

# Traffix Group

## Traffic Impact Assessment

Proposed Road Closure Assessment  
Charlotte Street, Richmond

Prepared for  
Yarra City Council

## Document Control

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## 1. Introduction

Traffic Group has been engaged by Yarra City Council to undertake a traffic impact assessment for the proposed road closure of Charlotte Street between Church Street and St Crispin Street, Richmond. The proposed road closure is to facilitate the provision of a new public space, which will occupy the full width of Charlotte Street from Church Street to St Crispin Street.

This report provides a detailed traffic engineering assessment of the parking and traffic issues associated with the proposed road closure.

## 2. Charlotte Street Public Space

The proposal is for the construction of public space identified in the Swan Street Streetscape Master Plan as a new 'Civic Library', on Charlotte Street, Richmond. The project involves the permanent closure of Charlotte Street, between Church Street and St Crispin Street with the extents shown in the photographs below at Figure 1 and Figure 2.



*Figure 1: Charlotte Street  
– View East from Church Street*

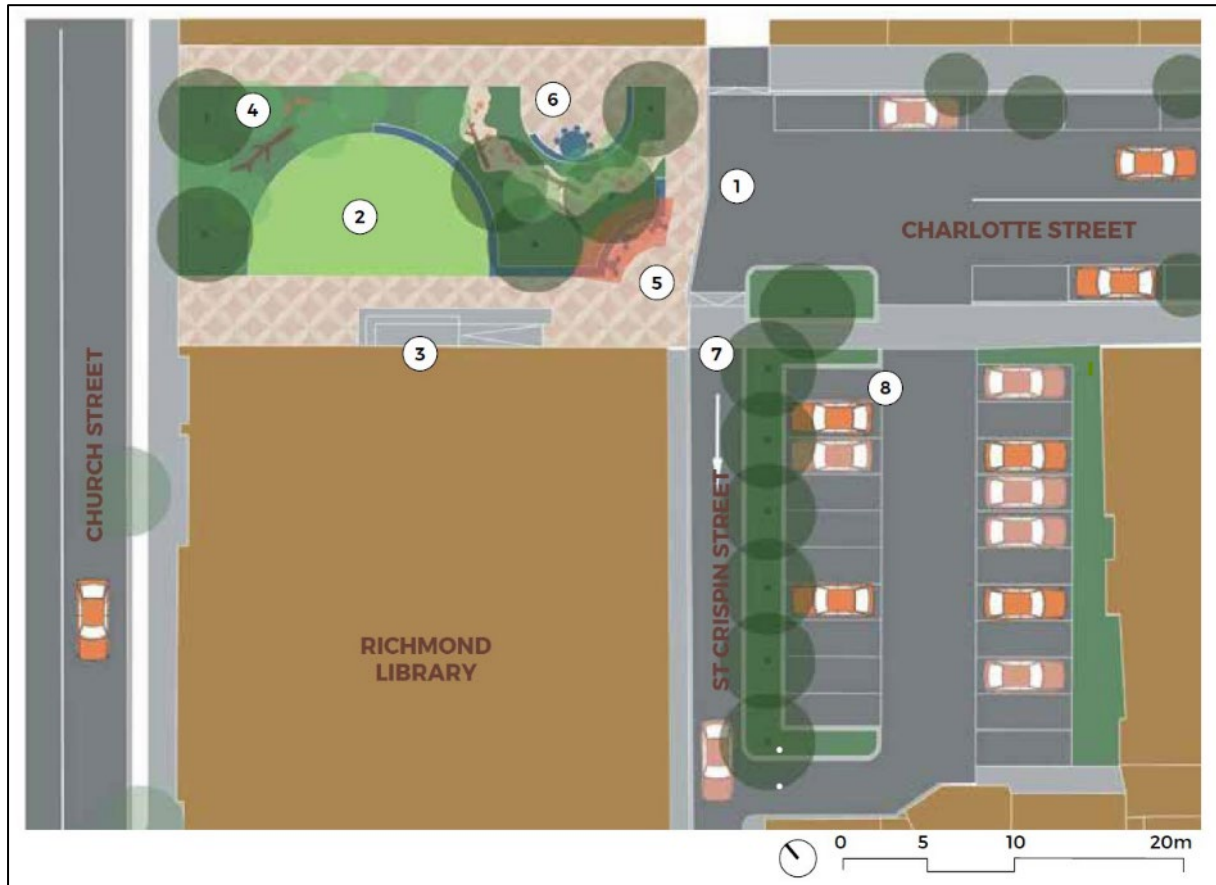


*Figure 2: Charlotte Street  
– View West towards Church Street*

The construction of the public spaces comprises the following components with a concept design shown at Figure 3 below.

- The construction of public space that provides landscaping and seating for users,
- Wide and open pedestrian thoroughfares,
- A new Richmond Library access,
- A pergola and seating space,
- Provision for cyclist access through the park,
- The removal of five (5) on-street parking spaces along the western end of Charlotte Street, and
- Retention of vehicle access to St Crispin Street (north and south).

The closure site is



Source: Swan Street Streetscape Masterplan (October 2021)

Figure 3: Concept Design – Charlotte Street Public Space

An extract from the Swan Street Streetscape Masterplan is provided at Appendix A.

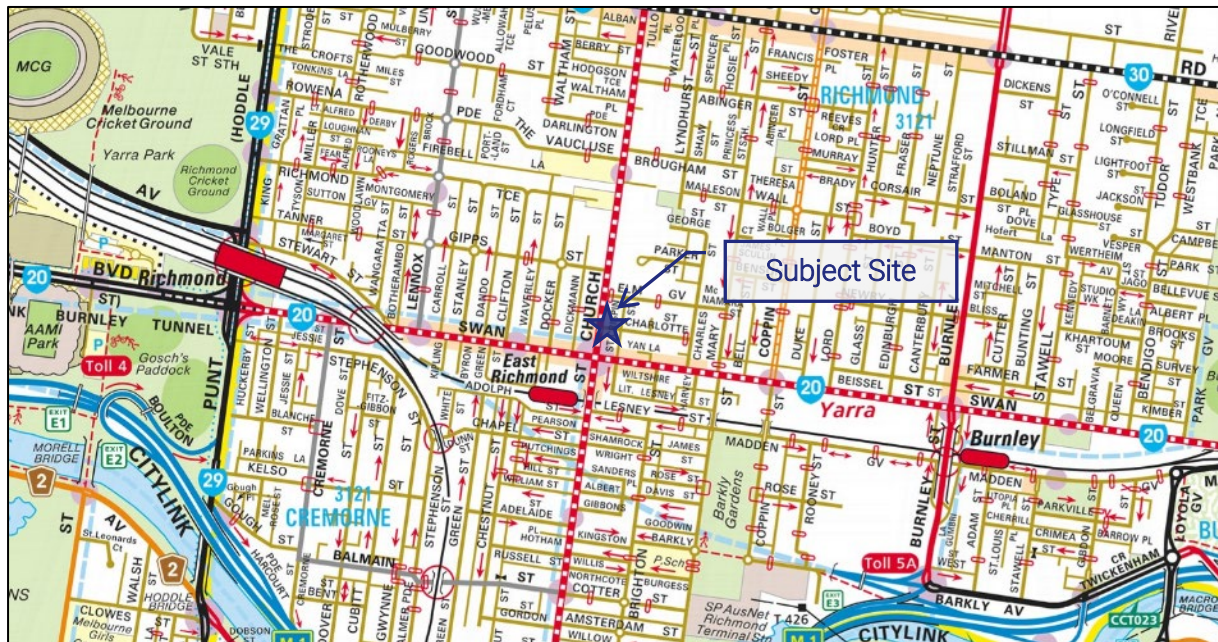
## 3. Existing Conditions

### 3.1. Locality and Land Use

The subject section of Charlotte Street is located between Church Street and St Crispin Street in Richmond. A locality plan and aerial photograph is provided in Figure 4 and Figure 5 below.

Land use surrounding the site is predominately residential, with small retail/commercial properties along Church Street. Richmond Library is located adjacent the site to the south on the east side of Church Street.





Source: Melway

Figure 4: Locality Plan



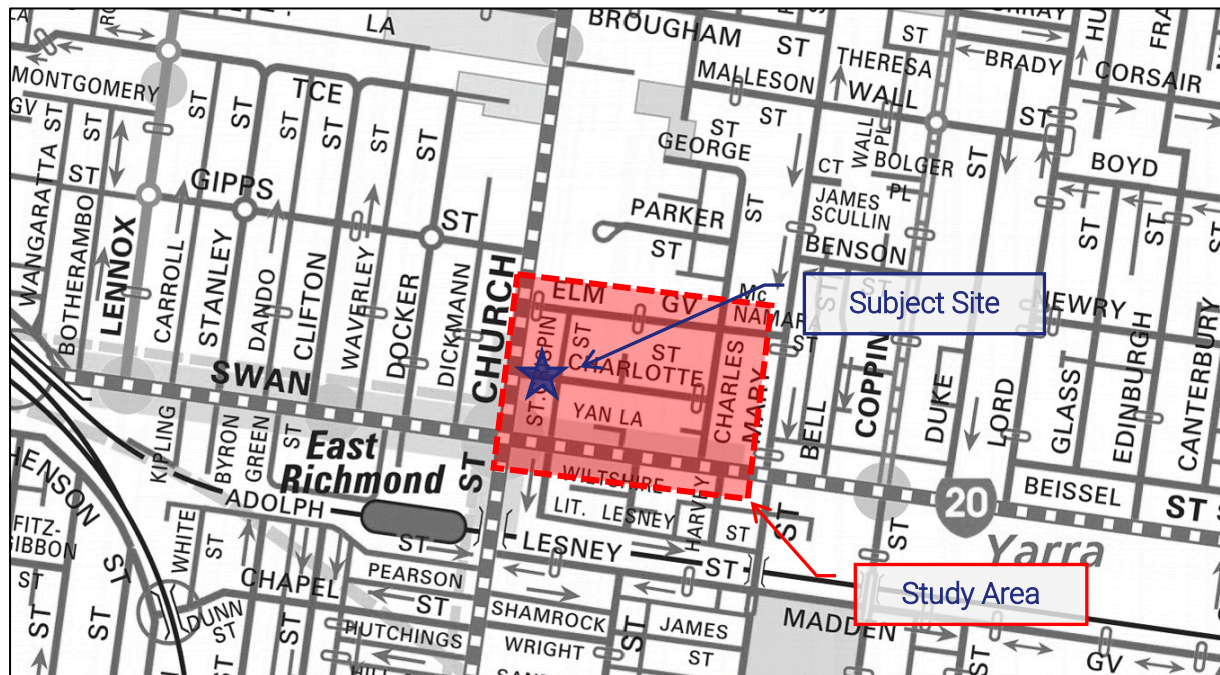
Source: Nearmap (December 2021)

Figure 5: Aerial Photograph



## 3.2. Study Area

For the purposes of this assessment, the study area has been defined as shown in Figure 6 below. This area has been chosen as the likely area of influence for the proposed road closure of Charlotte Street on the road network. Parking surveys and traffic studies undertaken as part of this assessment have been limited to this study area and are detailed in the following sections.



Source: Melway

Figure 6: Study Area

## 3.3. Road Network

**Charlotte Street** is a Council local road that extends in an east-west orientation between Church Street and Charles Street.

Near the intersection with Church Street, Charlotte Street provides an 11.9m wide carriageway, that provides for a single traffic and bicycle lane in each direction with parallel parking on the north side. Between St Crispin Street and Charles Street, Charlotte Street provides a 13.2m wide carriageway, that provides for a single traffic lane, bicycle lane and on-street parallel parking in both directions.

Various parking restrictions and permit zones apply along Charlotte Street. A 'No Left Turn' restriction also applies to the intersection of Charlotte Street / Church Street between 7:30am - 9:30am on Monday to Friday, for left turns from Church Street into Charlotte Street.

Charlotte Street is subject to a posted speed limit of 40km/h (area wide restriction).



Figure 7: Charlotte Street – View West



Figure 8: Charlotte Street – View East

**Elm Grove** is a Council local road the extends in an east-west orientation between Church Street and Charles Street.

Between Church Street and Charles Street, Elm Grove provides a 9.5m wide carriageway, that provides for a single traffic lane with on-street parallel parking in both directions.

Various parking restrictions and permit zones apply along Elm Grove. A 'No Left Turn' restriction also applies to the intersection of Elm Grove / Church Street between 7:30am - 9:30am on Monday to Friday, for left turns from Church Street into Elm Grove.

Elm Grove is subject to a posted speed limit of 40km/h (area wide restriction).





Figure 9: Elm Grove – View West



Figure 10: Elm Grove – View East

**Charles Street** is a Council local road that extends in a north-south orientation between Swan Street and George Street.

Between Elm Grove and Swan Street, Charles Street provides a 11.1m carriageway that provides for a single traffic lane and on-street parallel parking in both directions.

Various parking restrictions and permit zones apply along Charles Street. A 'No Right Turn' restriction also applies to the intersection of Charles Street / Swan Street between 7:30am - 9:30am on Monday to Friday, for right turns from Swan Street into Charles Street.

Charles Street is subject to a posted speed limit of 40km/h (area wide restriction).



Figure 11: Charles Street – View North



Figure 12: Charles Street – View South

**St Crispin Street** is a Council local road that extends in a north-south orientation between Elm Grove and Swan Street.

Between Swan Street and Charlotte Street, St Crispin Street provides a 3.8m carriageway that accommodates one way traffic flow. South of Charlotte Street, St Crispin Street is restricted to southbound traffic only, whilst no traffic restrictions apply north of St Crispin Street. A small



number of indented parallel parking bays are provided on the east side of St Crispin Street to the south of Charlotte Street.



Figure 13: St Crispin Street – View North



Figure 14: St Crispin Street – View South

**Church Street** is a state arterial road that extends in a north-south orientation between the Yarra River and Alexandra Avenue.

Near the intersection with Charlotte Street, Church Street provides a 14m wide carriageway, that accommodates two traffic lanes in each direction. The kerbside lanes are shared with parking, whilst the inside lanes are shared with trams. An exclusive bicycle lane (southbound) commences immediately to the south of Charlotte Street and extends to Swan Street.

Various short term ticket parking restrictions apply along Church Street, with no Clearway restrictions in place.

Church Street is subject to a posted speed limit of 40km/h.



Figure 15: Church Street – View North

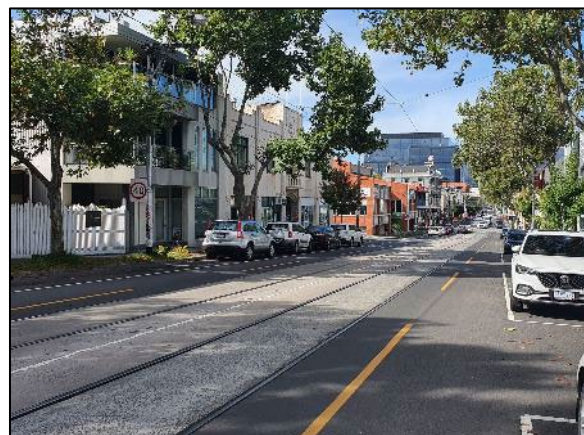


Figure 16: Church Street – View South



**Swan Street** is a state arterial road that extends in an east-west orientation between Punt Road and Madden Grove.

Near the intersection with Church Street to the north, Swan Street provides a 13.9m wide carriageway, that accommodates two traffic lanes in each direction. The kerbside lanes are shared with parking whilst the inside lanes are shared with trams sides.

Various short term ticket parking restrictions and clearway restrictions apply along Swan Street. This includes 'Clearway's in operation at 7:00am-9:15am on the south side and 4:30pm-6:30pm on the north side between Monday to Friday.

Swan Street is subject to a posted speed limit of 40km/h that applies between 7am – Midnight Monday to Sunday, with a 60km/h speed limit in effect outside those times.



Figure 17: Swan Street – View East



Figure 18: Swan Street – View West

## 3.4. Existing Traffic Volumes

### 3.4.1. Turning Movement Counts

Turning movement counts were conducted on Thursday, 3<sup>rd</sup> March, 2022 between the time periods of 7:30am to 9:30am and 4:30pm to 6:30pm for the following intersections:

- Church Street / Elm Grove,
- Church Street / Charlotte Street,
- Church Street / Swan Street,
- St Crispin Street / Elm Grove,
- St Crispin Street / Charlotte Street,
- St Crispin Street / Swan Street,
- Charles Street / Elm Grove,
- Charles Street / Charlotte Street, and
- Charles Street / Swan Street.

An analysis of the existing turning movement results revealed that there are two (2) distinct peak time periods for analysis, based on turning movements into/out of the local road network:

- AM Peak: 8:00am to 9:00am on Thursday,
- PM Peak: 5:30pm to 6:30pm on Thursday.

Whilst these time periods do not necessarily reflect the peak times of the arterial road network, however, are best suited for this assessment.

The turning movement volumes for the two (2) peak periods identified above are summarised in Figure 19 and Figure 20 below. The full turning movement counts data are provided at Appendix B.

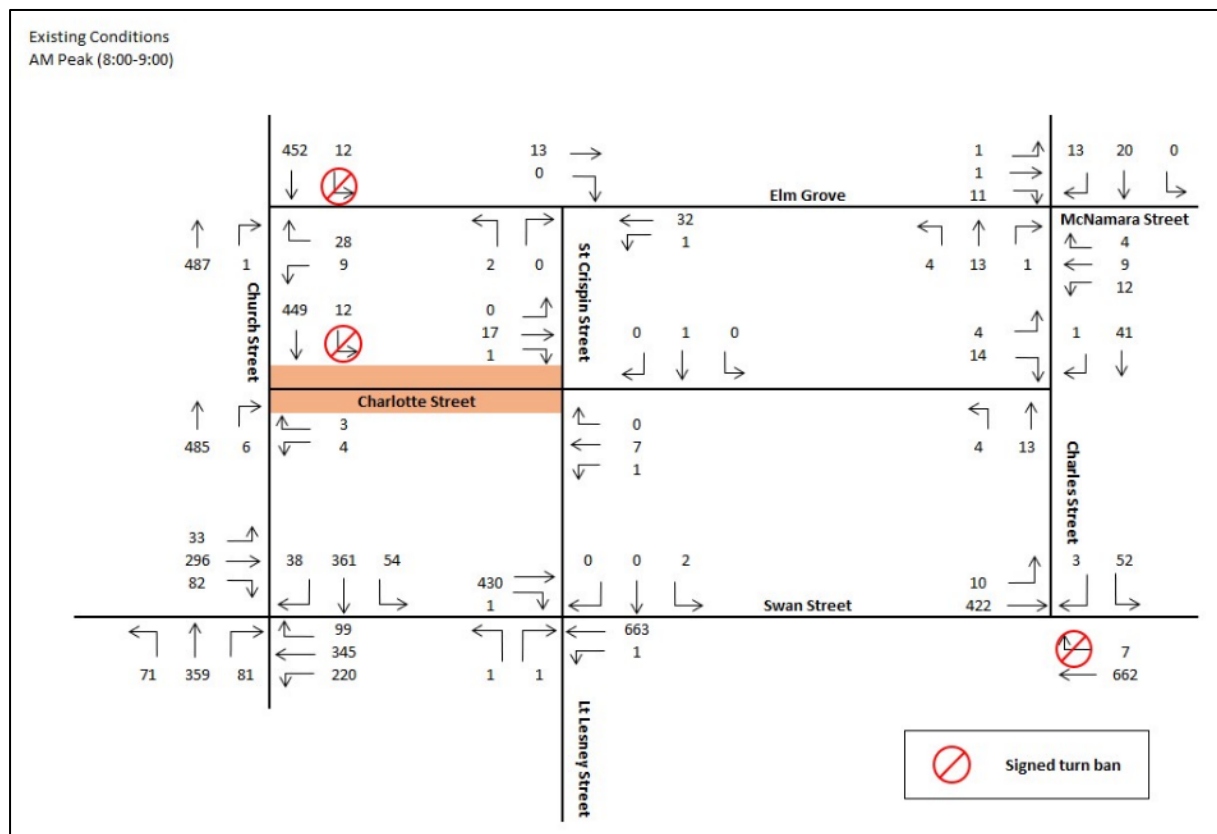


Figure 19: Existing AM Peak Turning Movement Volumes

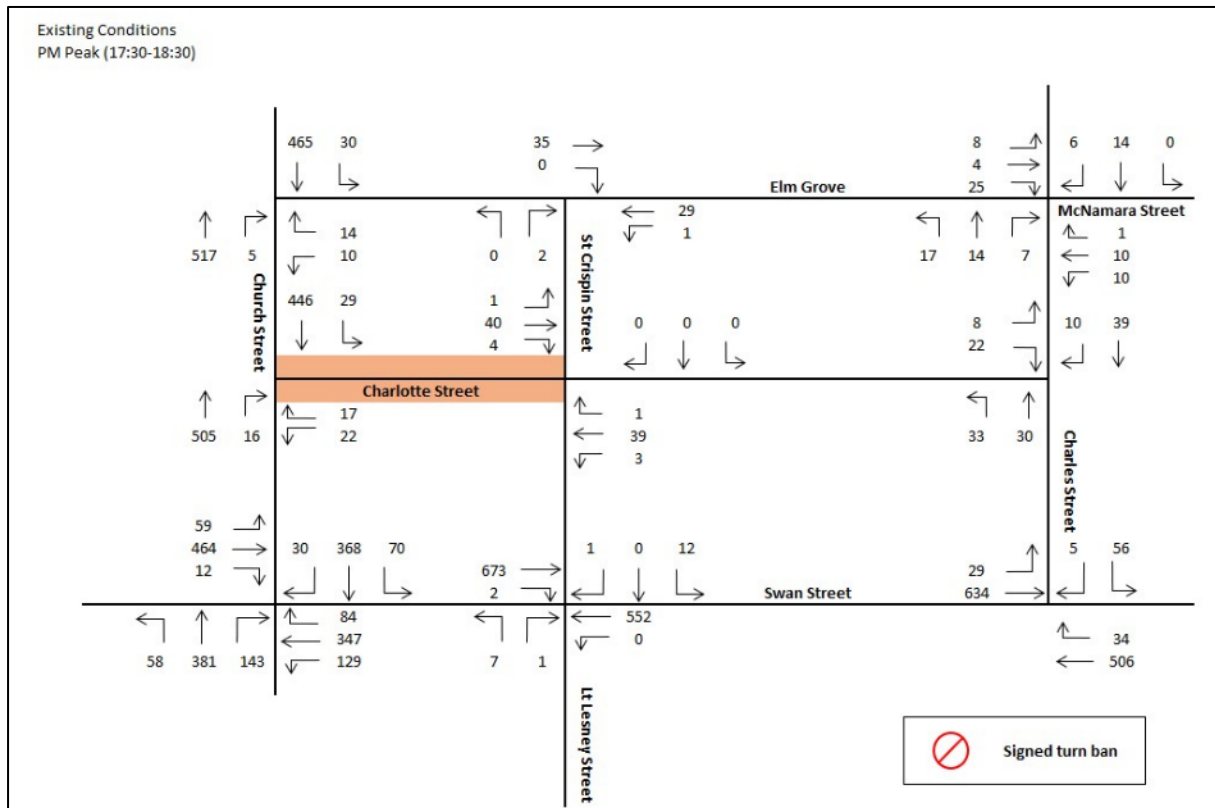


Figure 20: Existing PM Peak Turning Movement Volumes

## 3.4.2. Seven (7) day Traffic Counts

Seven (7) day traffic counts were undertaken for the following periods:

