

Traffic & Parking Surveys Hawke Street, West Melbourne

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movendo

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1 INTRODUCTION

1.1 STUDY SCOPE & CONTEXT

This report presents the findings arising from the analysis of a package of traffic and parking surveys along the Hawke Street corridor and nearby environs in West Melbourne. The surveys have been designed to provide baseline data to inform the assessment of options for a future upgrade of Hawke Street, between King Street and Railway Place. Accordingly, the transport survey tasks aim to comprehensively illustrate the current nature of traffic movements through this area as well as the current parking utilisation on Hawke Street.

The general study area is shown in Figure 1. The highlighted areas in the figure cover intersections and street sections where survey work was undertaken.



Figure 1: Extent of Survey Work along Hawke Street

The City of Melbourne's desired future transformation of Hawke Street (and surrounding precinct) is set out in the West Melbourne Structure Plan. The structure plan's vision for Spencer Street is outlined in a masterplan which envisages the creation of the redesign of Hawke Street as an active transport link (promoting pedestrian and cyclist movements) from Docklands to North Melbourne with the concurrent creation of new linear open space within the street reserve.

The key aspects of this Structure Plan vision are shown in Figure 2 and Figure 3, which highlight Hawke Street's desired transformation.



Figure 2: Improvements to walking conditions within and around West Melbourne



Figure 3: Proposed Changes to the Cycling Network in West Melbourne

2 SURVEY PROGRAM

2.1 OVERVIEW

The various survey activities undertaken in this study have been designed to provide a “snap-shot” of current traffic, pedestrian and cycling conditions along the Hawke Street study corridor. The findings are expected to inform the future development of treatment options for Hawke Street.

2.2 IMPACT OF COVID-19 PANDEMIC

The survey work was undertaken between Wednesday 4 November and Saturday 21 November 2020; a period when traffic conditions on Melbourne’s road network were, partly, atypical (compared to similar periods in previous years). The anomalous conditions prevailed through most of 2020 which was a year characterised, at times, by the imposition of significant travel restrictions on Melburnians – as part of the Victorian government’s strategy to contain the spread of the Covid-19 global pandemic. The earliest restrictions were introduced across metropolitan Melbourne in March 2020 and they varied throughout the year, as the government adjusted its strategy in response to the spread of Covid-19.

The ‘4 November to 21 November 2020’ survey period occurred shortly after the relaxation of the strictest stay-home orders (colloquially known as the ‘Melbourne lockdown’) which had been initially imposed in early July 2020 after the emergence of a second wave of infections in Melbourne. The ‘lockdown’ was a key feature of the government’s disease-control strategy. In the months preceding the November surveys Melburnians were not allowed to travel into regional Victoria or to travel to their holiday home. In addition, they were only permitted to leave their primary residence for four essential reasons: work or study, exercise, shopping for supplies and medical care / caregiving. Furthermore, school holidays were extended by and remote learning introduced for extended periods students. All of these measures had the effect of significantly reducing travel demand and, thus, lower traffic volumes were experienced throughout Melbourne’s road and public transport networks.

The lockdown was eventually relaxed in two main stages as follows:

As of 28 October 2020, a first relaxation took place in Melbourne with the main travel-related aspects being:

- People could freely leave their homes
- All retail stores, restaurants, cafes and bars were able to re-open, with group limits of 10 patrons indoors
- Household visits were allowed, subject to some conditions
- Outdoor gatherings of up to 10 people could take place
- Weddings were able to take place with up to 10 people and funerals with up to 20 people

As of 8 November, a further relaxation was introduced for Melbourne with the following key changes:

- A 25 kilometre travel limit was removed, allowing Melburnians to travel elsewhere in Victoria
- Gyms and fitness studios re-opened
- Larger patron limits allowed for restaurants and bars

Within this context, it is probable that the surveys undertaken between Wednesday 4 November and Saturday 21 November 2020 were not fully representative of the traffic volumes that would have normally been present in the study area.

2.3 AUTOMATIC & MANUAL TRAFFIC COUNTS

A combination of 4 'manual turning movement counts' and 2 'automatic traffic counts' (24 hours / 7 days) were undertaken at the locations shown in Figure 4. The 4 turning movement surveys (vehicles, pedestrians and cyclists) were conducted at the intersections of Hawke Street with King Street, Spencer Street, Adderley Street and Railway Place – all between 7.00am and 10.00am in the morning and 4.00pm and 7.00pm in the evening. These surveys were conducted on a weekday (Tuesday 10 November 2020) and a weekend (Saturday 21 November 2020).

In addition to the manual traffic surveys, automatic traffic counts were undertaken at two mid-block locations along Hawke Street. The locations selected were in the blocks between King Street and Spencer Street, as well as Spencer Street and Adderley Street. The automatic counts were conducted between Wednesday 4 November to Tuesday 10 November 2020.

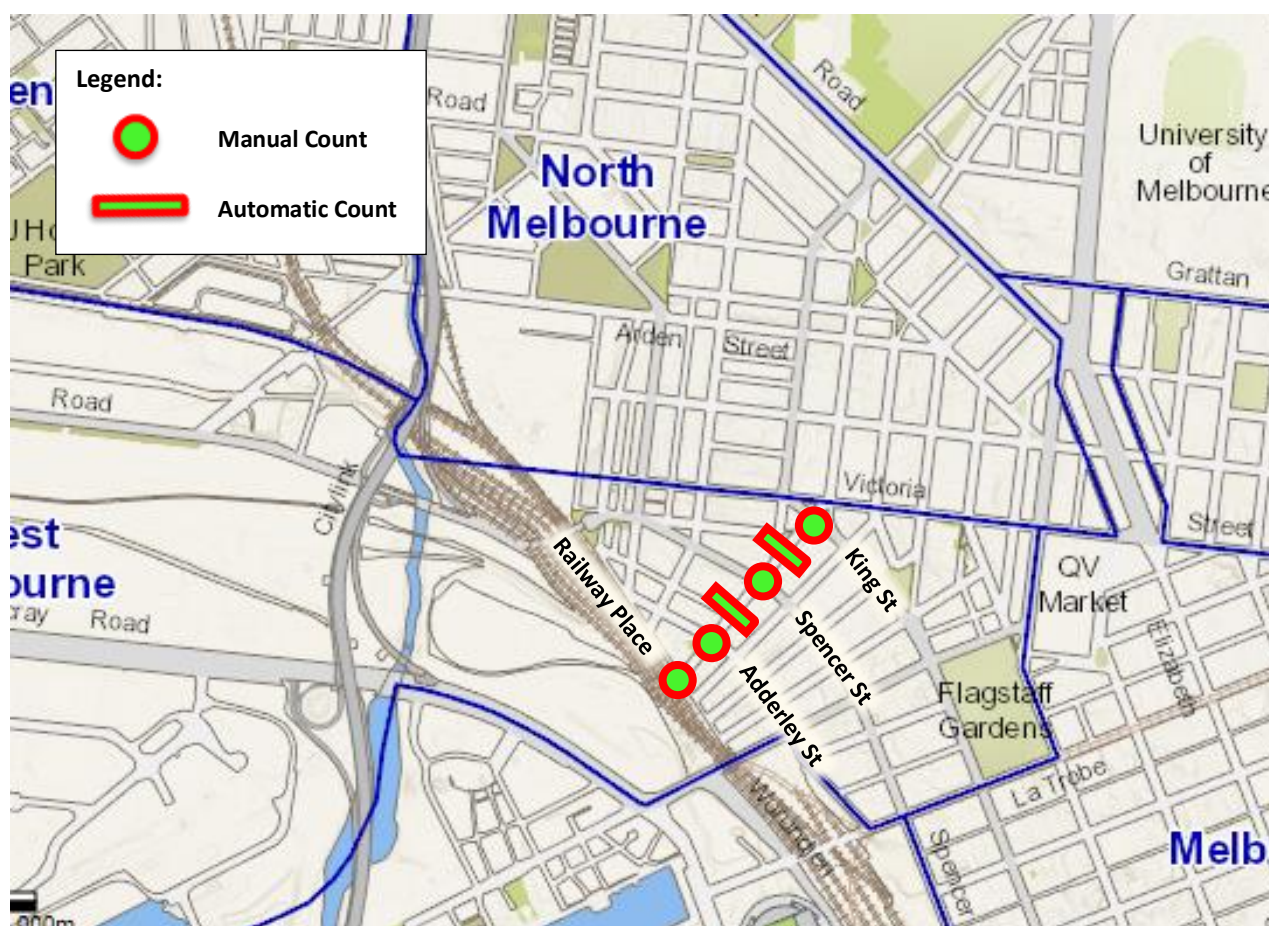


Figure 4: Hawke Street, West Melbourne

Location of Manual (AM & PM peak hours) Turning Movement Counts & Automatic (24/7) Tube Counts

2.4 ORIGIN-DESTINATION SURVEYS

The Origin-Destination (OD) survey for this study was designed to identify prevailing traffic patterns of the existing vehicles using the Hawke Street corridor. The OD task was undertaken at the same time as the weekday manual turning movement surveys and it utilised number plate matching techniques to establish the 'prevailing' patterns of traffic using Hawke Street. The OD surveys were undertaken between 7.00am and 10.00am in the morning and 4.00pm and 7.00pm in the evening.

The OD survey involved the deployment of field personnel (to capture vehicle number plates) at the locations shown in Figure 5.

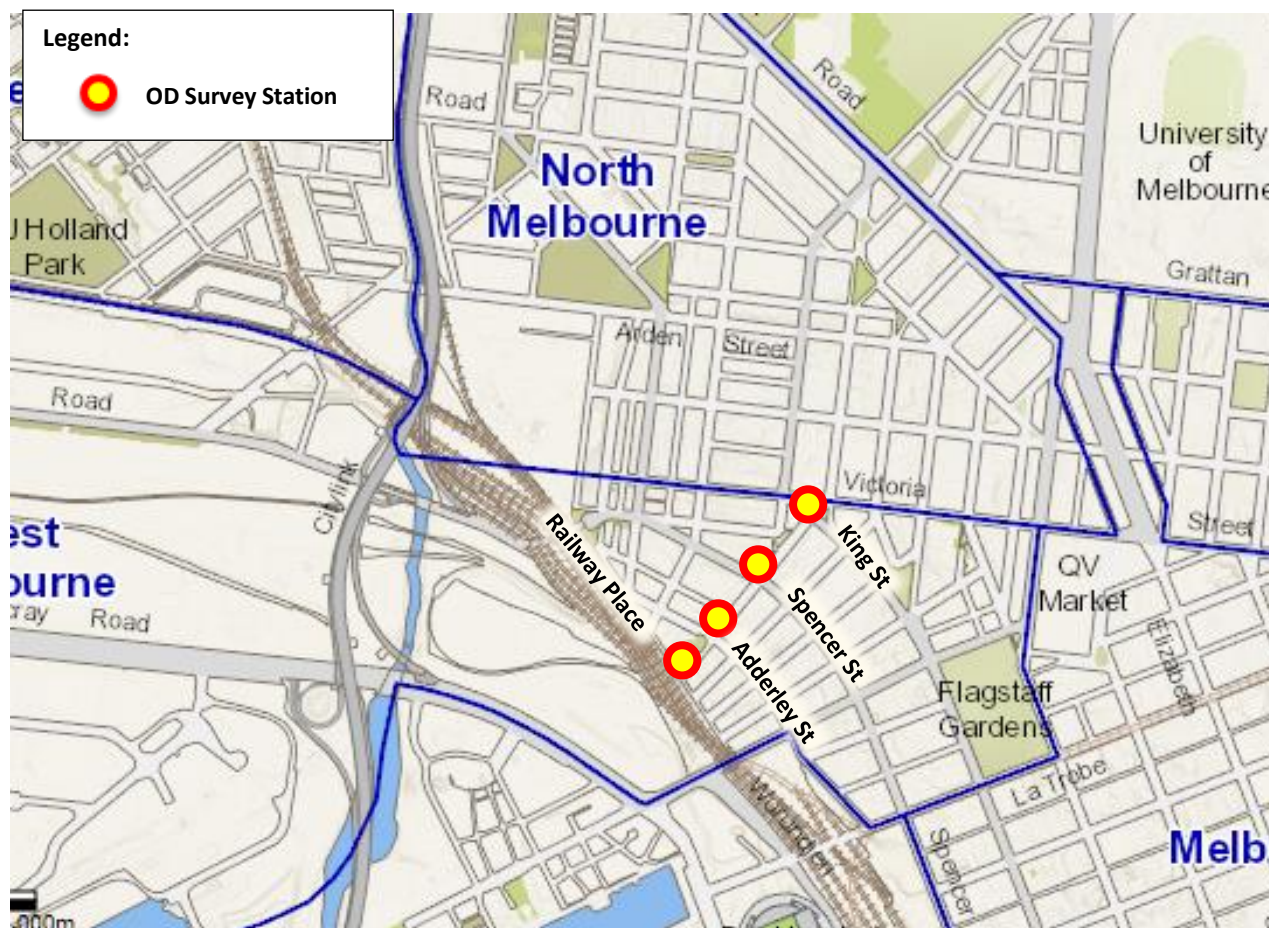


Figure 5: Vehicle OD Survey Stations

2.5 PARKING SURVEYS

The assessment of existing parking conditions on Hawke Street included measurements of parking occupancy, a determination of the proportion of resident vehicles (those displaying Council-issued resident parking permits) and the duration-of-stay statistics of all parked vehicles.

The survey tasks involved:

- preparation of a full inventory of parking spaces on both sides of Hawke Street, as well as centre-of-road parking areas, between King Street and Railway Place;
- parking occupancy measurements; and
- duration-of-stay assessments.

Parking surveys were conducted on 2 separate days (a weekday and a weekend day) between 7.00am and 7.00pm. The days selected were fine weather days: Wednesday 4 November and Saturday 7 November 2020.

The parking survey sweeps (which involved identifying the parking spaces that were occupied) were undertaken at 2-hourly intervals at the following times: 7.00am, 9.00am, 11.00am, 1.00pm, 3.00pm, 5.00pm and 7.00pm. During the parking surveys, vehicle number plates were captured, in order to allow identification of parking duration-of-stay.

3 SURVEY FINDINGS

3.1 OVERALL TRAFFIC VOLUMES ON HAWKE STREET

The traffic volume on Hawke Street is significantly higher at its north-eastern end (just before the intersection with King Street) – compared with the traffic volume at its south-western end (just before Adderley Street). On an average weekday, the two-way traffic volume at the north-eastern end (between Spencer and King Streets) was measured at 12,713 vehicles per day compared with only 2,346 vehicles per day at the south-western end (between Adderley and Spencer Streets). The difference in traffic volumes applies in both directions of traffic flow and is also apparent on weekends. Table 1 compares the key traffic volume statistics between the north-eastern and south-western ends of Hawke Street.

Table 1: Comparison of Traffic Volumes at North-Eastern and South-Western ends of Hawke Street

Period	Two-way Traffic Volume on Hawke Street	
	North-Eastern End (between Spencer & King Sts)	South-Western End (between Adderley & Spencer Sts)
24-hour Average Weekday	12,713	2,346
24-hour Weekend Average	10,377	1,755
AM peak Average Weekday (8-9am)	873	168
PM peak Average Weekday (5-6pm)	961	182

The difference in traffic volumes shown in Table 1 reflects the contrasting roles between the two sections of Hawke Street. The south-western end functions largely as a 'local' street, whereas the north-eastern end exhibits sub-arterial characteristics connecting through traffic wishing to travel between the Spencer Street corridor and, primarily, the Victoria Street corridor to the east of Errol Street. Prevailing origin-destination patterns are discussed later in this chapter.

The traffic flow is fairly evenly distributed between the two opposing traffic flow directions, particularly at the north-eastern end, which is more subject to commuter peak flows. The key statistics are summarised in Table 2.

Table 2: Comparison of Directional Traffic Volumes at North-Eastern and South-Western ends of Hawke Street

Period	Directional Traffic Volume on Hawke Street	
	North-Eastern End (between Spencer & King Sts)	South-Western End (between Adderley & Spencer Sts)
24-hour Average Weekday (north-east bound)	6,484 vehicles per day	968 vehicles per day
24-hour Average Weekday (south-west bound)	6,230 vehicles per day	1,378 vehicles per day
AM peak Average Weekday (8-9am) (north-east bound)	553 vehicles per hour	69 vehicles per hour
AM peak Average Weekday (8-9am) (south-west bound)	320 vehicles per hour	99 vehicles per hour
PM peak Average Weekday (5-6pm) (north-east bound)	446 vehicles per hour	89 vehicles per hour
PM peak Average Weekday (5-6pm) (south-west bound)	515 vehicles per hour	93 vehicles per hour

Table 2 highlights that at the north-eastern end of Hawke Street the opposing traffic flows were similar with 6,484 vehicles per day travelling towards King Street and 6,230 vehicles per day travelling towards Spencer Street. At the south-western end, the flow was higher in the Adderley Street direction with 1,378 vehicles per day compared with 968 vehicles per day travelling towards Spencer Street. This reflects the presence of a small amount of ‘through’ traffic that uses the south-western end of Hawke Street to travel towards Dudley Street via Adderley Street. The reverse pattern cannot happen as the entry into Adderley Street from Dudley Street is physically closed.

The hourly traffic volume fluctuation at the northern end is shown in Figure 6 (north-eastbound) and in Figure 7 (south-westbound) for the two directions of traffic flow respectively, whereas the hourly fluctuation at the southern end is shown in Figure 8 (north-eastbound) and in Figure 9 (south-westbound).

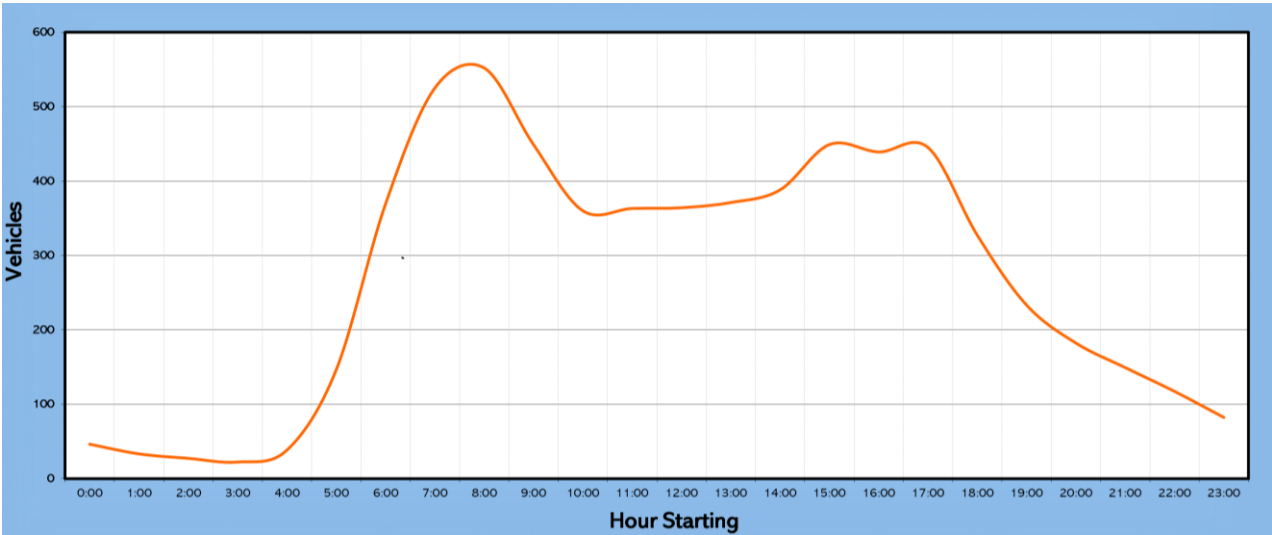


Figure 6: Hawke Street, Between Spencer and King Streets
North-Eastbound Average Weekday Traffic Volume – Hourly Fluctuation

