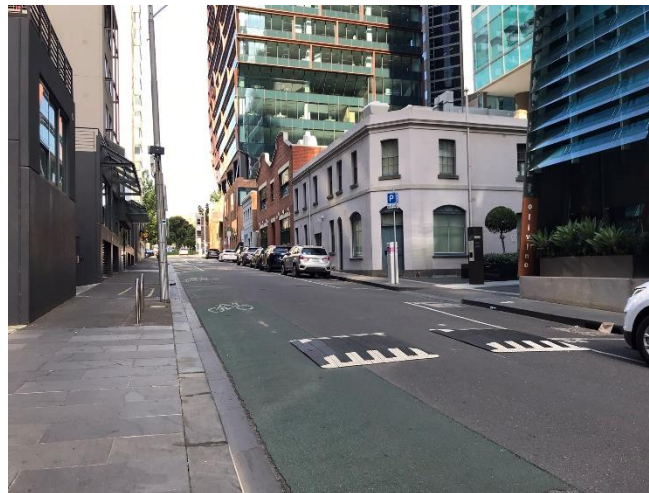
The outcome of this assessment for each segment is located in Appendix B.

### Little Street Typologies

This assessment was used to describe four street typologies, as follows:

1. Lower pedestrian demand
2. Higher pedestrian demand in concentrated sections, higher car access needs
3. Higher pedestrian demand along the whole block, higher car access needs
4. High pedestrian demand, low car access needs.

It is important to note that the Little Street segment categorisations will change over time (e.g., new retail or dining businesses, closure and conversion of car parks, etc.). Therefore, Little Streets should be reassessed regularly to ensure the treatments match the current and desired use.



A lower pedestrian demand, lower activity segment  
(Little Lonsdale Street Exhibition to Spring)



Higher levels of pedestrian activity at a single location  
(Little Bourke Street, Spencer to King)







High pedestrian activity and car access needs (parking garage)  
(Little Bourke Street, Swanston to Russell)

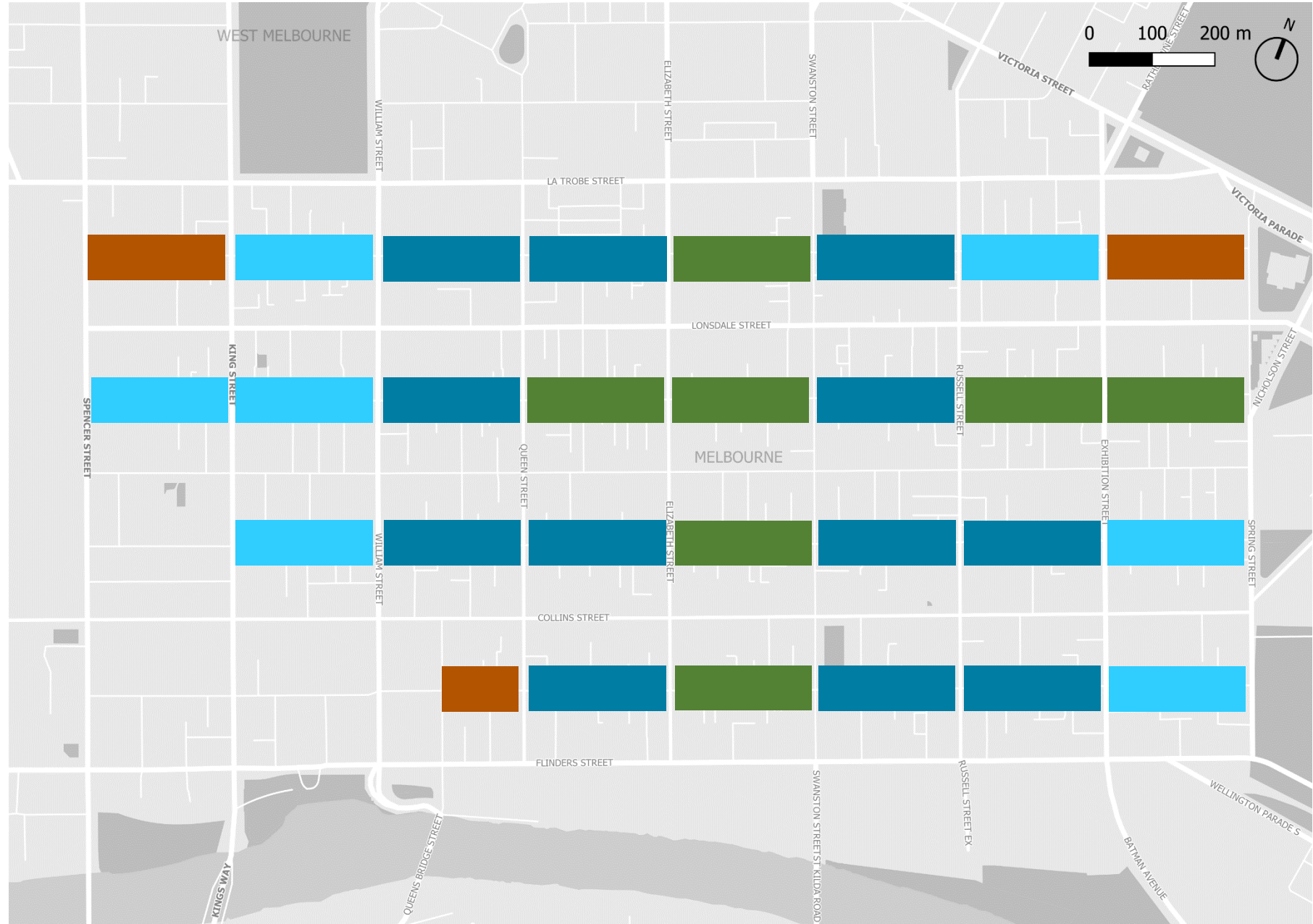


High pedestrian activity, low car access needs  
(Little Bourke Street, Exhibition to Russell)



# Typologies

-  Lower pedestrian demand
-  Higher pedestrian demand in sections, higher car access needs
-  Higher pedestrian demand along the whole block, higher car access needs
-  High pedestrian demand, low car access needs