- Tuesday, 1<sup>st</sup> March 2022 - Tuesday, 8<sup>th</sup> March 2022, and
- Saturday, 12<sup>th</sup> March 2022 - Saturday, 19<sup>th</sup> March 2022.

The counts were undertaken at the following locations:

- Elm Grove, between St Crispin Street and Charles Street,
- Charlotte Street, between St Crispin Street and Charles Street,
- Charles Street, between Parker Street and Elm Grove,
- Charles Street, between Elm Grove and Charlotte Street,
- Charles Street, between Charlotte Street and Swan Street,
- McNamara Street, between Charles Street and Mary Street, and
- St Crispin Street, between Charlotte Street and Swan Street.

During the period of Tuesday, 1<sup>st</sup> March 2022 - Tuesday, 8<sup>th</sup> March 2022, it is noted that Mary Street (east of Charles Street) between McNamara Street and Swan Street was closed at times for drainage/roadworks. The roadworks closure was generally in place between 7am and 3pm.

It is our understanding that no drainage/roadworks were undertaken between Thursday, 10<sup>th</sup> March and Friday 17<sup>th</sup> March 2022 and Mary Street remained open during those times.

A review of the automatic traffic count data indicates that traffic volume data for the period Tuesday, 1<sup>st</sup> March 2022 to Thursday, 3<sup>rd</sup> March 2022 best represents typical road network conditions, having consideration for traffic conditions when Mary Street was open and when it was closed.

A summary of the traffic counts results are provided in Table 1 below, with the full data provided at Appendix C.

Table 1: Average Daily Traffic Volumes

Location	Daily Volumes			AM Peak (8am to 9am)			PM Peak (5pm to 6pm)		
	N / E	S / W	Total	N / E	S / W	Total	N / E	S / W	Total
Elm Grove – b/w St Crispin St and Charles St	337	378	715	17	25	42	36	29	65
Charlotte Street – b/w St Crispin St and Charles St	312	275	587	17	8	25	26	28	54
Charles Street – b/w Parker St and Elm Gr	323	318	641	12	27	39	28	22	50
Charles Street – b/w Elm Gr and Charlotte Str	418	523	941	11	46	57	36	41	77
Charles Street – b/w Charlotte St and Swan St	567	674	1,241	15	56	71	57	57	114
McNamara Street – b/w Charles St and Mary St	64	214	278	0	20	20	11	20	31

## 3.5. Existing Intersection Performance – Church Street / Swan Street

As outlined previously in Section 3.4, the two (2) key time periods for analysis are:

- AM Peak: 8:00am to 9:00am on the Thursday,
- PM Peak: 5:30pm to 6:30pm on the Thursday.

An analysis of the two (2) time periods above will provide an indication of the traffic impacts associated with the proposed road closure for the surrounding arterial road network.

The intersection of Church Street / Swan Street has been selected for intersection modelling, because of the high volume of traffic on each approach, the sensitivity of traffic signals to a change in traffic volume and their role in the road network as an intersection of two (2) arterial roads.

SIDRA Intersection 9.0 was used to model the baseline traffic conditions at the Church Street / Swan Street intersection.

The SIDRA Intersection 9.0 software package provides several key indicators to measure intersection performance. These include:

- Degree of Saturation (DOS),
- Average Delay (in seconds),
- Maximum Queue Length (in metres), and
- Level of Service (LOS).

The LOS Criteria for intersections found in the RMS Guide to Traffic Generating Developments is shown in Table 2 below.

*Table 2: Level of Service Criteria (RMS)*

Level of Service	Average Delay (seconds per vehicle)
A	Less than 14
B	15 to 28
C	29 to 42
D	43 to 56
E	57 to 70
F	Greater than 71

A review of the approach and departure lanes for Church Street / Swan Street intersection determined that there are effectively two (2) different layouts depending on the time of day, because of the various time-based parking restrictions and clearway restrictions on the eastern and western legs.

Signal phase timing data and site operation sheets were obtained from the Department of Transport and used in the respective models to accurately model the existing traffic signals operation. Tram extension phases were simply added/subtracted from vehicle phases respectively.

The proportion of heavy vehicles to light vehicles for each movement was obtained from the turning movement counts previously outlined in Section 3.4.1.

To accurately represent the performance characteristics of the Church Street / Swan Street intersection, the SIDRA model was calibrated based on the queueing observed during the peak periods.

Further calibration was required for the PM Peak model, with the 'end gain' parameter increased from 3s to 5s for the right turn on the south approach.

All other parameters were retained at SIDRA's default values.

A summary of the baseline conditions intersection network performance is provided in the following sections.

### 3.5.1. Intersection Analysis (SIDRA) Results – Church Street / Swan Street

Table 3 provides a summary of the SIDRA intersection analysis results for the intersection, with the full results provided at Appendix D.

Table 3: Church Street and Swan Street – SIDRA Results

Approach	Degree of Saturation	Average Delays (s)	95 <sup>th</sup> %ile Queue (m)	Level of Service
AM Peak – 8:00am to 9:00am				
North	0.678	36.5	97	LOS D
East	0.435	18.1	90	LOS B
South	0.708	30.7	142	LOS C
West	0.464	22.1	88	LOS C
Total	0.708	26.2	142	LOS C
PM Peak – 5:30pm to 6:30pm				
North	0.637	39.8	112	LOS D
East	0.670	25.8	117	LOS C
South	0.720	31.3	177	LOS C
West	0.331	29.5	76	LOS C
Total	0.720	29.5	177	LOS C

The Degree of Saturation (DOS) is a measure of traffic demand against the intersection's capacity. That is, a DOS of 1 indicates that the intersection is operating at capacity and any additional traffic demand will lead to a significant and unstable increase in delays and queues. Whilst a DOS below 1 is desirable, in reality many heavy congested intersections operate a DOS greater than 1.

The results show that the DOS for Church Street (south approach) operates in the upper reaches of capacity in both peaks, whilst Swan Street (east and west approach) operates with spare capacity in both peaks.

It is noted that the highest delays are experienced along Church Street (north approach) across both time periods. As these delays are less than the length of one (1) cycle at each traffic signal, they are not considered to be of significant detriment.

The results show that the 95<sup>th</sup> percentile queue distances are generally moderate in length, however significant queues build up along Church Street (south approach) during the AM and PM peak.

The 95th Percentile Queue is the queue length experienced at an intersection which is only exceeded 5% of the time or, 95% of the time, queues are less than the 95th Percentile Queue length. The distance is expressed in metres.

### **3.6. Casualty Crash History**

A review of the State Road Accident Records (Crash Stats) has been undertaken for the intersections within the study area for the last five (5) years of available data (01/01/2017 to 31/12/2021). The results of the assessment are summarised in Table 4 below.

A total of 20 crashes have been recorded at intersections within the study area, which include one (1) serious injury crash involving a cyclist. More broadly, a total of 13 of 20 crashes involved pedestrians and cyclists.

It is noted that the Church Street / Swan Street intersection recorded the majority of crashes with a total of 7 out of 20 crashes. The predominate crash pattern involves collisions with pedestrians and cyclists.

Recent safety improvements for pedestrians have been implemented on the Church Street / Swan Street intersection in 2021. The installation of flashing 'Give Way to Pedestrians' LED's affecting the east and west pedestrian crossings and 'No Right Turn' LED's affecting the western approach have been installed to reduce pedestrian involved collisions.

Church Street, between Elm Grove and Swan Street, experienced a concentration of cyclist crashes, with three (3) out of the four (4) crashes involving cyclists.

It is noted that all the crashes occurred on the arterial road network, i.e., Church Street and Swan Street. No crashes occurred within the local street network.

More detailed collision data is provided at Appendix E.

Table 4: Casualty Crash Summary Table (1/01/2017 – 31/12/2021)

Location	Date	Time	Severity	DCA	Type of Crash
Church Street - b/w Gipps and Elm Grove	17/01/17	5:00 PM	Other	130	Rear End (Vehicles In Same Lane)
	3/10/17	10:25 AM	Other	163	Vehicle Strikes Door Of Parked/Stationary Vehicle - <b>Bicycle</b>
	28/02/19	12:40 PM	Serious	135	Lane Change Left - <b>Bicycle</b>
Church Street - b/w Elm Grove and Swan Street	11/03/20	8:15 AM	Other	163	Vehicle Strikes Door Of Parked/Stationary Vehicle - <b>Bicycle</b>
	21/02/20	11:00 PM	Other	140	U Turn - <b>Bicycle</b>
	7/11/20	2:00 PM	Other	121	Right Through - <b>Bicycle</b>
	14/04/18	6:00 PM	Other	160	Vehicle Collides With Vehicle Parked On Left Of Road - <b>Motorcyclist</b>
Church Street / Swan Street intersection	4/08/17	4:13 PM	Other	133	Lane Side Swipe (Vehicles In Parallel Lanes)
	16/12/17	2:30 AM	Other	100	Ped Near Side. <b>Ped</b> Hit By Vehicle From The Right.
	1/04/18	5:12 PM	Other	108	<b>Ped</b> Struck Walking To/From Or Boarding/Alighting Vehicle.
	8/05/19	3:45 PM	Other	133	Lane Side Swipe (Vehicles In Parallel Lanes) - <b>Bicycle</b>
	4/04/20	12:20 PM	Other	130	Rear End (Vehicles In Same Lane)
	22/06/20	8:40 AM	Other	110	Cross Traffic - <b>Motorcyclist</b>
	25/11/21	3:30 PM	Other	121	Right Through - <b>Bicycle</b>
	31/01/18	5:00 PM	Other	131	Left Rear
	8/11/19	11:15 PM	Other	100	Near Side - <b>Pedestrian</b>
Swan Street - b/w Bright Street and Harvey Street	1/06/20	10:15 PM	Other	163	Vehicle Strikes Door Of Parked/Stationary Vehicle - <b>Bicycle</b>
	13/01/19	2:40 AM	Other	102	Far Side. <b>Ped</b> Hit By Vehicle From The Left
	21/04/17	7:30 PM	Other	121	Right Through - <b>Bicycle</b>
	2/06/17	8:10 PM	Other	130	Rear End (Vehicles In Same Lane)



### 3.7. Parking Conditions

Spot parking surveys of the study area, as shown in Figure 21 below, were undertaken at the following times:

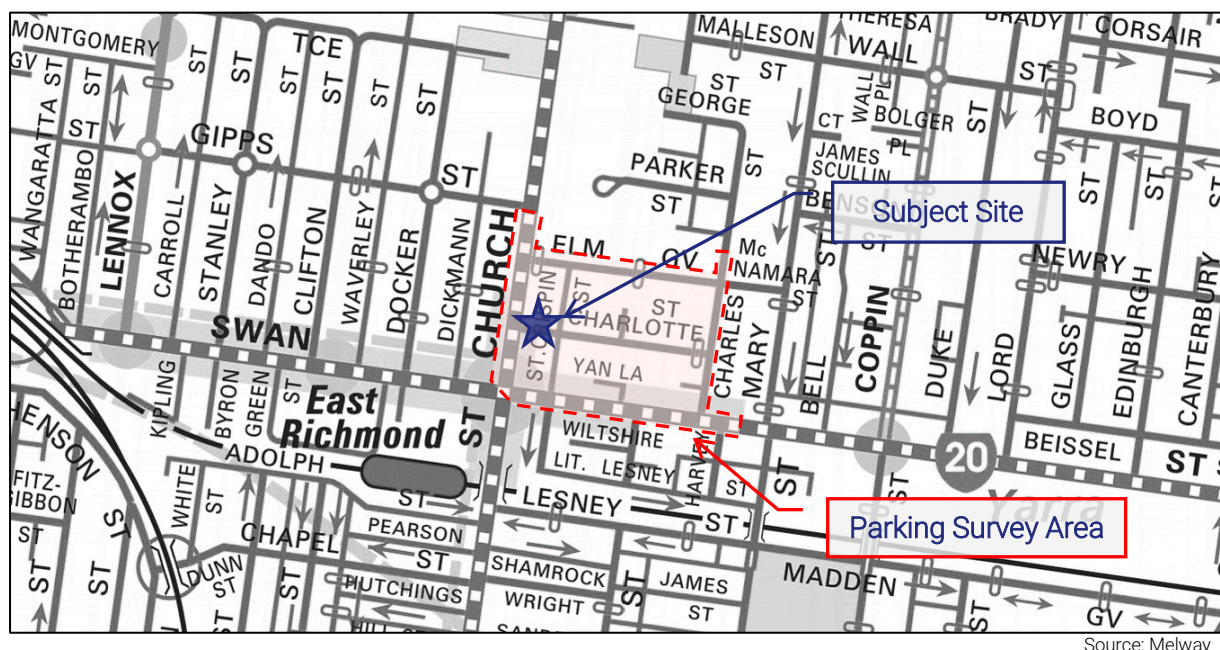
- 9:30am on Wednesday, 2 March 2022,
- 4:00pm and 6:30pm on Thursday, 3 March 2022,
- 11:30am and 1:30pm on Thursday, 17 March 2022,
- 2:00pm and 6:30pm on Saturday, 26 March 2022.

These times were chosen as they represent typical parking conditions for the following scenarios:

- Weekday 'morning' demand – 9:30am on Wednesday,
- Weekday 'midday' demand – 11:30am and 1:30pm on Thursday,
- Weekday 'evening' demands – 4pm and 6:30pm on Thursday,
- Weekend 'afternoon' demands – 1:45pm on Saturday,
- Weekend 'evening' demands – 6:30pm on Saturday.

There is a total of 229 publicly available parking spaces within the survey area, which includes a mix of restrictions including 1/4P, 2P, metered parking, permit zones, and disabled parking restrictions.

The results of the parking surveys are summarised in Figure 22 below, with the full results provided at Appendix F.



Source: Melway

Figure 21: Parking Survey Area

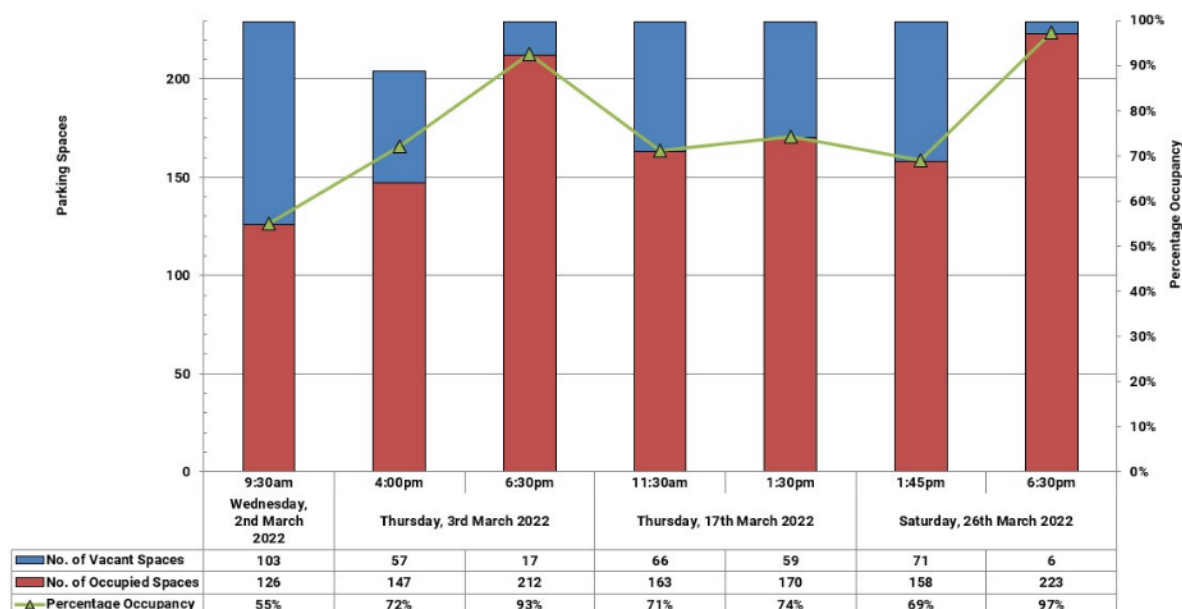


Figure 22: Parking Survey Results Summary

The results above show that the area averages a 68% occupancy rate during the typical morning and daytime periods but reaches above 90% occupancy in the evening. Vacant spaces are typically 2P/2P metered parking zones or Permit Zones. We note that the morning and daytime periods indicate further capacity to accommodate additional parking demands, however the evening period has limited opportunities to accommodate further demands, with occupancy at or near capacity.

The evening demands are likely jointly driven by residential demands and that of the surrounding commercial properties (such as restaurants or pubs).

It is noted that the City of Yarra's residential parking permit policy allows permit holders to be exempt from select restrictions, including those with restrictions longer than 1P (unless metered). This suggests that some parking demands recorded within the 2P areas along the local street network may be comprised of residential demands, and not solely that of short term visitor demands.