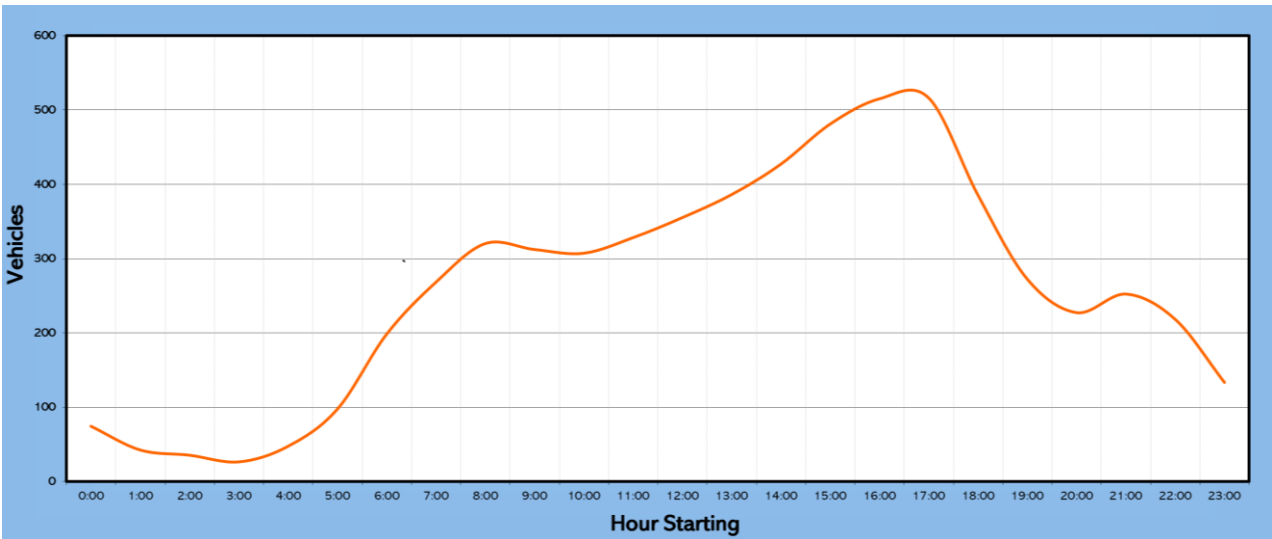
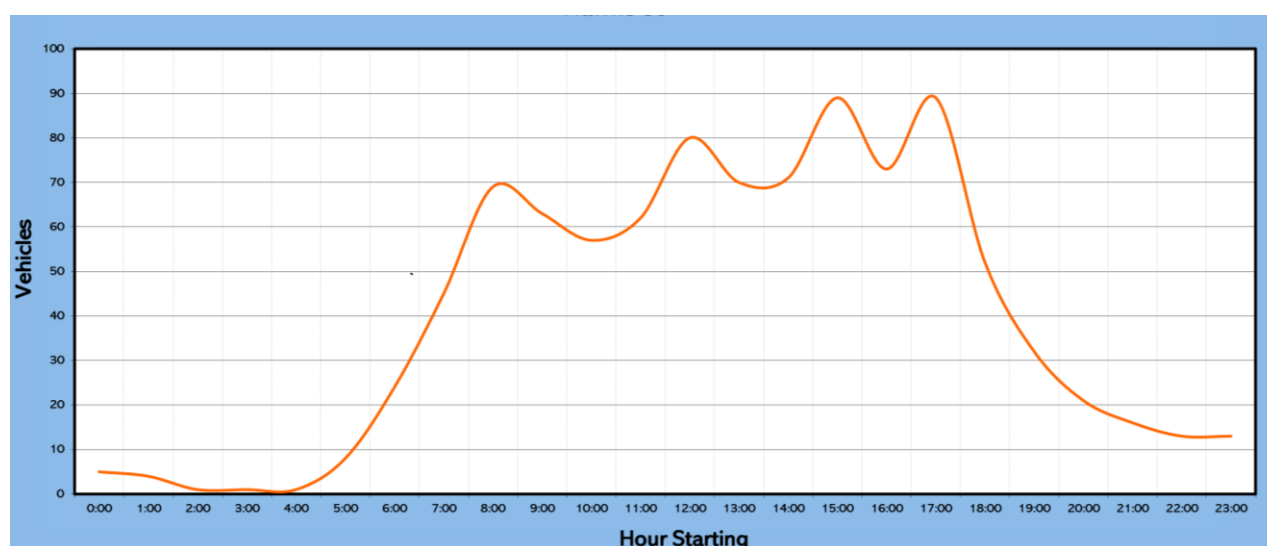


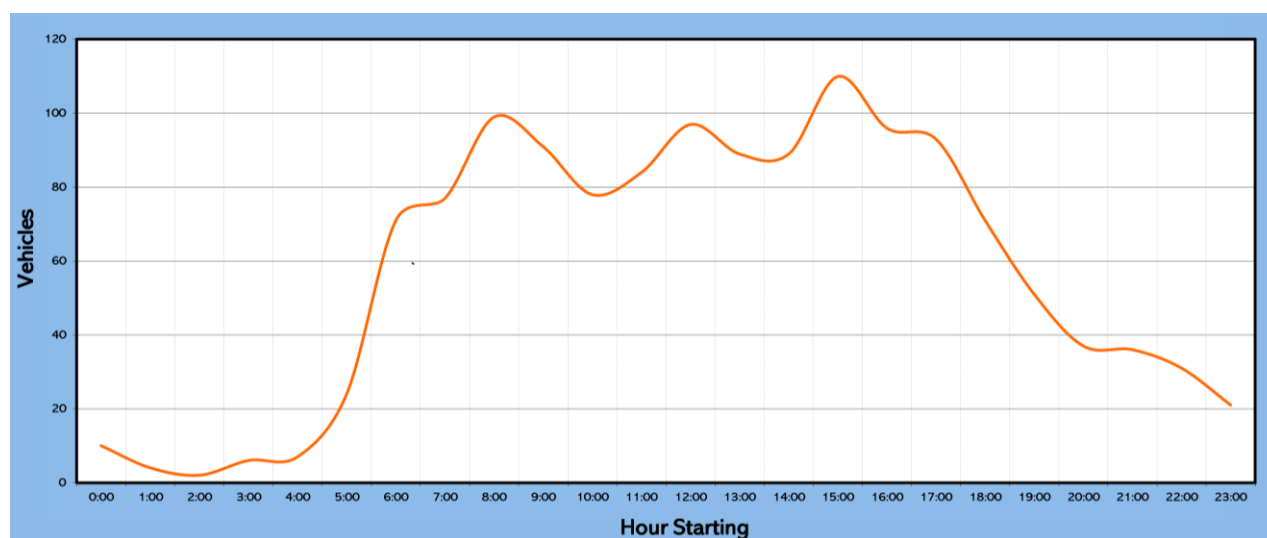
Figure 7: Hawke Street, Between Spencer and King Streets
South-Westbound Average Weekday Traffic Volume – Hourly Fluctuation

Figure 8 and Figure 9 highlight the significantly lower average weekday traffic volumes that have been recorded at the southern end of Hawke Street compared with the northern end. The peak hour differences are notable:

- Figure 8 shows that the north-eastbound traffic volume is in the order of only 69 vehicles per hour in the AM peak hour (8-9am) at the southern end (compared with 553 vehicles per hour at the northern end). Similarly, in the PM peak hour (5-6pm), the north-eastbound traffic volume is in the order of only 89 vehicles per hour at the southern end (compared with 446 vehicles per hour at the northern end).
- Figure 9 shows that the south-westbound traffic volume is in the order of only 99 vehicles per hour in the AM peak hour at the southern end (compared with 320 vehicles per hour at the northern end). Similarly, in the PM peak hour, the south-westbound traffic volume is in the order of only 93 vehicles per hour at the southern end (compared with 515 vehicles per hour at the northern end). It is relevant to note that a higher mid-afternoon south-westbound traffic volume of 111 vehicles per hour occurs between 3-4pm. This reflects a steady, albeit low, traffic flow through the middle of the day in this section of Hawke Street.



**Figure 8: Hawke Street, Between Spencer and Adderley Streets
North-Eastbound Average Weekday Traffic Volume – Hourly Fluctuation**



**Figure 9: Hawke Street, Between Spencer and Adderley Streets
South-Westbound Average Weekday Traffic Volume – Hourly Fluctuation**

3.2 COMPARISON BETWEEN PRE-COVID AND COVID-AFFECTED TRAFFIC VOLUMES

As indicated in section 2.2 of this report, the travel restrictions adopted through Melbourne and the broader State of Victoria, in association with the management of the Covid-19 pandemic, are likely to have resulted in lower traffic volumes in November 2020 compared with previous years.

A comparison with historic data has been undertaken using the recently collected traffic volume data from the 2020 automatic counts and 'SCATS' data from the corresponding period in November 2019. SCATS is a dynamic intelligent transport system used by the Department of Transport to manage traffic signals across Victoria. It also collects traffic volume data through insulated, electrically conducting loops known as inductive-loop traffic detectors that are embedded in the road pavement surface. These are commonly referred to as vehicle detection loops and can detect vehicles passing or arriving at a certain point, for instance approaching a traffic signal. SCATS data is collected at selected sites in metropolitan Melbourne, although not necessarily continuously. A review of the SCATS data for November 2019 has revealed that traffic volume data exists for the intersections of Hawke Street with King and Spencer Streets.

The 2020 to 2019 traffic volume comparison is shown in Table 3 which indicates that the 2020 traffic was somewhat lower than the corresponding period in 2019 – albeit not excessively so. The 24-hour traffic volume was 11% lower in 2020 compared with 2019 in the north-east bound direction and 14% lower in the south-west bound direction. The peak hour differences (in both directions of flow and for both the AM peak hour and the PM peak hour) were, mostly, lower than the 24-hour differences as shown in Table 4. On the basis of these findings (given that traffic volumes in November 2020 were around 80-90% of the November 2019 traffic volumes) it is reasonable to assign a high degree of representativeness to the traffic patterns identified in this study, particularly the origin-destination patterns discussed in the next section of this report.

Table 3: Comparison of 2020 and 2019 Daily (24-Hour) Traffic Volumes at Northern end of Hawke Street (between Spencer and King Streets)

Travel Direction	24-hour Average Weekday Traffic Volume on Hawke Street	
	Wednesday 4 to Tuesday 10 November 2020	Wednesday 6 to Tuesday 12 November 2019
24-hour Average Weekday (north-east bound)	6,484 vehicles per day (11% lower than 2019)	7,274 vehicles per day
24-hour Average Weekday (south-west bound)	6,230 vehicles per day (14% lower than 2019)	7,246 vehicles per day

Table 4: Comparison of 2020 and 2019 Peak Hour Traffic Volumes at Northern end of Hawke Street (between Spencer and King Streets)

Travel Direction	Peak Hour Average Weekday Traffic Volume on Hawke Street	
	Wednesday 4 to Tuesday 10 November 2020	Wednesday 6 to Tuesday 12 November 2019
AM peak Average Weekday (8-9am) (north-east bound)	553 vehicles per hour (10% lower than 2019)	615 vehicles per hour
AM peak Average Weekday (8-9am) (south-west bound)	320 vehicles per hour (9% lower than 2019)	353 vehicles per hour
PM peak Average Weekday (5-6pm) (north-east bound)	446 vehicles per hour (11% lower than 2019)	396 vehicles per hour
PM peak Average Weekday (5-6pm) (south-west bound)	515 vehicles per hour (20% lower than 2019)	645 vehicles per hour

3.3 TRAFFIC ORIGIN-DESTINATION PATTERNS

3.3.1 OVERALL PATTERNS

The origin-destination (OD) surveys have identified that the north-eastern section of Hawke Street (between Spencer and King Streets) acts as a major traffic link between the Spencer Street and Victoria Street arterial routes. It plays a major role in both attracting traffic off Spencer Street towards Victoria Street, as well as feeding traffic towards Spencer Street from Victoria Street (and, to a lesser degree, King Street). This applies equally to both passenger vehicles and trucks. In contrast, there were no significant traffic patterns identified in the south-eastern section of Hawke Street (between Spencer Street and Railway Place). Traffic using this southern part of Hawke Street was largely local (with most trips starting and ending in the surrounding area). There was only a small amount of 'through' traffic identified, which uses the south-western end of Hawke Street to travel towards Dudley Street via Adderley Street. The reverse cannot happen as entry into Adderley Street from Dudley Street is physically closed. Details of the main traffic patterns identified by the OD surveys are discussed in the sections that follow.

3.3.2 PATTERNS IN THE AM PEAK PERIOD

Figure 10 highlights how most passenger vehicles travelling south-westbound on Hawke Street (captured mid-block on Hawke Street, just south-west of King Street) arrive from Victoria Street (responsible for 75% of that traffic). In turn, most south-westbound traffic turns right into Spencer Street (bound for Dynon Road). More specifically, when examining each of the 3 sources of south-westbound passenger vehicle traffic on Hawke Street, it was found that:

- 81% of cars travelling south from Victoria St (across King St) turn right at Spencer St. The remaining 19% are split evenly between through across Spencer St and left at Spencer St.
- 83% of cars turning left into Hawke St from King St turn right at Spencer St.
- 58% of cars turning right from King St continue on Hawke St across Spencer St. The other 42% turn left at Spencer St.

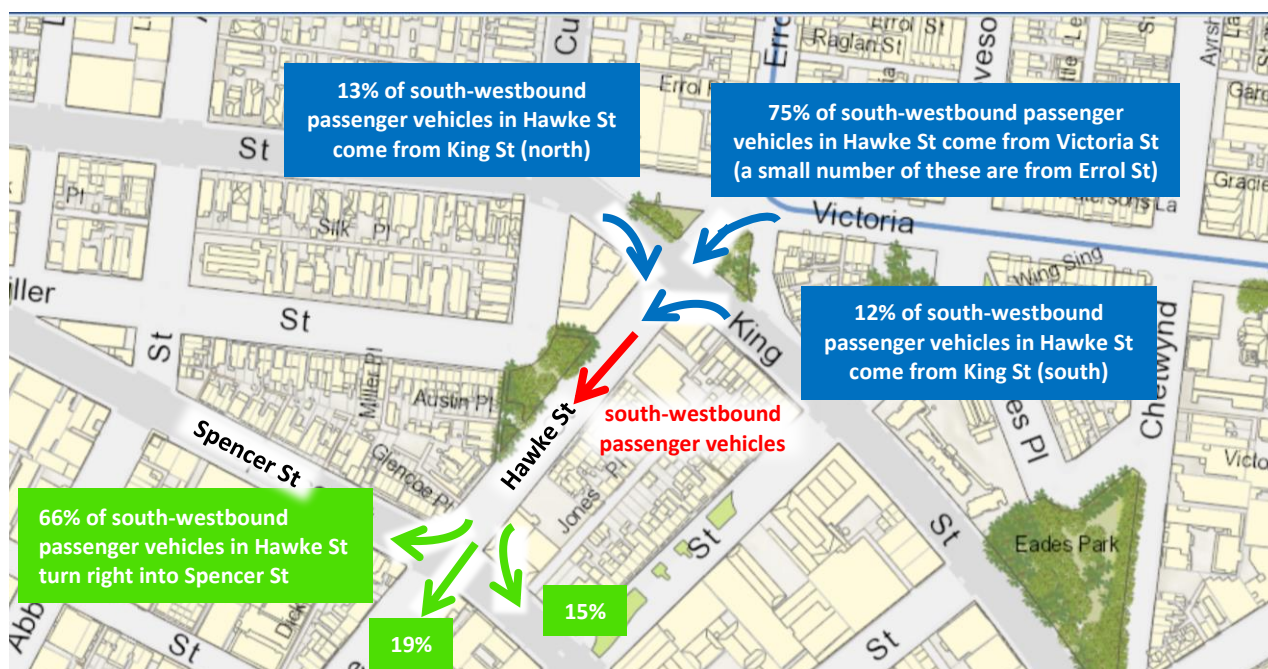


Figure 10: South-westbound Passenger Vehicle Movements in Hawke Street (measured at a point south-west of King Street)

Origins and Destinations in the morning peak period between 7am and 10am

The reference point for all subsequent OD analysis presented in this chapter (in both the AM and PM peak periods) will be the same as the reference point used in Figure 10 – namely the flow of passenger vehicles and trucks which was captured mid-block on Hawke Street, just south-west of King Street. Origins and destinations are described with respect to those traffic flows.

Figure 11 highlights how most trucks travelling south-westbound on Hawke Street arrive from Victoria Street (responsible for 74% of that traffic). In turn, the majority of south-westbound trucks end up turning right into Spencer Street (bound for Dynon Road). More specifically, when examining each of the three sources of south-westbound truck traffic on Hawke Street, it was found that:

- Over 90% of trucks travelling south from Victoria St (across King St) turn right at Spencer St.
- Almost all trucks turning left into Hawke St from King St turn right at Spencer St.
- Trucks turning right from King St into Hawke St either continue on Hawke St across Spencer St or turn left at Spencer St.

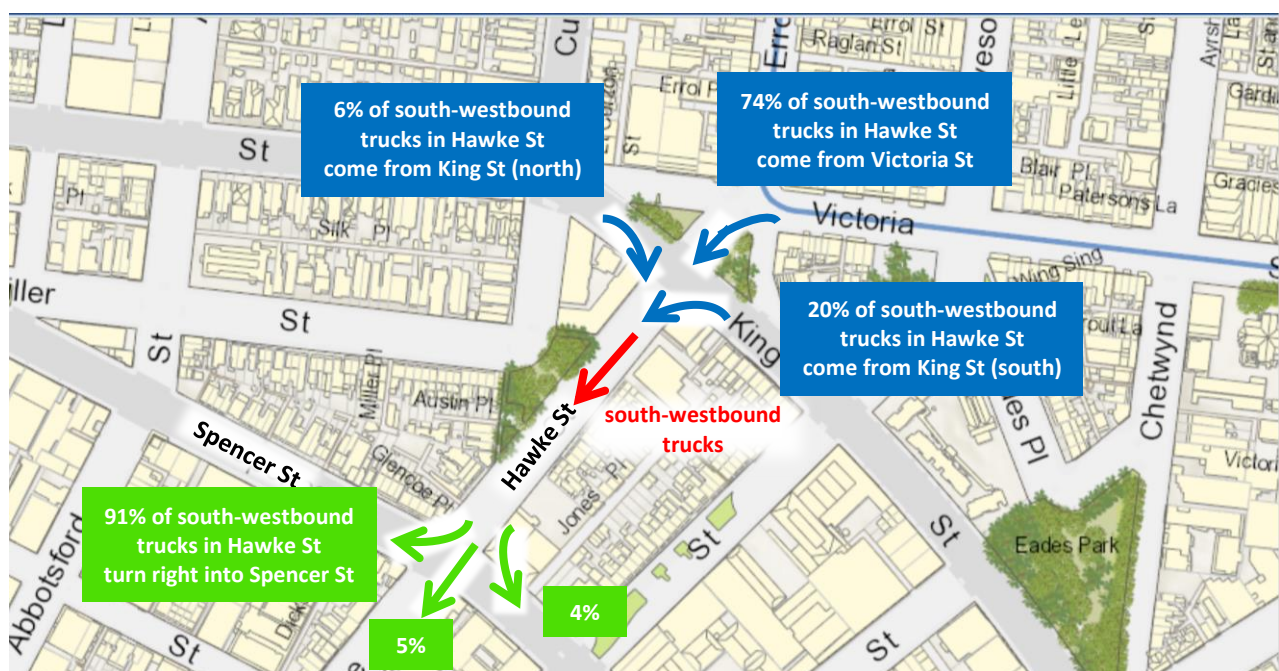


Figure 11: South-westbound Truck Movements in Hawke Street

(measured at a point south-west of King Street)

Origins and Destinations in the morning peak period between 7am and 10am

Figure 12 shows the origins and destinations of north-eastbound passenger vehicles in Hawke St. The figure highlights how most passenger vehicles travelling north-eastbound on Hawke Street arrive from Spencer Street (responsible for 85% of that traffic). In turn, the majority of north-eastbound traffic ends up turning right into Victoria Street. More specifically, when examining each of the 3 sources of north-eastbound passenger vehicle traffic on Hawke Street, it was found that:

- 82% of vehicles turning left from Spencer St into Hawke St travel across King St into Victoria St. 16% of the left-turning vehicles turn right into King St.
- 81% of vehicles turning right from Spencer into Hawke St travel across King St into Victoria St. 18% of the right-turning vehicles turn left at King St.
- 88% of vehicles travelling along Hawke across Spencer St travel across King St into Victoria St. 10% of the through vehicles turn left at King St.

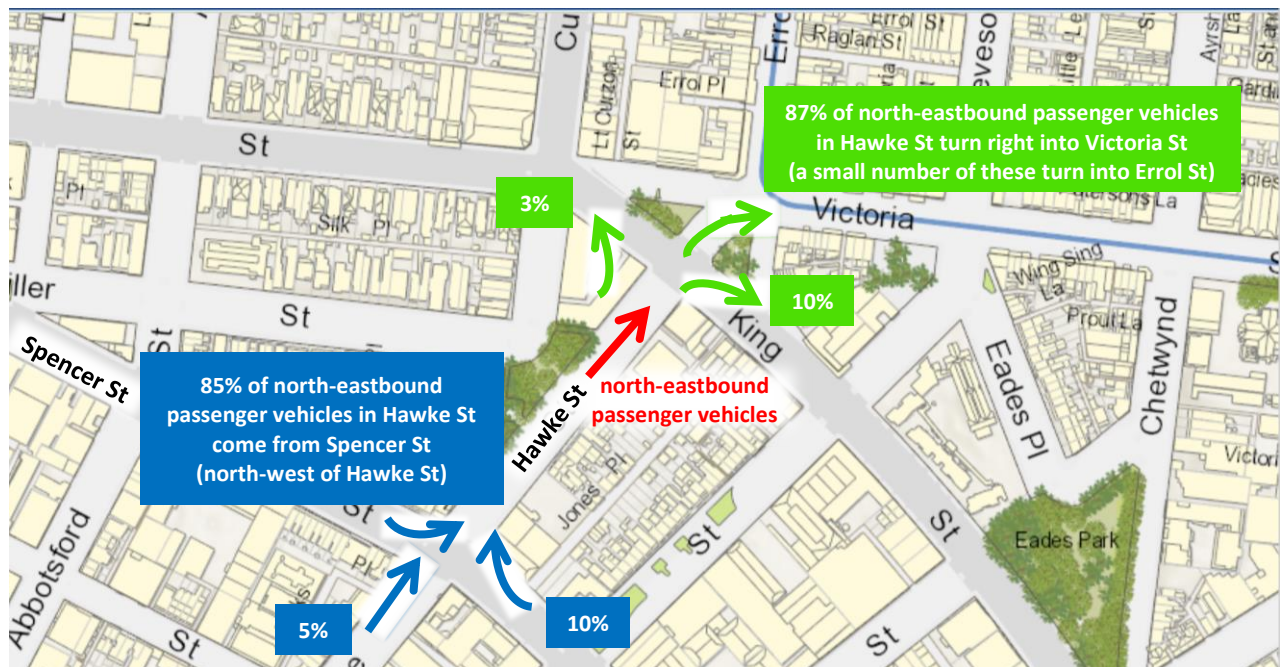


Figure 12: North-eastbound Passenger Vehicle Movements in Hawke Street
(measured at a point south-west of King Street)
Origins and Destinations in the morning peak period between 7am and 10am

Figure 13 shows the origins and destinations of north-eastbound trucks in Hawke Street. The figure highlights how almost all trucks travelling north-eastbound on Hawke Street arrive from Spencer Street (responsible for 95% of those trucks). In turn, the majority of north-eastbound trucks ends up turning right into Victoria Street.