## Design Responses

Typology	Segments	Design treatments	Network treatments
Lower pedestrian demand	Little Lonsdale, Spencer to King Little Lonsdale, Exhibition to Spring Flinders Lane, Market to Queen	<ul style="list-style-type: none"> <li>- Widen footpaths to minimum 1.8m each side (either kerbline change or with paint and bollards)</li> <li>- Traffic calming through horizontal deflection/chicanes and narrowed carriageway</li> <li>- Contraflow cycle lanes (protected/painted/IMPLIED)</li> </ul>	Investigate changes to the network to reduce through-traffic on the Little Streets
High pedestrian demand (concentrated), higher motor vehicle access demand	Little Lonsdale, King to William Little Lonsdale, Russell to Exhibition Little Bourke, Spencer to King Little Bourke, King to William Little Collins, King to William Little Collins, Exhibition to Spring Flinders Lane, Exhibition to Spring	<ul style="list-style-type: none"> <li>- Widen footpaths to a width adequate for the volume of pedestrians (minimum 1.8m)</li> <li>- Traffic calming through horizontal deflection and narrowed carriageway</li> <li>- Raised intersections at key activity points or north-south desire lines, with contrasting surface texture (e.g., bluestone paving/imprint)</li> <li>- Activation of side laneways at these intersections</li> <li>- Contraflow cycle lanes (protected/painted/IMPLIED)</li> </ul>	
High pedestrian demand (extended), higher motor vehicle access demand	Little Lonsdale, William to Queen Little Lonsdale, Queen to Elizabeth Little Lonsdale, Swanston to Russell Little Bourke, King to William Little Bourke, Swanston to Russell Little Collins, King to William Little Collins, William to Queen Little Collins Swanston to Russell Little Collins, Russell to Exhibition Flinders Lane, Queen to Elizabeth Flinders Lane, Swanston to Russell Flinders Lane, Russell to Exhibition	<ul style="list-style-type: none"> <li>- Widen footpaths to a width adequate for the volume of pedestrians (minimum 1.8m)</li> <li>- Traffic calming through horizontal deflection and narrowed carriageway</li> <li>- Threshold treatment at block entry to signify a transition to a different type of street</li> <li>- Contrasting surface texture and colour (e.g., herringbone brick imprint) for carriageway</li> <li>- Contraflow cycle lanes (protected/painted/IMPLIED)</li> </ul>	
High pedestrian demand, low motor vehicle access demand	Little Lonsdale, Elizabeth to Swanston (part) Little Bourke, Queen to Elizabeth Little Bourke, Elizabeth to Swanston (part) Little Bourke, Russell to Exhibition Little Bourke, Exhibition to Spring Little Collins, Elizabeth to Swanston Flinders Lane, Elizabeth to Swanston	<ul style="list-style-type: none"> <li>- Pedestrianise street with loading to be retained during periods of lower pedestrian demand (requires engagement with traders and delivery drivers)</li> <li>- Raise carriageway to be level with footpath and pave surface in a style that is consistent with footpath surface</li> <li>- Contraflow cycling permitted within pedestrian zone</li> </ul>	

## Widen footpath

Many Little Streets have extremely narrow footpaths, in some cases as narrow as 0.5m. Narrow footpaths were further restricted in places by signage relating to parking restrictions and other information or directions for drivers. All Little Streets need to be navigable for people walking and using mobility devices, so footpaths should be widened to a minimum of 1.8m on each side. Wider footpaths and more space for pedestrians would replace some on-street car parking. Details of this impact would be detailed as part of further investigation into this treatment.

### Short term

This could initially be done using painted footpath extensions and bollards, as on Little Collins Street between Russell and Exhibition Streets.

### Medium term

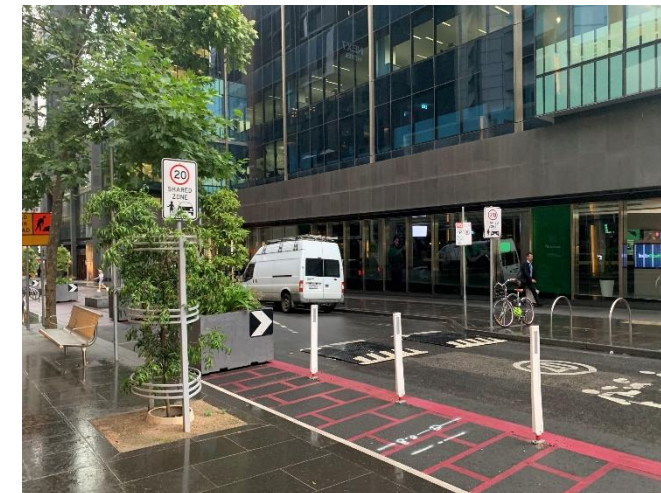
Install modular plastic footpath extensions to keep the widened section at footpath level while not requiring extensive capital works to move the kerb.

### Long term

As streetscapes are updated, kerb lines can be shifted to permanently widen footpaths.



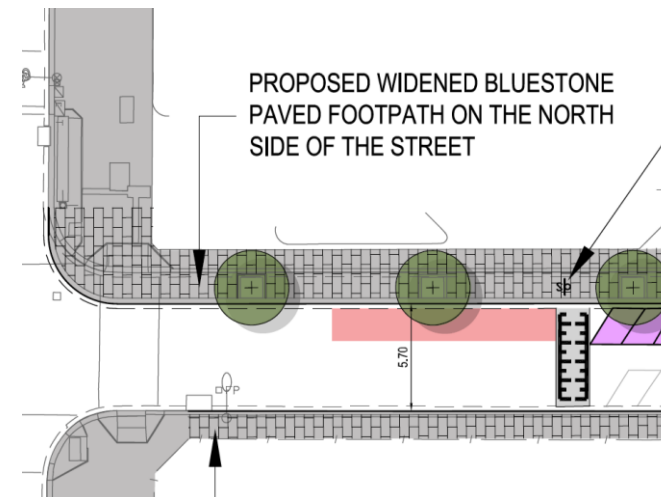
Footpath extension with paint and bollards, Little Collins Street



Footpath extension with paint and bollards, Little Collins Street



Modular extended footpath, Auckland, NZ (image from [Waka Kotahi](#))