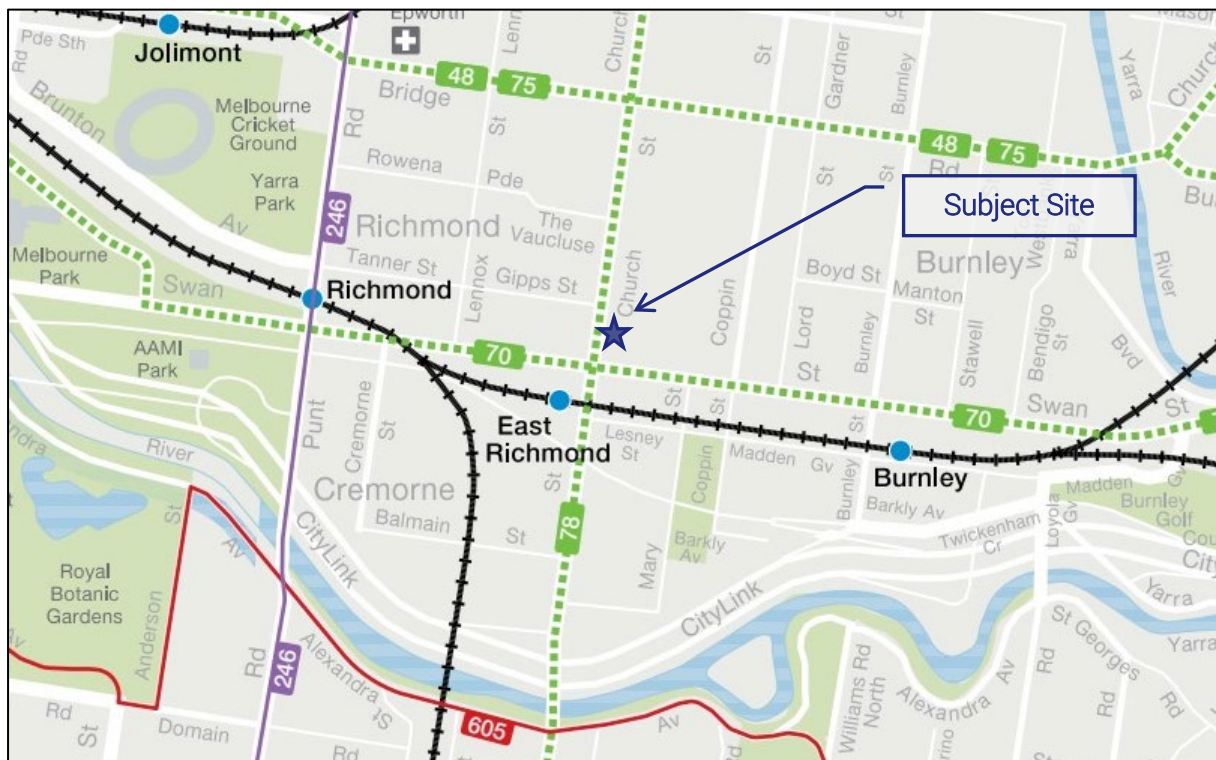
### 3.8. Public Transport

The City of Yarra Public Transport network is provided in Figure 23 below.

Public transport facilities in the vicinity of Charlotte Street includes a tram route 78 on Church Street / Gipps Street Tram Stop to the north, tram route 70 on Swan Street/Church Street Tram Stop to the south and the East Richmond Railway Station 300m to the southwest.

Tram Route 78 extends from Victoria Street/Church Street, North Richmond to Brighton Road/Chapel Street, Balaclava. Tram Route 70 extends from Waterfront City, Docklands to Eldgar Road/Riversdale Road, Burwood.

- On weekdays, Tram Route 78 service operates at approximately 12-minute headways during 6:46am to 7:54pm, outside these times the service operates at a headway of approximately 20 minutes.
- On weekends, Tram Route 78 service operates at approximately 15-minute headways during 7:25am to 7:23pm, outside these times the service operates at a headway of approximately 20 minutes.
- On weekdays, Tram Route 70 service operates at approximately 10-minute headways during 6:15am to 7:14pm, outside these times the service operates at a headway of approximately 15 minutes.
- On weekends, Tram Route 70 service operates at approximately 12-minute headways during 7:10am to 7:29pm, outside these times the service operates at a headway of approximately 20 minutes.



Source: City of Yarra Public Transport Network (September 2021)

Figure 23: City of Yarra Public Transport Network

## 4. Traffic Impact Assessment

This assessment outlines the anticipated impacts of the proposed road closure on the surrounding road network, with comparison to the existing road network performance and the expected redistribution of traffic as a result of the proposal. The assessment also considers other post closure impacts such as public transport, pedestrians and cyclists, emergency vehicles and current crash patterns.

SIDRA intersection modelling was used to model the performance of the intersection of Church Street / Swan Street. The remaining intersections are local unsignalised intersections with much lower traffic volumes, and do not warrant detailed modelling, however, are still considered for assessment.

This assessment has been conducted with specific reference to Section 3 of VicRoads' *Additional Network Standards and Guidelines Part 2.8: Changing traffic movements other than for events or works*.

### 4.1. Post Road Closure Scenario Traffic Conditions

The broader road network was analysed to determine the different travel routes that contribute to the turning movements at the intersection of Church Street / Charlotte Street, in order to determine what traffic volumes would be redistributed as part of the road closure. The review identified five (5) broad travel routes in both peak periods as shown in Figure 24 and Figure 25 below, separated into three (3) routes **to** Charlotte Street and two (2) routes **from** Charlotte Street. The traffic volumes for each travel route are summarised in Table 5 below.

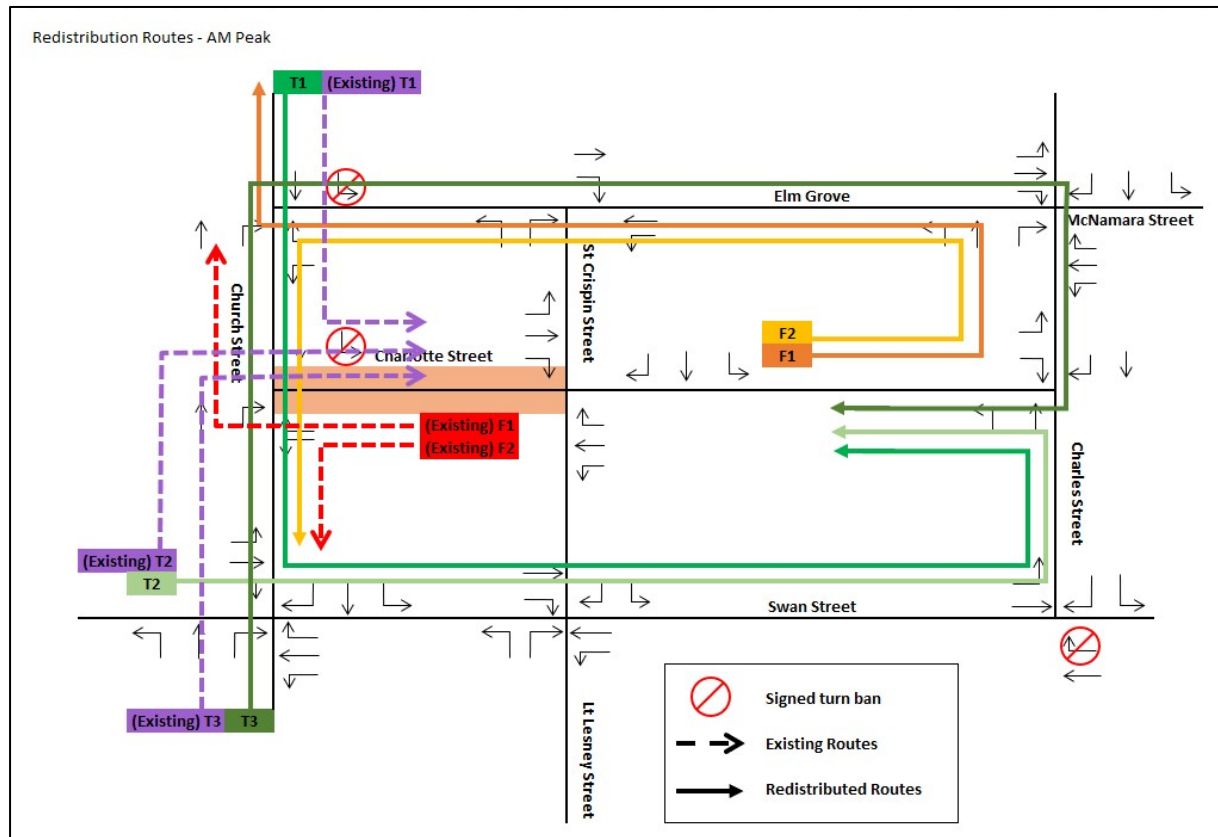


Figure 24: Redistributed Travel Routes To/From Charlotte Street - AM Peak



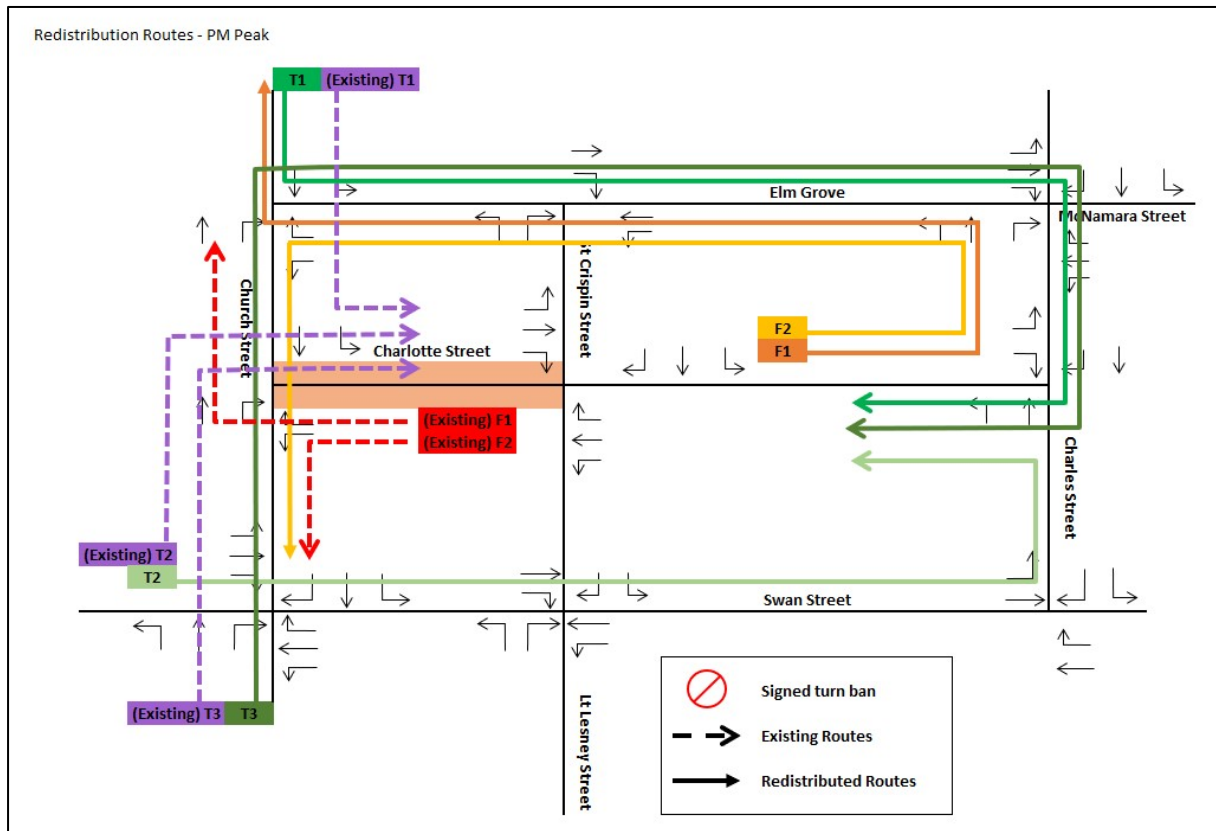


Figure 25: Redistributed Travel Routes To/From Charlotte Street – PM Peak

Table 5: Travel Route Volumes

Time Period	T1	T2	T3	F1	F2
AM Peak	12	3	3	3	4
PM Peak	29	8	8	17	22

These five (5) redistributed travel routes are assumed to consist of local traffic to/from Charlotte Street, with a local destination or origin on Charlotte Street.

The following assumptions have been made:

- Both T2 and T3 contribute equally to right turn movements into Charlotte Street from Church Street (50/50 split) for both peaks. Due to the proposed road closure, both routes have been split evenly to continue their original approaches at Church Street and Swan Street intersection to reach Charlotte Street.
- Both F1 and F2 routes will instead exit via Elm Grove to travel north, south or west rather than attempting a more difficult right turn from Charles Street onto Swan Street to travel south or west.

The traffic volumes were redistributed to suit the likely redistributed route in each peak period as a result of the proposed road closure. The traffic volumes were first removed from the corresponding movements in the existing movements, before being added to the respective detour routes as follows:

- For route T1, during the AM peak period, all traffic will travel along Church Street to turn left onto Swan Street and then access Charlotte Street via Charles Street to comply with existing turn bans. During the PM peak period, all traffic will, turn left into Elm Grove and access Charlotte Street via Charles Street.
- For route T2, all movements will continue along Swan Street and use Charles Street to access Charlotte Street.
- For route T3, all of these movements will continue along Church Street and access Charlotte Street via a right turn into Elm Grove, then via Charles Street.
- For routes F1 and F2, all of these movements will turn left onto Charles Street and then left into Elm Grove to access Church Street to reach northern, southern and western destinations. While noted that users could use the Charles Street / Swan Street intersection, it is unlikely as making a right turn movement at this intersection is difficult.

Summary figures of the respective decreases, increases and net change in each turning movement across the study area are provided at Appendix G.

In our experience with similar permanent road closures, there is typically a reduction in the affected traffic volumes in order of 10-20%. That is, 10-20% of redistributed traffic 'disappears' from the road network. For this assessment, we have not applied a 10-20% 'discount' of traffic volumes, noting that this results in a more conservative assessment.

### **4.2. Post Road Closure Scenario Intersection Performance**

The redistributed traffic volumes were input into the SIDRA models for the intersection of Church Street / Swan Street to determine the impacts of the proposed road closure to the intersection for the two (2) periods of assessment. The existing signal phase timing allocations were retained, noting that these could change in reality as the signals are programmed to respond to changes in demand.

The modelling results show no measurable change to intersection performance, and hence no impacts are expected as a result of the road closure on Charlotte Street.

The full results are provided at Appendix H.

### **4.3. Review of Local Intersection Conditions**

In order to determine the impacts on each local intersection within the study area, summaries of the net change of turning movement volumes at each intersection have been prepared for the two analysis periods, the weekday AM and PM peaks, as shown in Figure 26 and Figure 27.

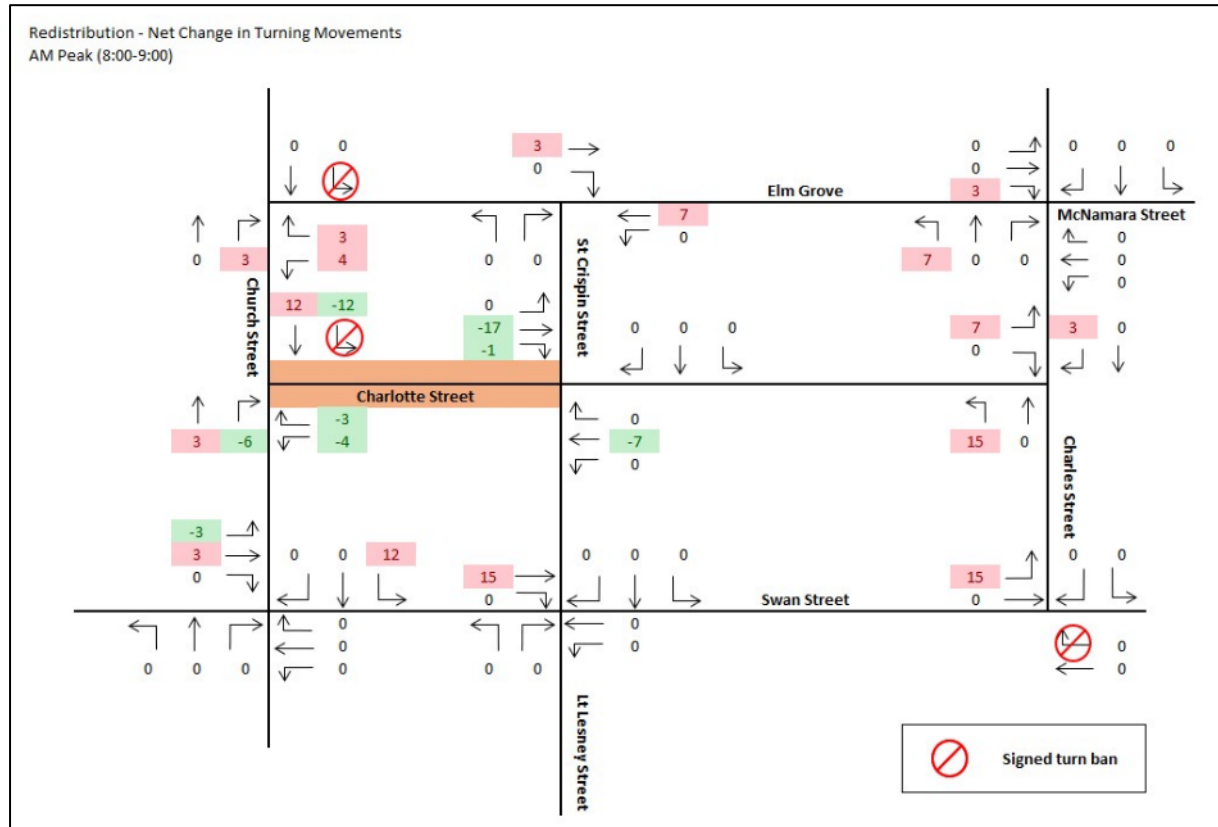


Figure 26: Net Change in Turning Movement Volumes – AM Peak



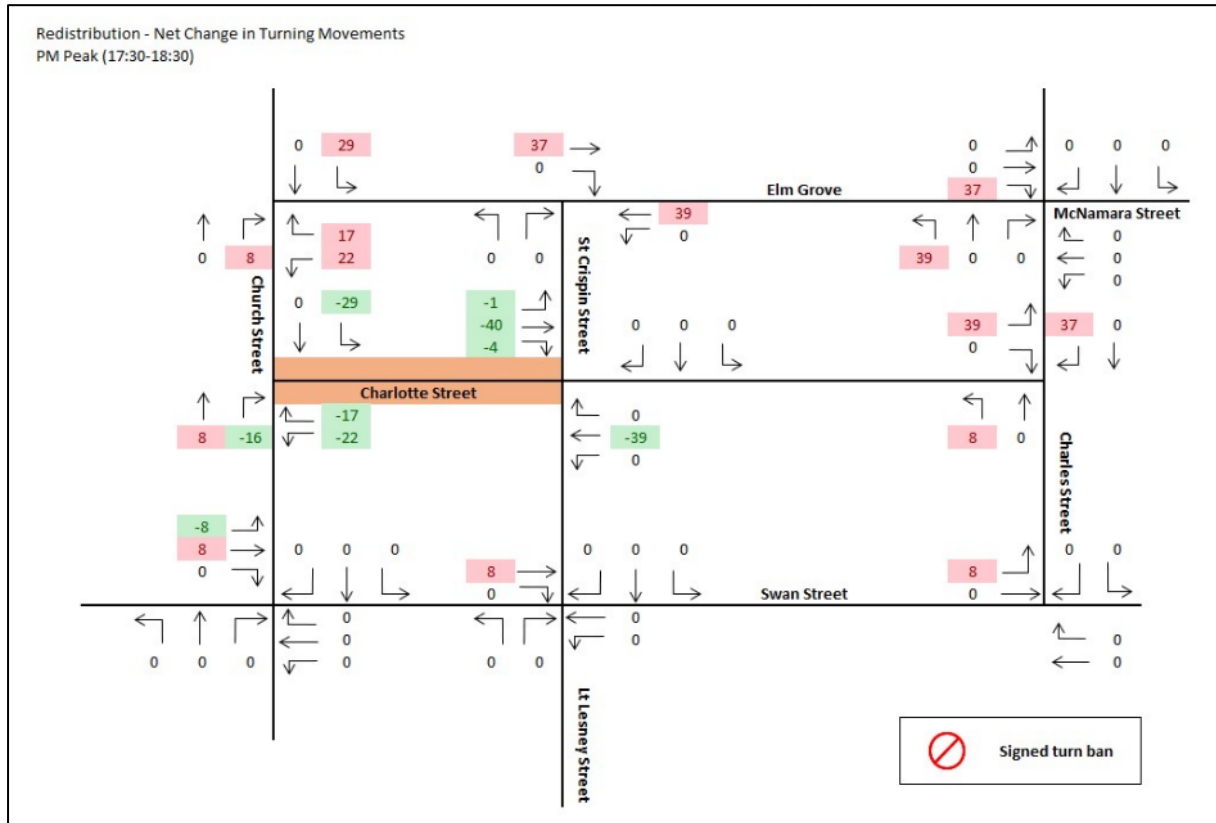


Figure 27: Net Change in Turning Movement Volumes – PM Peak

The traffic volumes along Charlotte Street will ultimately reduce, as vehicles will not be able to continue along Charlotte Street to Church Street. Traffic generated by properties along Charlotte Street will continue to utilise Charlotte Street, however they will no longer travel west past St Crispin Street. The additional traffic generated at the Charles Street / Charlotte Street intersection is expected to be minor, as the majority of additional movements are left turns. The additional right turns are not expected to create significant issues, as the opposing through movements are low.