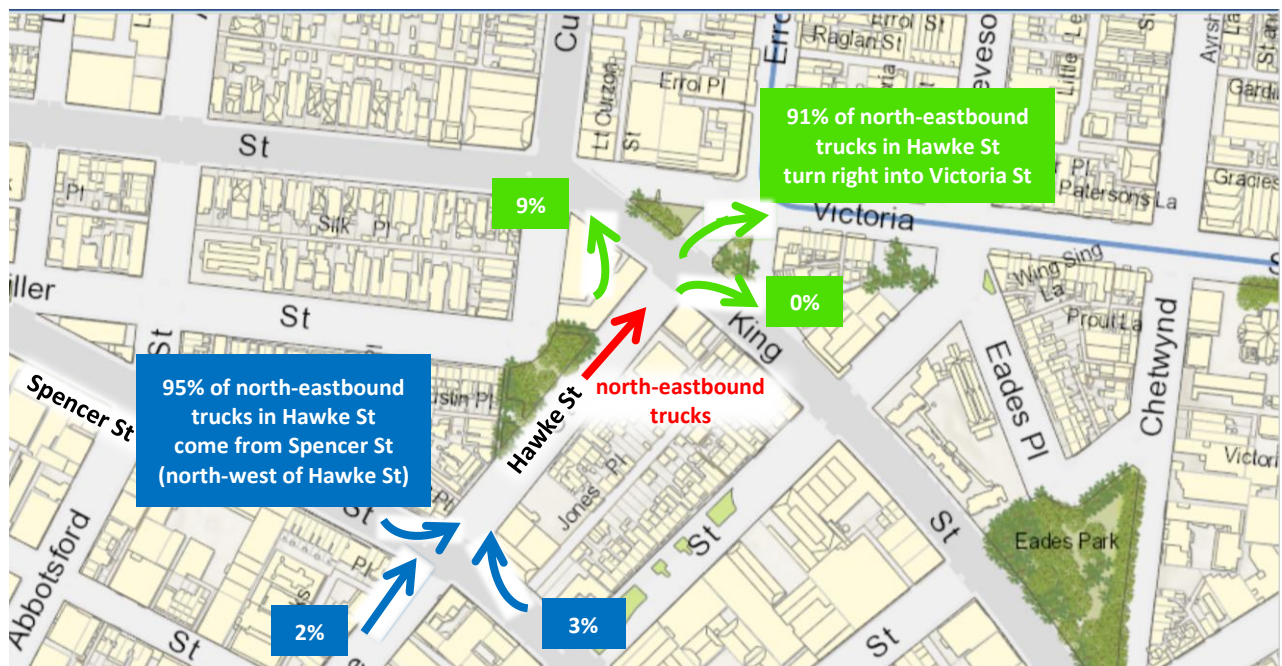


Figure 13: North-eastbound Truck Movements in Hawke Street
(measured at a point south-west of King Street)
Origins and Destinations in the morning peak period between 7am and 10am

3.3.3 PATTERNS IN THE PM PEAK PERIOD

In the evening peak period (between 4pm and 7pm) there are similar patterns to those identified in the AM peak period – to the extent that the north-eastern section of Hawke Street acts as a major traffic link between the Spencer Street and Victoria Street arterial routes. Figure 14 highlights how the majority of passenger vehicles travelling south-westbound on Hawke Street arrive from Victoria Street (responsible for 83% of that traffic). In turn, most south-westbound traffic ends up turning right into Spencer Street (bound for Dynon Road). More specifically, when examining each of the 3 sources of south-westbound passenger vehicle traffic on Hawke Street, it was found that:

- 78% of cars travelling south from Victoria St (across King St) turn right at Spencer St. 13% travel through across Spencer St. The remaining 9% are split evenly between locals and those turning left at Spencer St.
- 86% of cars turning left into Hawke St from King St turn right at Spencer St.
- 54% of cars turning right from King St continue on Hawke St across Spencer St. 42% turn left at Spencer St. The remaining 4% are locals.

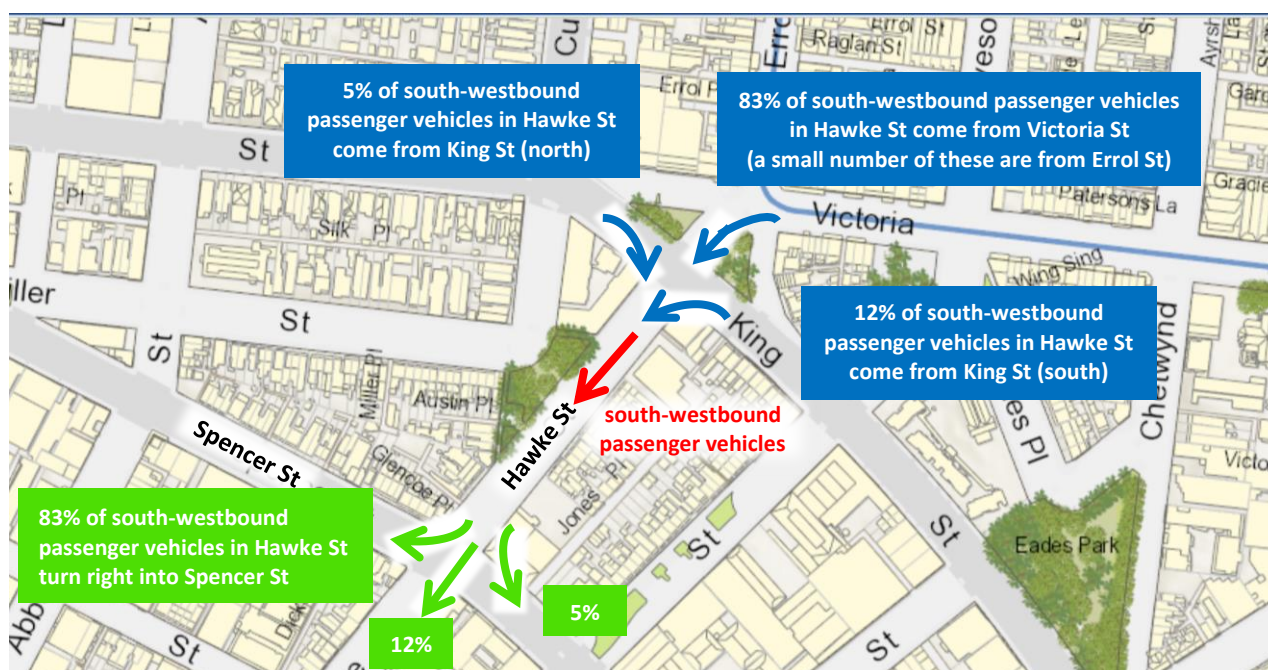


Figure 14: South-westbound Passenger Vehicle Movements in Hawke Street (measured at a point south-west of King Street)

Origins and Destinations in the evening peak period between 4pm and 7pm

Figure 15 shows the origins and destinations of south-westbound trucks in Hawke Street. The figure highlights how almost all trucks travelling south-westbound on Hawke Street arrive from Victoria Street (responsible for 91% of that traffic). In turn, the majority of south-westbound trucks ends up turning right into Spencer Street and is ultimately bound for Dynon Road.

More specifically, when separately examining each of the 3 sources of south-westbound trucks on Hawke Street, it was found that:

- Over 90% of trucks travelling south from Victoria St (across King St) turn right at Spencer St.
- All trucks turning left into Hawke St from King St turn right at Spencer St.
- Trucks turning right from King St are equally split between those that turn left at Spencer St and those that continue on Hawke St across Spencer St.

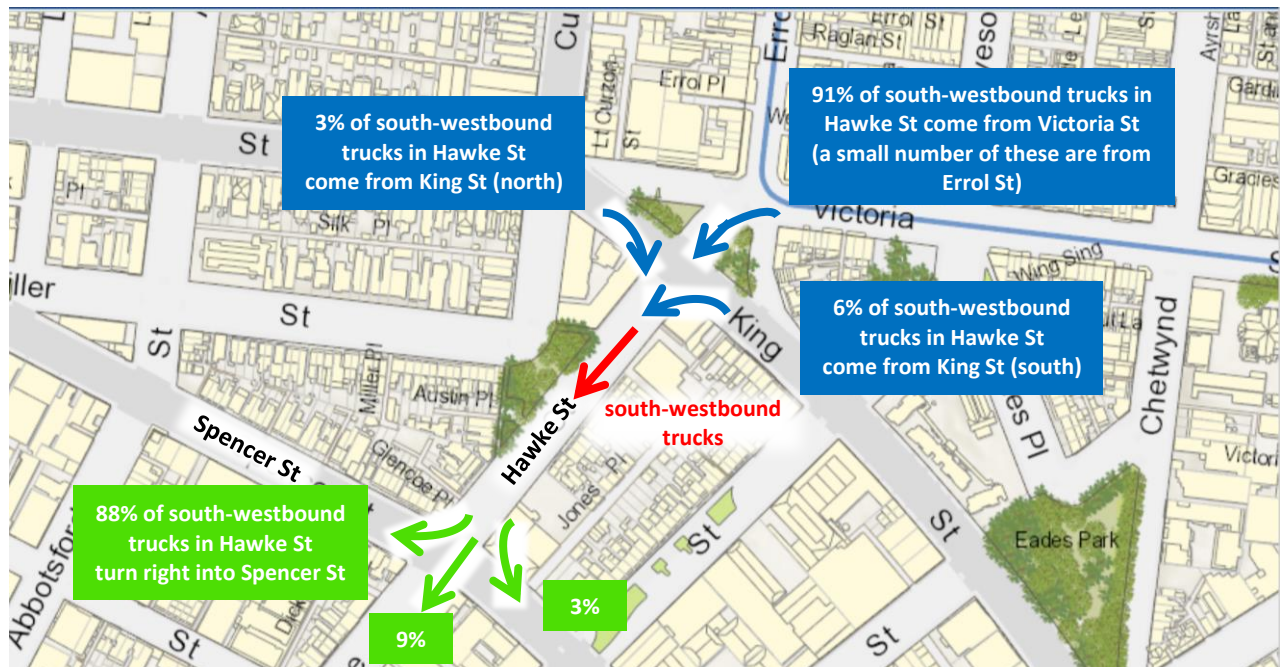


Figure 15: South-westbound Truck Movements in Hawke Street (measured at a point south-west of King Street)
Origins and Destinations in the evening peak period between 4pm and 7pm

Figure 16 shows the origins and destinations of north-eastbound passenger vehicles in Hawke Street. The figure highlights how most passenger vehicles travelling north-eastbound on Hawke Street arrive from Spencer Street (responsible for 74% of that traffic) and most are bound for Victoria Street (79%). This PM peak period pattern is similar to the pattern identified in the AM peak period, though in the morning the Spencer to Victoria link was a little more pronounced with 85% of north-eastbound passenger vehicles turning left from Spencer Street and 87% bound for Victoria Street.

More specifically, when examining each of the 3 sources of north-eastbound passenger vehicle traffic in the PM peak period on Hawke Street, it was found that:

- 85% of vehicles turning left from Spencer St into Hawke St travel across King St into Victoria St. 12% of the left-turning vehicles turn right into King St.
- 52% of vehicles turning right from Spencer St into Hawke St travel across King St into Victoria St. 39% of the right-turning vehicles turn left at King St.
- 73% of vehicles travelling along Hawke St across Spencer St travel across King St into Victoria St. The rest are evenly split between left/right turners at King St and locals.

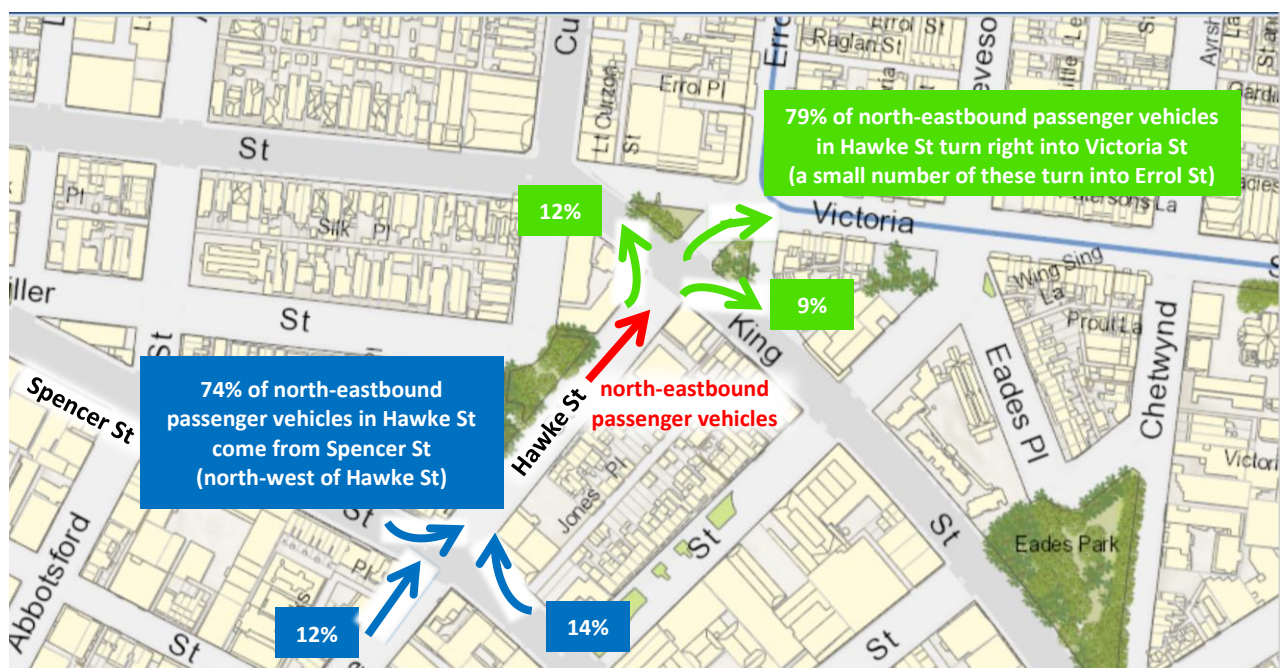


Figure 16: North-eastbound Passenger Vehicle Movements in Hawke Street
(measured at a point south-west of King Street)
Origins and Destinations in the morning peak period between 4pm and 7pm

In common with the pattern in the AM peak period, the north-eastbound trucks on Hawke Street in the PM peak period are principally drawn from Spencer Street (and, in turn, largely from Dynon Road). Figure 17 shows the origins and destinations of north-eastbound trucks in Hawke Street. The figure highlights how almost all trucks travelling north-eastbound on Hawke Street arrive from Spencer Street (responsible for 96% of those trucks in the PM peak period – compared with 95% in the AM peak period). In turn, the majority of north-eastbound trucks in the PM peak period ends up turning right into Victoria Street (82%). This proportion is a little lower than the AM peak period when 91% of north-eastbound trucks was found to turn right into Victoria Street.

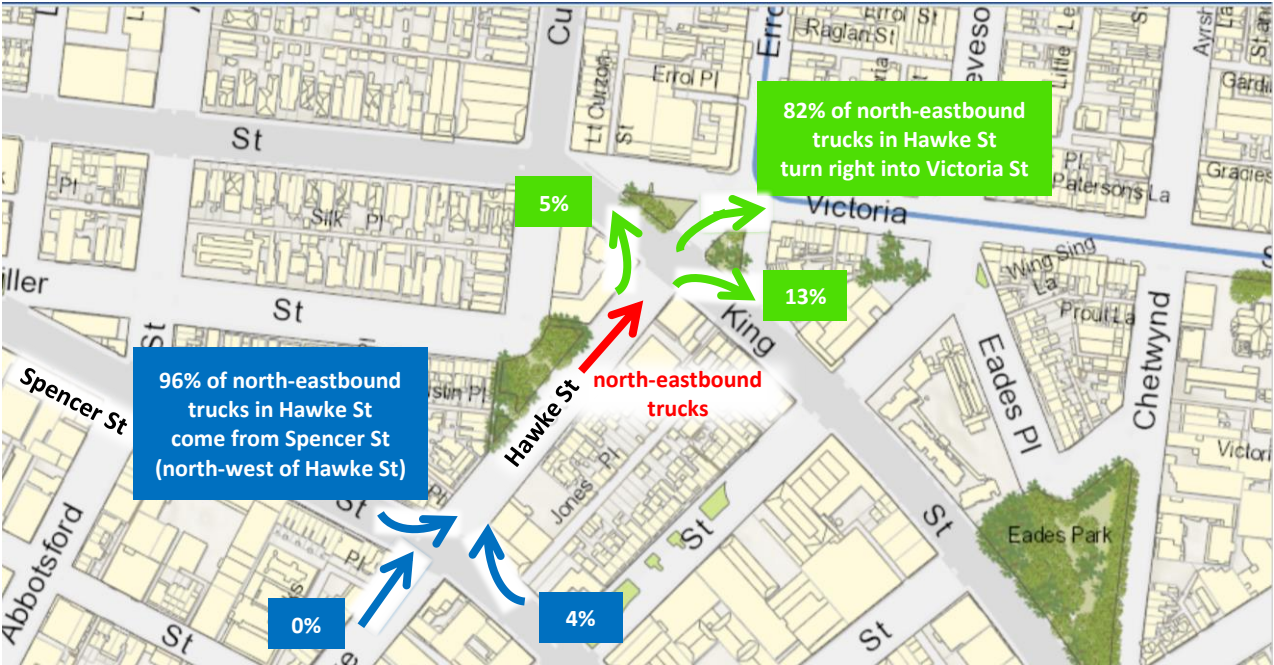


Figure 17: North-eastbound Truck Movements in Hawke Street
(measured at a point south-west of King Street)
Origins and Destinations in the morning peak period between 4pm and 7pm

3.4 PEDESTRIANS & CYCLISTS

Weekday peak hour pedestrian and cyclist volumes were generally modest throughout the study area. Figure 18 and Figure 19 show weekday pedestrian volumes, at the intersections surveyed, in the AM and PM peak hours respectively. Figure 21 and Figure 23 show weekend pedestrian volumes at those same sites. In all cases the highest single-hour volumes are shown (as identified from the data-capture periods which extended for three hours in each peak period: between 7-10am and 4-7pm on both the weekday and the weekend surveyed).

The busiest site, in terms of pedestrian activity, was the intersection of Hawke Street / King Street, where the hourly number of pedestrians crossing all four legs of the intersection was measured at 131 in the weekday AM peak (8-9am) and 103 in the weekday PM peak (5-6pm). These values dropped to 63 and 83 pedestrians/hour respectively in the corresponding weekend peak hours at the same intersection. The second busiest location was the intersection of Hawke Street / Spencer Street where the pedestrian numbers were marginally lower than those recorded at Hawke Street / King Street.

At the other two surveyed sites (the intersections of Hawke Street with Adderley Street and Railway Place), the hourly pedestrian volumes were significantly lower on both the weekday and weekend – reflecting the much quieter local street environment surrounding those intersections.

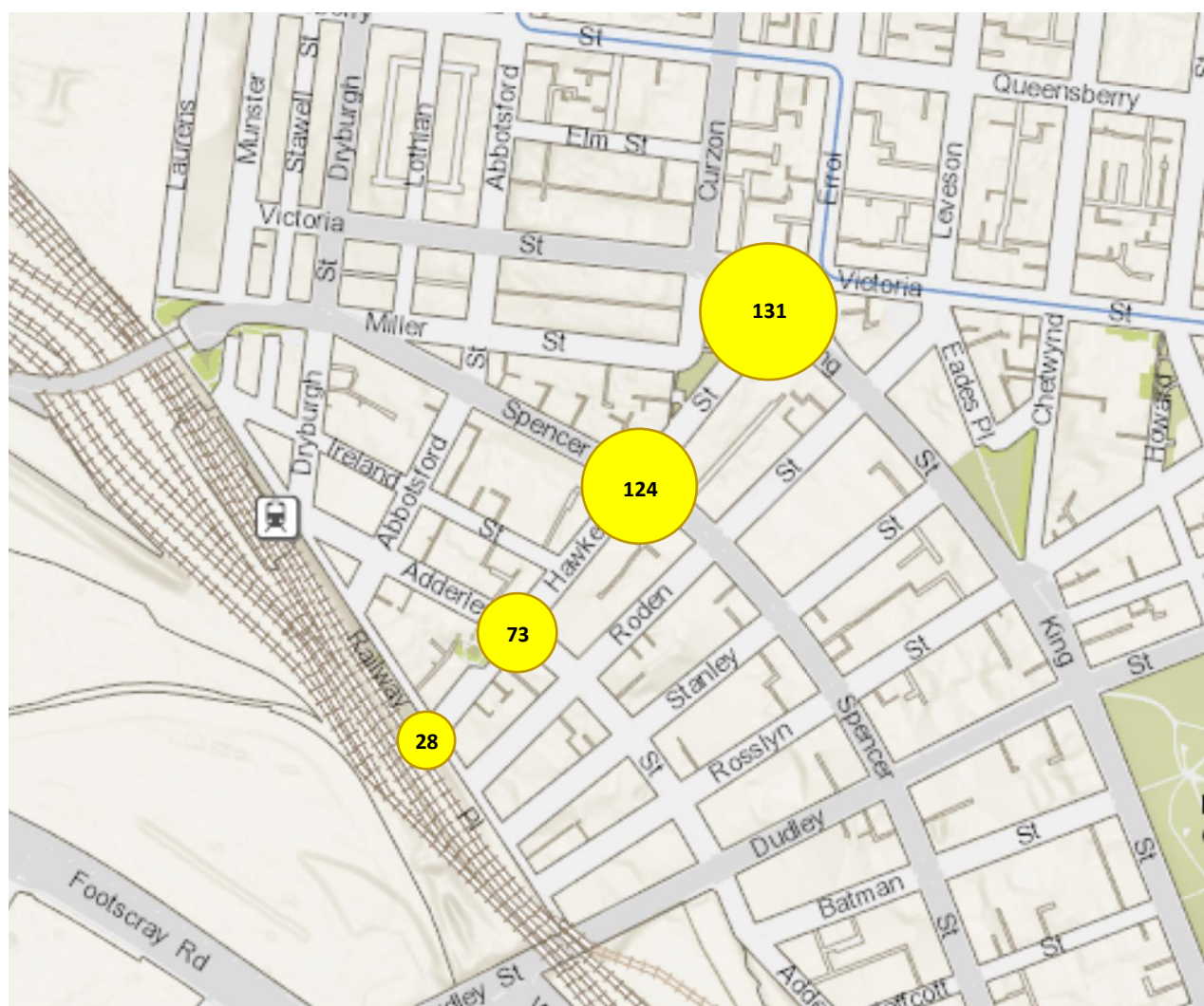


Figure 18: Pedestrian Volumes – Weekday AM Peak Hour (8-9am)