Proposed footpath extension, Little Lonsdale Street



## Increase traffic calming

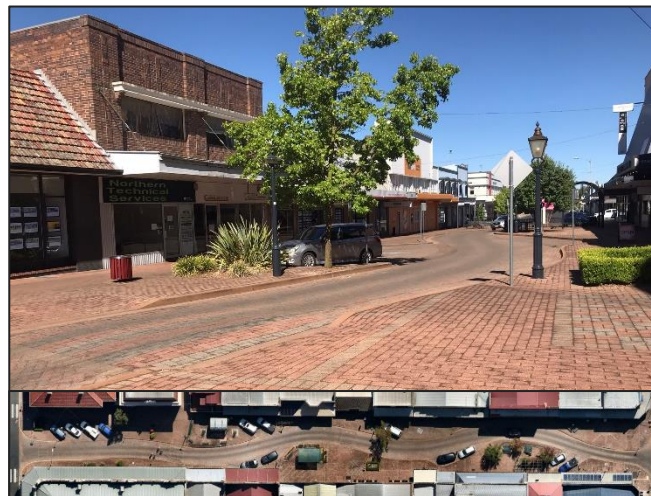
Creating a safe and attractive environment on the Little Streets means reducing the speed and volume of car traffic. While some traffic calming measures that have been introduced appear to be effective at reducing speeds, there is a tendency for speeds to increase as volumes decrease, as congestion is the main reason drivers travel slowly. Introducing horizontal deflection (chicanes and narrow points) can help with reducing speeds even when there is not much traffic on the street. The low-speed environment of the Little Streets means the risk of loss of control by drivers is unlikely, and reducing forward visibility will decrease speeds and improve safety. In addition, vertical deflection is not always pedestrian-friendly or accessible for people using mobility devices who are travelling along the street, so removing vertical deflection in favour of horizontal deflection could improve the amenity of the street for pedestrians.

### Short term

Horizontal deflection can be introduced to the Little Streets by placing street furniture such as parklets, planters or seating on alternating sides of the street. This could also be done by having parked cars on alternating sides of the street instead of consistently on one side.

### Medium-long term

In the longer term, the kerb line could be modified to build out the footpath on alternating sides of the streets for sections that are around 50m in length.



Curved street, Brady Street (inset: aerial view), Armidale, NSW



Narrow residential street with chicanes formed by parked cars and garden beds, Utrecht, Netherlands



Slight curve in the street, Flinders Lane at Swanston Street



Chicanes to introduce horizontal deflection and create space for loading, Bank Street, Adelaide, SA



## Contraflow mobility lanes

Exempting cyclists and e-scooter riders from one-way traffic restrictions can greatly decrease travel times, making cycling and micromobility quicker and more convenient. Having contraflow mobility lanes on Flinders Lane or Little Collins Street would also provide safe eastbound routes in the southern part of the Hoddle Grid until the Flinders Street protected lanes are delivered. The Little Streets are already being used in a contraflow manner, especially by e-scooter riders and food delivery riders. Formalising this would make these riders safer and their journeys quicker and more convenient.

There are three types of contraflow mobility lanes: protected lanes, painted lanes, and shared carriageways. Painted lanes (2m desirable width, 1.5m minimum) may be adequate for most Little Street segments, with short sections of protection at intersections to prevent the lane from being blocked by cars. Where traffic volumes are low, contraflow cycling or riding can be permitted without a dedicated space on streets as narrow as 2.6m\*. This treatment may be more aligned to the principles of the Shared Zone and would require negotiation between street users.

### Short term

Investigate the feasibility of contraflow lanes for cycling and e-scooters.

### Medium-long term

Deliver contraflow mobility lanes on Little Streets where it is feasible to do so



Signalised contraflow bike lane, Lennox Street, Richmond



Contraflow cycling with a narrow advisory bike lane in Cambridge, UK



Painted contraflow bike lane, Park Street, Fitzroy North



Protected entry to painted contraflow bike lane, Truscott Street, Brunswick East

\*[Welsh Government Active Travel Act Guidance](#), July 2021 p. 351



## Raised street sections

The user behaviour and street safety review indicated that pedestrians are more likely to confidently cross and drivers are more likely to give way where the street is raised to footpath level. This effect could be further amplified by using contrasting surface colours and textures on the raised section instead of asphalt.

At north-south crossing points with higher pedestrian volumes, the street should be raised, and pedestrian priority highlighted through traffic calming measures. This could include narrowing the carriageway and introducing a colour or texture contrast to the street surface.

Example locations for this treatment are:

- Little Lonsdale Street at Healeys Lane (King to William)
- Little Lonsdale Street at Exploration/Jones (Russell to Exhibition)
- Little Bourke at Rose/Langs (Spencer to King)
- Little Bourke at Gresham and Guest (King to William)
- Little Collins at Church Lane (King to William)
- Little Collins at Meyers/Ridgway (Exhibition to Spring)
- Flinders Lane at Sofitel Hotel/Collins Place entry (Exhibition to Spring)

### Short term

Identify locations for raised sections of street, and develop designs that take drainage into account

### Medium-long term

Deliver raised sections as part of the capital works program



Raised intersection, Camden Street, Newtown, NSW



Raised intersection with contrasting surface colour and texture, Cairns, QLD



Raised street section in a shared zone, Smidmore Street, Marrickville, NSW



Raised section of Flinders Lane without colour or texture contrast, Melbourne CBD



## Laneway activation

Activating the spaces that connect to the Little Streets makes for inviting places to explore and visit. Laneways that already have strong north-south pedestrian flows could be made more attractive for people walking through them with the addition of street art, greenery, seating, outdoor dining and other street activations.

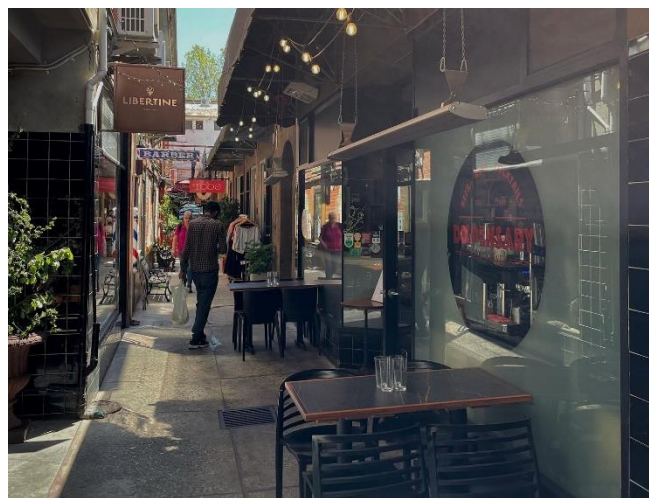
The extent of potential laneway activation is subject to parking, access and servicing requirements of individual laneways. This would be a separate project to the shared zones on the Little Streets.