There will be a number of additional right turn movements at the Church Street / Elm Grove intersection as a result of the closure, both left and right turns. A preliminary SIDRA model of the intersection indicates that the intersection will still perform similar to its existing operation with minor queues / delays on the east approach.

The additional traffic volume along Elm Grove is expected to peak at 76 vehicle movements during the weekday PM peak hour. At a rate of just over 1 vehicle per 1 minute, this impact will not be noticeable.

The increases to daily traffic volumes along Elm Grove and Charles Street are summarised in Table 6 below.

Table 6: Daily Traffic Volumes - Expected Increases

Road	Existing Daily Traffic Volume (Average Weekday)	Increase	Post Closure Daily Traffic Volume (Average Weekday)
Elm Grove	650vpd	+500vpd (75%) AM Peak - +1 veh per 6 minutes PM Peak - +1.25 veh per minute	1,150vpd
Charles Street – Elm Gr to Charlotte St	950vpd	+500vpd (50%) AM Peak - +1 veh per 6 minutes PM Peak - +1.25 veh per minute	1,450vpd
Charles Street – Charlotte St to Swan St	1,250vpd	+85vpd (10%) AM Peak - +1 veh per 4 minutes PM Peak - +1 veh per 8 minutes	1,335vpd

We note that the above estimates for the post closure daily traffic volumes are highly conservative, as it is unlikely that the full daily volumes recorded on Charlotte Street will be fully redistributed, for the following reasons:

- A number of traffic movements recorded on Charlotte Street would have already been recorded on Elm Grove or Charles Street, and hence a redistribution of these movements to Elm Grove and Charles Street is somewhat of a 'double count',
- The closure of Charlotte Street will result in a reduction of vehicles 'circulating' the local area to find carparking, which will reduce the overall traffic volumes, and
- Past experience with permanent road closures generally indicates a reduction in traffic volumes up to 20% can be expected, usually as a closure may stop drivers entering the local network all together, or drivers seek broader or simpler post closure routes.

Whilst there will be a noticeable increase in traffic along Elm Grove and Charles Street, neither are expected to exceed their environmental capacity, as a result of the proposed road closure.

The 'environmental capacity' of a road is the theoretical point in which increases in traffic volume begin to degrade its amenity and is typically much lower than the actual capacity of the road, or how much traffic it could physically accommodate. In this instance the environmental capacity of Elm Street and Charles Street is in the order of 3,000 vehicles per day.

We do not anticipate that any redistributed traffic would seek to utilise St Crispin Street for the following reasons:

- Because of the narrow carriageway, St Crispin Street is not conducive to traffic movements to Charlotte Street or Elm Grove, users may consider using an alternate route via Charles Street to reach Charlotte Street,

- Due to 'one way' restrictions applying on the southern end of St Crispin Street, the street is only conducive for movements to Swan Street from the North or circulation with the off-street carpark to the east of Richmond Library,
- St Crispin does not provide the same intersection geometry with as good access to Swan Street as the Charles Street / Swan Street intersection does.

### **4.4. Post Road Closure – Parking Impacts**

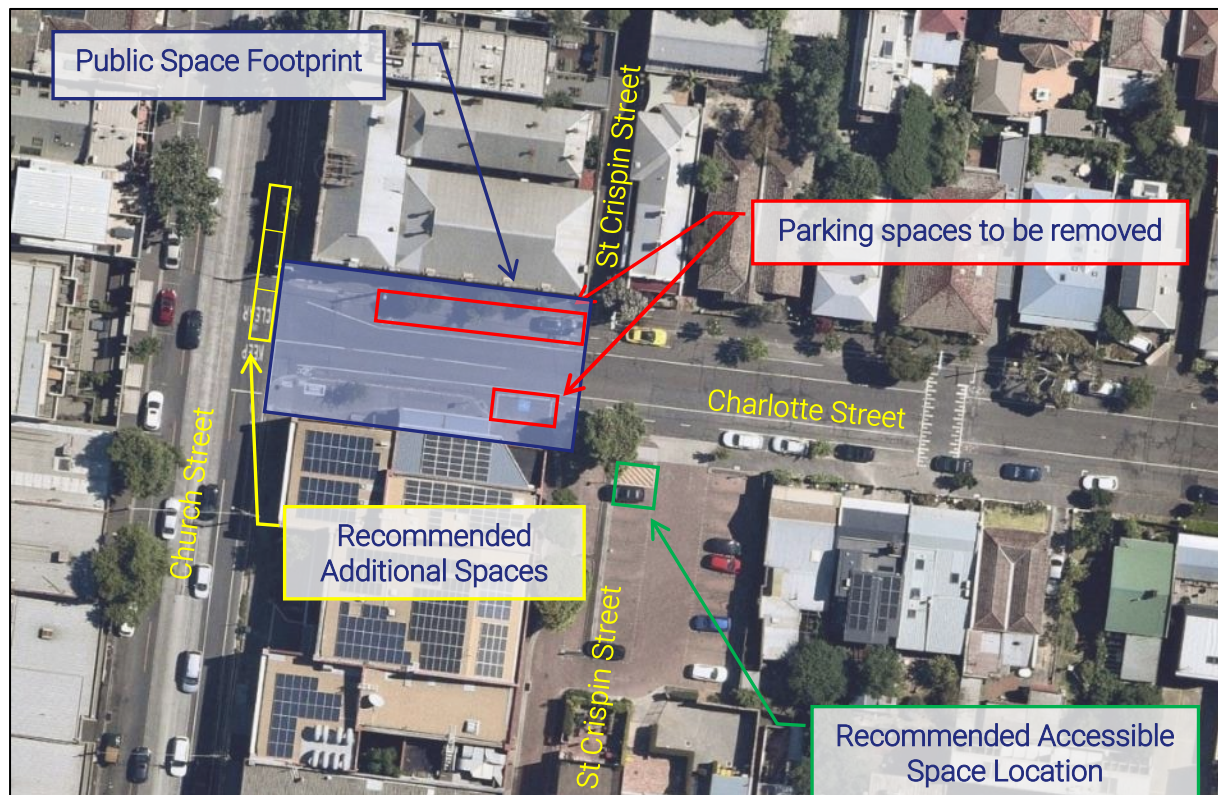
An assessment of the proposed public space concept design indicates that there are five (5) on-street carparking spaces including an accessible carparking space requiring removal on Charlotte Street, as shown in Figure 28 below.

The inventory of parking spaces that are likely to be removed includes:

- 1x 2P 8am-8pm Disabled Only,
- 4x 2P 7am – Midnight Mon – Sat,

It is recommended that the 'P Disabled Only' space is replaced, by providing this space within the adjacent off-street carpark as shown in Figure 28 below. This will require the relocation of one (1) existing space signed as 'No Stopping – Council Library Vehicle Excepted' and the loss of two (2) '2P - 7am-7pm' space as an accessible space is required to provide an adjacent shared area under AS2890.6-2009.

Providing for the above results in a net loss of six (6) car spaces. This loss can be offset with the introduction of three (3) spaces on Church Street, adjacent to the proposed closure. On this basis the proposal results net loss of three (3).



Source: Nearmap (September 2021)

Figure 28: Charlotte Street Public Space Parking Impacts

The parking surveys conducted in the study area were reviewed to determine if the proposed loss spaces can be accommodated in the study area across a range of times, including on a weekday and weekend.

As outlined previously in Section 3.7, spot parking surveys of Charlotte Street and the surrounding area were undertaken at select times to evaluate the loss of parking associated with the proposed road closure. A summary of the parking occupancies recorded along Charlotte Street is provided in Table 7 below.

Table 7: Charlotte Street Parking Occupancy Summary

Location		Wednesday, 02/03/2022 9:30am	Thursday 17/03/2022		Thursday 03/03/2022		Saturday 23/03/2022	
			11:30am	1:30pm	4:00pm	6:30pm	1:45pm	6:30pm
Charlotte Street – West of St Crispin Street (Subject Section)	Capacity	5	5	5	5	5	5	5
	No. Cars Parked	3	4	5	5	4	3	5
	No. Vacant Spaces	2	1	0	0	1	2	0
	Occupancy	60%	80%	100%	100%	80%	60%	100%
Charlotte Street – East of St Crispin Street	Capacity	40	40	40	40	40	40	40
	No. Cars Parked	24	30	30	24	35	23	37
	No. Vacant Spaces	16	10	10	16	5	17	3
	Occupancy	60%	80%	80%	60%	85%	58%	93%
Richmond Library Carpark	Capacity	20	20	20	20	20	20	20
	No. Cars Parked	13	18	18	20	20	18	20
	No. Vacant Spaces	7	2	2	0	0	2	0
	Occupancy	65%	90%	90%	100%	100%	90%	100%
St Crispin Street - Charlotte Street to Swan Street	Capacity	4	4	4	4	4	4	4
	No. Cars Parked	1	3	3	3	1	2	4
	No. Vacant Spaces	3	1	1	1	3	2	0
	Occupancy	75%	75%	75%	75%	25%	50%	0%
Total	Capacity	69	69	69	69	69	69	69
	No. Cars Parked	41	55	56	52	60	46	66
	No. Vacant Spaces	28	14	13	17	9	23	3

As shown in Table 7 above, Charlotte Street generally has sufficient parking vacancies to accommodate the displaced parking demands (the spaces lost as a result of the closure) during the weekday morning, midday, afternoon and weekday midday periods. It is noted that some of the vacancies at these times are provided in Permit Zones, however given the City of Yarra's parking permit policy exempts residents from the 2P restrictions of the spaces being removed, it is likely that permit holders (residents) are a part of the demands being displaced.

The parking occupancies recorded on Charlotte Street for the weekday and weekend evenings indicate a near full occupancy along Charlotte Street. It is likely that the displaced demands cannot be fully accommodated on Charlotte Street and will need to be sought elsewhere.

We expect that these could be found along Church Street and Swan Street, which despite having no vacant spaces recorded, would experience a high turnover of parking (i.e., resulting in vacancies appearing frequently). It is noted that there are vacancies for permit zones within the study area at this time, which can accommodate for residential demands that are displaced.

In view of the above, we expect the parking impacts of the proposal to be moderate, however we recommend that Council seeks to replace the 'P Disabled Only' space in the vicinity of the Richmond Library.

## **4.5. Post Road Closure – Other Traffic Impacts**

### **4.5.1. Accidents**

As outlined previously in Section 3.6, the principal crash patterns identified in the study area involved collisions with bicycles along Church Street, between Elm Grove / Swan Street, and pedestrian collisions at Church Street / Swan Street intersection. As previously discussed, the pedestrian collision pattern was addressed in 2021 when significant pedestrian safety improvements were made at the Church Street / Swan Street intersection, including flashing 'Give Way to Pedestrians' LED signs.

We do not expect minor increase in traffic volumes along Church Street, as a result of the proposal, to result in an increase in bicycle related collisions. Regardless, this crash pattern should be addressed.

### **4.5.2. Emergency Vehicles**

A review of the study area indicates there are no police, fire or ambulance stations located on Charlotte Street or within the study area, with the nearest stations located north of Bridge Road (police station), south of Victoria Street (police station) and north of Swan Street on Church Street (St. John Ambulance Australia Yarra Division).

We are confident that Emergency Vehicles needing to access Charlotte Street will employ broader routing choices to avoid the road closure and access Charlotte Street via Elm Grove or Charles Street. It is noted that smaller emergency vehicles could also access Charlotte Street via St Crispin Street as they are exempt from the one (1) way traffic restrictions.



#### 4.5.3. Bus Routes

No public bus routes travel along Charlotte Street or Church Street.

#### 4.5.4. Tram Routes

The intersection of Church Street / Swan Street accommodates both Tram Routes 70 and 78. As outlined previously in Section 3.8, there is no change to the performance of the intersection and hence no impacts on trams travelling through the intersection.

A review of the net change in turning volumes along Church Street (Tram Route 78), previously discussed in Section 4.3, indicates that most of the changes to turning movements along Church Street are decreases. Decreases in traffic volumes should marginally improve conditions for trams on Church Street, as there is less traffic that they must compete with for space. It is noted that there is a small increase in right turning vehicles into Elm Grove, however we feel there is still an overall benefit as there are now no longer any right turning vehicles at Charlotte Street that could obstruct trams.

A review of the net change in turning volumes along Swan Street (Tram Route 70), previously discussed in Section 4.5, indicates that the addition to turning movements along Swan Street into Charles Street are increases of left turns only. It is noted that the addition of left turning movements into Charles Street from Swan Street are unopposed, therefore, there are no real obstructions or impacts to trams.

#### 4.5.5. Other Traffic Impacts

The proposed road closure of Charlotte Street at Church Street is anticipated to impact on vehicle access for waste collection services along Charlotte Street, as the waste vehicle will be required to turnaround.

Indicative swept path assessments have undertaken to demonstrate potential turnaround movements for the 10.5m long City of Yarra waste collection vehicle and are provided in Figure 29 below.



Figure 29: Preliminary Swept Path Assessment

The turnaround movements of circulating waste vehicles will need to be considered in the detailed design of the public space. There may be a requirement to amend parking restrictions to provide additional space during waste collection times. The implications to loading vehicles for the adjacent Richmond Library will also need to be considered.

## 4.5.6. Communication and Stakeholder Engagement Plans

We understand that the City of Yarra will develop a comprehensive plan for stakeholder engagement and communication of the proposal with the nearby Richmond Library, management authorities and local residents.

## 4.5.7. Bicycles

It is our understanding that bicycles will be permitted through the public space, and hence we anticipate little impact on their movements through the study area. Consideration will need to be given to how the passage of bicycles through the public space will tie into the existing bicycle lanes provided on Charlotte Street.

It is recommended that the public space retains the current eight (8) hoops for bicycle parking, as demand in the area appears to be high. It is also recommended that a bicycle repair station and additional bicycle parking is considered to improve cycling amenity in the area.

## 4.5.8. Pedestrians

The public space will improve the experience for pedestrians on Church Street, as it removes the need for pedestrians to cross the road at Charlotte Street to compete with vehicle traffic. The public space also provides direct access to the adjacent Richmond library and provides the library users and nearby residents with a park area to enjoy.

# 5. Conclusions

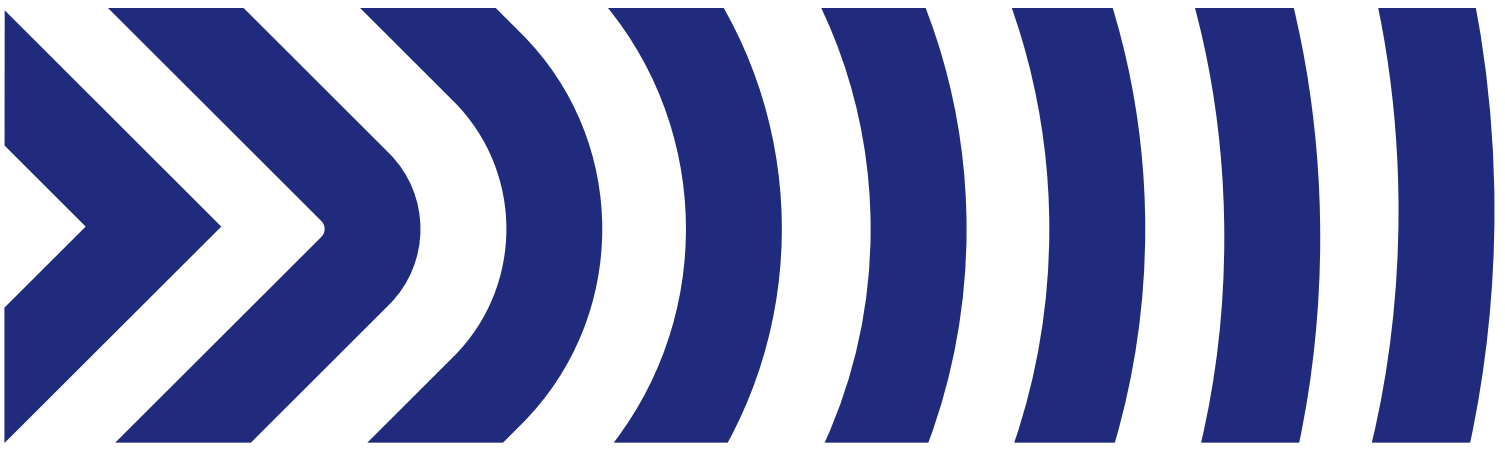
Having undertaken a detailed traffic impact assessment of the proposed road closure of Charlotte Street at Church Street, Richmond, associated with the public space proposal, we are of the opinion that:

- a) The proposed closure of Charlotte Street will redistribute traffic accessing Charlotte Street at Church Street to now access Charlotte Street via Elm Grove and Charles Street or via Swan Street and Charles Street,
- b) The changes to local intersection performance in the study area vary from minimal to moderate impacts, however, with the assistance of intersection modelling software, it has been demonstrated that all intersections will still operate at similar performance measures post closure to that of the existing conditions,
- c) The impacts to the nearby signalised intersection of Church Street / Swan Street were modelled in detail and were shown to be insignificant,
- d) There will be an expected increase in traffic along Elm Grove and Charles Street across the day as a result of the closure on Charlotte Street, however the increase in traffic volumes is



unlikely to significantly degrade the amenity of either road or exceed their respective environmental capacities,

- e) The public space will result in the loss of five (5) on-street carparking spaces, which we recommend are offset by additional spaces created on Church Street (adjacent to the closure). The parking impacts of the loss of spaces will be minimal during the day, given the surrounding occupancies, with a higher impact in the evening periods,
- f) We recommend the accessible space to be removed by the public space is directly replaced within the Richmond Library off-street carpark,
- g) There is not anticipated to be an increase in collisions as a result of the proposal, given the current crash patterns, and
- h) The proposal will provide a benefit for pedestrians and cyclists in the area.



# Appendix A

**Swan Street Streetscape MP**

## A NEW CIVIC LIBRARY GARDEN

A significant opportunity exists at Richmond Library. By closing Charlotte Street at the western end, a new space is created providing additional amenity for this important community facility.