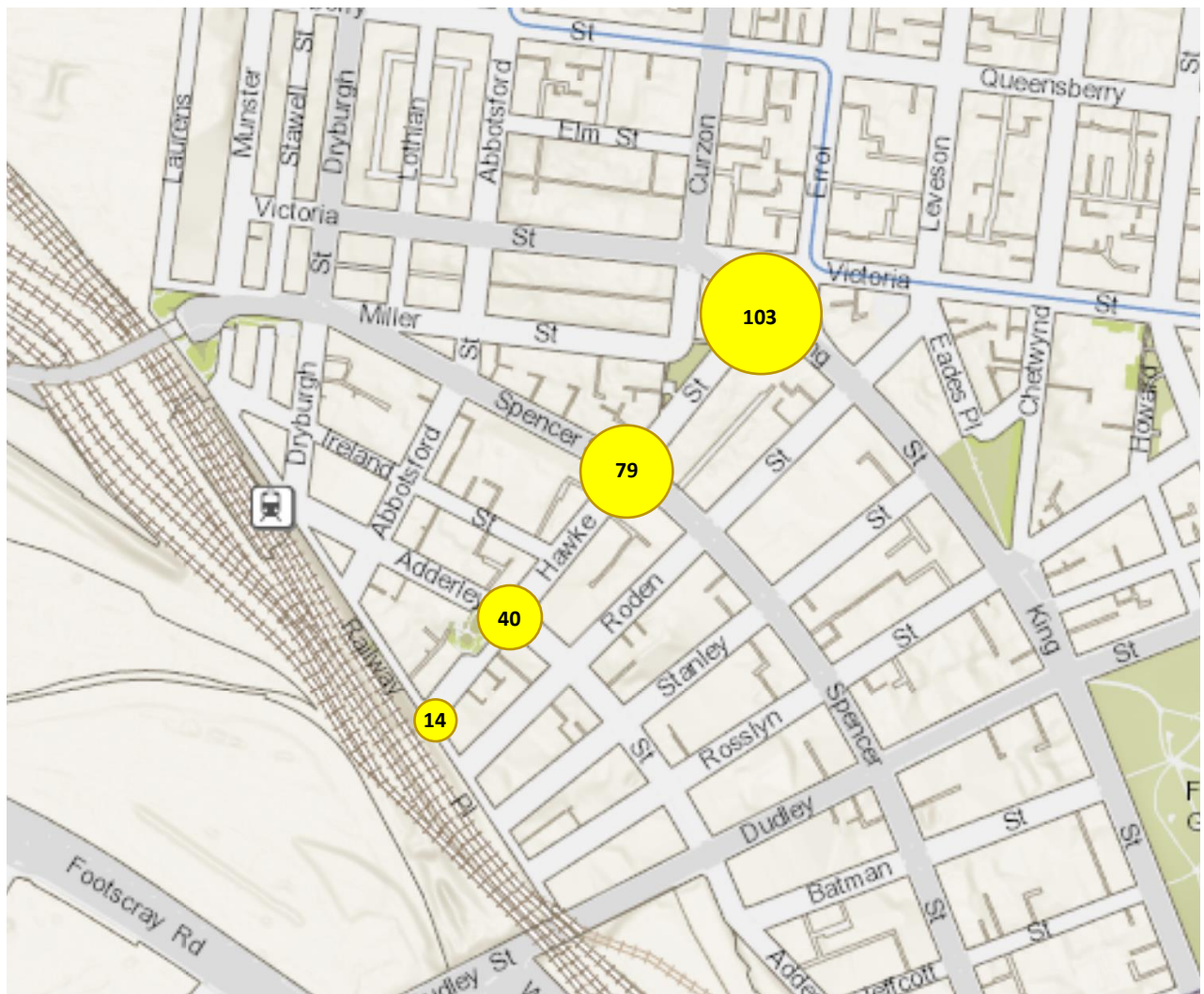


Figure 19: Pedestrian Volumes – Weekday PM Peak Hour (5-6pm)

The typically quiet pedestrian conditions in the southern section of Hawke Street between Spencer and Adderley Streets, at around 6pm on a weekday, are shown in Figure 20 (left image: western footpath / right image: eastern footpath).



Figure 20: Hawke Street, south-west of Spencer Street: Low Pedestrian Activity in the Weekday PM peak

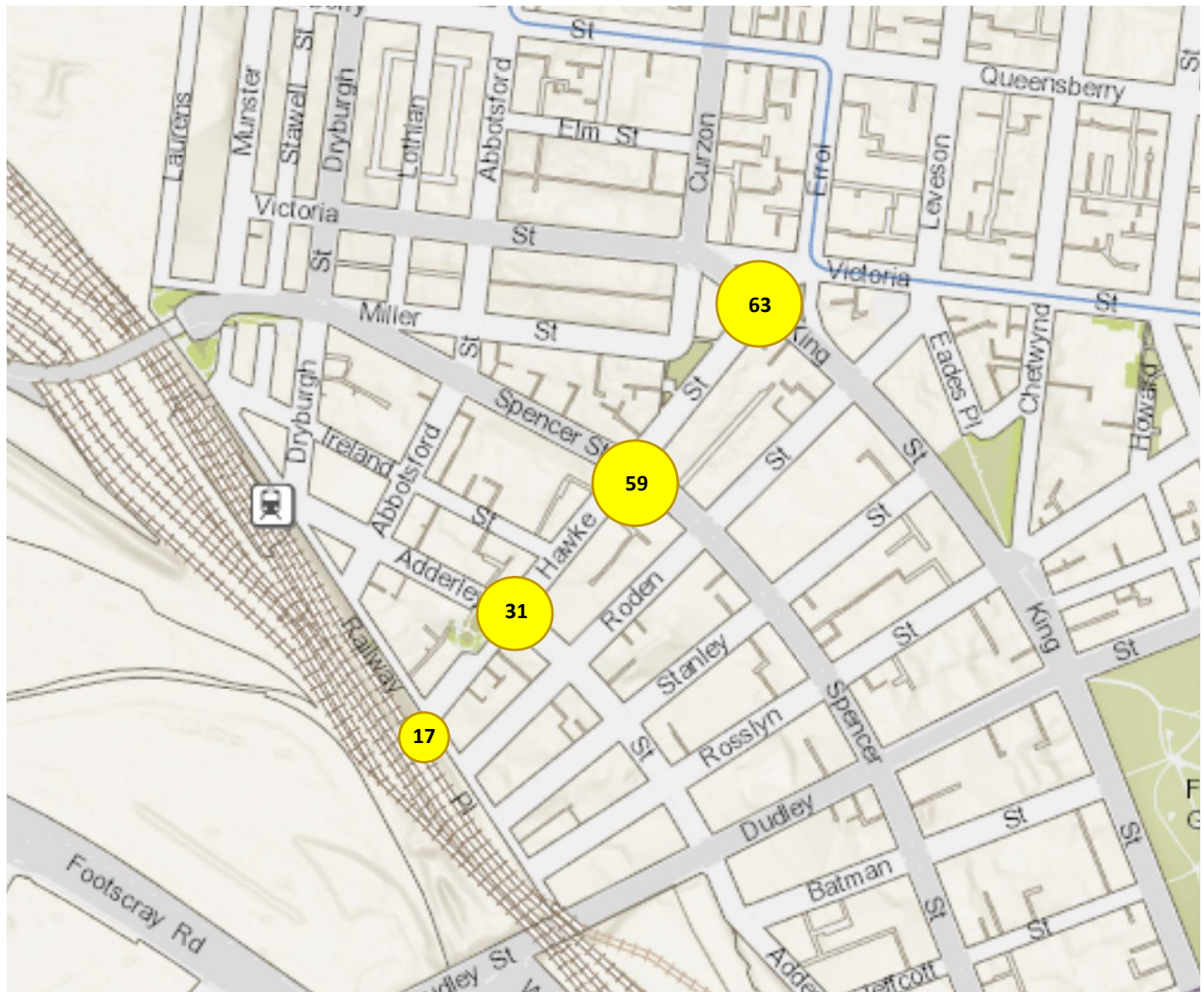


Figure 21: Pedestrian Volumes – Saturday AM Peak Hour (8-9am)

The quiet pedestrian conditions in the southern section of Hawke Street between Spencer Street and Railway Place, between around 8am-9am, taken on various Saturdays during the study, are shown in Figure 22.



Figure 22: Hawke Street, south-west of Spencer Street (left image) & south-west of Adderley Street (right image): Low Pedestrian Activity in the Weekend AM peak

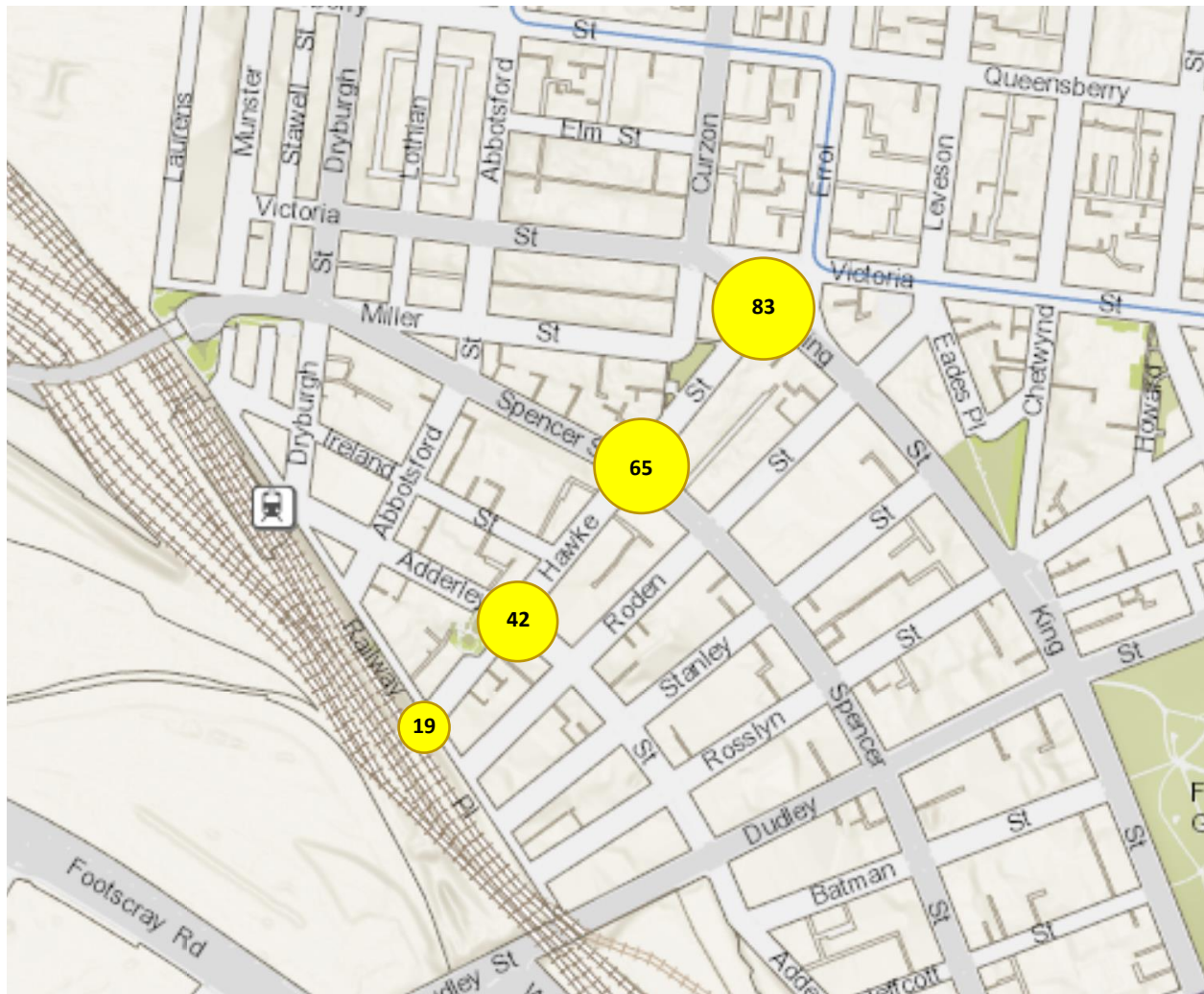


Figure 23: Pedestrian Volumes – Saturday PM Peak Hour (5-6pm)

The quiet pedestrian conditions at both the northern-most and southern-most sections of Hawke Street, between around 5pm-6pm, are shown in Figure 24.



Figure 24: Hawke Street, south-west of King Street (left image) & south-west of Adderley Street (right image): Low Pedestrian Activity in the Weekend PM peak

Figure 25 and Figure 26 show weekday cyclist volumes, at the four intersections surveyed, in the AM and PM peak hours respectively. Figure 27 and Figure 28 show weekend cyclist volumes at those same sites. In all cases the highest single-hour volumes are shown (as identified from the data-capture periods which extended for three hours in each peak period: between 7-10am and 4-7pm on both the weekday and the weekend surveyed).

The cyclist activity levels follow the same pattern as the pedestrian activity previously described. Accordingly, the busiest site, in terms of cyclist activity, was the intersection of Hawke Street / King Street, where the hourly number of cyclist movements on all four legs of the intersection was measured at 19 in the weekday AM peak (8-9am) and 26 in the weekday PM peak (5-6pm). These values dropped to 6 and 7 cyclists/hour respectively in the corresponding weekend peak hours at the same intersection. The second busiest location was the intersection of Hawke Street / Adderley Street where cyclist movements were, at times, twice the levels recorded at Hawke Street / Spencer Street; likely due to the much safer riding conditions on Adderley Street compared with Spencer Street.

At the remaining surveyed sites (the intersection of Hawke Street with Railway Place), the hourly cyclist volumes were insignificant on both the weekday and weekend.

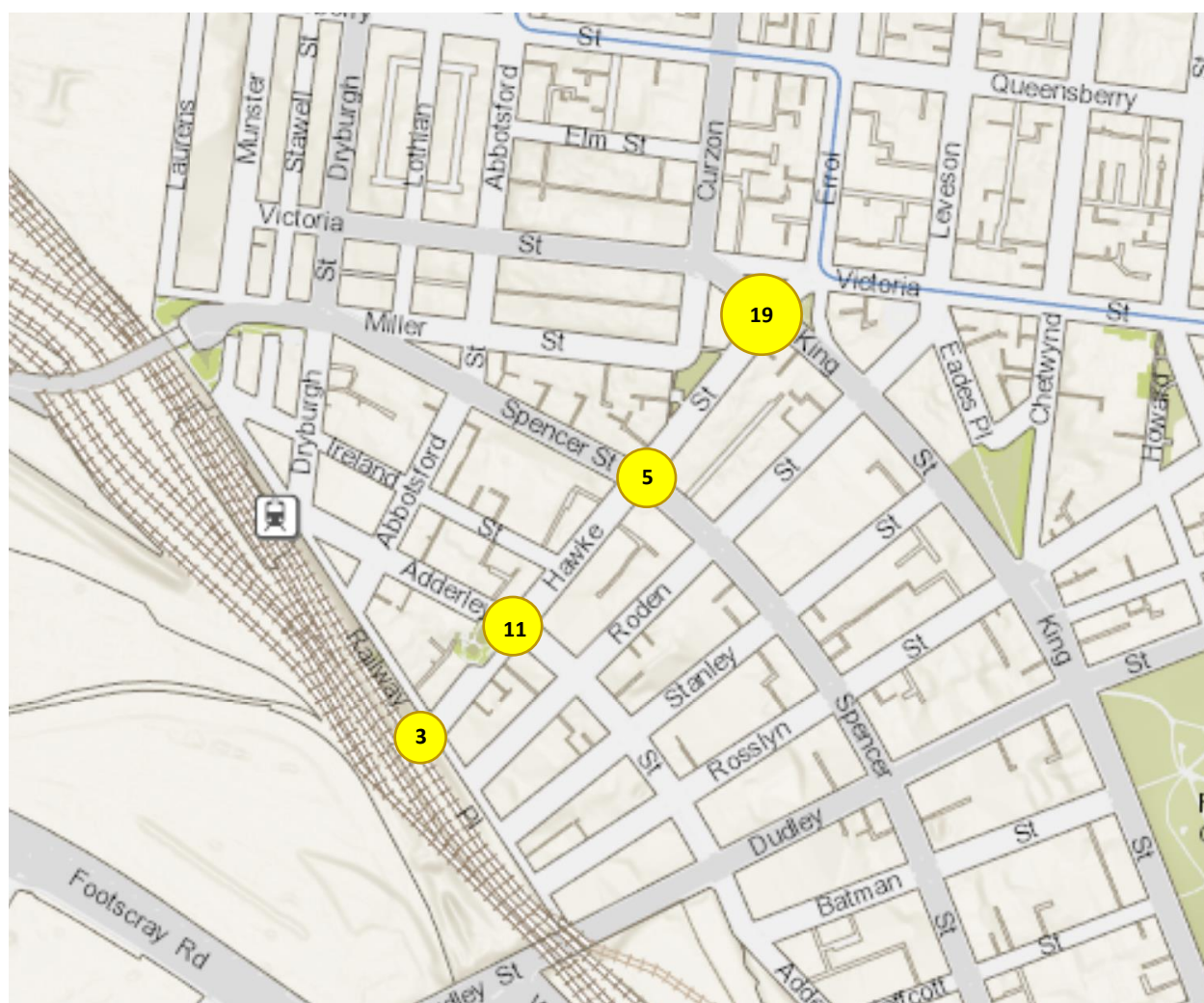


Figure 25: Bicycle Volumes – Weekday AM Peak Hour (8-9am)

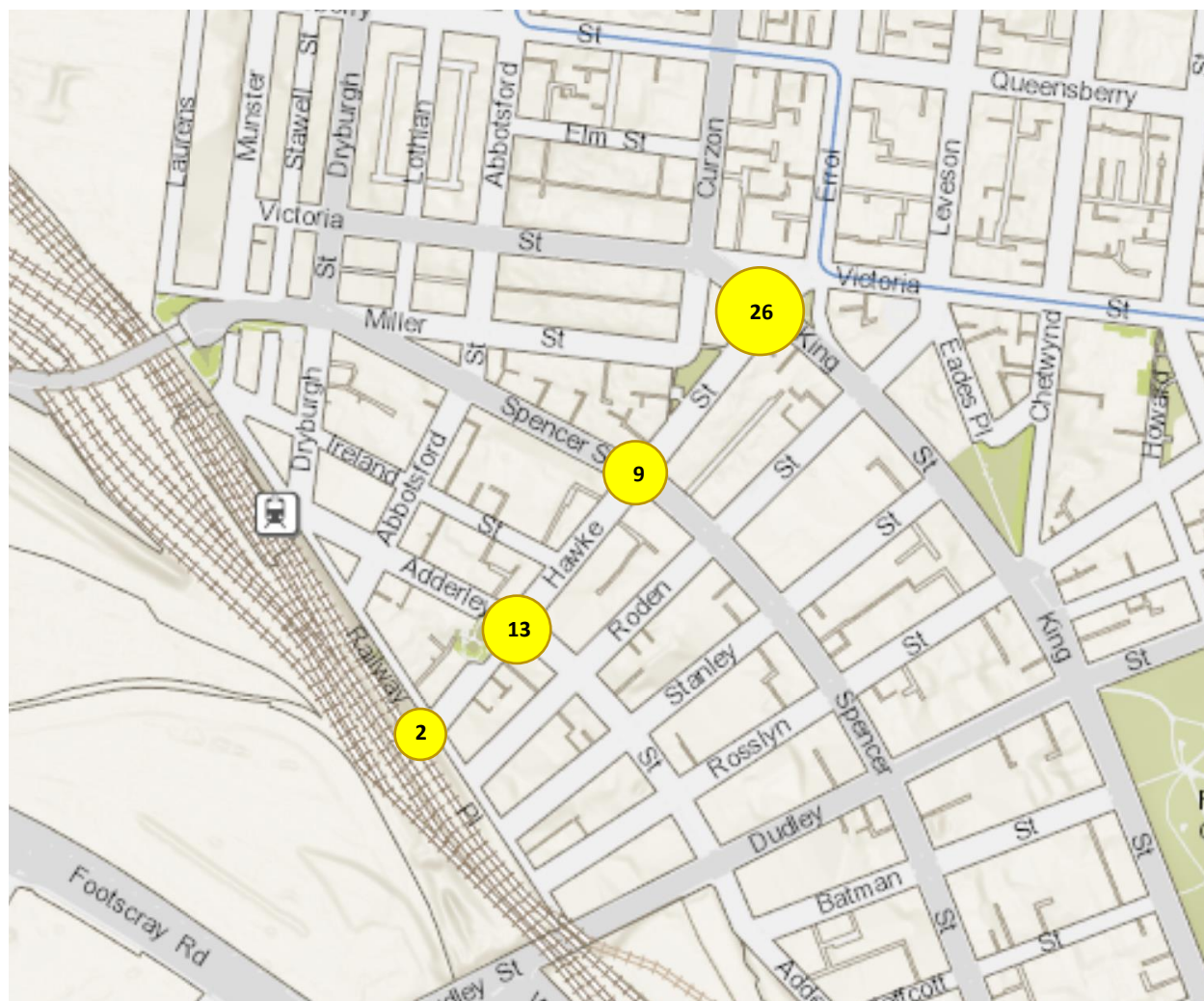


Figure 26: Bicycle Volumes – Weekday PM Peak Hour (5-6pm)