Side laneway activation with outdoor dining and mural, Little Bourke Street, Melbourne CBD



Street activation with painted surface, seating, trees and bike parking, Rose Street, Fitzroy



Retail and food and beverage activity on Chancery Lane, Bendigo



Activation through greenery, Guilford Lane, Melbourne CBD



## Threshold treatment

Some Little Street segments have high levels of pedestrian activity and land use along the entire block. People cross the street along the whole length and not just at a particular point. The shared zone nature of these blocks should be highlighted by a strong threshold treatment at the start of the block, which clearly signals to drivers that they are leaving a typical street and entering a new type of space.

Threshold treatments should include:

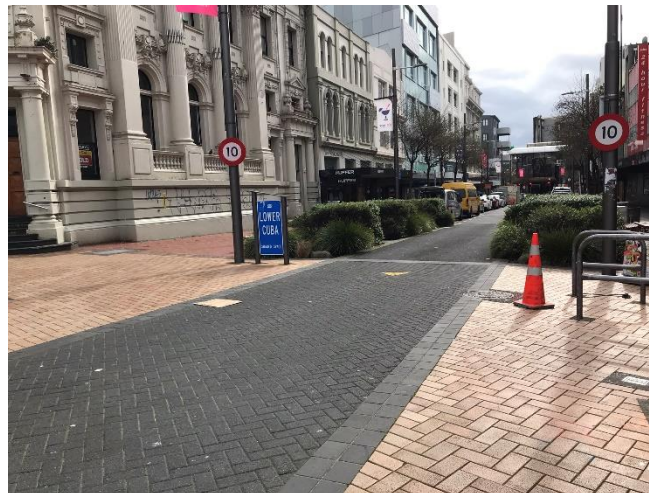
- Where feasible, raising the signalised crossing at the main street but retaining the asphalt surfacing (subject to space being available for a ramp)
- Continuing this raised section for 5–10m along the Little Street block, with a non-asphalt surface or colour (in line with City of Melbourne design guidelines)
- The carriageway in this raised section will be narrowed to 3m, using street furniture, planters or garden beds

### Short term

Narrow the carriageway for 5–10m at the entrance to relevant Little Street blocks by using planters or other street furniture. Paint the street surface a contrasting colour in this section or investigate the use of an imprinted surface for greater effect.

### Medium-long term

Deliver raised crossings and thresholds as part of the capital works program



Threshold treatment, Cuba Street, Wellington, NZ



End-block treatment, Cuba Street, Wellington, NZ



Threshold at entry to shared zone with surface colour and texture change and street narrowing, Cairns, QLD



Raised threshold and surface colour and texture change at entry to shared zone, Newtown, NSW



## Surface contrast

Some Little Street segments have high levels of pedestrian activity and lane use along the entire block. People cross the street along the whole length and not just at a particular point. The shared zone nature of these blocks should be highlighted with a surface colour and texture that contrasts with the asphalt surface of other streets. This can be done by using an imprinted surface that either matches or contrasts with the footpath.

### Short term

Use paint or imprint material to create a contrasting surface colour or texture on the Little Streets, in line with City of Melbourne design guidelines

### Medium-long term

Where feasible, repave the street in a non-asphalt material (e.g., brick or pavers)



Surface contrast in a shared zone, Lane Cove, NSW



A partially pedestrianised street paved in brick, Cambridge, UK



Street surface painted to signify shared zone, Albert Street, Brunswick East



Street paved in patterned stone setts, Aachen, Germany



## Pedestrianisation

Some Little Street segments have high levels of pedestrian activity and low access needs for motor vehicles (e.g., no public or residential parking, no loading docks). Motor vehicles are the biggest impediment to the Little Streets operating as shared zones: a common theme across all sectors was that people gave way to cars and generally only appeared comfortable crossing or walking along the street when no cars were present. Restricting motor vehicles from accessing certain blocks would dramatically increase the space available to people walking and make for a more attractive and inviting environment. Pedestrianising at least one segment of each Little Street would also prevent the street from being used for through-traffic, reducing traffic volumes on other segments.

A fully pedestrianised street should have the carriageway raised to be level with the footpath, to allow seamless transition across the street. Access can be controlled using unlockable or rising bollards if loading is still required at certain times of the day. It is acknowledged that drainage is critical for the Little Streets, which have a flood risk. However, it is considered that this can be overcome with further investigation and option development.

### Short term

Engage with traders and logistics companies to determine loading and access requirements. Implement trial road closures during peak pedestrian activity periods, for example on Friday and Saturday evenings on Little Bourke Street.

### Medium-long term

Refine the timing of access for loading and expand the road closure periods.



A pedestrianised street with access for authorised vehicles, The Hague, Netherlands



A street that is pedestrianised from 12–6pm daily, with bike access retained, Amsterdam, Netherlands



A pedestrianised street with access retained for local businesses, 's-Hertogenbosch, Netherlands



Pedestrianised zone with delivery vehicles permitted from 6–9am, The Rocks, Sydney, NSW



## Network changes

While motor traffic volumes on the Little Streets are relatively low (<3000 vehicles per day for most segments), it is still possible to use the Little Streets for through movements. It is likely that a proportion of the traffic on the Little Streets is through traffic, as opposed to people accessing destinations on the streets themselves.

Through traffic movements could be reduced by using the following methods:

- Turn bans (e.g., all vehicles must turn left at the end of a Little Street block)
- Alternating one-way directions for sequential blocks, so drivers can only travel for one block before having to turn onto a main street
- Installing median modal filters across the main street intersections to make Little Streets left-in, left-out at that location. This would have the benefit of reducing turning movements across tram tracks on north-south streets without hook turns

### Short term

Investigate options to modify the network within the Hoddle Grid to reduce through traffic on the Little Streets and prioritise local and access trips. The impact on overall network operation and the main streets would need to be determined.