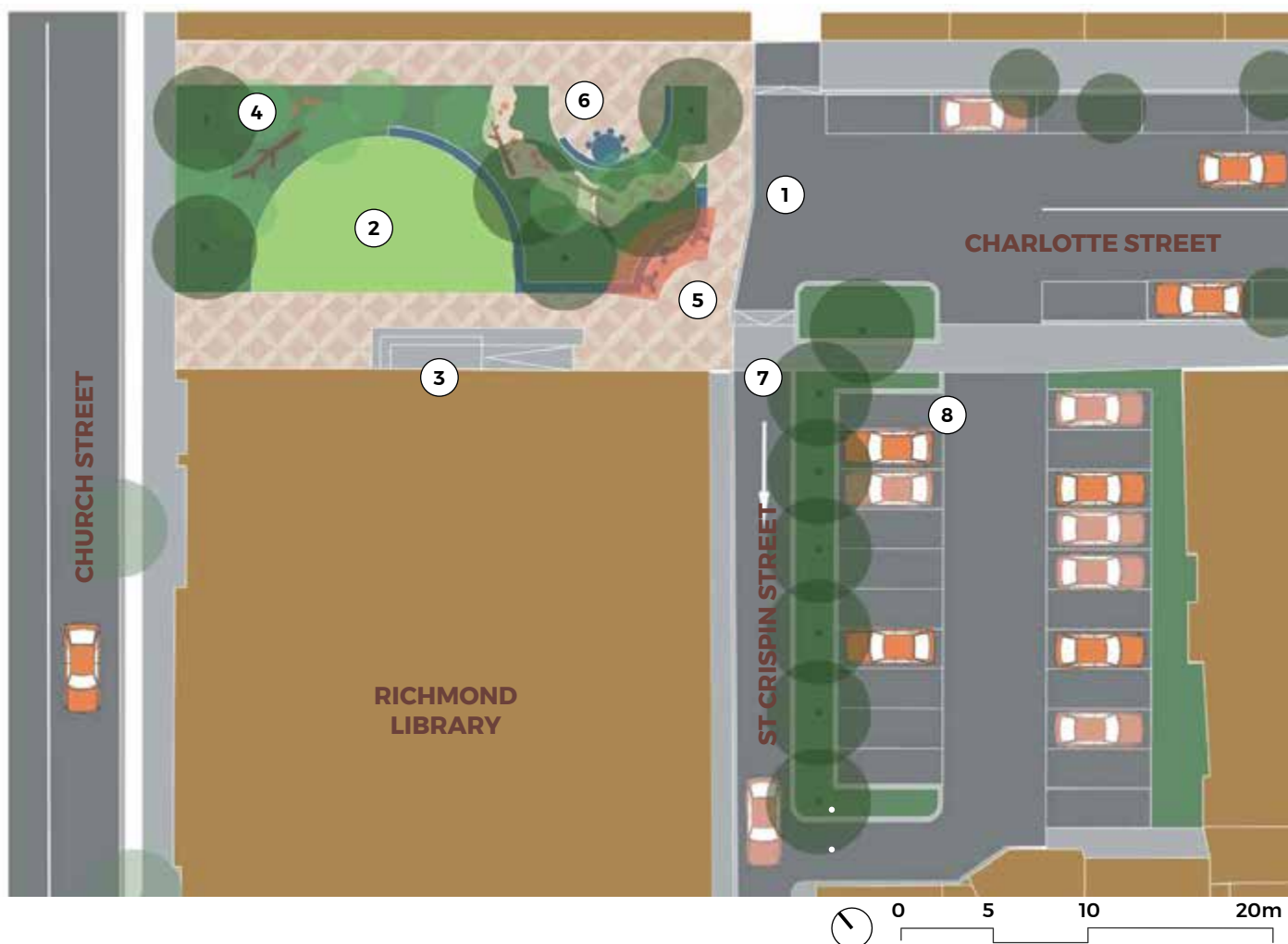
### CHARLOTTE STREET

600m<sup>2</sup> NEW PUBLIC SPACE



*Artists impression for further exploration*

- ① Close western end of Charlotte Street to create a new community open space adjacent to the Library
- ② Open lawn area to provide informal play, meeting, and small events
- ③ New Library entry stair arrangement to incorporate long steps to work with slope and create seating opportunities
- ④ Significant planted garden as native plant 'library' with integrated nature play elements
- ⑤ A new pergola and seating space
- ⑥ Seating walls and tables with a variety of backs and heights to allow for lounging, playing and gathering
- ⑦ Upgrade St Crispin Street as a pedestrian priority zone for service, emergency vehicle and adjacent property access only accessibility.
- ⑧ Consider accessible parking



## EXISTING CONDITIONS



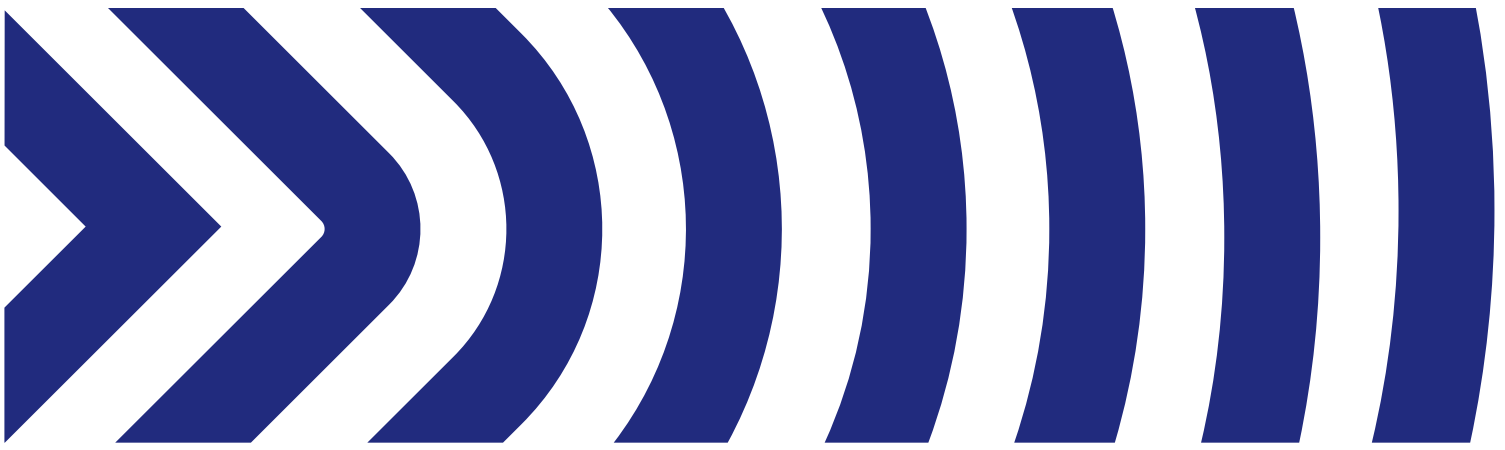
## OTHER IDEAS AND EXAMPLES



*Small sunny lawn area*



*A colourful community space for all ages*



# Appendix B

## Turning Movement Count Data

## TRANS TRAFFIC SURVEY

## TURNING MOVEMENT SURVEY



## Intersection of Church St and Elm Grove, East Richmond

GPS -37.824370,144.998184

Date:	Thu 03/03/22
Weather:	Fine
Suburban:	East Richmond
Customer:	Traffic

North:	Church St
East:	Elm Grove
South:	Church St
West:	N/A

Survey	AM: 7:30 AM-9:30 AM
Period	PM: 4:30 PM-6:30 PM
Traffic	AM: 7:45 AM-8:45 AM
Peak	PM: 5:00 PM-6:00 PM

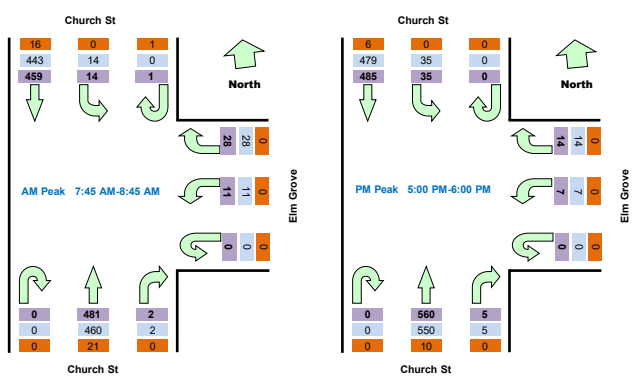
## All Vehicles

Time		North Approach Church St			East Approach Elm Grove			South Approach Church St			Hourly Total	
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peak
7:30	7:45	0	108	4	0	2	2	0	1	91	964	
7:45	8:00	0	119	4	0	7	2	0	1	107	996	Peak
8:00	8:15	1	111	6	0	7	3	0	0	119	987	
8:15	8:30	0	128	3	0	5	2	0	1	130	948	
8:30	8:45	0	101	1	0	9	4	0	0	125	893	
8:45	9:00	0	112	2	0	4	0	0	0	113		
9:00	9:15	0	83	2	0	4	0	0	1	118		
9:15	9:30	0	101	4	0	4	3	0	1	101		
16:30	16:45	0	98	3	0	3	1	0	1	129	1009	
16:45	17:00	0	100	6	0	8	0	0	0	90	1041	
17:00	17:15	0	126	10	0	2	2	0	1	141	1106	Peak
17:15	17:30	0	131	6	0	4	2	0	1	144	1073	
17:30	17:45	0	114	13	0	4	2	0	2	132	1047	
17:45	18:00	0	114	6	0	4	1	0	1	143		
18:00	18:15	0	115	8	0	5	1	0	0	120		
18:15	18:30	0	122	3	0	6	6	1	2	122		

Peak Time		North Approach Church St			East Approach Elm Grove			South Approach Church St			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	
7:45	8:45	1	459	14	0	28	11	0	2	481	996
17:00	18:00	0	485	35	0	14	7	0	5	560	1106

Note: Site sketch is for illustrative traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

## Graphic

Total  
Light  
Heavy

## Light Vehicles

Time		North Approach Church St			East Approach Elm Grove			South Approach Church St		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
7:30	7:45	0	100	4	0	2	2	0	1	88
7:45	8:00	0	114	4	0	7	2	0	1	102
8:00	8:15	0	107	6	0	7	3	0	0	115
8:15	8:30	0	125	3	0	5	2	0	1	124
8:30	8:45	0	97	1	0	9	4	0	0	119
8:45	9:00	0	108	2	0	4	0	0	0	104
9:00	9:15	0	81	2	0	4	0	0	1	113
9:15	9:30	0	94	4	0	4	3	0	1	94
16:30	16:45	0	96	3	0	3	1	0	1	127
16:45	17:00	0	96	6	0	8	0	0	0	88
17:00	17:15	0	124	10	0	2	2	0	1	137
17:15	17:30	0	130	6	0	4	2	0	1	141
17:30	17:45	0	112	13	0	4	2	0	2	131
17:45	18:00	0	113	6	0	4	1	0	1	141
18:00	18:15	0	114	8	0	5	1	0	0	119
18:15	18:30	0	120	3	0	6	6	1	2	119

Peak Time		North Approach Church St			East Approach Elm Grove			South Approach Church St			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	
7:45	8:45	0	443	14	0	28	11	0	2	460	958
17:00	18:00	0	479	35	0	14	7	0	5	550	1090

## Heavy Vehicles

Time		North Approach Church St			East Approach Elm Grove			South Approach Church St		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
7:30	7:45	0	8	0	0	0	0	0	0	3
7:45	8:00	0	5	0	0	0	0	0	0	5
8:00	8:15	1	4	0	0	0	0	0	0	4
8:15	8:30	0	3	0	0	0	0	0	0	6
8:30	8:45	0	4	0	0	0	0	0	0	6
8:45	9:00	0	4	0	0	0	0	0	0	9
9:00	9:15	0	2	0	0	0	0	0	0	5
9:15	9:30	0	7	0	0	0	0	0	0	7
16:30	16:45	0	2	0	0	0	0	0	0	2
16:45	17:00	0	4	0	0	0	0	0	0	2
17:00	17:15	0	2	0	0	0	0	0	0	4
17:15	17:30	0	1	0	0	0	0	0	0	3
17:30	17:45	0	2	0	0	0	0	0	0	1
17:45	18:00	0	1	0	0	0	0	0	0	2
18:00	18:15	0	1	0	0	0	0	0	0	1
18:15	18:30	0	2	0	0	0	0	0	0	3

Peak Time		North Approach Church St			East Approach Elm Grove			South Approach Church St			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	
7:45	8:45	1	16	0	0	0	0	0	0	21	38
17:00	18:00	0	6	0	0	0	0	0	0	10	16

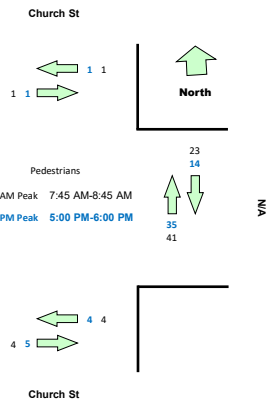
## Cyclists

Time		North Approach Church St			East Approach Elm Grove			South Approach Church St		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
7:30	7:45	0	18	0	0	1	0	0	0	1
7:45	8:00	0	9	0	0	0	0	0	0	4
8:00	8:15	0	16	0	0	0	0	0	0	4
8:15	8:30	0	15	0	0	0	0	0	0	2
8:30	8:45	0	15	0	0	0	0	0	0	9
8:45	9:00	0	8	0	0	0	0	0	0	5
9:00	9:15	0	6	0	0	0	0	0	0	1
9:15	9:30	0	7	0	0	2	0	0	0	3
16:30	16:45	0	5	1	0	0	0	0	0	4
16:45	17:00	0	5	2	0	0	0	0	0	10
17:00	17:15	0	9	0	0	0	0	0	0	14
17:15	17:30	0	5	0	0	0	0	0	0	9
17:30	17:45	0	5	0	0	0	0	0	0	15
17:45	18:00	0	13	0	0	0	0	0	0	15
18:00	18:15	0	5	0	0	0	1	0	0	7
18:15	18:30	0	11	0	0	0	0	0	0	8

## Pedestrians Crossing

Time		North Approach Church St		East Approach Elm Grove		South Approach Church St		Hourly Total
Period Start	Period End	Westbound	Eastbound	Northbound	Southbound	Westbound	Eastbound	
7:30	7:45	0	0	4	10	1	0	69
7:45	8:00	0	0	5	9	0	3	74
8:00	8:15	1	0	7	6	1	0	72
8:15	8:30	0	1	5	15	0	1	64
8:30	8:45	0	0	6	11	3	0	62
8:45	9:00	0	0	3	12	0	0	
9:00	9:15	0	0	2	4	1	0	
9:15	9:30	1	1	5	11	2	0	
16:30	16:45	0	0	1	4	0	0	51
16:45	17:00	1	0	5	4	0	0	55
17:00	17:15	0	0	5	15	4	0	60
17:15	17:30	1	0	4	7	0	0	54
17:30	17:45	0	0	1	7	0	1	68
17:45	18:00	0	1	4	6	0	4	
18:00	18:15	0	0	6	8	1	3	
18:15	18:30	2	0	7	11	4	2	

Peak Time		North Approach Church St		East Approach Elm Grove		South Approach Church St		Peak total
Period Start	Period End	Westbound	Eastbound	Northbound	Southbound	Westbound	Eastbound	
7:45	8:45	1	1	23	41	4	4	74
17:00	18:00	1	1	14	35	4	5	60





# TRANS TRAFFIC SURVEY

## TURNING MOVEMENT SURVEY

### Intersection of Church St and Charlotte St, East Richmond

GPS -37.825018,144.998052

Date:	Thu 03/03/22
Weather:	Fine
Suburban:	East Richmond
Customer:	Traffic

North:	Church St
East:	Charlotte St
South:	Church St
West:	N/A

Survey	AM: 7:30 AM-9:30 AM
Period	PM: 4:30 PM-6:30 PM
Traffic	AM: 7:45 AM-8:45 AM
Peak	PM: 5:00 PM-6:00 PM

#### All Vehicles

Time		North Approach Church St			East Approach Charlotte St			South Approach Church St			Hourly Total	
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peak
7:30	7:45	0	109	1	0	2	1	0	4	90	938	
7:45	8:00	0	121	0	0	1	1	0	1	107	962	Peak
8:00	8:15	0	111	3	0	2	1	0	1	117	960	
8:15	8:30	0	128	2	0	0	2	0	2	131	933	
8:30	8:45	1	101	4	0	1	0	0	0	124	875	
8:45	9:00	0	109	3	0	0	1	0	3	113		
9:00	9:15	0	80	3	0	1	2	0	4	118		
9:15	9:30	0	102	2	0	3	0	0	1	99		
16:30	16:45	0	97	2	0	2	1	0	4	128	992	
16:45	17:00	0	93	7	0	3	2	1	5	87	1016	
17:00	17:15	0	126	2	0	5	5	0	3	137	1083	Peak
17:15	17:30	0	129	4	0	5	2	0	2	140	1049	
17:30	17:45	0	113	3	0	4	5	2	1	130	1038	
17:45	18:00	0	108	7	0	5	2	1	3	139		
18:00	18:15	0	109	7	0	4	3	0	5	116		
18:15	18:30	0	116	12	0	4	12	0	7	120		

Peak Time		North Approach Church St			East Approach Charlotte St			South Approach Church St			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	
7:45	8:45	1	461	9	0	4	4	0	4	479	962
17:00	18:00	0	476	16	0	19	14	3	9	546	1083

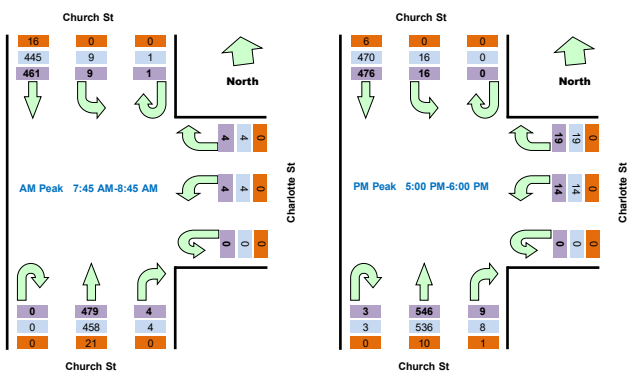
Note: Site sketch is for illustrative traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

#### Graphic

Total

Light

Heavy



#### Light Vehicles

Time		North Approach Church St			East Approach Charlotte St			South Approach Church St		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
7:30	7:45	0	101	1	0	2	1	0	4	87
7:45	8:00	0	116	0	0	1	1	0	1	102
8:00	8:15	0	107	3	0	2	1	0	1	113
8:15	8:30	0	125	2	0	0	2	0	2	125
8:30	8:45	1	97	4	0	1	0	0	0	118
8:45	9:00	0	105	3	0	0	1	0	3	104
9:00	9:15	0	78	3	0	1	2	0	4	113
9:15	9:30	0	96	1	0	3	0	0	1	92
16:30	16:45	0	95	2	0	2	1	0	4	126
16:45	17:00	0	89	7	0	3	2	1	5	85
17:00	17:15	0	124	2	0	5	5	0	3	133
17:15	17:30	0	128	4	0	5	2	0	2	137
17:30	17:45	0	111	3	0	4	5	2	0	129
17:45	18:00	0	107	7	0	5	2	1	3	137
18:00	18:15	0	108	7	0	4	3	0	5	115
18:15	18:30	0	114	12	0	4	12	0	7	117

Peak Time		North Approach Church St			East Approach Charlotte St			South Approach Church St			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	
7:45	8:45	1	445	9	0	4	4	0	4	458	925
17:00	18:00	0	470	16	0	19	14	3	8	536	1066

#### Heavy Vehicles

Time		North Approach Church St			East Approach Charlotte St			South Approach Church St		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
7:30	7:45	0	8	0	0	0	0	0	0	3
7:45	8:00	0	5	0	0	0	0	0	0	5
8:00	8:15	0	4	0	0	0	0	0	0	4
8:15	8:30	0	3	0	0	0	0	0	0	6
8:30	8:45	0	4	0	0	0	0	0	0	6
8:45	9:00	0	4	0	0	0	0	0	0	9
9:00	9:15	0	2	0	0	0	0	0	0	5
9:15	9:30	0	6	1	0	0	0	0	0	7
16:30	16:45	0	2	0	0	0	0	0	0	2
16:45	17:00	0	4	0	0	0	0	0	0	2
17:00	17:15	0	2	0	0	0	0	0	0	4
17:15	17:30	0	1	0	0	0	0	0	0	3
17:30	17:45	0	2	0	0	0	0	0	1	1
17:45	18:00	0	1	0	0	0	0	0	0	2
18:00	18:15	0	1	0	0	0	0	0	0	1
18:15	18:30	0	2	0	0	0	0	0	0	3

Peak Time		North Approach Church St			East Approach Charlotte St			South Approach Church St			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	
7:45	8:45	0	16	0	0	0	0	0	0	21	37
17:00	18:00	0	6	0	0	0	0	0	1	10	17

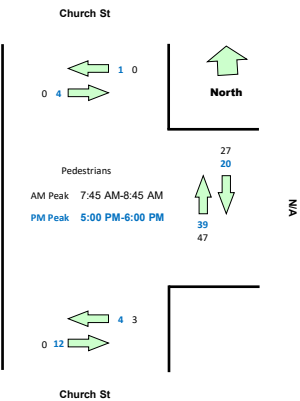
#### Cyclists

Time		North Approach Church St			East Approach Charlotte St			South Approach Church St		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
7:30	7:45	0	15	0	0	0	0	0	0	4
7:45	8:00	0	9	0	0	0	0	0	1	3
8:00	8:15	0	14	0	0	1	1	0	0	5
8:15	8:30	0	12	0	0	0	1	0	0	1
8:30	8:45	0	17	0	0	0	0	0	0	4
8:45	9:00	0	11	0	0	0	0	0	0	5
9:00	9:15	0	6	0	0	0	0	0	0	3
9:15	9:30	0	3	0	0	0	1	0	0	1
16:30	16:45	0	5	0	0	0	0	0	0	1
16:45	17:00	0	6	0	0	1	0	0	0	8
17:00	17:15	0	4	1	0	1	1	0	0	9
17:15	17:30	0	6	0	0	0	0	0	0	11
17:30	17:45	0	3	0	0	2	0	0	0	11
17:45	18:00	0	11	1	0	0	0	0	0	12
18:00	18:15	0	5	0	0	3	0	0	0	5
18:15	18:30	0	9	0	0	0	0	1	0	5