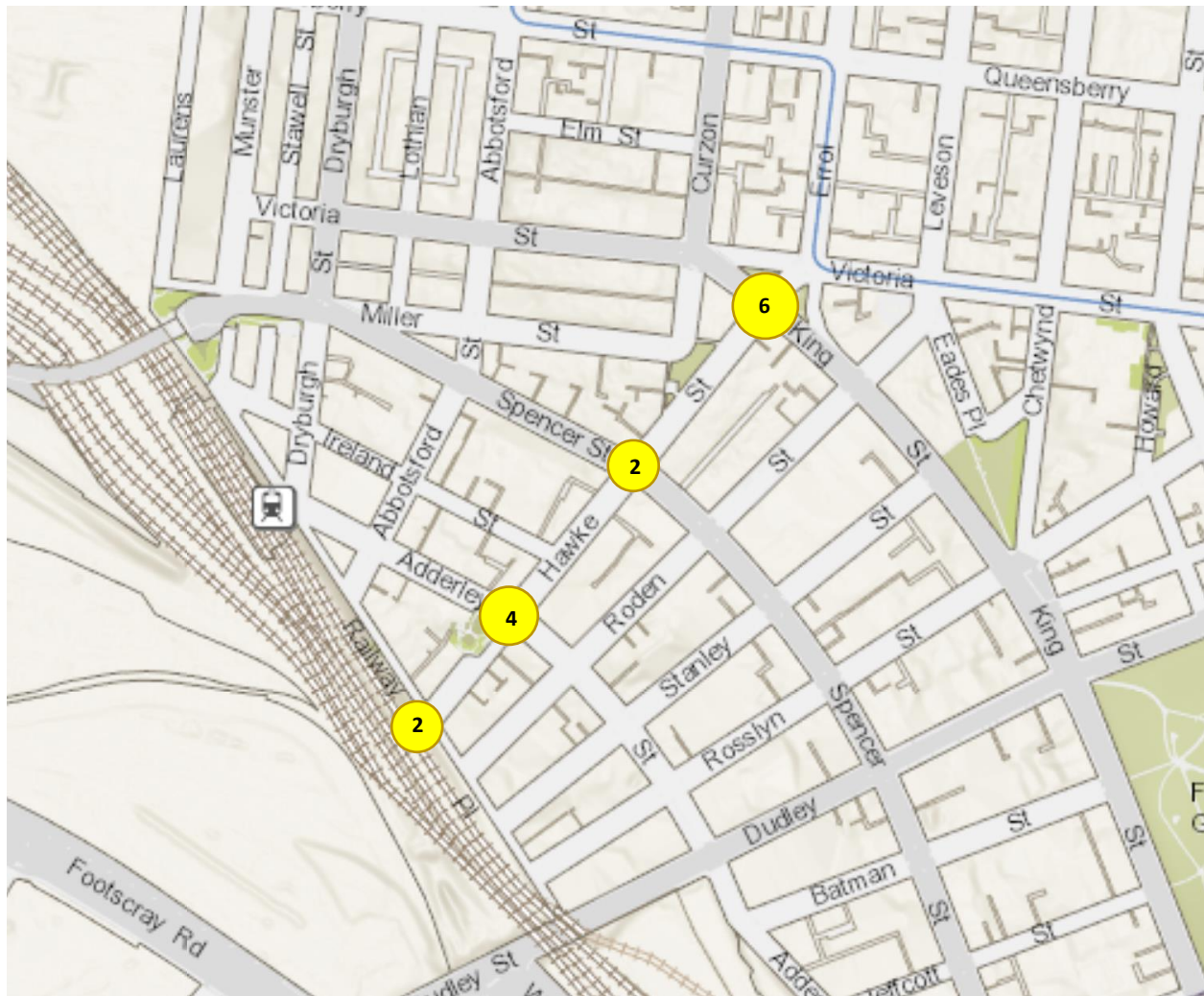


Figure 27: Bicycle Volumes – Saturday AM Peak Hour (8-9am)

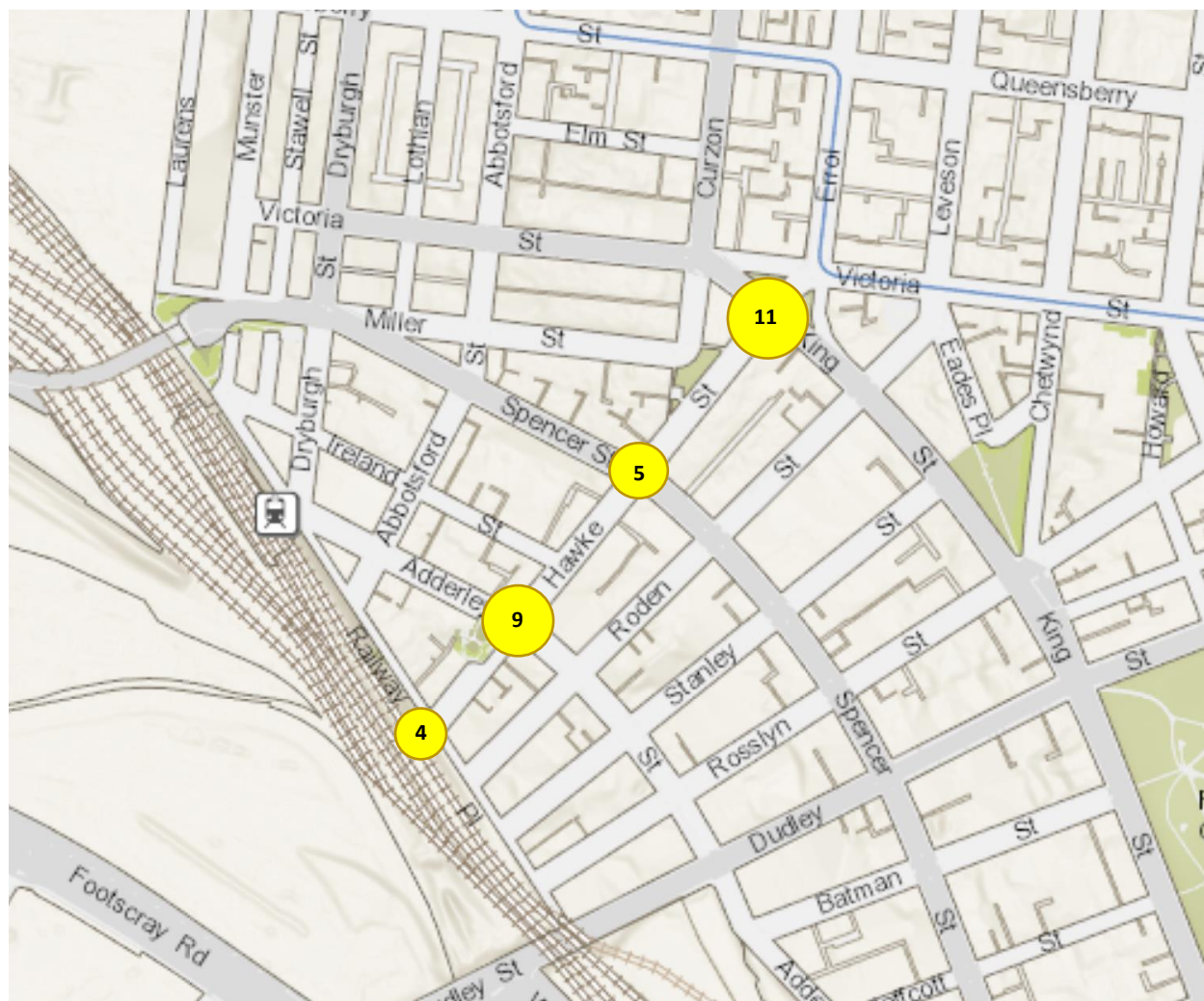


Figure 28: Bicycle Volumes – Saturday PM Peak Hour (5-6pm)

Table 5: Parking Inventory

Parking Restriction (during normal weekday daytime business hours)	Number of Spaces
15 Minute Limit	6
1 Hour Limit	26
2 Hour Limit	61
4 Hour Limit	45
Unrestricted (no time limit)	5
Loading Zone	4
Bus Zone	1
Car Share	3
Total Spaces	151
Spaces Available to the Public	143

3.5.2 PARKING TURNOVER

Parking turnover is a measure of the extent to which motorists comply with the time-limited restrictions. Turnover is effectively a measure of the 'duration-of-stay'. Resident permit holders are exempt from posted time limits and hence their compliance with time limits is irrelevant – for the purposes of understanding whether non-permit holders are complying with time-limited restrictions when parking in Hawke Street. Accordingly, Table 6 and Table 7 summarise parking duration only for those vehicles that were parked in Hawke Street and did not display a valid resident parking permit (effectively these vehicles can be defined as the 'general public'). The weekday 'Duration of Stay' statistics are shown in Table 6, whereas the weekend statistics are provided in Table 7. Each table provides average duration-of-stay for each of the time-limited zones.

Table 6: Hawke Street: Weekday Parking Turnover / Duration-of-Stay by General Public (Wednesday 4 November)

Permitted Parking Time Limit	Parking Duration: Non-resident Vehicles – Wednesday 4 November						
	0-2 hrs	2-4 hrs	4-6 hrs	6-8 hrs	8-10 hrs	10-12 hrs	>12 hrs
15 minute	100%	0%	0%	0%	0%	0%	0%
1 Hour	31%	40%	11%	4%	7%	4%	2%
2 Hour	20%	33%	23%	5%	8%	8%	5%
4 Hour	15%	26%	20%	14%	11%	8%	5%
Overall	21%	31%	18%	10%	9%	7%	4%

Table 7: Hawke Street: Weekend Parking Turnover / Duration-of-Stay by General Public (Saturday 7 November)

Permitted Parking Time Limit	Parking Duration: Non-resident Vehicles – Saturday 7 November						
	0-2 hrs	2-4 hrs	4-6 hrs	6-8 hrs	8-10 hrs	10-12 hrs	>12 hrs
15 minute	20%	30%	20%	20%	0%	0%	10%
1 Hour	21%	32%	16%	11%	5%	5%	11%
2 Hour	22%	33%	15%	4%	7%	0%	19%
4 Hour	10%	22%	21%	18%	12%	4%	12%
Overall	15%	27%	19%	14%	9%	3%	13%

The statistics shown in Table 6 and Table 7 reveal modest levels of compliance in each of the time-limited parking zones. The time-restriction that applies to the greatest number of parking spaces is the two-hour limit – which covers 61 spaces. The next highest time-restriction (by number of parking spaces) is the four-hour limit – which covers 45 spaces. When examining the extent to which motorists complied with these time limits, the following is noted:

- On Wednesday 4 November:
 - Only 20% of vehicles that parked in the two-hour limit spaces stayed for periods of two hours or less.
 - Nearly half (47%) of those parked in the two-hour limit spaces stayed in excess of 4 hours
 - Only 41% of vehicles that parked in the four-hour limit spaces stayed for periods of four hours or less.
 - Over half (59%) of those parked in the four-hour limit spaces stayed in excess of 4 hours
- On Saturday 7 November:
 - Only 22% of vehicles that parked in the two-hour limit spaces stayed for periods of two hours or less.
 - Nearly half (45%) of those parked in the two-hour limit spaces stayed in excess of 4 hours
 - Only 32% of vehicles that parked in the four-hour limit spaces stayed for periods of four hours or less.
 - Over two-thirds (68%) of those parked in the four-hour limit spaces stayed in excess of 4 hours

3.5.3 PARKING OCCUPANCY

Figure 30 and Figure 32 show the variation in parking occupancy recorded on Wednesday and Saturday respectively. The data shown in the two images combines the occupancy recorded in all of publicly available parking spaces (15 Minute Limit, 1 Hour Limit, 2 Hour Limit, 4 Hour Limit and the Unrestricted spaces).

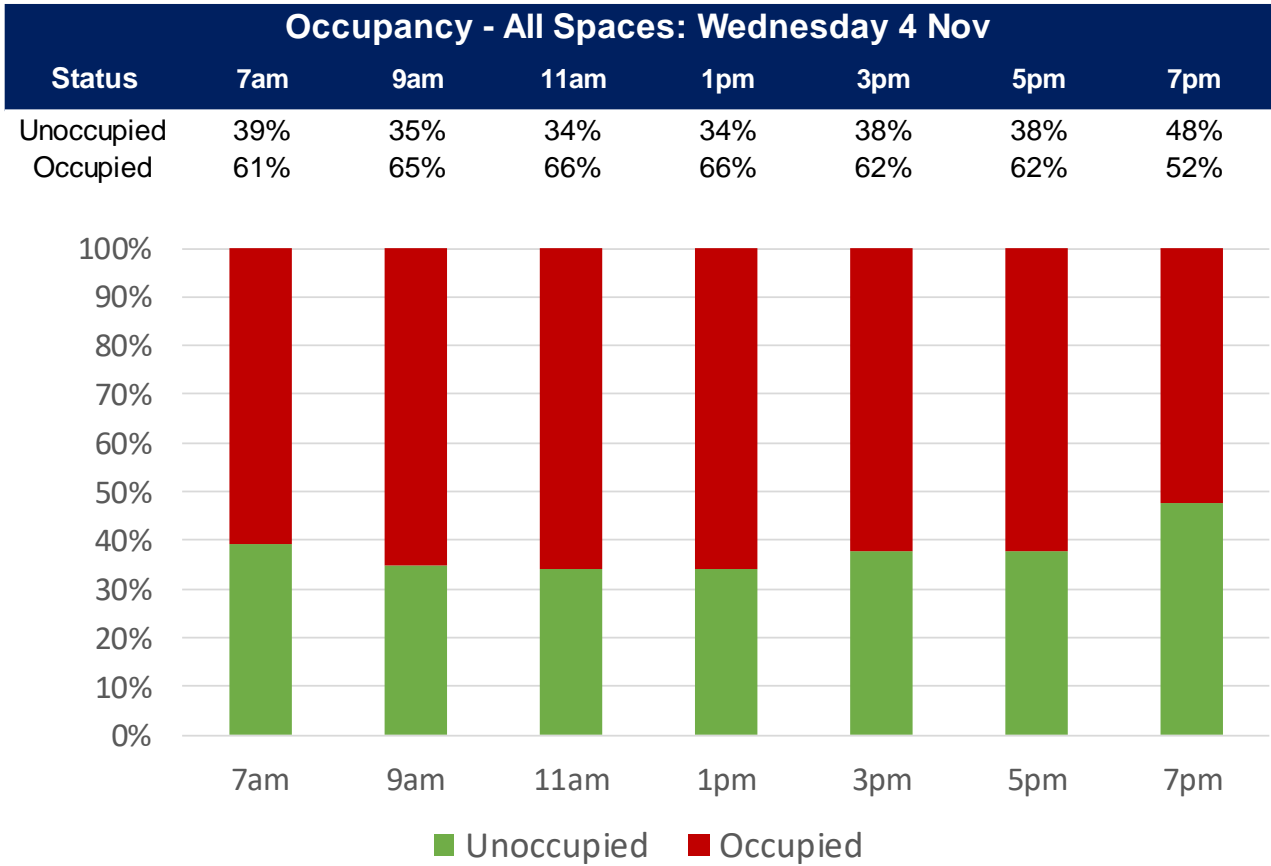


Figure 30: Parking Occupancy in Hawke Street (Wednesday 4 November) – Hourly Variation

On Wednesday, the maximum occupancy occurred at both 11am and 1pm, when 66% of all spaces were occupied. Overall, through the day:

- There were 220 vehicles recorded using both sides of Hawke Street between King Street and Railway Place between 7am and 7pm.
- Of these vehicles, there were 37 (17% of the total that parked) that displayed valid Council-issued resident parking permits. Thus, the remaining 183 (83% of the total that parked) were general public.
- The overall occupancy on Wednesday (measured between 7am and 7pm) was 62%.

It is concluded, based on these survey findings, that the busiest parking demand on the weekday occurs in the middle of the day when only 94 spaces of the existing 143 publicly accessible parking spaces are utilised. This represents a maximum demand of two-thirds of the available supply. Spare capacity is therefore at least 49 spaces (and greater in the morning and evening).

By the evening, on weekdays (when residents are returning home) many local workers have left the area and the occupancy drops marginally to a level between 50-60% and remains at around that level until the following morning. Parking conditions at 6pm on a weekday are shown in Figure 31.



Figure 31: Hawke Street Evening Parking Occupancy on a weekday – circa 6.00pm

Left Image: Looking South from Spencer Street

Right Image: Looking South from Adderley Street

When assessing the parking statistics associated solely associated with residents' vehicles, it was found that:

- The highest number of cars that were parked during any hour of the survey and that also displayed a resident parking permit was 30 vehicles at 7am (equivalent to 34% of all vehicles parked at that time).
- Furthermore, the 30 spaces required by residents at 7am represents around 21% of the available parking supply.

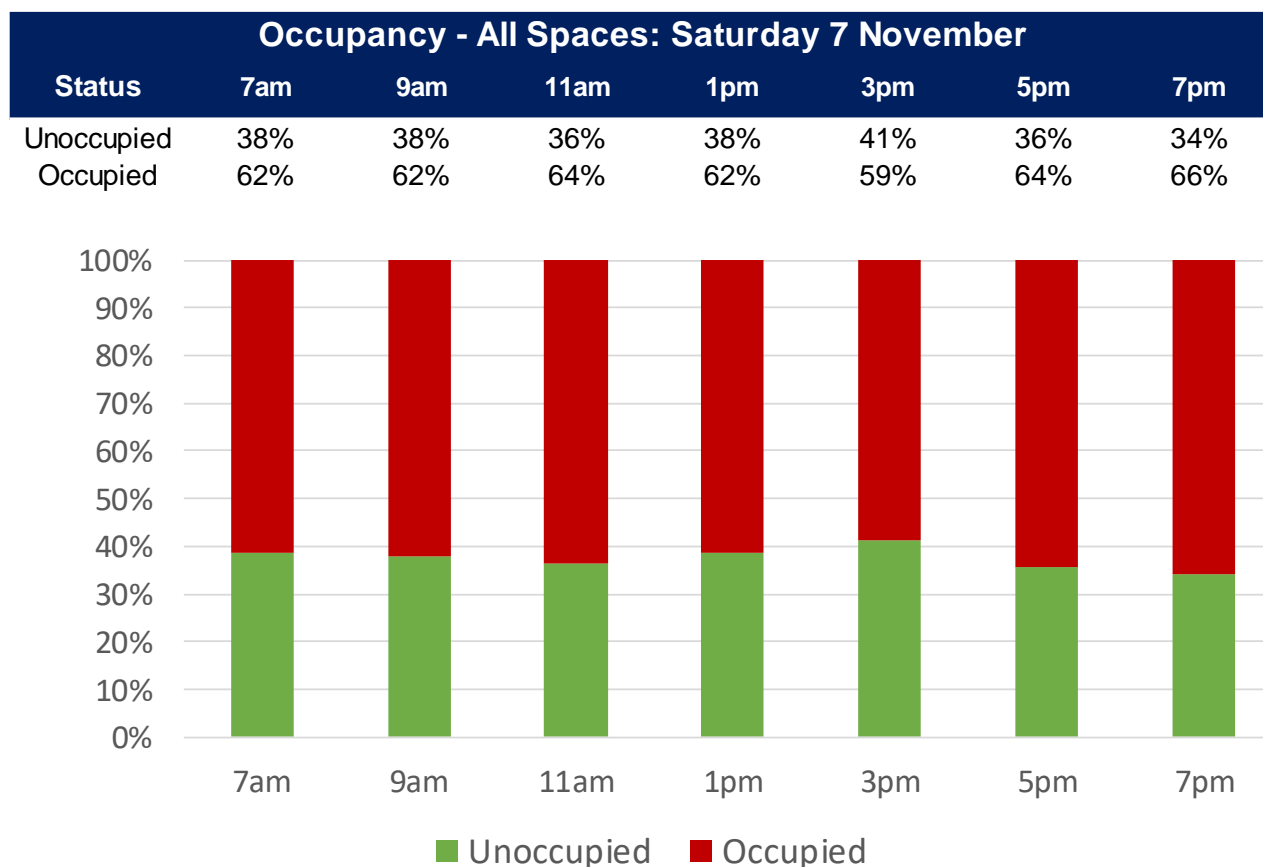


Figure 32: Parking Occupancy in Hawke Street (Saturday 7 November) – Hourly Variation

On Saturday, the maximum occupancy occurred at both 7pm, when 66% of all spaces were occupied. Overall, through the day:

- There were 173 vehicles recorded using both sides of Hawke Street between King Street and Railway Place between 7am and 7pm.
- Of these vehicles, there were 50 (29% of the total that parked) that displayed valid Council-issued resident parking permits. Thus, the remaining 123 (71% of the total that parked) were general public.
- The overall occupancy on Saturday (measured between 7am and 7pm) was 63%.

When assessing the parking statistics associated solely associated with residents' vehicles, it was found that:

- The highest number of cars that were parked during any hour of the survey and that also displayed a resident parking permit was found to be 40 vehicles at 7am (equivalent to 45% of all vehicles parked at that time).

The overall conclusions, based on these Saturday survey findings, are similar to the weekday findings. The busiest parking demand on the Saturday matched the weekday with two-thirds of the available parking supply occupied (though it occurred at 7pm rather than the middle of the day). Spare capacity was therefore at least 49 spaces (same as the weekday). In contrast, compared to Wednesday, the maximum number of parking spaces required by residents was a little higher with 40 spaces occupied by resident permit holders at 7am – which is around 28% of the available parking supply.

While Figure 30 and Figure 32 show the overall parking occupancies (measured across all time-restricted parking zones in Hawke Street), the occupancy recorded in each of the different time-restricted areas is separately shown in the series of images that follow.

Figure 33 and Figure 34 show occupancy (on Wednesday and Saturday respectively) for the 6 spaces that are subject to a fifteen-minute time limit.