### Medium-long term

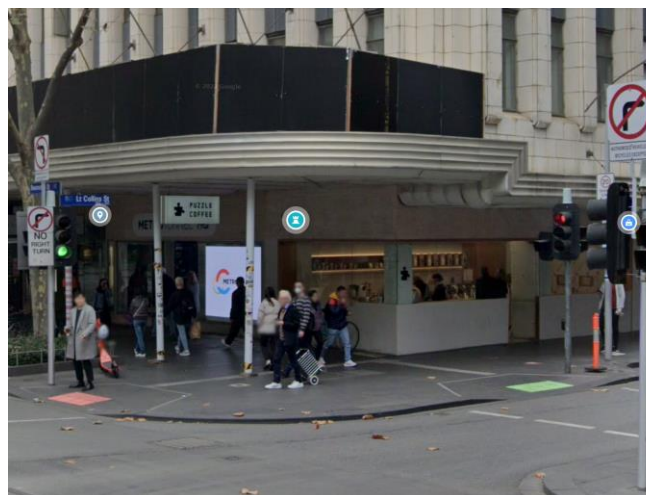
If feasible, implement changes to the network to reduce through-traffic on the Little Streets, such as turn bans, alternating the one-way directions along each street, or installing medians on the main north-south streets to prevent straight-ahead movements across intersections.



Alternating one-way streets with contraflow cycling in Park Street, Fitzroy North



A median island preventing through traffic movements, Rae Street Fitzroy North



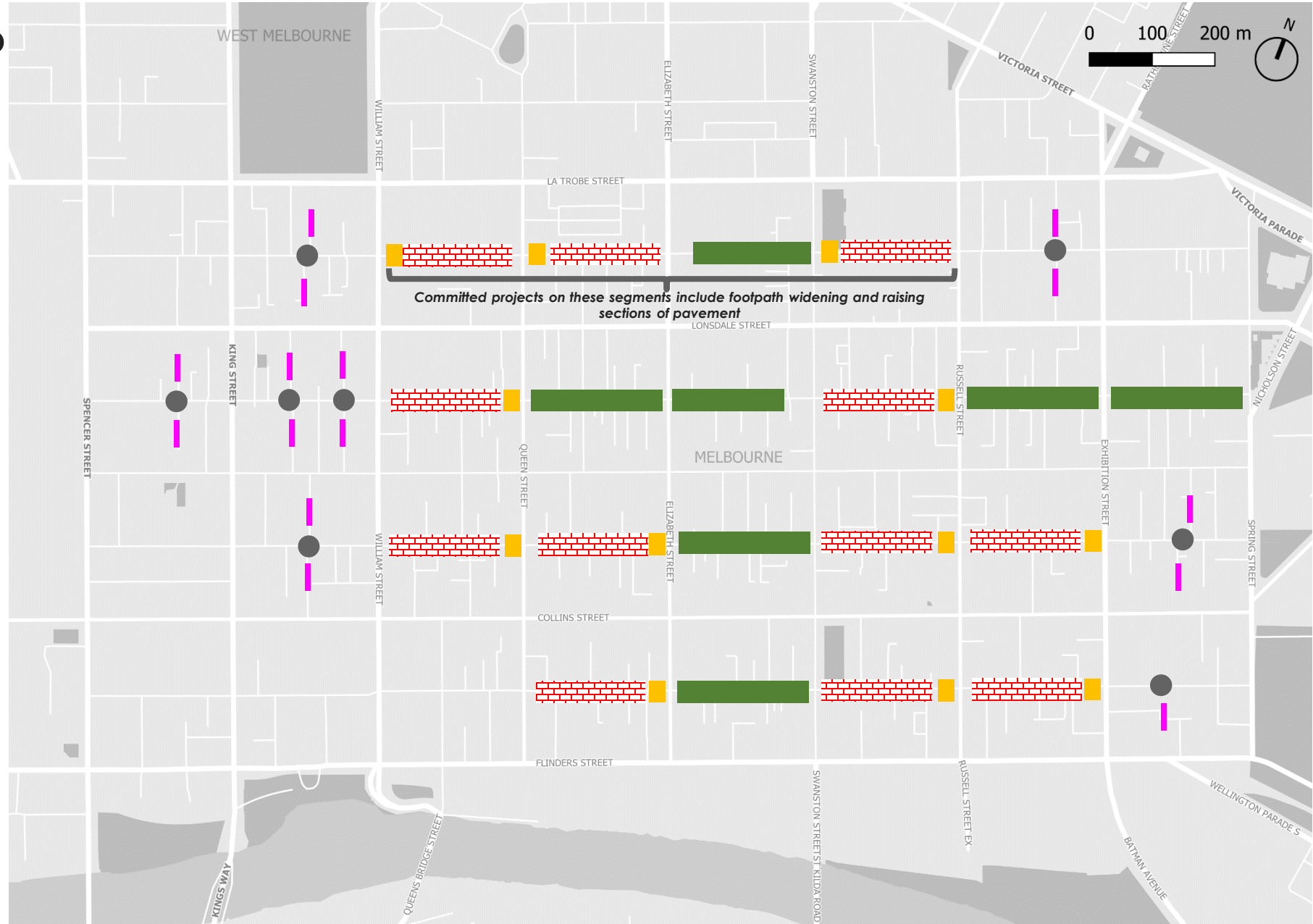
Turn bans from Swanston Street to Little Collins Street



A median preventing some car movements from a one-way street, St Thomas's Square, London, UK



# Proposed Treatment Map



Footpath widening (all blocks)

Additional traffic calming (all blocks)

Contraflow cycling (all blocks)

Raised crossings of north-south main streets (all blocks - subject to feasibility)

● Raised sections (10km/h speed limit)

— Laneway activation

■ Threshold treatments

▒ Surface contrast

■ Pedestrianisation

*Committed projects on these segments include footpath widening and raising sections of pavement*





## Summary of Results





## Summary of Results

Following the implementation of shared zones and associated traffic calming measures on the Little Streets, most streets have seen a reduction in traffic volumes and speeds. Traffic volumes are still higher than what would typically be recommended in a shared zone (maximum 200 vehicles per hour in peak periods, 1000 vehicles between 7 am and 7 pm). Further measures to reduce traffic volumes would enhance pedestrian safety on the streets. 85<sup>th</sup> percentile traffic speeds are still greater than the speed limit of 20km/h on all segments, and further traffic calming measures to reduce speeds would create a safer and more attractive environment.