#### Pedestrians Crossing

Time		North Approach Church St		East Approach Charlotte St		South Approach Church St		Hourly Total	
Period Start	Period End	Eastbound	Westbound	Northbound	Southbound	Northbound	Southbound		
7:30	7:45	2	0	4	7	1	0	66	
7:45	8:00	0	0	3	15	0	0	77	
8:00	8:15	0	0	9	10	1	0	94	
8:15	8:30	0	0	4	8	2	0	81	
8:30	8:45	0	0	11	14	0	0	77	
8:45	9:00	0	0	10	25	0	0		
9:00	9:15	0	0	3	4	0	0		
9:15	9:30	0	0	2	7	0	1		
16:30	16:45	0	0	2	5	0	1	55	
16:45	17:00	0	0	2	3	0	5	71	
17:00	17:15	0	1	6	8	0	0	80	
17:15	17:30	1	0	4	14	2	1	83	
17:30	17:45	0	1	4	10	2	7	85	
17:45	18:00	0	2	6	7	0	4		
18:00	18:15	0	1	7	6	3	1		
18:15	18:30	3	1	7	12	1	0		

Peak Time		North Approach Church St		East Approach Charlotte St		South Approach Church St		Peak total
Period Start	Period End	Eastbound	Westbound	Northbound	Southbound	Northbound	Southbound	
7:45	8:45	0	0	27	47	3	0	77
17:00	18:00	1	4	20	39	4	12	80

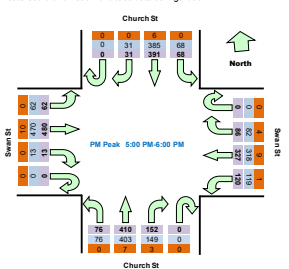
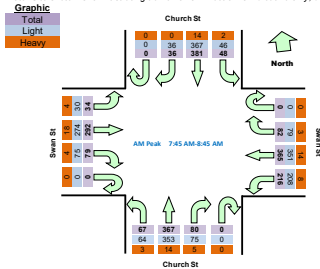




All Vehicles		North Approach Church St				East Approach Swan St				South Approach Church St				West Approach Swan St				Hourly Total	Peak
Time	Period Start/Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:30	7:45	0	12	81	17	0	16	84	32	0	20	72	31	0	11	71	6	2007	
7:45	8:00	0	7	103	12	0	10	112	49	0	21	87	16	0	16	77	11	2047	Peak
8:00	8:15	0	13	86	13	0	16	89	49	0	24	95	21	0	14	68	7	2039	
8:15	8:30	0	9	111	10	0	31	81	56	0	20	97	12	0	26	80	5	2000	
8:30	8:45	0	7	81	13	0	25	83	62	0	15	88	18	0	23	67	11	1920	
8:45	9:00	0	9	83	18	0	27	92	53	0	22	79	20	0	19	81	10		
9:00	9:15	0	10	62	10	0	23	95	45	0	13	89	26	0	18	55	10		
9:15	9:30	0	14	78	10	0	24	88	41	0	18	68	20	0	17	72	8		
16:30	16:45	0	8	77	13	0	24	57	21	0	32	87	19	0	3	118	21	2065	
16:45	17:00	0	8	72	15	0	21	71	17	0	28	60	24	0	2	119	12	2077	
17:00	17:15	0	7	105	19	0	18	80	23	0	32	109	22	0	2	118	13	2216	Peak
17:15	17:30	0	11	106	14	0	25	90	30	0	41	99	26	0	4	124	18	2164	
17:30	17:45	0	10	94	14	0	17	63	24	0	35	97	13	0	4	102	19	2145	
17:45	18:00	0	3	86	21	0	26	94	43	0	44	105	15	0	3	136	12		
18:00	18:15	0	8	88	16	0	15	85	28	0	35	94	13	0	0	102	12		
18:15	18:30	0	9	100	19	0	26	105	34	0	29	85	17	0	5	124	16		

Peak Time	North Approach Church St				East Approach Swan St				South Approach Church St				West Approach Swan St				Peak total
Period Start/Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	
7:45 8:45	0	36	381	48	0	82	365	216	0	80	367	67	0	79	292	34	2047
17:00 18:00	0	31	391	68	0	86	327	120	0	152	410	76	0	13	480	62	2216

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.



Light Vehicles		North Approach Church St				East Approach Swan St				South Approach Church St				West Approach Swan St				Hourly Total	Peak
Time	Period Start/Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:30	7:45	0	10	77	15	0	15	77	30	0	20	70	31	0	9	69	6		
7:45	8:00	0	7	99	11	0	10	106	47	0	19	83	15	0	15	73	10		
8:00	8:15	0	13	82	13	0	16	85	49	0	22	92	21	0	14	61	6		
8:15	8:30	0	9	108	10	0	29	80	53	0	19	94	11	0	26	75	4		
8:30	8:45	0	7	78	12	0	24	80	59	0	15	84	17	0	20	65	10		
8:45	9:00	0	6	82	18	0	24	88	50	0	20	74	20	0	18	76	9		
9:00	9:15	0	10	60	10	0	23	89	45	0	13	84	25	0	17	51	10		
9:15	9:30	0	12	74	10	0	23	85	40	0	16	63	18	0	16	67	7		
16:30	16:45	0	8	76	12	0	24	53	21	0	31	86	19	0	3	112	20		
16:45	17:00	0	7	69	15	0	20	70	17	0	28	59	24	0	2	115	12		
17:00	17:15	0	7	103	19	0	17	78	23	0	32	106	22	0	2	115	13		
17:15	17:30	0	11	105	14	0	23	87	30	0	41	98	26	0	4	121	18		
17:30	17:45	0	10	92	14	0	17	61	23	0	33	95	13	0	4	100	19		
17:45	18:00	0	3	85	21	0	25	92	43	0	43	104	15	0	3	134	12		
18:00	18:15	0	8	87	16	0	15	84	27	0	35	93	13	0	0	101	12		
18:15	18:30	0	9	99	18	0	26	104	33	0	29	82	17	0	4	123	16		

Peak Time		North Approach Church St				East Approach Swan St				South Approach Church St				West Approach Swan St				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
7:45	8:45	0	36	367	46	0	79	351	208	0	75	353	64	0	75	274	30	1958
17:00	18:00	0	31	385	68	0	82	318	119	0	149	403	76	0	13	470	62	2176

Heavy Vehicles		North Approach Church St				East Approach Swan St				South Approach Church St				West Approach Swan St				Hourly Total	Peak
Time	Period Start/Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:30	7:45	0	2	4	2	0	1	7	2	0	2	0	0	2	0	2	0		
7:45	8:00	0	0	4	1	0	0	6	2	0	2	4	1	0	1	4	1		
8:00	8:15	0	0	4	0	0	0	4	0	0	2	3	0	0	0	7	1		
8:15	8:30	0	0	3	0	0	2	1	3	0	1	3	1	0	0	5	1		
8:30	8:45	0	0	3	1	0	1	3	3	0	0	4	1	0	3	2	1		
8:45	9:00	0	3	1	0	0	3	4	3	0	2	5	0	0	1	5	1		
9:00	9:15	0	0	2	0	0	0	6	0	0	0	5	1	0	1	4	0		
9:15	9:30	0	2	4	0	0	1	3	1	0	2	5	2	0	1	5	1		
16:30	16:45	0	0	1	1	0	0	4	0	0	1	1	0	0	0	6	1		
16:45	17:00	0	1	3	0	0	1	1	0	0	0	1	0	0	0	4	0		
17:00	17:15	0	0	2	0	0	1	2	0	0	0	3	0	0	0	3	0		
17:15	17:30	0	0	1	0	0	2	3	0	0	0	1	0	0	0	3	0		
17:30	17:45	0	0	2	0	0	0	2	1	0	2	2	0	0	0	2	0		
17:45	18:00	0	0	1	0	0	1	2	0	0	1	1	0	0	0	2	0		
18:00	18:15	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	0		
18:15	18:30	0	0	1	1	0	0	1	1	0	0	3	0	0	1	1	0		

Peak Time		North Approach Church St				East Approach Swan St				South Approach Church St				West Approach Swan St				Peak total
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	
7:45	8:45	0	0	14	2	0	3	14	8	0	5	14	3	0	4	18	4	89
17:00	18:00	0	0	6	0	0	4	9	1	0	3	7	0	0	0	10	0	40

Cyclists		North Approach Church St				East Approach Swan St				South Approach Church St				West Approach Swan St				Hourly Total	Peak
Time	Period Start/Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:30	7:45	0	0	15	1	0	0	10	0	0	3	6	3	0	0	6	1		
7:45	8:00	0	0	7	1	0	0	5	0	0	1	3	1	0	1	1	1		
8:00	8:15	0	0	14	0	0	0	6	0	0	0	4	1	0	2	1	0		
8:15	8:30	0	0	15	0	0	0	7	1	0	0	3	1	0	0	2	0		
8:30	8:45	0	0	14	0	0	1	5	0	0	0	3	1	0	2	2	1		
8:45	9:00	0	0	9	0	0	0	2	2	0	0	3	1	0	2	5	1		
9:00	9:15	0	0	6	0	0	0	5	1	0	1	0	0	0	4	2	1		
9:15	9:30	0	1	6	0	0	0	2	1	0	0	3	0	0	1	1	0		
16:30	16:45	0	1	3	0	0	0	1	0	0	0	3	1	0	1	4	0		
16:45	17:00	0	0	5	0	0	1	5	0	0	0	6	2	0	1	0	0		
17:00	17:15	0	0	3	2	0	0	3	0	0	0	12	1	0	3	4	0		
17:15	17:30	0	0	5	0	0	0	5	1	0	4	5	2	0	2	7	2		
17:30	17:45	0	0	2	0	0	0	2	1	0	1	10	1	0	2	8	0		
17:45	18:00	0	0	12	0	0	1	4	1	0	0	10	1	0	1	5	0		
18:00	18:15	0	0	5	2	0	0	2	0	0	2	5	5	0	3	9	0		
18:15	18:30	0	0	9	2	0	0	1	1	0	1	9	3	0	2	4	0		

Pedestrians Crossing		North Approach Church St		East Approach Swan St		South Approach Church St		West Approach Swan St		Hourly Total
Time	Period	Westbound	Eastbound	Northbound	Southbound	Westbound	Eastbound	Northbound	Southbound	
7:30	7:45	5	16	3	8	10	11	8	9	575
7:45	8:00	19	11	14	20	19	8	16	7	692
8:00	8:15	19	8	11	14	17	10	49	29	736
8:15	8:30	14	17	10	16	15	12	126	24	664
8:30	8:45	17	24	7	24	17	12	57	29	511
8:45	9:00	22	11	16	28	16	18	25	22	
9:00	9:15	6	10	11	10	15	11	10	12	
9:15	9:30	5	16	5	10	16	13	8	8	
16:30	16:45	12	17	8	7	11	17	14	14	504
16:45	17:00	19	22	3	9	7	10	29	19	593
17:00	17:15	14	12	8	21	25	11	33	26	639
17:15	17:30	19	20	10	10	11	18	33	15	665
17:30	17:45	14	28	13	18	18	28	41	29	697
17:45	18:00	16	28	8	7	27	33	19	26	
18:00	18:15	19	38	19	12	25	28	30	15	
18:15	18:30	20	24	9	13	23	30	21	18	

Intersection of Elm Grove and St Crispin St, East Richmond

**GPS** -37.824434,144.998663

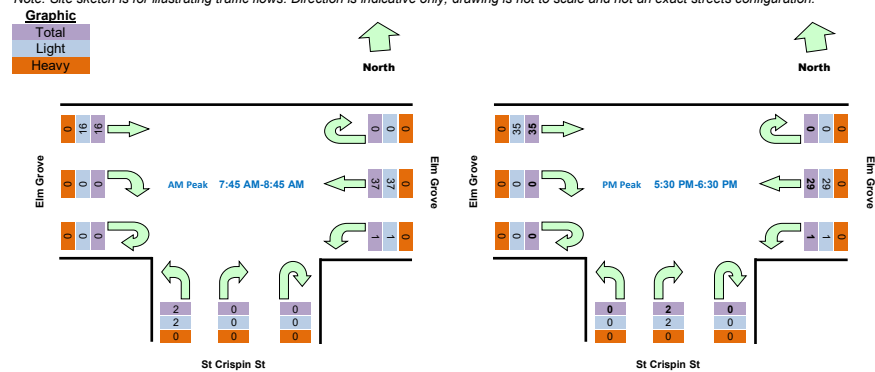
<b>Survey Period</b>	AM:	7:30 AM-9:30 AM
	PM:	4:30 PM-6:30 PM
<b>Traffic Peak</b>	AM:	7:45 AM-8:45 AM
	PM:	5:30 PM-6:30 PM

All Vehicles

Time		East Approach Elm Grove			South Approach St Crispin			West Approach Elm Grove			Hourly Total	
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	Hour	Peak
7:30	7:45	0	4	0	0	0	0	0	0	5	50	
7:45	8:00	0	9	0	0	0	0	0	0	5	56	Peak
8:00	8:15	0	8	0	0	0	2	0	0	6	48	
8:15	8:30	0	7	0	0	0	0	0	0	4	39	
8:30	8:45	0	13	1	0	0	0	0	0	1	40	
8:45	9:00	0	4	0	0	0	0	0	0	2		
9:00	9:15	0	4	0	0	0	0	0	0	3		
9:15	9:30	0	7	0	0	0	0	0	0	5		
16:30	16:45	0	4	0	0	0	0	0	0	4	50	
16:45	17:00	0	8	0	0	0	0	0	0	6	65	
17:00	17:15	0	4	0	0	0	0	0	0	11	63	
17:15	17:30	0	6	0	0	0	0	0	0	7	63	
17:30	17:45	0	6	1	0	1	0	0	0	15	67	Peak
17:45	18:00	0	5	0	0	0	0	0	0	7		
18:00	18:15	0	6	0	0	1	0	0	0	8		
18:15	18:30	0	12	0	0	0	0	0	0	5		

Peak Time		East Approach Elm Grove			South Approach St Crispin			West Approach Elm Grove			Peak
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	total
7:45	8:45	0	37	1	0	0	2	0	0	16	56
17:30	18:30	0	29	1	0	2	0	0	0	35	67

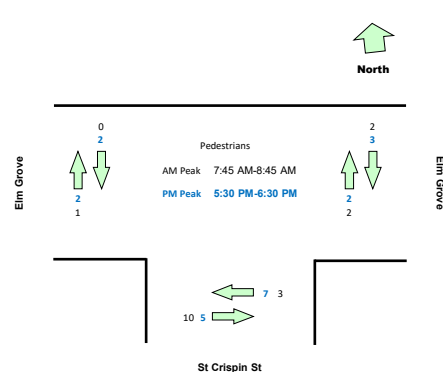
*Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.*



### Pedestrians Crossing

Time		East Approach Elm Grove		South Approach St Crispin St		West Approach Elm Grove		Hourly Total
Period Start	Period End	Northbound	Southbound	Eastbound	Westbound	Northbound	Southbound	
7:30	7:45	0	0	2	1	0	0	14
7:45	8:00	0	0	0	1	0	0	18
8:00	8:15	1	1	1	2	0	0	23
8:15	8:30	1	0	1	2	0	1	23
8:30	8:45	0	1	1	5	0	0	21
8:45	9:00	0	1	3	2	0	0	
9:00	9:15	0	1	2	2	0	0	
9:15	9:30	0	0	0	1	0	2	
16:30	16:45	1	1	0	0	0	0	6
16:45	17:00	0	0	0	0	0	0	11
17:00	17:15	0	0	0	0	0	0	13
17:15	17:30	1	1	0	2	0	0	15
17:30	17:45	1	0	4	0	1	1	21
17:45	18:00	1	0	0	1	0	0	
18:00	18:15	0	0	0	1	1	0	
18:15	18:30	1	2	3	3	0	1	

Peak Time		East Approach Elm Grove		South Approach St Crispin St		West Approach Elm Grove		Peak total
Period Start	Period End	Northbound	Southbound	Eastbound	Westbound	Northbound	Southbound	
7:45	8:45	2	2	3	10	0	1	18
17:30	18:30	3	2	7	5	2	2	21



### Light Vehicles

Time		East Approach Elm Grove			South Approach St Crispin			West Approach Elm Grove		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
7:30	7:45	0	4	0	0	0	0	0	0	5
7:45	8:00	0	9	0	0	0	0	0	0	5
8:00	8:15	0	8	0	0	0	2	0	0	6
8:15	8:30	0	7	0	0	0	0	0	0	4
8:30	8:45	0	13	1	0	0	0	0	0	1
8:45	9:00	0	4	0	0	0	0	0	0	2
9:00	9:15	0	4	0	0	0	0	0	0	3
9:15	9:30	0	7	0	0	0	0	0	0	5
16:30	16:45	0	4	0	0	0	0	0	0	4
16:45	17:00	0	8	0	0	0	0	0	0	6
17:00	17:15	0	4	0	0	0	0	0	0	11
17:15	17:30	0	6	0	0	0	0	0	0	7
17:30	17:45	0	6	1	0	1	0	0	0	15
17:45	18:00	0	5	0	0	0	0	0	0	7
18:00	18:15	0	6	0	0	1	0	0	0	8
18:15	18:30	0	12	0	0	0	0	0	0	5

Peak Time		East Approach Elm Grove			South Approach St Crispin S			West Approach Elm Grove			Peak total
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	
7:45	8:45	0	37	1	0	0	2	0	0	16	56
17:30	18:30	0	29	1	0	2	0	0	0	35	67

### Heavy Vehicles

[illegible][illegible]

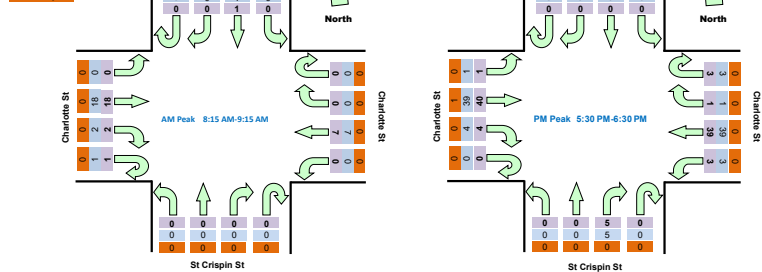
### Cyclists

[illegible]

All Vehicles		North Approach St Crispin St				East Approach Charlotte St				South Approach St Crispin St				West Approach Charlotte St				Hourly Total	
Time	Period	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:30	7:45	0	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	25	
7:45	8:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	23	
8:00	8:15	0	0	0	0	0	0	3	1	0	0	0	0	0	0	4	0	27	
8:15	8:30	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3	0	29	Peak
8:30	8:45	0	0	1	0	0	0	1	0	0	0	0	0	0	0	4	0	29	Peak
8:45	9:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0		
9:00	9:15	0	0	0	0	0	0	3	0	0	0	0	0	0	1	1	5	0	
9:15	9:30	0	0	0	0	0	0	3	0	0	0	0	0	0	1	2	0		
16:30	16:45	0	0	0	0	1	0	3	0	0	0	0	0	1	1	4	0	58	
16:45	17:00	0	0	0	0	0	0	5	0	0	0	0	0	0	0	12	0	64	
17:00	17:15	0	0	0	0	0	0	10	0	0	1	0	0	0	1	4	0	66	
17:15	17:30	0	1	0	0	0	0	6	1	0	1	0	0	0	0	6	0	73	
17:30	17:45	0	0	0	0	1	1	9	0	0	1	0	0	0	0	4	0	96	Peak
17:45	18:00	0	0	0	0	1	0	7	0	0	1	0	0	0	0	10	0		
18:00	18:15	0	0	0	0	1	0	7	3	0	0	0	0	0	0	1	10	1	
18:15	18:30	0	0	0	0	0	0	16	0	0	3	0	0	0	3	16	0		

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Light  
Heavy

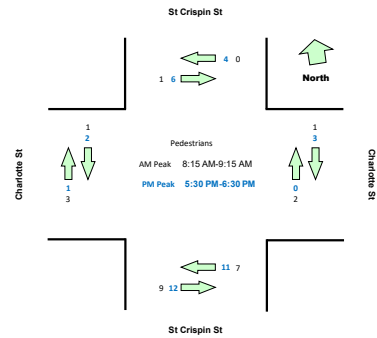


Peak Time	North Approach St Crispin St					East Approach Charlotte St					South Approach St Crispin St					West Approach Charlotte St					Peak total
Period Start/Period End	P	R	R	S	L	U	R	W	L	U	R	NB	L	U	R	ES	95				
8:15 - 9:15	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	18	0	29		
17:30 - 18:30	0	0	0	0	0	3	1	7	39	3	0	5	0	0	0	4	39	1	95		

[illegible]