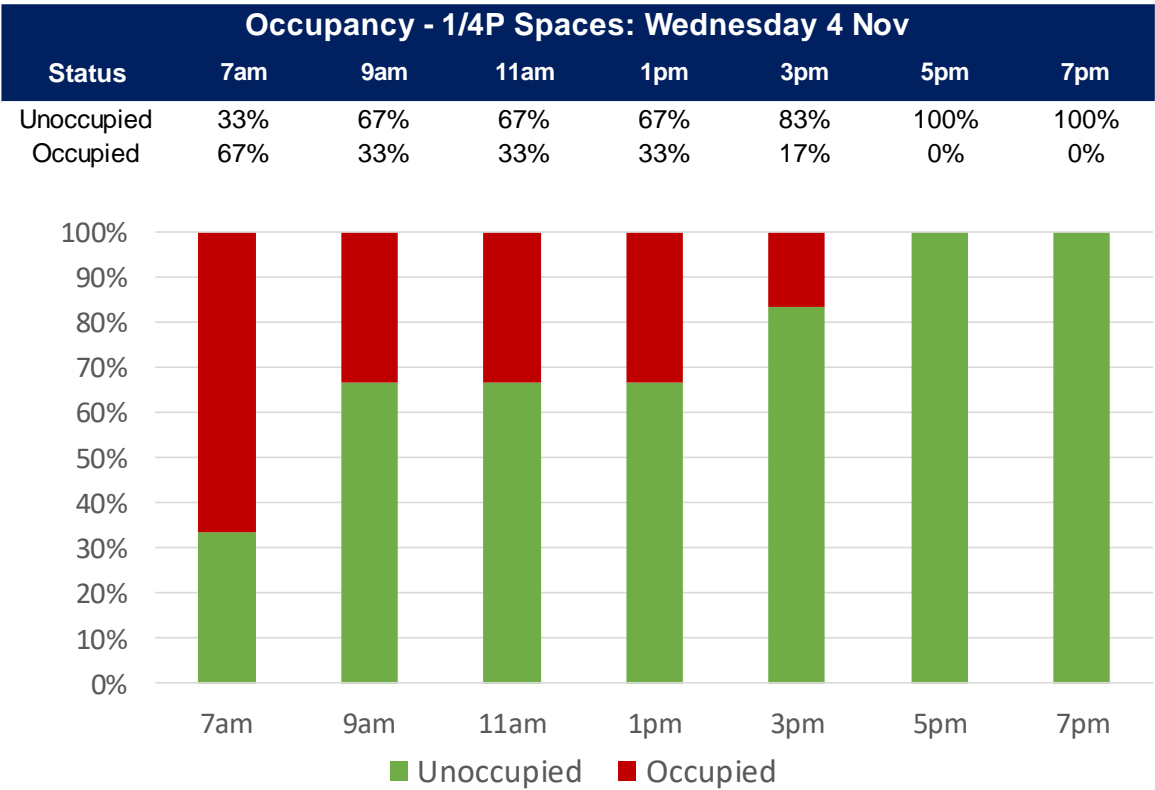


Figure 33: Parking Occupancy in 15-minute time limit spaces (Wednesday)

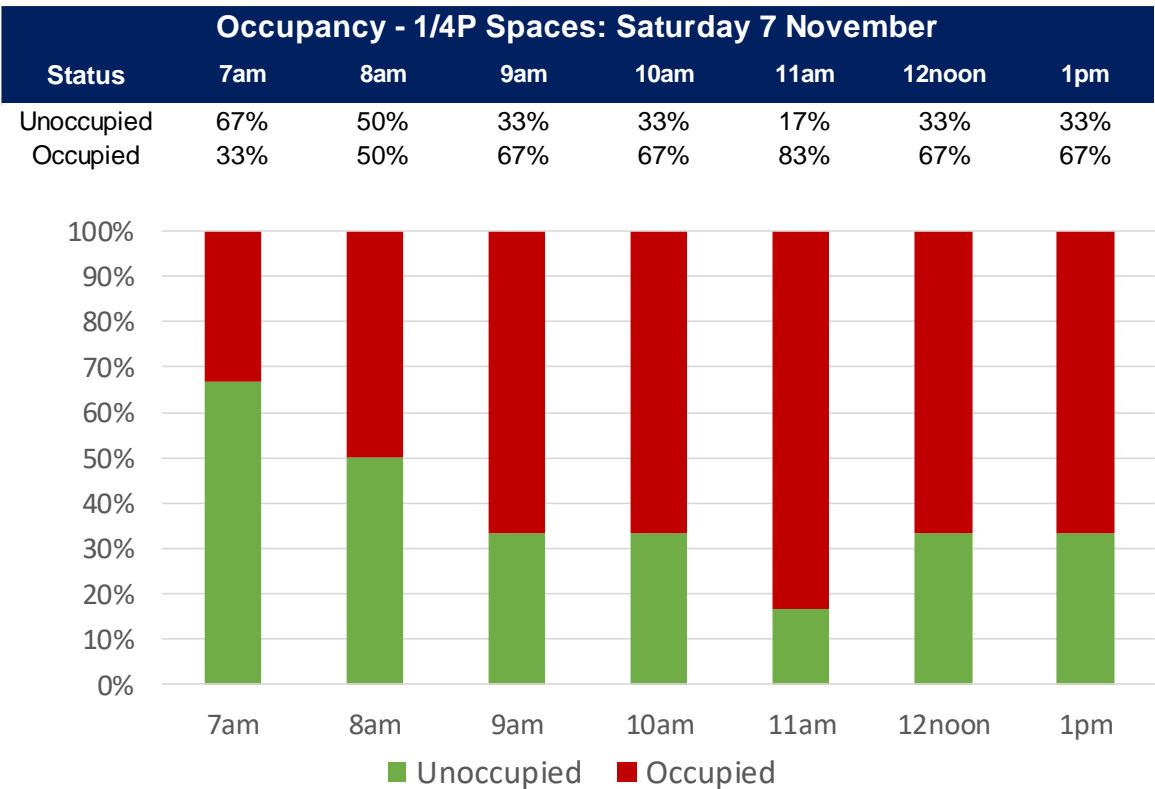


Figure 34: Parking Occupancy in 15-minute time limit spaces (Saturday)

Figure 35 and Figure 36 show occupancy (on Wednesday and Saturday respectively) for the 26 spaces that are subject to a one-hour time limit.

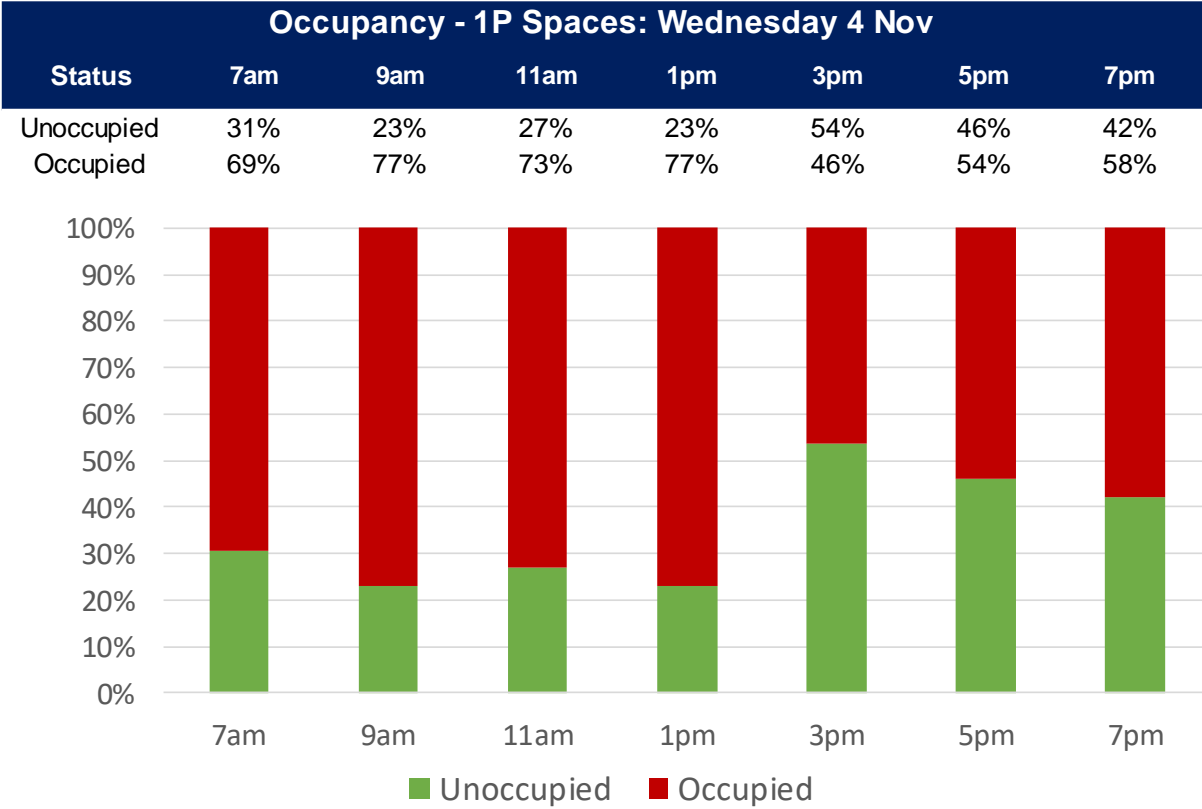


Figure 35: Parking Occupancy in one-hour time limit spaces (Wednesday)

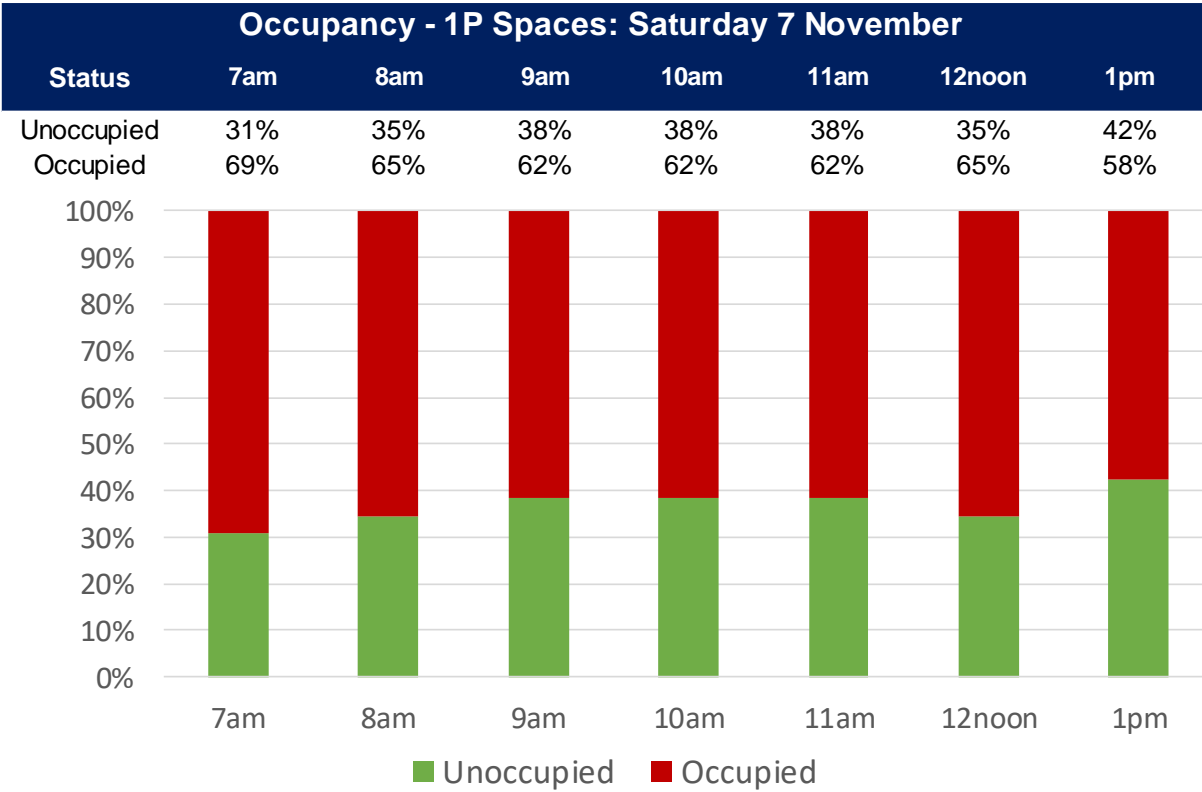


Figure 36: Parking Occupancy in one-hour time limit spaces (Saturday)

Figure 37 and Figure 38 show occupancy (on Wednesday and Saturday respectively) for the 61 spaces that are subject to a two-hour time limit.

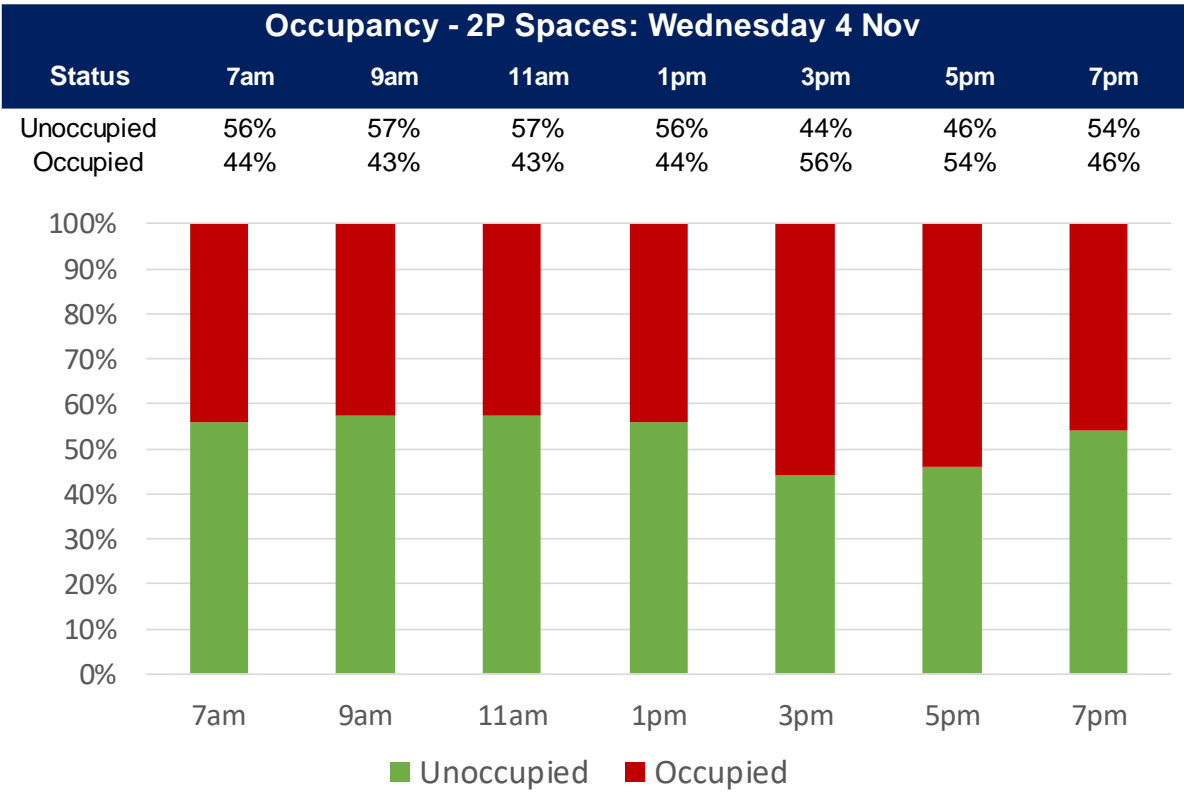


Figure 37: Parking Occupancy in two-hour time limit spaces (Wednesday)

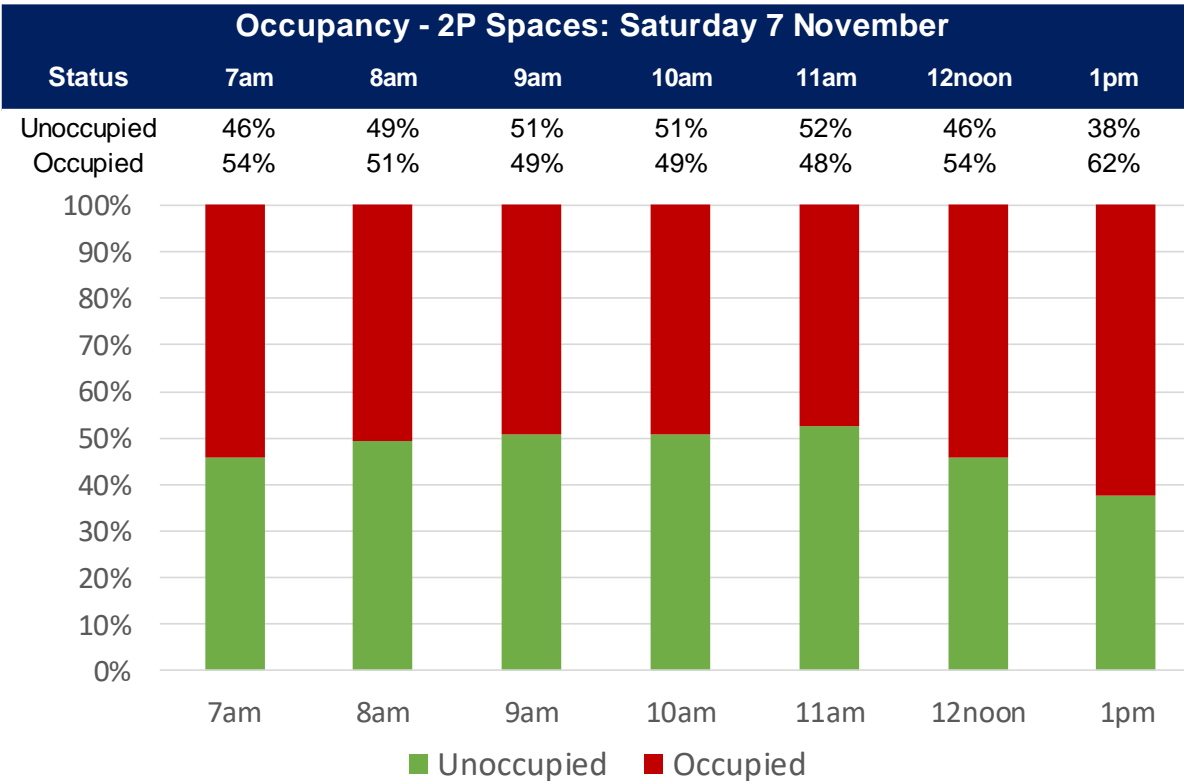


Figure 38: Parking Occupancy in two-hour time limit spaces (Saturday)

Figure 39 and Figure 40 show occupancy (on Wednesday and Saturday respectively) for the 45 spaces that are subject to a four-hour time limit.

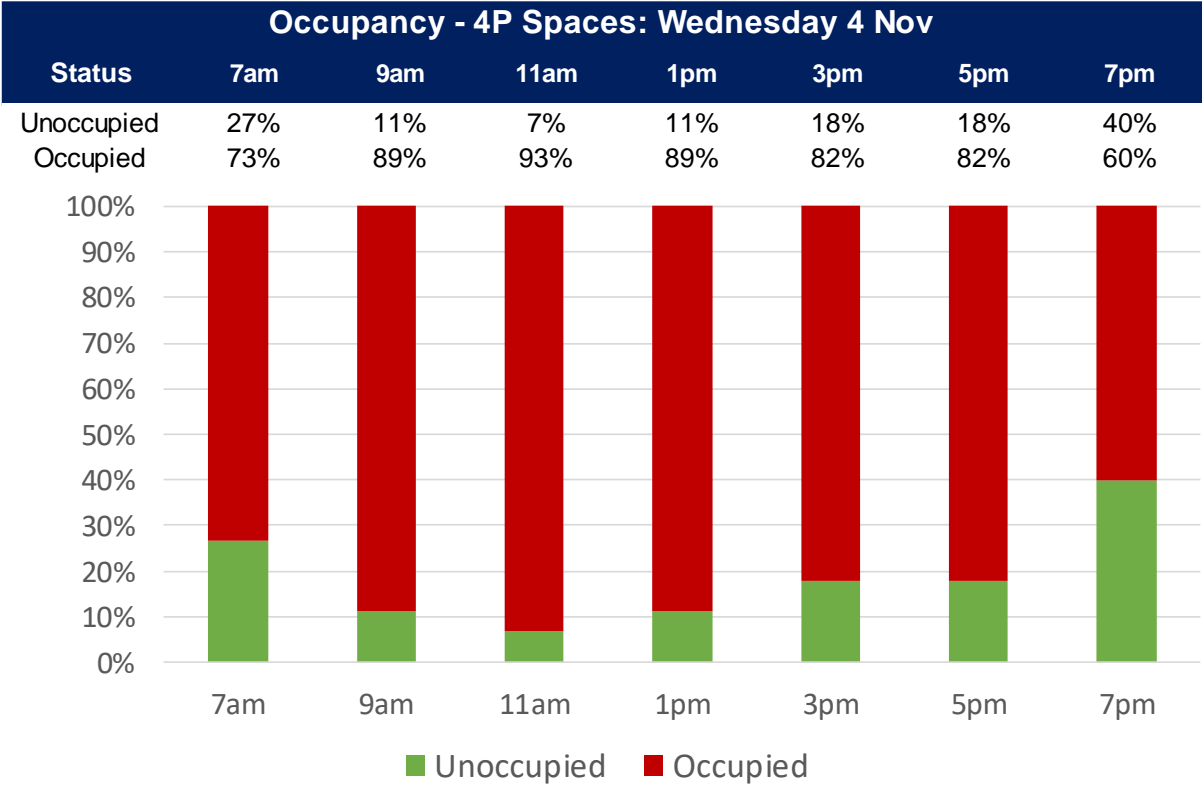


Figure 39: Parking Occupancy in four-hour time limit spaces (Wednesday)

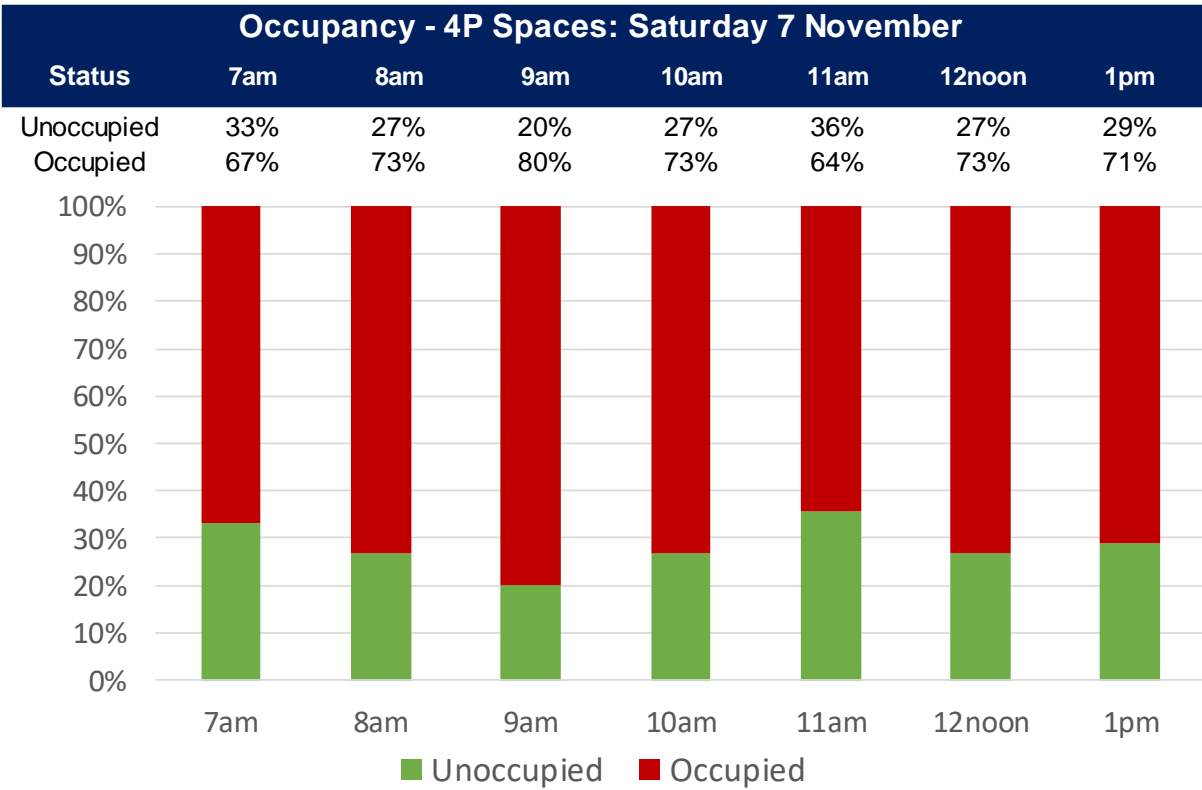


Figure 40: Parking Occupancy in four-hour time limit spaces (Saturday)

Figure 41 and Figure 42 show occupancy (on Wednesday and Saturday respectively) for the 5 unrestricted spaces.