The survey data indicates that the 85<sup>th</sup> percentile speeds on all Little Street segments in 2020 (i.e. pre-implementation) were significantly below the then 40km/h posted speed limit. As such, we consider there to be an acceptable basis for the speed limits on the Little Streets to remain at 20km/h, even if in the future the 'shared zone' designation was removed from particular segments.

The safety review of the Little Streets found that the initial signage and linemarking had either been moved, or covered by trees in planter boxes, or faded and paved over. Further to this, the intercept survey results highlighted the signage and linemarking were not clear enough from the onset and people were not aware that the street should be operating as a shared zone. These results warrant a review of the Shared Zone objective. Revisiting the signage and linemarking and introducing more obvious treatments (such as surface contrast) will ensure the Little Streets are working towards their intended performance goal – slower speed streets with pedestrian priority.

There is a range of access demands and land uses across the segments of the Little Streets. To develop a context-dependent design response, typologies were identified that correspond to the nature of each block. Designs have been developed for each typology and recommended locations for treatments have been presented. Due to the changing nature of land use and access demands in the city, it is recommended that these typologies and design responses be regularly re-examined to ensure they align with what is on the street.







## Appendix A – Full Street Safety & Street User Behaviour Review Results





# Full Street Safety & Street User Behaviour Checklist Results Preamble

The following slides provide the full findings for each of the 12 items on the checklist, for all Little Streets and site inspection time periods.

The checklist was completed for each street segment via a site inspection by Stantec staff. Separate checklists were completed for the night-time pedestrian peak and the AM and PM commuter peak hours. These were chosen to capture typical operations during peak periods.

Site inspections were undertaken between 20 December 2022 – 23 December 2022 and 9 January 2023 – 12 January 2023.

Site inspections were conducted via walking only, to most appropriately appreciate if the objective of the treatments (i.e., pedestrian priority and comfort) have been achieved.

It is noted that these reviews were not formal Road Safety Audits undertaken in accordance with the Austroads Guide to Road Safety Part 6: Road Safety Audit (2022).

The 11 safety items used risk classifications of low, medium or high, while the street user behaviour item used classifications of, 'not used at all as a shared zone, 'used somewhat as a shared zone' or 'heavily used as a shared zone.'

For the safety items, the suggested approach for each risk classification is as follows:

- **High risk:** existing safety issue(s) identified – suggest immediate further investigation
- **Medium risk:** existing safety issue(s) identified – suggest further investigation when possible
- **Low risk:** minimal or no existing safety issues identified – suggest further investigation only as part of regular maintenance/auditing









## Findings of Review – Little Lonsdale Street Risk Ratings – PM Peak

Theme	Item	Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring
Adequacy of the Treatments	Sightlines (general)	High	Low	Low	Low	Low	Low	Low	Low
	Sightlines (at intersections)	Low	Low	Low	Low	Low	Low	Low	Low
	Signage and line marking	High	Low	Medium	Medium	Low	Medium	Medium	Medium
	Traffic calming	High	Low	Medium	Medium	Low	Medium	Low	Medium
	Vehicle Circulation	Low	Low	Low	Low	Low	Low	Low	Low
	<b>Highest Risk Item</b>	<b>High</b>	<b>Low</b>	<b>Medium</b>	<b>Medium</b>	<b>Low</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>
Pedestrian & Cyclist Safety	Vehicle reversing movements	Low	Low	Low	Medium	Low	Low	Low	Low
	Footpath width	High	Medium	Low	Medium	Medium	Low	Medium	Medium
	Crossing the street	Medium	Medium	Medium	Medium	Low	Low	Low	Low
	Vehicle turning movements	Medium	Low	Low	Low	Medium	Medium	Low	Low
	Pedestrians/cyclist interaction	Medium	Low	Low	Low	Medium	Low	Low	Low
	Cyclist/Driver interaction	Low	Low	Low	Medium	Low	Low	Low	Low
	<b>Highest Risk Item</b>	<b>High</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>
Street User Behaviour	<b>Pedestrian Comfort / Operation as shared space</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>







## Findings of Review – Little Bourke Street Risk Ratings – AM Peak

Theme	Item	Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring
Adequacy of the Treatments	Sightlines (general)	Low	Low	Low	Low	Low	Low	Medium	Low
	Sightlines (at intersections)	Low	Low	Low	Low	Low	Low	Medium	Low
	Signage and line marking	Medium	Medium	Medium	Medium	Medium	Low	Medium	Low
	Traffic calming	Medium	Medium	Medium	Low	Medium	Medium	Low	Medium
	Vehicle Circulation	Low	Low	Low	Low	Low	Low	Low	Low
	<b>Highest Risk Item</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>
Pedestrian & Cyclist Safety	Vehicle reversing movements	Medium	Low	Low	Medium	Medium	Medium	Low	Low
	Footpath width	Medium	Medium	Medium	Low	Low	Low	Medium	High
	Crossing the street	Medium	Low	Low	Low	Medium	Medium	Low	Low
	Vehicle turning movements	Medium	Medium	Medium	Low	Medium	Low	Low	Low
	Pedestrians/cyclist interaction	Low	Low	Low	Low	Low	Medium	Low	Low
	Cyclist/Driver interaction	Low	Medium	Low	Low	Low	Low	Low	Low
	<b>Highest Risk Item</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>High</b>
Street User Behaviour	<b>Pedestrian Comfort / Operation as shared space</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>	<b>Somewhat operates as a shared space</b>