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Time		North Approach St Crispin St		East Approach Charlotte St		South Approach St Crispin St		West Approach Charlotte St		Hourly Total
Period Start	Period End	Eastbound	Westbound	Northbound	Southbound	Eastbound	Westbound	Northbound	Southbound	
7:30	7:45	1	0	0	0	1	3	2	0	25
7:45	8:00	0	1	0	0	0	3	3	1	25
8:00	8:15	0	0	0	1	1	3	1	0	25
8:15	8:30	0	0	1	0	2	1	0	0	24
8:30	8:45	0	0	0	2	3	2	0	0	26
8:45	9:00	0	1	0	0	0	4	0	3	
9:00	9:15	0	0	0	0	2	2	1	0	
9:15	9:30	0	0	0	0	1	0	3	2	
16:30	16:45	1	0	0	0	4	3	1	1	40
16:45	17:00	1	0	0	0	4	2	1	4	44
17:00	17:15	0	0	0	0	6	1	1	3	44
17:15	17:30	1	0	0	1	0	0	4	1	39
17:30	17:45	0	1	0	0	4	8	0	1	39
17:45	18:00	0	4	0	0	5	1	2	0	
18:00	18:15	0	1	0	0	2	3	0	0	
18:15	18:30	4	0	3	0	0	0	0	0	



TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

Intersection of Swan St and St Crispin St, East Richmond

GPS	-37.825736,144.998477		
Date:	Thu 03/03/22	North:	St Crispin St
Weather:	Time	East:	Swan St
Suburban:	East Richmond	South:	St Crispin St
Customer:	Traffic	West:	Swan St
		Survey	AM: 7:30 AM-9:30 AM
		Period	PM: 4:30 PM-6:30 PM
		Traffic	AM: 8:00 AM-9:00 AM
		Peak	PM: 5:30 PM-6:30 PM

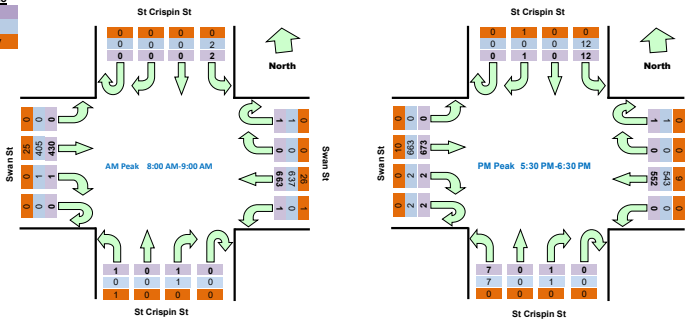
All Vehicles		North Approach St Crispin St				East Approach Swan St				South Approach St Crispin St				West Approach Swan St				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:30	7:45	0	0	0	0	0	0	132	0	0	0	0	0	0	0	108	0	1064	
7:45	8:00	0	0	0	0	0	2	171	0	0	0	0	0	0	0	110	0	1090	
8:00	8:15	0	0	0	1	1	0	153	1	0	0	0	1	0	1	104	0	1100	Peak
8:15	8:30	0	0	0	0	0	0	168	0	0	1	0	0	0	0	110	0	1081	
8:30	8:45	0	0	0	1	0	0	170	0	0	0	0	0	0	0	95	0	1057	
8:45	9:00	0	0	0	0	0	0	172	0	0	0	0	0	0	0	121	0		
9:00	9:15	0	0	0	2	0	0	163	0	0	0	0	0	0	1	77	0		
9:15	9:30	0	0	0	1	1	0	153	0	0	0	0	0	0	1	99	0		
16:30	16:45	0	0	0	1	0	0	100	0	0	0	0	2	1	1	161	0	1154	
16:45	17:00	0	0	0	0	0	1	109	0	0	0	0	2	0	0	160	0	1143	
17:00	17:15	0	0	0	1	0	0	121	0	0	0	0	0	0	0	169	0	1237	
17:15	17:30	0	1	0	1	0	0	143	0	0	0	0	1	2	0	177	0	1234	
17:30	17:45	0	0	0	0	0	0	104	0	0	0	0	0	2	0	149	0	1251	Peak
17:45	18:00	0	1	0	2	0	0	159	0	0	0	0	3	0	2	199	0		
18:00	18:15	0	0	0	5	1	0	127	0	0	1	0	1	0	0	153	0		
18:15	18:30	0	0	0	5	0	0	162	0	0	0	0	3	0	0	172	0		

Peak Time		North Approach St Crispin St				East Approach Swan St				South Approach St Crispin St				West Approach Swan St				Peak total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L		
8:00	9:00	0	0	0	2	1	0	663	1	0	1	0	1	0	1	430	0	1100	
17:30	18:30	0	1	0	12	1	0	552	0	0	1	0	7	2	2	673	0	1251	

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total  
Light  
Heavy



Light Vehicles		North Approach St Crispin St				East Approach Swan St				South Approach St Crispin St				West Approach Swan St				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:30	7:45	0	0	0	0	0	0	122	0	0	0	0	0	0	0	104	0		
7:45	8:00	0	0	0	0	0	2	163	0	0	0	0	0	0	0	103	0		
8:00	8:15	0	0	0	1	1	0	150	0	0	0	0	0	0	1	95	0		
8:15	8:30	0	0	0	0	0	0	162	0	0	1	0	0	0	0	104	0		
8:30	8:45	0	0	0	1	0	0	163	0	0	0	0	0	0	0	92	0		
8:45	9:00	0	0	0	0	0	0	162	0	0	0	0	0	0	0	114	0		
9:00	9:15	0	0	0	2	0	0	157	0	0	0	0	0	0	1	73	0		
9:15	9:30	0	0	0	1	1	0	148	0	0	0	0	0	0	0	93	0		
16:30	16:45	0	0	0	1	0	0	96	0	0	0	0	2	1	1	153	0		
16:45	17:00	0	0	0	0	0	1	107	0	0	0	0	2	0	0	156	0		
17:00	17:15	0	0	0	1	0	0	118	0	0	0	0	0	0	0	166	0		
17:15	17:30	0	1	0	1	0	0	138	0	0	0	0	1	2	0	174	0		
17:30	17:45	0	0	0	0	0	0	101	0	0	0	0	0	2	0	145	0		
17:45	18:00	0	0	0	2	0	0	157	0	0	0	0	3	0	2	196	0		
18:00	18:15	0	0	0	5	1	0	125	0	0	1	0	1	0	0	152	0		
18:15	18:30	0	0	0	5	0	0	160	0	0	0	0	3	0	0	170	0		

Peak Time		North Approach St Crispin St				East Approach Swan St				South Approach St Crispin St				West Approach Swan St				Peak total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L		
8:00	9:00	0	0	0	2	1	0	637	0	0	1	0	0	0	1	405	0	1047	
17:30	18:30	0	0	0	12	1	0	543	0	0	1	0	7	2	2	663	0	1231	

Heavy Vehicles		North Approach St Crispin St				East Approach Swan St				South Approach St Crispin St				West Approach Swan St				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:30	7:45	0	0	0	0	0	0	10	0	0	0	0	0	0	0	4	0		
7:45	8:00	0	0	0	0	0	0	8	0	0	0	0	0	0	0	7	0		
8:00	8:15	0	0	0	0	0	0	3	1	0	0	0	1	0	0	9	0		
8:15	8:30	0	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0		
8:30	8:45	0	0	0	0	0	0	7	0	0	0	0	0	0	0	3	0		
8:45	9:00	0	0	0	0	0	0	10	0	0	0	0	0	0	0	7	0		
9:00	9:15	0	0	0	0	0	0	6	0	0	0	0	0	0	0	4	0		
9:15	9:30	0	0	0	0	0	0	5	0	0	0	0	0	0	1	6	0		
16:30	16:45	0	0	0	0	0	0	4	0	0	0	0	0	0	0	8	0		
16:45	17:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0		
17:00	17:15	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0		
17:15	17:30	0	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0		
17:30	17:45	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0		
17:45	18:00	0	1	0	0	0	0	2	0	0	0	0	0	0	0	3	0		
18:00	18:15	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0		
18:15	18:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0		

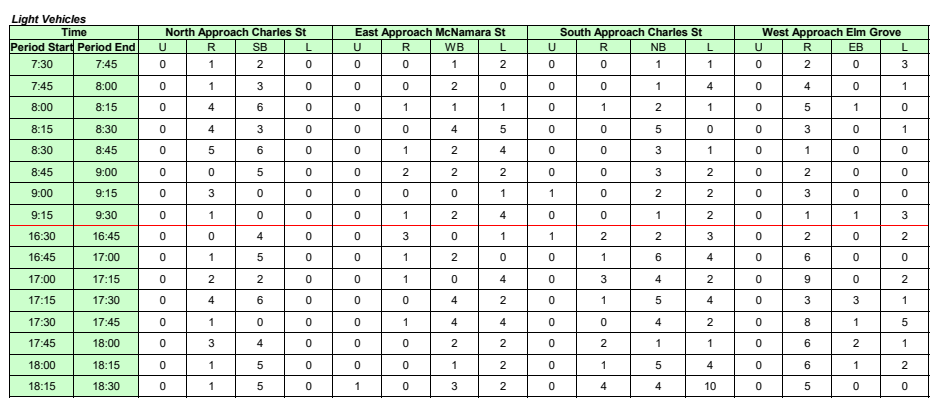
Peak Time		North Approach St Crispin St				East Approach Swan St				South Approach St Crispin St				West Approach Swan St				Peak total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L		
8:00	9:00	0	0	0	0	0	0	26	1	0	0	0	1	0	0	25	0	53	
17:30	18:30	0	1	0	0	0	0	9	0	0	0	0	0	0	0	10	0	20	

Cyclists

Time		North Approach St Crispin St				East Approach Swan St				South Approach St Crispin St				West Approach Swan St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
7:30	7:45	0	0	0	0	0	0	10	0	0	0	0	0	0	0	11	0
7:45	8:00	0	0	0	0	0	1	5	0	0	0	0	0	0	0	3	0
8:00	8:15	0	0	0	0	0	0	10	0	0	0	0	0	0	0	3	0
8:15	8:30	0	0	0	0	0	0	9	0	0	0	0	0	0	0	2	0
8:30	8:45	0	0	0	0	0	0	6	0	0	0	0	0	0	0	2	0
8:45	9:00	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0
9:00	9:15	0	1	0	0	0	1	4	0	0	0	0	0	0	0	3	0
9:15	9:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0
16:30	16:45	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3	0
16:45	17:00	0	0	0	1	0	1	3	0	0	0	0	0	0	0	1	0
17:00	17:15	0	0	0	1	0	1	2	0	0	0	0	0	0	0	7	0
17:15	17:30	0	0	0	0	0	0	4	0	0	0	0	0	0	0	11	0
17:30	17:45	0	0	0	0	0	0	4	0	0	0	0	0	0	0	12	0
17:45	18:00	0	0	0	0	0	0	5	0	0	0	0	0	0	2	5	0
18:00	18:15	0	0	0	1	0	0	4	0	0	0	0	1	1	0	9	0
18:15	18:30	0	0	0	0	0	0	3	0	0	1	0	0	0	0	8	0

All Vehicles		Time																Hourly Total			
Period	Start	End	North Approach Charles St				East Approach McNamara St				South Approach Charles St				West Approach Elm Grove				Hour	Peak	
			U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L			
7:30	7:45		0	1	2	0	0	0	1	2	0	0	0	1	1	0	2	0	3	77	
7:45	8:00		0	1	3	0	0	0	2	0	0	0	1	4	0	4	0	1	87		
8:00	8:15		0	4	6	0	0	1	1	1	0	1	2	1	0	5	1	0	89	Peak	
8:15	8:30		0	4	3	0	0	0	4	5	0	0	5	0	0	3	0	1	78		
8:30	8:45		0	5	6	0	0	1	2	4	0	0	3	1	0	1	0	0	69		
8:45	9:00		0	0	5	0	0	2	2	2	0	0	3	2	0	2	0	0			
9:00	9:15		0	3	0	0	0	0	0	1	1	0	2	2	0	3	0	0			
9:15	9:30		0	1	0	0	0	1	2	4	0	0	1	2	0	1	1	3			
16:30	16:45		0	0	4	0	0	3	0	1	1	2	2	3	0	2	0	2	108		
16:45	17:00		0	1	5	0	0	1	2	0	0	1	6	4	0	6	0	0	116	Peak	
17:00	17:15		0	2	2	0	0	1	0	4	0	3	4	2	0	9	0	2	118		
17:15	17:30		0	4	6	0	0	0	4	2	0	1	5	4	0	3	3	1	115		
17:30	17:45		0	1	0	0	0	1	4	4	0	0	4	2	0	8	1	5	117		
17:45	18:00		0	3	4	0	0	0	2	2	0	2	1	1	0	6	2	1			
18:00	18:15		0	1	5	0	0	0	1	2	0	1	5	4	0	6	1	2			
18:15	18:30		0	1	5	0	1	0	3	2	0	4	4	10	0	5	0	0			

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

[illegible]

Cyclists		North Approach Charles St				East Approach McNamara St				South Approach Charles St				West Approach Elm Grove			
Time		U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
Period Start	Period End																
7:30	7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	8:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:00	8:15	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
8:15	8:30	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
8:30	8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00	9:15	0	0	0	0	0	0	2	1	0	0	1	0	0	0	0	0
9:15	9:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0
16:45	17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
17:00	17:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
17:15	17:30	0	0	1	0	0	1	0	0	0	1	1	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	18:15	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0
18:15	18:30	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	0

Period	Star	Period End	Westbound	Eastbound	East Approach	West Approach	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Hourly Total
7:30	7:45		2	1	4	2	1	0	2	1	4	63
7:45	8:00		3	1	2	4	1	0	1	1	74	
8:00	8:15		2	2	0	7	0	0	2	1	70	
8:15	8:30		1	2	4	4	1	2	6	0	70	
8:30	8:45		1	2	7	5	2	0	7	3	64	
8:45	9:00		2	0	0	1	1	0	3	2		
9:00	9:15		3	2	1	5	0	0	0	3		
9:15	9:30		2	0	5	5	0	0	1	1		
16:30	16:45		0	2	0	2	0	1	2	3	45	
16:45	17:00		4	2	0	3	0	0	1	4	52	
17:00	17:15		2	1	0	3	0	2	1	3	50	
17:15	17:30		2	1	2	0	0	0	3	1	53	
17:30	17:45		1	1	1	5	0	1	4	4	60	
17:45	18:00		1	1	1	3	0	1	3	2		
18:00	18:15		1	1	1	5	0	1	4	2		
18:15	18:30		1	1	4	1	1	1	7	0		

Charles St

North

Elm Grove

McMahon St

Pedestrians

AM Peak 8:00 AM-9:00 AM

PM Peak 4:45 PM-5:45 PM

# TRANS TRAFFIC SURVEY

## TURNING MOVEMENT SURVEY



### Intersection of Charlotte St and Charles St, East Richmond

GPS: -37.825278, 145.000385

Date:	Thu 03/03/22
Weather:	Fine
Suburban:	East Richmond
Customer:	Traffic

North:	Charles St
East:	N/A
South:	Charles St
West:	Charlotte St

Survey Period	AM: 7:30 AM-9:30 AM
PM:	4:30 PM-6:30 PM
Traffic Peak	AM: 8:00 AM-9:00 AM
PM:	5:30 PM-6:30 PM

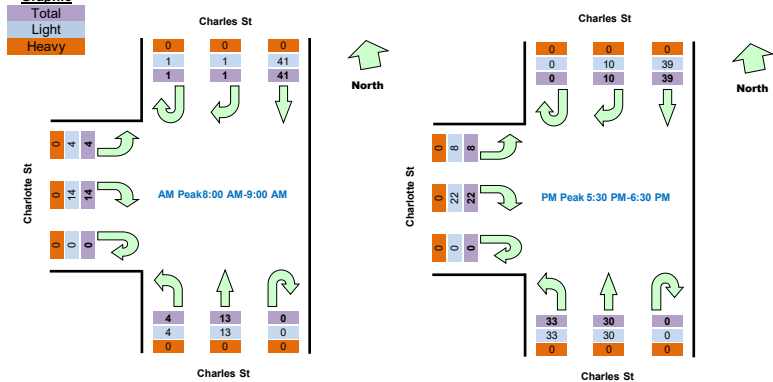
#### All Vehicles

Time		North Approach Charles St			South Approach Charles St			West Approach Charlotte St			Hourly Total	Peak
Period Start	Period End	U	R	SB	U	NB	L	U	R	L		
7:30	7:45	0	0	6	0	2	1	0	4	0	63	
7:45	8:00	0	1	6	0	4	0	1	0	1	72	
8:00	8:15	0	0	12	0	2	1	0	3	2	78	Peak
8:15	8:30	0	0	11	0	3	1	0	0	2	67	
8:30	8:45	0	1	10	0	4	1	0	6	0	59	
8:45	9:00	1	0	8	0	4	1	0	5	0		
9:00	9:15	0	2	2	0	4	0	0	0	1		
9:15	9:30	0	0	5	0	3	1	0	0	0		
16:30	16:45	0	1	6	0	7	2	0	2	1	106	
16:45	17:00	0	0	11	1	9	5	0	2	2	117	
17:00	17:15	0	1	14	0	9	2	0	3	0	115	
17:15	17:30	0	0	11	0	10	5	0	2	0	121	
17:30	17:45	0	2	10	0	4	10	0	2	2	142	Peak
17:45	18:00	0	3	9	0	3	7	0	5	1		
18:00	18:15	0	4	9	0	8	5	0	7	2		
18:15	18:30	0	1	11	0	15	11	0	8	3		

Peak Time		North Approach Charles St			South Approach Charles St			West Approach Charlotte St			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
8:00	9:00	1	1	41	0	13	4	0	14	4	78
17:30	18:30	0	10	39	0	30	33	0	22	8	142

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

#### Graphic



#### Light Vehicles

Time		North Approach Charles St			South Approach Charles St			West Approach Charlotte St		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
7:30	7:45	0	0	6	0	2	1	0	4	0
7:45	8:00	0	1	6	0	4	0	1	0	1
8:00	8:15	0	0	12	0	2	1	0	3	2
8:15	8:30	0	0	11	0	3	1	0	0	2
8:30	8:45	0	1	10	0	4	1	0	6	0
8:45	9:00	1	0	8	0	4	1	0	5	0
9:00	9:15	0	2	2	0	4	0	0	0	1
9:15	9:30	0	0	5	0	3	1	0	0	0
16:30	16:45	0	1	6	0	7	2	0	2	1
16:45	17:00	0	0	11	1	9	5	0	2	2
17:00	17:15	0	1	14	0	9	2	0	3	0
17:15	17:30	0	0	11	0	10	5	0	2	0
17:30	17:45	0	2	10	0	4	10	0	2	2
17:45	18:00	0	3	9	0	3	7	0	5	1
18:00	18:15	0	4	9	0	8	5	0	7	2
18:15	18:30	0	1	11	0	15	11	0	8	3

Peak Time		North Approach Charles St			South Approach Charles St			West Approach Charlotte St			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
8:00	9:00	1	1	41	0	13	4	0	14	4	78
17:30	18:30	0	10	39	0	30	33	0	22	8	142

#### Heavy Vehicles

Time		North Approach Charles St			South Approach Charles St			West Approach Charlotte St		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
7:30	7:45	0	0	0	0	0	0	0	0	0
7:45	8:00	0	0	0	0	0	0	0	0	0
8:00	8:15	0	0	0	0	0	0	0	0	0
8:15	8:30	0	0	0	0	0	0	0	0	0
8:30	8:45	0	0	0	0	0	0	0	0	0
8:45	9:00	0	0	0	0	0	0	0	0	0
9:00	9:15	0	0	0	0	0	0	0	0	0
9:15	9:30	0	0	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0	0	0
18:00	18:15	0	0	0	0	0	0	0	0	0
18:15	18:30	0	0	0	0	0	0	0	0	0

Peak Time		North Approach Charles St			South Approach Charles St			West Approach Charlotte St			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
8:00	9:00	0	0	0	0	0	0	0	0	0	0
17:30	18:30	0	0	0	0	0	0	0	0	0	0