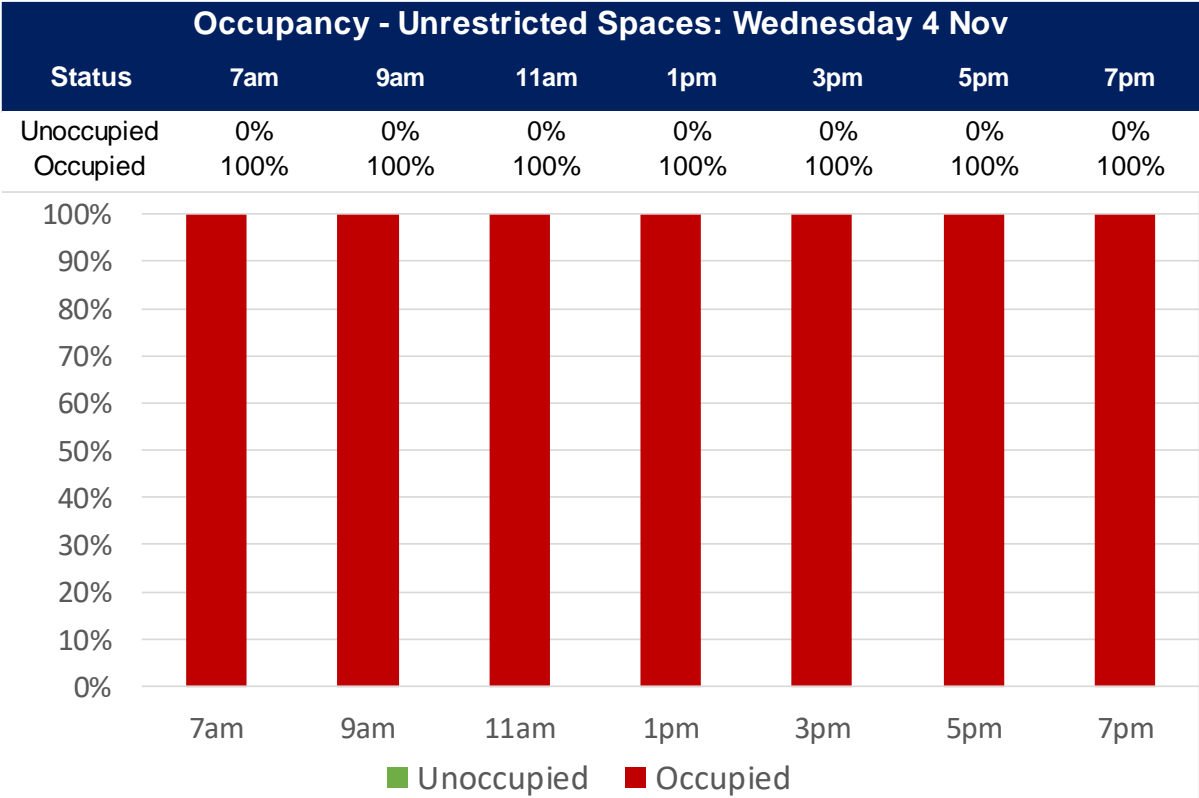


Figure 41: Parking Occupancy in unrestricted spaces (Wednesday)

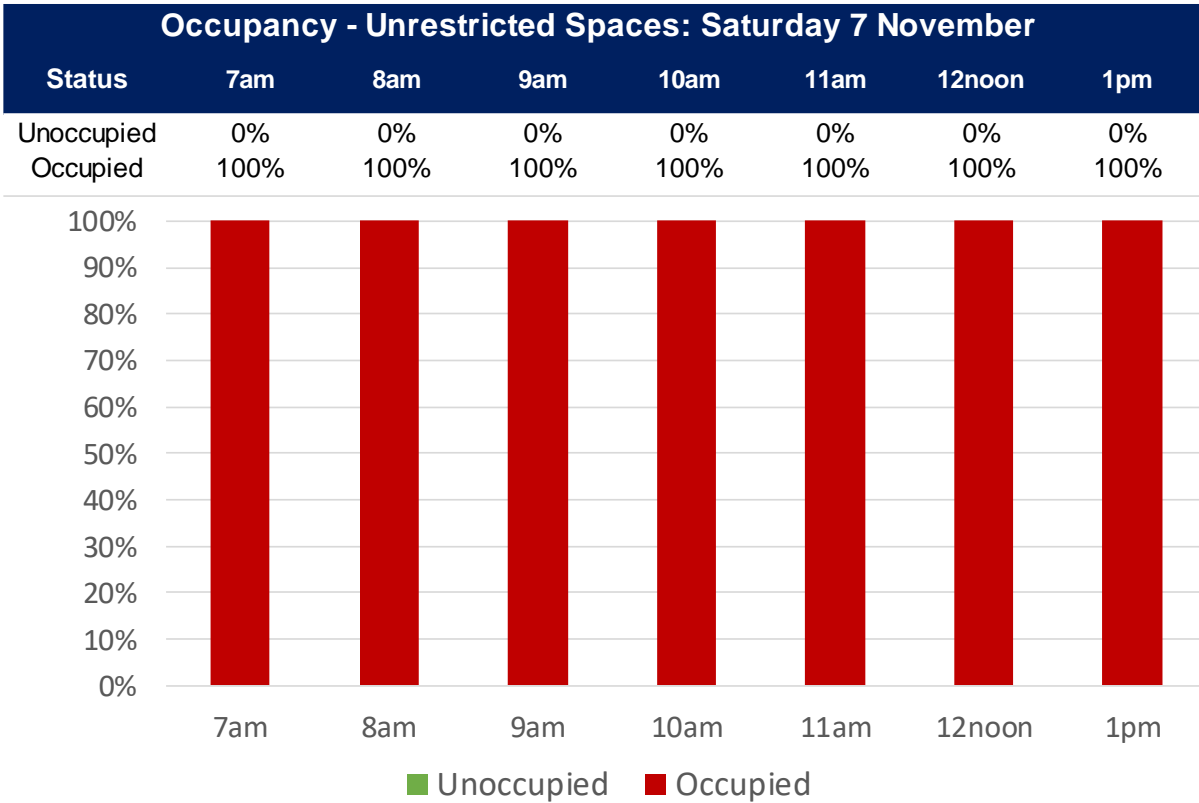


Figure 42: Parking Occupancy in unrestricted spaces (Saturday)

3.5.4 COMPARISON OF PARKING OCCUPANCY IN SEPARATE BLOCKS OF HAWKE STREET

The parking supply (number of spaces available) and the parking occupancy (number of parking spaces occupied at various times of the day) are not uniformly distributed in the three blocks of in Hawke Street that were covered by the parking surveys. The 143 publicly available parking are distributed as follows:

- King St to Spencer St = 54 spaces
- Spencer St to Adderley St = 48 spaces
- Adderley St to Railway Pl = 41 spaces

The variation in parking occupancy on both Wednesday 4 November and Saturday 7 November (by time of day and by block) is shown in Table 6 and Table 7 respectively. The busiest block, on both days, is

The intensity of parking demand is visually represented by the colour-code rating shown in Table 8: Cells coloured represent the busiest parking demand with over 80% of publicly available parking spaces occupied. Cells coloured orange represent medium parking demand with between 60% to 80% of parking spaces occupied; whereas green coloured cells represent the lowest parking occupancy with less than 60% of spaces occupied.

Table 8: Colour-Code Rating System for Parking Occupancy

Overall Parking Occupancy Rating	Range (Proportion of Spaces Occupied)	Colour Code
Low	< 60% Occupied	Green
Moderate	60% - 80% Occupied	Orange
High	> 80 % Occupied	Red

Table 9 and Table 10 reveal that on both the Wednesday and on Saturday the highest parking occupancy occurred in the block of Hawke Street between Spencer and Adderley Streets. The block between King and Spencer Streets was exhibited the lowest parking demand – mostly under 60% on both weekdays and weekends.

Table 9: Hawke Street: Variation in Parking Occupancy on Wednesday 4 November (by Time of Day and by Block)

Location in Hawke Street	Parking Occupancy at each Time Interval Surveyed						
	7am	9am	11am	1pm	3pm	5pm	7pm
King St to Spencer St	44%	48%	52%	54%	52%	56%	46%
Spencer St to Adderley St	81%	81%	79%	81%	58%	63%	56%
Adderley St to Railway Pl	59%	68%	68%	63%	80%	71%	56%

Table 10: Hawke Street: Variation in Parking Occupancy on Saturday 7 November (by Time of Day and by Block)

Location in Hawke Street	Parking Occupancy at each Time Interval Surveyed						
	7am	9am	11am	1pm	3pm	5pm	7pm
King St to Spencer St	50%	50%	59%	48%	46%	57%	63%
Spencer St to Adderley St	75%	77%	77%	75%	75%	73%	71%
Adderley St to Railway Pl	61%	61%	54%	63%	56%	63%	63%

The distribution of vehicles displaying resident parking permits (in each of the three blocks of Hawke Street) is shown in Table 11 and Table 12 for Wednesday and Saturday respectively.

On each day the block with the highest number of vehicles displaying resident parking permits was the block between Adderley Street and Railway Place. There are 41 parking spaces available in this block and the maximum number of vehicles displaying resident parking permits occurred on Saturday at 7.00am when there were 20 such vehicles (representing nearly half of the available parking supply of 41 spaces in this section of Hawke Street). The highest number of vehicles displaying resident parking permits on Wednesday occurred at 5.00pm and 7.00pm when there were 14 such vehicles (representing just over one third of the available parking supply of 41 spaces in this section of Hawke Street).

There was a much lower presence of vehicles displaying resident parking permits in the other two blocks of Hawke Street:

- **Block between Spencer and Adderley Streets:** The highest demand on Wednesday was 12 vehicles at 7.00am (representing 25% of the available parking supply of 48 spaces in this section of Hawke Street). On Saturday, in this same block, the highest number of vehicles with a resident permit also occurred at 7.00am with a slightly higher number of vehicles – 14 vehicles.
- **Block between Spencer and King Streets:** The highest demand on Wednesday was 7 vehicles at both 3.00pm and 7.00pm (representing nearly 13% of the available parking supply of 54 spaces in this section of Hawke Street). On Saturday, in this same block, the highest number of vehicles with a resident permit occurred at both 9.00am and 7.00pm with a slightly higher number of vehicles – 9 vehicles.

Table 11: Hawke Street: Variation in the Number of Parked Vehicles Displaying Resident Parking Permits on Wednesday 4 November (by Time of Day and by Block)

Location	Number of Vehicles Displaying Resident Parking Permits						
	7am	9am	11am	1pm	3pm	5pm	7pm
King St to Spencer St (parking capacity 54 spaces)	6	6	5	5	7	5	7
Spencer St to Adderley St (parking capacity 48 spaces)	12	8	6	7	4	6	7
Adderley St to Railway Pl (parking capacity 41 spaces)	12	10	11	10	13	14	14

Table 12: Hawke Street: Variation in the Number of Parked Vehicles Displaying Resident Parking Permits on Saturday 7 November (by Time of Day and by Block)

Location	Number of Vehicles Displaying Resident Parking Permits						
	7am	9am	11am	1pm	3pm	5pm	7pm
King St to Spencer St (parking capacity 54 spaces)	6	9	7	8	8	8	9
Spencer St to Adderley St (parking capacity 48 spaces)	14	11	10	11	10	7	7
Adderley St to Railway Pl (parking capacity 41 spaces)	20	13	14	11	10	12	9

3.6 COMPARISON WITH HISTORIC PARKING STUDIES

Comprehensive parking surveys were undertaken in this area in February 2015 (nearly six years before the current November 2020 surveys), as part of a study examining the likely traffic and parking impacts arising from the possible expansion of the park on the corner of Hawke and Adderley Streets. That park expansion has now taken place.

The 2015 surveys captured parking occupancy in a similar section of Hawke Street as the current study (between Railway Place and Spencer Street) as well as a short section of Adderley Street (between Abbotsford Street and Roden Street). That area accommodated 154 on-street parking spaces.

The most recent November 2020 parking surveys did not cover any parking spaces in Adderley Street but covered a longer section of Hawke Street between Railway Place and King Street – where there are a total of 143 parking spaces (just short of the 154 surveyed in 2015). Whilst the survey area and the times did not coincide perfectly, a comparison of the findings provides a useful indication of how the conditions in November 2020 may have been affected by the Covid-19 pandemic. Table 13 compares the 2015 parking occupancy (which was based on weekday data) with the 2020 data collected on Wednesday 4 November. The table shows that the 2020 parking occupancy was a little lower than in 2015, for the corresponding time periods, which would suggest that the findings are reasonably representative of activity in the area pre-Covid.

It is relevant to note that the ‘early morning’ and ‘evening’ survey times in the 2015 study report both occurred at times when more residents were likely to be home – thus accounting for some of the higher occupancy recorded at those times. The respective survey times were:

- **Early Morning:** 6.30am in 2015 compared with 7.00am in 2020 (by which time more residents would have left for work/study); and
- **Evening:** 7.30pm in 2015 compared with 7.00pm in 2020 (by which time less residents would have returned home compared with 7.30pm).

Furthermore, the 2015 study identified that in its busiest period (midday) the proportion of parking spaces occupied by local workers or visitors to the precinct was 65%. It is probable that the presence of local workers in the immediate area has fallen over the last six years, as former commercial properties have been converted to residential uses – in common with patterns in the broader West Melbourne area. This would account for some of the lower daytime occupancies recorded in 2020 compared with 2015.

Table 13: Comparison of 2015 and 2020 Parking Surveys

Period	Parking Occupancy Proportion of Parking Spaces Occupied and Time	
	2015 Study Surveys in February 2015	2021 Study Surveys in November 2020
Early morning	68% (6.30am)	61% (7.00am)
Lunchtime	71% (12 noon)	66% (11.00am) & 66% (1.00pm)
Late Afternoon	69% (4.00pm)	62% (3.00pm) & 62% (5.00pm)
Evening	64% (7.30pm)	52% (7.00pm)

4 KEY FINDINGS

4.1 TRAFFIC

This study has revealed that there is a significant difference in traffic volumes between the north-eastern and south-western ends of Hawke Street. On weekdays, the north-eastern end (between Spencer and King Streets) carries nearly five and a half times the traffic volume of the south-western end (between Adderley and Spencer Streets); specifically, 12,713 vehicles per day compared with 2,346 vehicles per day. This pattern is repeated on weekends where the north-eastern end carries six times the traffic volume of the south-western end. The respective traffic volume comparison on weekends between the two sections of Hawke Street is 10,377 vehicles per day at the north-eastern end and 1,755 vehicles per day at the south-western end. These traffic volume differences reflect the contrasting traffic roles between the two sections of Hawke Street. The south-western end functions largely as a 'local' street, whereas the north-eastern end exhibits sub-arterial characteristics connecting through traffic wishing to travel between the Spencer Street corridor and, primarily, the Victoria Street corridor to the east of Errol Street.

A comparison of traffic volumes at the north-eastern end of Hawke Street (using the average weekday automatic traffic data from 2020 and Department of Transport SCATS traffic signal data for the corresponding period from November 2019) has shown that the 24-hour traffic volume was 11% lower in 2020 compared with 2019 in the north-east bound direction and 14% lower in the south-west bound direction. Peak hour differences were often even lower. Thus, on the basis of these findings it is reasonable to assign a high degree of representativeness to the traffic patterns identified in this study, particularly the origin-destination patterns, given that they are based on traffic volumes that are around 80% to 90% of 'normal' levels. In this regard, the origin-destination patterns analysed in this study have revealed that the north-eastern section of Hawke Street acts as a major traffic link between the Spencer Street and Victoria Street arterial routes (and, to a lesser degree, King Street). Most of the traffic that uses this north-eastern section of the street has no local origin or destination and merely uses Hawke Street as a short-cut. The north-eastern section plays a major role in both attracting traffic off Spencer Street (largely originating from Dynon Road) towards Victoria Street, as well as feeding traffic towards Spencer Street (and ultimately to Dynon Road) from Victoria Street. These patterns apply equally to both passenger vehicles and trucks.

4.2 PEDESTRIANS & CYCLISTS

Pedestrian and cyclist volumes were found to be comparatively low throughout the study area in both the AM and PM peak hours. Weekday peak hour activity was higher than the weekend at all the intersections surveyed.

The busiest site, in terms of pedestrian activity, was the intersection of Hawke Street / King Street, where the hourly number of pedestrians crossing all four legs of the intersection was measured at 131 in the weekday AM peak (8-9am) and 103 in the weekday PM peak (5-6pm). These values dropped to 63 and 83 pedestrians/hour respectively in the corresponding weekend peak hours at the same intersection. The second busiest location was the intersection of Hawke Street / Spencer Street where pedestrian numbers were marginally lower than at the Hawke Street / King Street intersection. At the other two surveyed sites (the intersections of Hawke Street with Adderley Street and Railway Place), the hourly pedestrian volumes were significantly lower on both the weekday and weekend – reflecting the much quieter local street environment surrounding these intersections.

The cyclist activity levels follow a similar pattern to the pedestrian activity. The busiest site, in terms of cyclist activity, was also the intersection of Hawke Street / King Street, where the hourly number of cyclist movements on all four legs of the intersection was measured at 19 in the weekday AM peak (8-9am) and 26 in the weekday PM peak (5-6pm). These values dropped to 6 and 7 cyclists/hour respectively in the corresponding weekend peak hours at this same intersection. The second busiest location was the intersection of Hawke Street / Adderley Street where cyclist movements were, at times, twice the levels recorded at Hawke Street / Spencer Street; likely due to the much safer riding conditions on Adderley Street compared with Spencer Street.

4.3 PARKING

The parking surveys covered the 143 publicly available parking spaces in Hawke Street between Railway Place and King Street. The surveys measured occupancy and duration-of-stay. Parking utilisation was found to be comparatively moderate on both the weekday and weekend-day that were surveyed. The overall occupancy over the 12 hours of the survey was similar on both days (62% on Wednesday and 63% on Saturday). There were more vehicles parked on Wednesday compared to Saturday (220 compared with 173); largely a reflection of a greater number of non-resident cars coming into the area on weekdays (visitors/local workers). In contrast, on Saturday, there was a greater proportion of resident permit-holder vehicles (29% of vehicles parked) compared with Wednesday (17% of vehicles parked). A summary comparison of key parking statistics is provided in Table 14.

Table 14: Comparison of Weekday & Weekend Parking Statistics on Hawke Street

	Wednesday 4 November 2020	Saturday 7 November 2020
Total Cars Parked (between 7am-7pm)	220	173
Cars with resident permit (over the full 12 hour survey)	37	50
Non-resident cars (over the full 12 hour survey)	183	123
Peak Occupancy Time	11am & 1pm with 66% occupancy	7pm with 66% occupancy
Overall Occupancy (between 7am-7pm)	62%	63%

Other key findings include:

- The maximum number of cars displaying a resident parking permit was recorded on Saturday – a total of 50 separate residents' vehicles were detected throughout the 12-hour survey period.
- The peak parking demand that is purely associated with residents' vehicles, is summarised as follows:
 - On the weekday, the highest number of cars that were parked during any hour of the survey and that also displayed a resident parking permit was found to be 30 vehicles at 7am (equivalent to 34% of all vehicles parked at that time).
 - On the weekend day, the highest number of cars that were parked during any hour of the survey and that also displayed a resident parking permit was found to be 40 vehicles at 7am (equivalent to 45% of all vehicles parked at that time)
- The maximum number of parking spaces occupied at any time (by both permit and non-permit holders) was found to be 94 out of 143 spaces. This is equivalent to two thirds (66%) of the publicly available spaces being occupied. It occurred at both 11am and 1pm on Wednesday and 7pm on Saturday.
- Thus, even at the busiest times, there is significant spare parking capacity – with at least 49 unoccupied spaces out of the 143 publicly available spaces. This represents spare parking capacity of one-third of the total supply.