## Findings of Review – Little Bourke Street Risk Ratings – PM Peak

Theme	Item	Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring
Adequacy of the Treatments	Sightlines (general)	Low	Medium	Low	Low	Low	Low	Low	Low
	Sightlines (at intersections)	Low	Low	Low	Low	Low	Low	Low	Low
	Signage and line marking	Low	Medium	Low	Low	Low	Medium	High	Low
	Traffic calming	Low	Low	Low	Low	Low	Medium	Low	Low
	Vehicle Circulation	Low	Low	Low	Low	Low	Low	Low	Low
	<b>Highest Risk Item</b>	<b>Low</b>	<b>Medium</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>	<b>Low</b>
Pedestrian & Cyclist Safety	Vehicle reversing movements	Low	Low	Low	Low	Low	Low	Low	Low
	Footpath width	Medium	Low	Low	Medium	Low	Medium	Medium	Low
	Crossing the street	Medium	Low	Low	Low	Medium	Medium	Low	Low
	Vehicle turning movements	Medium	Medium	Low	Low	Low	Medium	Low	Low
	Pedestrians/cyclist interaction	Medium	Low	Low	Low	Low	Medium	Low	Low
	Cyclist/Driver interaction	Low	Low	Low	Low	Low	Low	Medium	Low
	<b>Highest Risk Item</b>	<b>Medium</b>	<b>Medium</b>	<b>Low</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Low</b>
Street User Behaviour	<b>Pedestrian Comfort / Operation as shared space</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>	<b>Somewhat operates as a shared space</b>	<b>Somewhat operates as a shared space</b>	<b>Not at all</b>	<b>Not at all</b>



## Findings of Review – Little Bourke Street Risk Ratings – Night-time

Theme	Item	Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring
Adequacy of the Treatments	Sightlines (general)	High	Low	High	Medium	Medium	Medium	Medium	Medium
	Sightlines (at intersections)	Medium	Low	Medium	Low	Low	Medium	Medium	Low
	Signage and line marking	Low	Medium	Medium	Medium	Medium	Medium	Medium	Low
	Traffic calming	Medium	High	Medium	Medium	Medium	Medium	High	Low
	Vehicle Circulation	Low	Low	Low	Low	Low	Low	Medium	Medium
	<b>Highest Risk Item</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>High</b>	<b>Medium</b>
Pedestrian & Cyclist Safety	Vehicle reversing movements	Low	Low	High	Low	Low	Medium	Low	Low
	Footpath width	High	Low	Medium	Medium	Low	Medium	High	Medium
	Crossing the street	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
	Vehicle turning movements	Low	High	High	Low	Low	Medium	Low	Low
	Pedestrians/cyclist interaction	Low	High	Low	Low	Low	Low	Low	High
	Cyclist/Driver interaction	Low	High	Low	Low	Low	Low	Medium	Medium
	<b>Highest Risk Item</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>High</b>	<b>High</b>
Street User Behaviour	<b>Pedestrian Comfort / Operation as shared space</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>

## Findings of Review – Little Collins Street Risk Ratings – AM Peak

Theme	Item	Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring
Adequacy of the Treatments	Sightlines (general)	-	Low	Low	Low	Low	Low	Low	Low
	Sightlines (at intersections)	-	Low	Low	Low	Low	Low	Low	Low
	Signage and line marking	-	Medium	Medium	Medium	Medium	Low	Low	Low
	Traffic calming	-	Medium	Medium	Medium	Low	Low	Low	Low
	Vehicle Circulation	-	Low	Low	Low	Low	Low	Low	Low
	<b>Highest Risk Item</b>	-	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>
Pedestrian & Cyclist Safety	Vehicle reversing movements	-	Low	Low	Low	Medium	Low	Low	Low
	Footpath width	-	Medium	Medium	Medium	Medium	Medium	Medium	Low
	Crossing the street	-	Medium	Medium	Medium	Low	Medium	Low	Low
	Vehicle turning movements	-	Medium	Low	Low	High	Low	Low	Low
	Pedestrians/cyclist interaction	-	Low	Low	Low	Low	Low	Low	Low
	Cyclist/Driver interaction	-	Low	Low	Low	Low	Low	Low	Low
	<b>Highest Risk Item</b>	-	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>High</b>	<b>Medium</b>	<b>Medium</b>	<b>Low</b>
Street User Behaviour	<b>Pedestrian Comfort / Operation as shared space</b>	-	<b>Not at all</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>	<b>Somewhat operates as a shared space</b>	<b>Somewhat operates as a shared space</b>



## Findings of Review – Little Collins Street Risk Ratings – PM Peak

Theme	Item	Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring
Adequacy of the Treatments	Sightlines (general)	-	Low	Medium	Low	Low	Low	Low	High
	Sightlines (at intersections)	-	Low	Low	Low	Low	Low	Low	Medium
	Signage and line marking	-	Medium	Low	Low	Medium	Low	Low	High
	Traffic calming	-	Medium	Low	Medium	Medium	Low	Low	High
	Vehicle Circulation	-	Low	Low	Low	Low	Low	Low	Medium
	<b>Highest Risk Item</b>	-	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Low</b>	<b>Low</b>	<b>High</b>
Pedestrian & Cyclist Safety	Vehicle reversing movements	-	Low	Low	Low	Low	Low	Low	Medium
	Footpath width	-	Low	Low	Low	Medium	Low	Low	High
	Crossing the street	-	Low	Low	Low	Medium	Low	Low	High
	Vehicle turning movements	-	Medium	Low	Low	Low	Low	Low	High
	Pedestrians/cyclist interaction	-	Low	Low	Medium	Low	Low	Medium	Medium
	Cyclist/Driver interaction	-	Low	Low	Low	Low	Low	Low	Medium
	<b>Highest Risk Item</b>	-	<b>Medium</b>	<b>Low</b>	<b>Medium</b>	<b>Medium</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>
Street User Behaviour	<b>Pedestrian Comfort / Operation as shared space</b>	-	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>



## Findings of Review – Little Collins Street Risk Ratings – Night-time

Theme	Item	Spencer to King	King to William	William to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring
Adequacy of the Treatments	Sightlines (general)	-	Medium	Low	Low	Low	Low	Medium	Medium
	Sightlines (at intersections)	-	Low	Low	Low	Low	Low	Low	Low
	Signage and line marking	-	Medium	Medium	Medium	Medium	Medium	Medium	Medium
	Traffic calming	-	Medium	Low	Medium	Low	Medium	Medium	Medium
	Vehicle Circulation	-	Low	Low	Low	Low	Low	Low	Low
	<b>Highest Risk Item</b>	-	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>
Pedestrian & Cyclist Safety	Vehicle reversing movements	-	Low	Low	Low	Low	Low	Low	Low
	Footpath width	-	High	Medium	Low	Low	Low	Low	Medium
	Crossing the street	-	Medium	Medium	Low	Low	Medium	Medium	Medium
	Vehicle turning movements	-	High	Low	Low	Low	Low	Low	Medium
	Pedestrians/cyclist interaction	-	Low	Low	Medium	Low	Low	Medium	Low
	Cyclist/Driver interaction	-	Low	Low	Medium	Low	Low	Medium	Medium
	<b>Highest Risk Item</b>	-	<b>High</b>	<b>Medium</b>	<b>Medium</b>	<b>Low</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>
Street User Behaviour	<b>Pedestrian Comfort / Operation as shared space</b>	-	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Somewhat operates as a shared space</b>



## Findings of Review – Flinders Lane Risk Ratings – AM Peak

Theme	Item	Spencer to King	King to William	Market to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring
Adequacy of the Treatments	Sightlines (general)	-	-	Low	Medium	Low	Low	High	Medium
	Sightlines (at intersections)	-	-	Low	Medium	Low	Low	Medium	Low
	Signage and line marking	-	-	Medium	High	Low	Low	High	Low
	Traffic calming	-	-	Medium	High	Low	Low	Low	Low
	Vehicle Circulation	-	-	Low	Medium	Low	Low	Low	Low
	<b>Highest Risk Item</b>	-	-	Medium	High	Low	Low	High	Medium
Pedestrian & Cyclist Safety	Vehicle reversing movements	-	-	Low	Medium	Low	Low	Low	Low
	Footpath width	-	-	Low	High	Low	Low	Medium	Low
	Crossing the street	-	-	Low	High	Low	Low	High	Low
	Vehicle turning movements	-	-	Low	Medium	Low	Low	High	Medium
	Pedestrians/cyclist interaction	-	-	Low	Medium	Low	Low	High	Low
	Cyclist/Driver interaction	-	-	Low	Medium	Low	Low	High	Low
	<b>Highest Risk Item</b>	-	-	Low	High	Low	Low	High	Medium
Street User Behaviour	<b>Pedestrian Comfort / Operation as shared space</b>	-	-	Not at all	Not at all	Somewhat operates as a shared space	Somewhat operates as a shared space	Not at all	Somewhat operates as a shared space

## Findings of Review – Flinders Lane Risk Ratings – PM Peak

Theme	Item	Spencer to King	King to William	Market to Queen	Queen to Elizabeth	Elizabeth to Swanston	Swanston to Russell	Russell to Exhibition	Exhibition to Spring
Adequacy of the Treatments	Sightlines (general)	-	-	Low	Medium	Low	Low	Low	Low
	Sightlines (at intersections)	-	-	Low	Low	Low	Low	Low	Low
	Signage and line marking	-	-	Low	Medium	Medium	Medium	Medium	Medium
	Traffic calming	-	-	Low	Medium	Medium	Medium	Low	Low
	Vehicle Circulation	-	-	Low	Low	Low	Low	Low	Low
	<b>Highest Risk Item</b>	-	-	<b>Low</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>
Pedestrian & Cyclist Safety	Vehicle reversing movements	-	-	Low	Medium	Low	Low	Low	Low
	Footpath width	-	-	Medium	Medium	Low	Low	Medium	Low
	Crossing the street	-	-	Medium	Medium	Medium	Medium	Low	Medium
	Vehicle turning movements	-	-	Low	Low	Low	Medium	Medium	Medium
	Pedestrians/cyclist interaction	-	-	Low	Low	Low	Low	Low	Low
	Cyclist/Driver interaction	-	-	Low	Low	Low	Low	Low	Low
	<b>Highest Risk Item</b>	-	-	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>	<b>Medium</b>
Street User Behaviour	Pedestrian Comfort / Operation as shared space	-	-	<b>Somewhat operates as a shared space</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>	<b>Not at all</b>







## Appendix B – Results of Assessment to Determine Typologies







# Metrics to Determine Street Typologies

Street	Spencer Street	King Street	William Street	Queen Street	Elizabeth Street	Swanston Street	Russell Street	Exhibition Street	Spring Street
LITTLE LONSDALE	Res/business parking Med ped volume Low commercial Med car (no data) Contraflow cycling	Public parking High ped volume Med commercial Med car (2474) Contraflow cycling	Res/business parking Med ped volume Low commercial Med car (1819) Contraflow cycling	Public parking High ped volume High commercial Med car (2258) Contraflow cycling	Loading dock High ped volume High commercial Med car (2367) Contraflow cycling	Public parking High ped volume Med commercial Med car (2079) Contraflow cycling	Business parking Med ped volume Med commercial Low car (1045) Contraflow cycling	Res + public parking Low ped volume Low commercial Low car (1200) Contraflow cycling	
LITTLE BOURKE	Res parking Med ped volume Low commercial Med car (2023) Contraflow cycling	Public parking Med ped volume Med commercial High car (3021) Contraflow cycling	Public parking Low ped volume Low commercial Med car (1544) Contraflow cycling	No parking High ped volume High commercial Med car (2322) Contraflow cycling	Loading dock High ped volume High commercial Med car (2483) Contraflow cycling	Public parking High ped volume High commercial Med car (2787) Contraflow cycling	No parking High ped volume High commercial Med car (1658) Contraflow cycling	No parking Med ped volume High commercial Low car (1159) Contraflow cycling	
LITTLE COLLINS		Load. dock/pub. park Med ped volume Med commercial Med car (2617) Contraflow cycling	Load. dock/pub. park High ped volume High commercial Med car (2002) Contraflow cycling	Load. dock/pub. park High ped volume High commercial Med car (2617) Contraflow cycling	No parking High ped volume High commercial Med car (1886) Contraflow cycling	Public parking High ped volume High commercial Med car (2848) Contraflow cycling	Load. dock/pub. park High ped volume High commercial Med car (2414) Contraflow cycling	Public parking High ped volume Med commercial Med car (1880) Contraflow cycling	
FLINDERS LANE			(to Market Lane) Load. dock/pub. park Med ped volume Med commercial Med car (1565) Contraflow cycling	Load. dock/pub. park High ped volume High commercial Med car (2844) Contraflow cycling	No parking High ped volume High commercial Med car (2220) Contraflow cycling	Load. dock/pub. park High ped volume High commercial Med car (2853) Contraflow cycling	Load. dock/pub. park High ped volume High commercial High car (3261) Contraflow cycling	Load. dock/pub. park Med ped volume Med commercial Med car (2913) Contraflow cycling	