On the basis of these findings, it would be reasonable to support a targeted parking rationalisation / reduction strategy for the purposes of open space enhancement along Hawke Street. In pursuing any parking rationalisation, it is relevant to note that the peak parking demand associated with vehicles displaying resident parking permits was identified as being highest on the Saturday morning with 40 residents' vehicles parked at 7am (unsurprisingly, as this is a time when most residents are likely to be home).

APPENDIX (TURNING MOVEMENT COUNTS)

The figures in this Appendix show the peak hour turning movement counts (all vehicles) for both Tuesday 10 November 2020 and Saturday 21 November 2020. The locations are the 4 intersections of Hawke Street with King Street, Spencer Street, Adderley Street and Railway Place.

The peak hours selected are:

- 8.00am to 9.00am for the morning peak
- 5.00pm to 6.00pm for the morning peak

The peak hours are derived from the 3-hour counts that were undertaken at each site (between 7.00am and 10.00am in the morning and 4.00pm and 7.00pm in the evening).

The traffic volumes shown in all the figures in this Appendix are the totals of passenger vehicles and heavy vehicles (trucks and buses). The proportion of heavy vehicles for each intersecting street is provided for each figure. It is relevant to note that during the period of the automatic traffic counts (which were conducted between Wednesday 4 November to Tuesday 10 November 2020.) there were excess buses using streets in the study area (as many trains from North Melbourne Station were replaced by buses due to major works on various train lines). These bus replacement services were most notable on Spencer Street and parts of Dryburgh and Adderley Streets, between Friday 6 November to Tuesday 17 November. For the purposes of presenting the proportion of heavy vehicles in this Appendix, these unusual / one-off bus movements have been excluded from calculations. Thus, the proportions of heavy vehicles quoted in the turning movement counts are a little lower but more representative than the proportions captured by the automatic counters (which included the replacement bus services).

HAWKE STREET / KING STREET

Figure 43 and Figure 44 show the AM and PM peak traffic volumes at Hawke Street / King Street on Tuesday and Saturday respectively. The proportion of heavy vehicles is annotated under each figure.

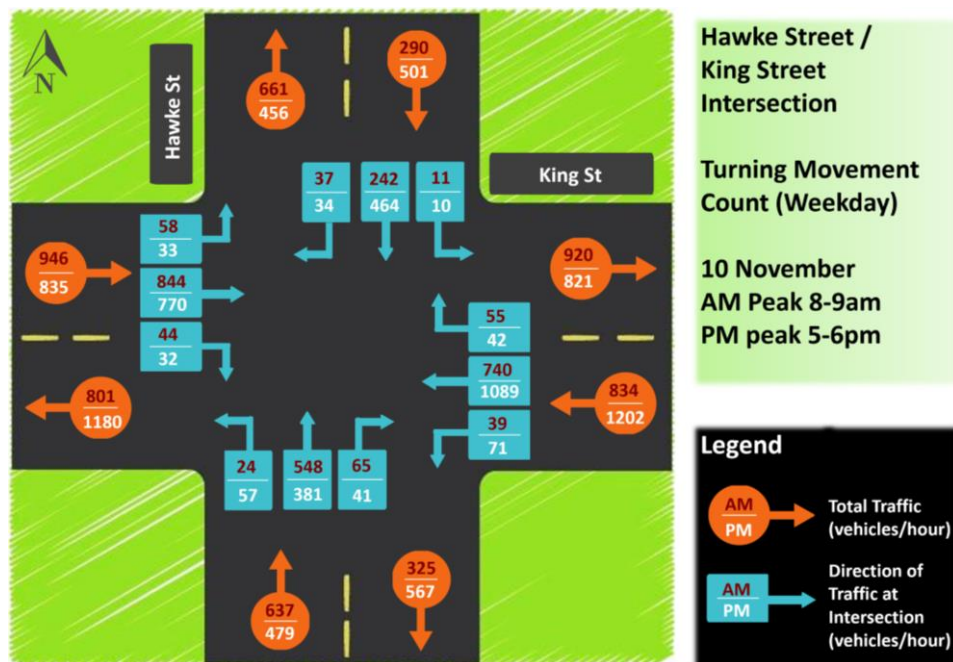


Figure 43: Weekday Peak Hour Traffic Volumes: Hawke Street / King Street

- Heavy vehicles are 5.1% of Hawke Street traffic and 4.1% of King Street traffic in the AM peak hour
- Heavy vehicles are 2.7% of Hawke Street traffic and 3.2% of King Street traffic in the PM peak hour

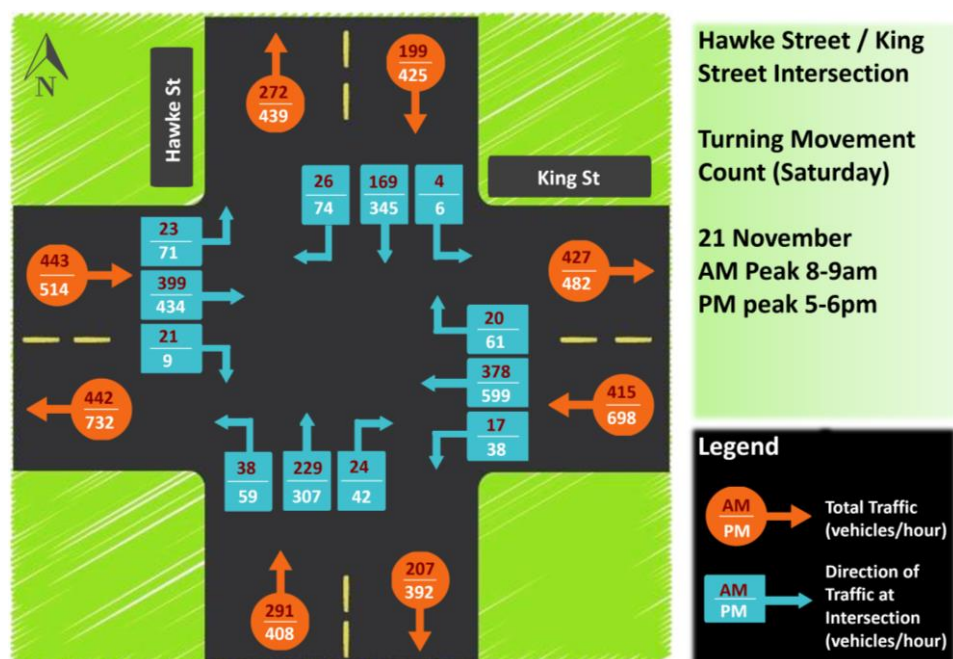


Figure 44: Saturday Peak Hour Traffic Volumes: Hawke Street / King Street

- Heavy vehicles are 3.8% of Hawke Street traffic and 2.9% of King Street traffic in the AM peak hour
- Heavy vehicles are 1.7% of Hawke Street traffic and 1.1% of King Street traffic in the PM peak hour

HAWKE STREET / SPENCER STREET

Figure 45 and Figure 46 show the AM and PM peak traffic volumes at Hawke Street / Spencer Street on Tuesday and Saturday respectively. The proportion of heavy vehicles is annotated under each figure.

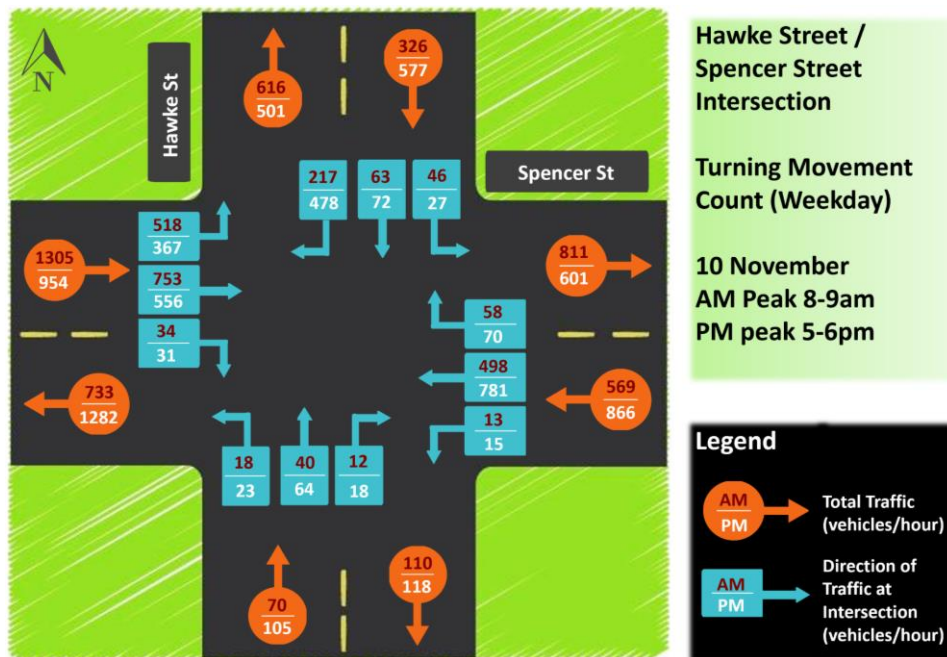


Figure 45: Weekday Peak Hour Traffic Volumes: Hawke Street / Spencer Street

- Heavy vehicles are 6.1% of Hawke Street traffic and 11.9% of Spencer Street traffic in the AM peak hour
- Heavy vehicles are 3.7% of Hawke Street traffic and 6% of Spencer Street traffic in the PM peak hour

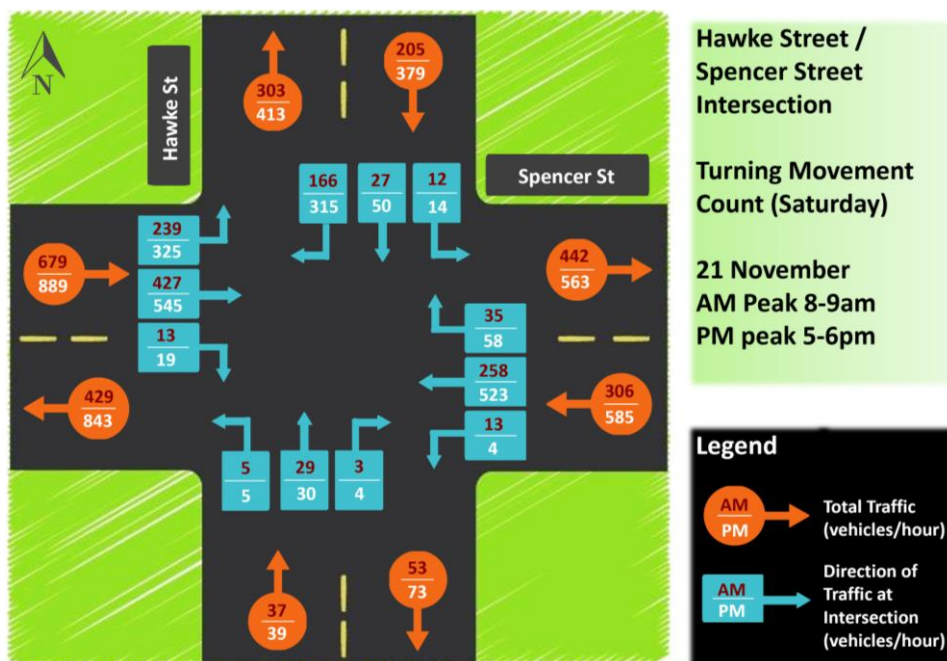


Figure 46: Saturday Peak Hour Traffic Volumes: Hawke Street / Spencer Street

- Heavy vehicles are 4.2% of Hawke Street traffic and 5.7% of Spencer Street traffic in the AM peak hour
- Heavy vehicles are 1.3% of Hawke Street traffic and 0.9% of Spencer Street traffic in the PM peak hour

HAWKE STREET / ADDERLEY STREET

and show the AM and PM peak traffic volumes at Hawke Street / Adderley Street on Tuesday and Saturday respectively. The proportion of heavy vehicles is annotated under each figure.

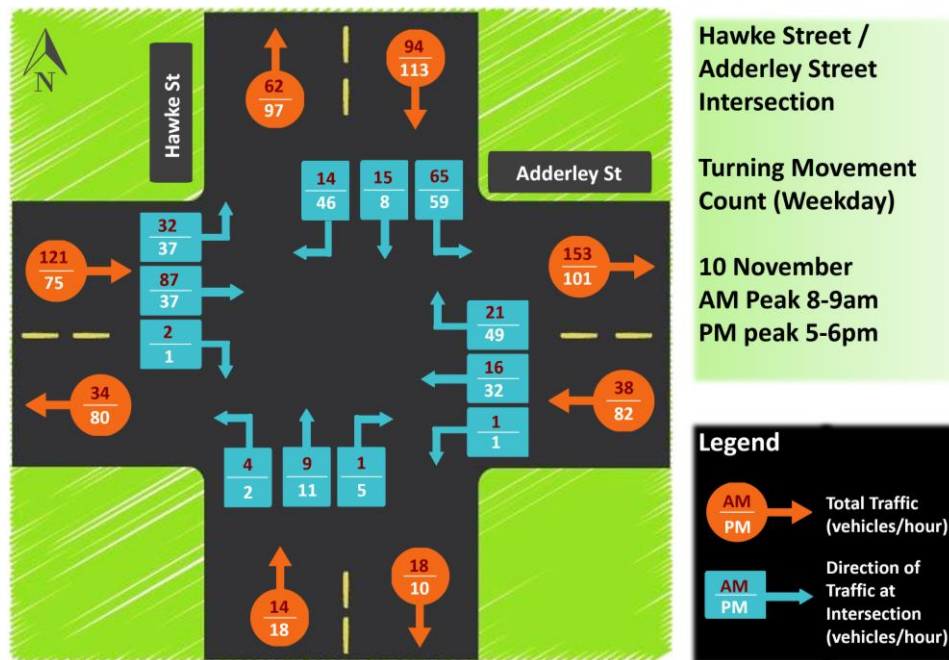


Figure 47: Weekday Peak Hour Traffic Volumes: Hawke Street / Adderley Street

- Heavy vehicles are 2.0% of Hawke Street traffic and 3.7% of Adderley Street traffic in the AM peak hour
- Heavy vehicles are 0.1% of Hawke Street traffic and 0.9% of Adderley Street traffic in the PM peak hour

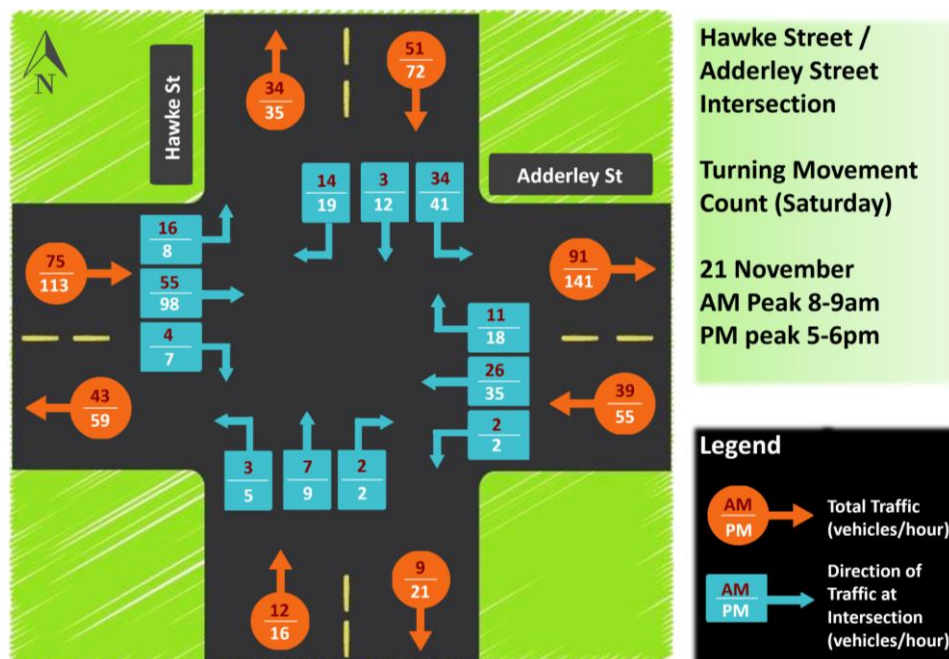


Figure 48: Saturday Peak Hour Traffic Volumes: Hawke Street / Adderley Street

- Heavy vehicles are 2.1% of Hawke Street traffic and 1.2% of Adderley Street traffic in the AM peak hour
- Heavy vehicles are 0.2% of Hawke Street traffic and 0.3% of Adderley Street traffic in the PM peak hour

HAWKE STREET / RAILWAY PLACE

Figure 49 and Figure 50 show the AM and PM peak traffic volumes at Hawke Street / Railway Place on Tuesday and Saturday respectively. The proportion of heavy vehicles is annotated under each figure.

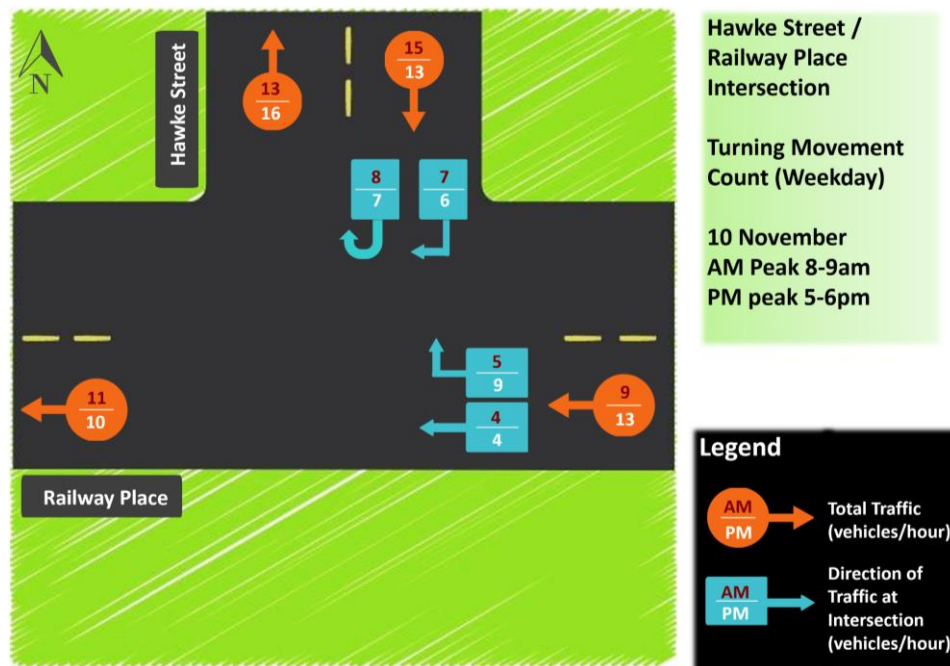


Figure 49: Weekday Peak Hour Traffic Volumes: Hawke Street / Railway Place

Only 1 heavy vehicle recorded in the entire AM and PM peak periods. It travelled through on Railway Place in the AM peak hour (representing 11.1% of the 9 vehicles travelling in that direction).

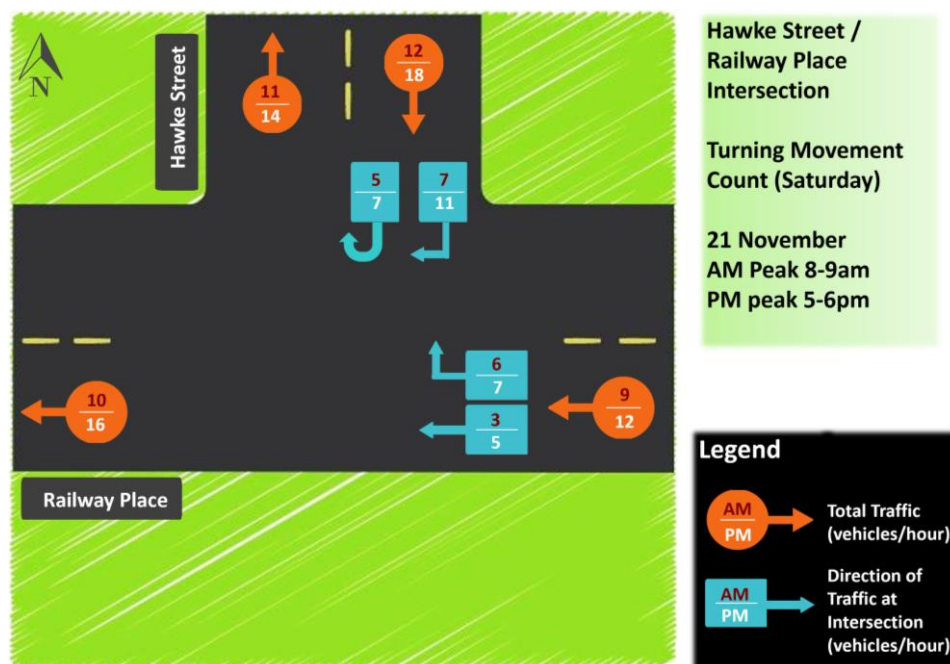


Figure 50: Saturday Peak Hour Traffic Volumes: Hawke Street / Railway Place

In common with the weekday, only 1 heavy vehicle recorded in the entire AM and PM peak periods. It travelled through on Railway Place in the AM peak hour (representing 11.1% of the 9 vehicles travelling in that direction).