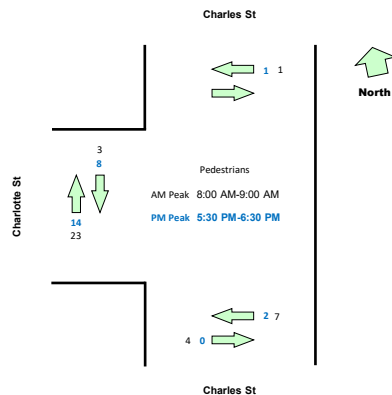
#### Cyclists

Time		North Approach Charles St			South Approach Charles St			West Approach Charlotte St		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
7:30	7:45	0	0	0	0	0	0	0	0	0
7:45	8:00	0	0	1	0	0	0	0	0	0
8:00	8:15	0	0	0	0	0	0	0	0	0
8:15	8:30	0	1	2	0	0	0	0	0	0
8:30	8:45	0	0	0	0	0	0	0	0	0
8:45	9:00	0	0	0	0	0	0	0	0	0
9:00	9:15	0	1	0	0	1	0	0	0	0
9:15	9:30	0	0	0	0	0	0	0	0	0
16:30	16:45	0	0	1	0	1	0	0	0	1
16:45	17:00	0	0	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	1	0	0	0	0
17:15	17:30	0	0	0	0	1	0	0	0	1
17:30	17:45	0	0	1	0	0	0	0	1	0
17:45	18:00	0	0	0	0	0	0	0	0	0
18:00	18:15	0	0	0	0	1	0	0	0	0
18:15	18:30	0	1	1	0	1	0	0	0	1

#### Pedestrians Crossing

Time		North Approach Charles St		South Approach Charles St		West Approach Charlotte St		Hourly Total
Period Start	Period End	Westbound	Eastbound	Westbound	Eastbound	Northbound	Southbound	
7:30	7:45	0	1	0	0	2	5	25
7:45	8:00	0	0	0	3	1	1	33
8:00	8:15	0	0	1	0	1	5	38
8:15	8:30	0	0	1	1	0	3	34
8:30	8:45	1	0	2	2	2	9	32
8:45	9:00	0	0	3	1	0	6	
9:00	9:15	0	0	0	0	2	1	
9:15	9:30	0	0	0	1	1	1	
16:30	16:45	0	0	0	0	1	1	29
16:45	17:00	0	1	0	1	7	3	35
17:00	17:15	0	0	0	0	4	1	28
17:15	17:30	2	0	0	3	0	5	29
17:30	17:45	0	0	2	0	2	4	26
17:45	18:00	0	0	0	0	3	2	
18:00	18:15	0	1	0	0	3	2	
18:15	18:30	1	0	0	0	0	6	

Peak Time		North Approach Charles St		South Approach Charles St		West Approach Charlotte St		Peak total
Period Start	Period End	Westbound	Eastbound	Westbound	Eastbound	Northbound	Southbound	
8:00	9:00	1	0	7	4	3	23	38
17:30	18:30	1	1	2	0	8	14	26



**Intersection of Swan St and Charles St, East Richmond**

**GPS** -37.825930,145.000247

<b>Survey Period</b>	AM:	7:30 AM-9:30 AM
	PM:	4:30 PM-6:30 PM
<b>Traffic Peak</b>	AM:	8:00 AM-9:00 AM
	PM:	5:30 PM-6:30 PM

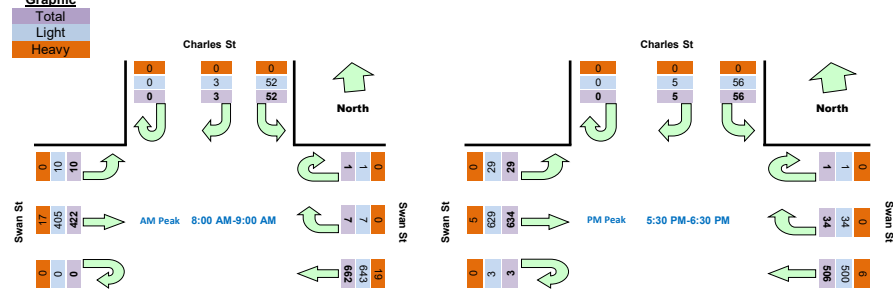
All Vehicles

Time		North Approach Charles St			East Approach Swan St			West Approach Swan St			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:30	7:45	0	2	8	1	2	129	0	106	1	1070	
7:45	8:00	0	0	6	0	0	157	0	99	4	1106	
8:00	8:15	0	2	13	0	2	158	0	105	1	1157	Peak
8:15	8:30	0	1	10	1	2	162	0	96	2	1110	
8:30	8:45	0	0	16	0	1	162	0	102	4	1088	
8:45	9:00	0	0	13	0	2	180	0	119	3		
9:00	9:15	0	0	2	0	2	151	0	77	2		
9:15	9:30	0	2	3	0	3	142	0	101	1		
16:30	16:45	0	0	8	0	8	91	0	165	1	1191	
16:45	17:00	0	0	14	0	9	100	0	148	6	1198	
17:00	17:15	0	2	15	0	8	117	1	154	3	1238	
17:15	17:30	0	2	11	0	12	132	2	179	3	1261	
17:30	17:45	0	0	12	0	8	109	2	143	6	1268	Peak
17:45	18:00	0	1	13	0	7	119	0	174	3		
18:00	18:15	0	1	15	1	5	131	0	162	8		
18:15	18:30	0	3	16	0	14	147	1	155	12		

Peak Time		North Approach Charles St			East Approach Swan St			West Approach Swan St			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	3	52	1	7	662	0	422	10	1157
17:30	18:30	0	5	56	1	34	506	3	634	29	1268

*Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.*

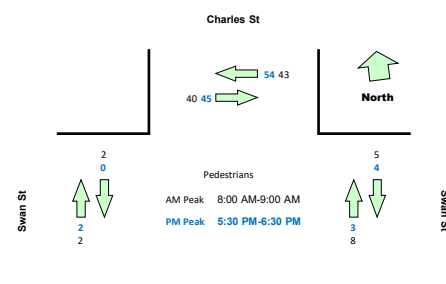
**Graphic**



### Pedestrians Crossing

Time		North Approach Charles St		East Approach Swan St		West Approach Swan St		Hourly Total
Period Start	Period End	Westbound	Eastbound	Northbound	Southbound	Northbound	Southbound	
7:30	7:45	6	12	1	1	0	3	92
7:45	8:00	12	2	0	2	0	0	101
8:00	8:15	14	7	1	1	1	0	100
8:15	8:30	9	13	3	1	1	2	91
8:30	8:45	13	16	1	2	0	0	80
8:45	9:00	7	4	0	4	0	0	
9:00	9:15	4	9	0	1	0	1	
9:15	9:30	7	10	0	0	1	0	
16:30	16:45	8	5	0	0	1	1	100
16:45	17:00	17	7	0	0	0	2	96
17:00	17:15	13	8	0	0	0	1	97
17:15	17:30	21	13	1	1	1	0	104
17:30	17:45	9	1	0	0	0	1	108
17:45	18:00	14	13	0	0	0	0	
18:00	18:15	16	12	0	0	0	1	
18:15	18:30	15	19	4	3	0	0	

Peak Time		North Approach Charles St		East Approach Swan St		West Approach Swan St		Peak total
Period Start	Period End	Westbound	Eastbound	Northbound	Southbound	Northbound	Southbound	
8:00	9:00	43	40	5	8	2	2	100
17:30	18:30	54	45	4	3	0	2	108



### Light Vehicles

Flight Venues		North Approach Charles St			East Approach Swan St			West Approach Swan St		
Time		U	R	L	U	R	WB	U	EB	L
Period Start	Period End									
7:30	7:45	0	2	8	1	2	121	0	97	1
7:45	8:00	0	0	6	0	0	149	0	95	4
8:00	8:15	0	2	13	0	2	156	0	96	1
8:15	8:30	0	1	10	1	2	157	0	94	2
8:30	8:45	0	0	16	0	1	159	0	98	4
8:45	9:00	0	0	13	0	2	171	0	117	3
9:00	9:15	0	0	2	0	2	145	0	72	2
9:15	9:30	0	2	3	0	3	138	0	95	1
16:30	16:45	0	0	8	0	8	88	0	159	1
16:45	17:00	0	0	14	0	9	98	0	145	6
17:00	17:15	0	2	15	0	8	115	1	153	3
17:15	17:30	0	2	11	0	12	130	2	176	3
17:30	17:45	0	0	12	0	8	108	2	141	6
17:45	18:00	0	1	13	0	7	118	0	173	3
18:00	18:15	0	1	15	1	5	129	0	161	8
18:15	18:30	0	3	16	0	14	145	1	154	12

Peak Time		North Approach Charles St			East Approach Swan St			West Approach Swan St			Peak total
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	
8:00	9:00	0	3	52	1	7	643	0	405	10	1121
17:30	18:30	0	5	56	1	34	500	3	629	29	1257

### Heavy Vehicles

Time		North Approach Charles St			East Approach Swan St			West Approach Swan St		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:30	7:45	0	0	0	0	0	8	0	9	0
7:45	8:00	0	0	0	0	0	8	0	4	0
8:00	8:15	0	0	0	0	0	2	0	9	0
8:15	8:30	0	0	0	0	0	5	0	2	0
8:30	8:45	0	0	0	0	0	3	0	4	0
8:45	9:00	0	0	0	0	0	9	0	2	0
9:00	9:15	0	0	0	0	0	6	0	5	0
9:15	9:30	0	0	0	0	0	4	0	6	0
16:30	16:45	0	0	0	0	0	3	0	6	0
16:45	17:00	0	0	0	0	0	2	0	3	0
17:00	17:15	0	0	0	0	0	2	0	1	0
17:15	17:30	0	0	0	0	0	2	0	3	0
17:30	17:45	0	0	0	0	0	1	0	2	0
17:45	18:00	0	0	0	0	0	1	0	1	0
18:00	18:15	0	0	0	0	0	2	0	1	0
18:15	18:30	0	0	0	0	0	2	0	1	0

Peak Time		North Approach Charles St			East Approach Swan St			West Approach Swan St			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
8:00	9:00	0	0	0	0	0	19	0	17	0	36
17:30	18:30	0	0	0	0	0	6	0	5	0	11

### Cyclists

Time		North Approach Charles St			East Approach Swan St			West Approach Swan St		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:30	7:45	0	0	0	0	0	5	0	10	0
7:45	8:00	0	0	1	0	0	6	0	3	0
8:00	8:15	0	0	0	0	0	10	0	4	0
8:15	8:30	0	1	0	0	0	6	0	1	0
8:30	8:45	0	1	0	0	0	8	0	3	0
8:45	9:00	0	0	0	0	0	2	0	4	0
9:00	9:15	0	0	0	0	0	6	0	0	0
9:15	9:30	0	0	0	0	1	2	0	3	0
16:30	16:45	0	0	1	0	1	3	0	5	0
16:45	17:00	0	0	0	0	0	2	0	0	0
17:00	17:15	0	0	0	0	0	1	0	5	0
17:15	17:30	0	0	0	0	1	4	0	6	2
17:30	17:45	0	0	1	0	0	2	0	10	0
17:45	18:00	0	1	1	0	0	2	0	9	0
18:00	18:15	0	0	0	0	0	2	0	5	0
18:15	18:30	0	0	0	0	0	1	0	5	0





# Appendix C

## Traffic Count Data

# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. [traffic@trafficsurvey.com.au](mailto:traffic@trafficsurvey.com.au) - W. [www.trafficsurvey.com.au](http://www.trafficsurvey.com.au)

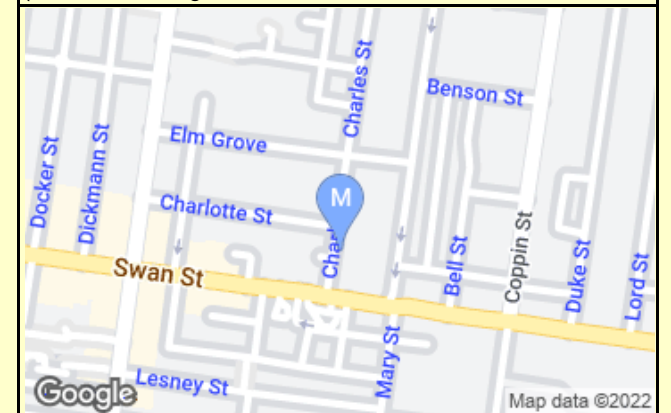
## AUTOMATIC COUNT SUMMARY

Street Name :	Charles St	Location :	Outside Property 79
Suburb :	Richmond	Start Date :	00:00 Tue 01/March/2022
Machine ID:	ME317FVV	Finish Date :	00:00 Tue 08/March/2022
Site ID:	12810	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information      Lat    37° 49' 31.83 South  	
---	--

## Location

GPS Information [Load Google Map \(internet required\)](#)  
(Latitude, Longitude -37.825508, 145.000423)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

OH&S SYSTEM CERTIFIED TO ISO 4801:2001

ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.

These results should be used for indicative assessment only."



Site Charles St

Direction

Both directions ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	11:00	10:00	11:00	11:00	11:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	18:00	17:00	18:00	18:00	18:00	13:00	14:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	5	3	0	9	4	18	21	60	8	21	5	39	21
01:00	7	3	3	4	3	10	19	49	7	20	4	29	15
02:00	5	2	0	0	3	17	21	48	7	10	2	38	20
03:00	4	0	0	1	1	17	18	41	6	6	2	35	18
04:00	4	1	2	1	2	14	16	40	5	10	2	30	15
05:00	11	10	12	13	8	16	17	87	12	54	11	33	17
06:00	38	33	28	34	36	17	17	203	29	169	33	34	17
07:00	52	42	54	42	32	20	19	261	36	222	44	39	20
08:00	62	67	70	77	68	30	23	397	55	344	68	53	27
09:00	49	50	64	44	52	68	26	353	50	259	51	94	48
10:00	55	62	74	60	66	77	38	432	61	317	62	115	58
11:00	78	72	71	86	88	98	83	576	82	395	79	181	92
12:00	87	65	88	97	104	121	79	641	91	441	88	200	101
13:00	83	78	71	86	98	133	99	648	92	416	83	232	118
14:00	72	68	62	84	79	122	102	589	83	365	72	224	114
15:00	94	100	101	92	93	87	90	657	93	480	97	177	90
16:00	80	72	90	73	97	84	90	586	84	412	84	174	89
17:00	113	118	111	115	116	92	82	747	106	573	114	174	88
18:00	138	92	168	151	146	97	52	844	120	695	138	149	76
19:00	104	66	114	109	139	108	42	682	97	532	106	150	76
20:00	56	35	71	52	72	62	37	385	55	286	56	99	51
21:00	41	21	52	33	63	44	28	282	40	210	42	72	36
22:00	28	11	22	27	54	49	19	210	30	142	28	68	34
23:00	16	11	19	6	33	34	10	129	19	85	17	44	22
Total	1282	1082	1347	1296	1457	1435	1048	8947	1268	6464	1288	2483	1263
% Heavy	2.96%	3.79%	4.31%	4.09%	3.09%	1.39%	1.43%	3.02%		3.64%		1.41%	



Site Charles St

Direction Northbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	11:00	10:00	11:00	11:00	11:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	18:00	17:00	18:00	18:00	18:00	13:00	14:00	N/A	18:00	N/A	18:00	N/A	14:00
00:00	5	2	0	3	3	8	8	29	4	13	3	16	9
01:00	2	1	1	2	1	1	10	18	3	7	1	11	6
02:00	3	1	0	0	1	9	8	22	3	5	1	17	9
03:00	1	0	0	1	1	9	9	21	3	3	1	18	9
04:00	1	0	1	0	1	7	7	17	2	3	1	14	7
05:00	3	2	2	5	2	8	8	30	4	14	3	16	8
06:00	13	10	7	12	10	9	9	70	10	52	10	18	9
07:00	14	11	15	11	11	10	8	80	11	62	13	18	9
08:00	20	16	12	17	20	12	8	105	14	85	17	20	10
09:00	27	23	26	17	25	29	13	160	23	118	23	42	22
10:00	23	30	38	24	37	31	16	199	28	152	30	47	24
11:00	33	34	30	29	43	41	42	252	36	169	34	83	42
12:00	39	33	37	42	47	61	42	301	42	198	39	103	52
13:00	40	37	32	38	53	71	50	321	45	200	40	121	61
14:00	29	25	23	30	41	64	61	273	38	148	29	125	64
15:00	38	42	36	39	41	39	48	283	40	196	40	87	44
16:00	44	32	55	36	59	44	54	324	46	226	46	98	50
17:00	61	58	57	56	76	47	48	403	57	308	61	95	48
18:00	86	58	112	80	94	62	23	515	74	430	86	85	43
19:00	57	40	68	60	66	64	25	380	54	291	58	89	45
20:00	29	15	47	27	30	37	19	204	29	148	29	56	29
21:00	20	13	22	16	32	20	10	133	19	103	21	30	15
22:00	13	6	10	14	24	24	6	97	14	67	13	30	15
23:00	9	7	12	5	14	17	3	67	10	47	9	20	10
Total	610	496	643	564	732	724	535	4304	609	3045	608	1259	640
% Heavy	2.30%	3.43%	3.73%	3.90%	2.87%	1.38%	1.68%	2.72%		3.22%		1.51%	



Site Charles St

Direction Southbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	08:00	08:00	08:00	11:00	11:00	N/A	11:00	N/A	08:00	N/A	11:00
PM Peak	15:00	17:00	15:00	18:00	19:00	13:00	13:00	N/A	15:00	N/A	15:00	N/A	13:00
00:00	0	1	0	6	1	10	13	31	4	8	2	23	12
01:00	5	2	2	2	2	9	9	31	4	13	3	18	9
02:00	2	1	0	0	2	8	13	26	4	5	1	21	11
03:00	3	0	0	0	0	8	9	20	3	3	1	17	9
04:00	3	1	1	1	1	7	9	23	3	7	1	16	8
05:00	8	8	10	8	6	8	9	57	8	40	8	17	9
06:00	25	23	21	22	26	8	8	133	19	117	23	16	8
07:00	38	31	39	31	21	10	11	181	25	160	31	21	11
08:00	42	51	58	60	48	18	15	292	41	259	51	33	17
09:00	22	27	38	27	27	39	13	193	27	141	28	52	26
10:00	32	32	36	36	29	46	22	233	33	165	32	68	34
11:00	45	38	41	57	45	57	41	324	46	226	45	98	50
12:00	48	32	51	55	57	60	37	340	49	243	49	97	49
13:00	43	41	39	48	45	62	49	327	47	216	43	111	57
14:00	43	43	39	54	38	58	41	316	45	217	43	99	50
15:00	56	58	65	53	52	48	42	374	53	284	57	90	46
16:00	36	40	35	37	38	40	36	262	38	186	38	76	39
17:00	52	60	54	59	40	45	34	344	49	265	53	79	40
18:00	52	34	56	71	52	35	29	329	46	265	52	64	33
19:00	47	26	46	49	73	44	17	302	43	241	48	61	31
20:00	27	20	24	25	42	25	18	181	26	138	27	43	22
21:00	21	8	30	17	31	24	18	149	21	107	21	42	21
22:00	15	5	12	13	30	25	13	113	16	75	15	38	19
23:00	7	4	7	1	19	17	7	62	9	38	8	24	12
Total	672	586	704	732	725	711	513	4643	659	3419	680	1224	623
% Heavy	3.57%	4.10%	4.83%	4.23%	3.31%	1.41%	1.17%	3.30%		4.01%		1.31%	



# TRANS TRAFFIC SURVEY

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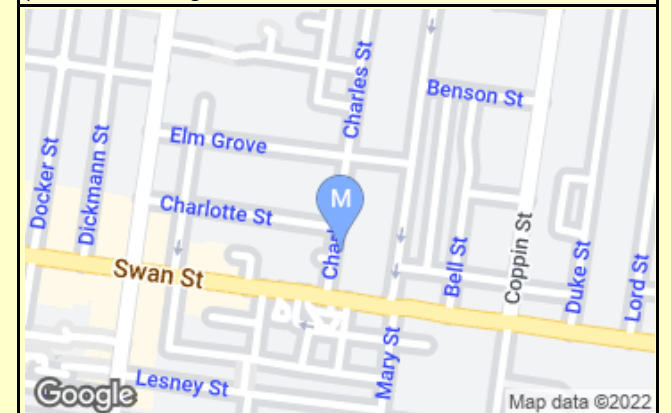
## AUTOMATIC COUNT SUMMARY

Street Name :	Charles St	Location :	Outside Property 79
Suburb :	Richmond	Start Date :	00:00 Sat 12/March/2022
Machine ID:	L779CFYS	Finish Date :	00:00 Sat 19/March/2022
Site ID:	12810	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information		Lat 37° 49' 31.83 South	Direction of Travel		
			Both directions	Northbound	Southbound
		Long 145° 0' 1.52 East			
Traffic Volume : (Vehicles/Day)		Weekdays Average	1,170	559	611
		7 Day Average	1,128	541	587
Weekday	AM	10:00	60	28	32
Peak hour starts	PM	18:00	146	88	58
Speeds : (Km/Hr)		85th Percentile	34.2	34.7	33.8
		Average	29.6	30.0	29.2
Classification % :		Light Vehicles up to 5.5m	96.4%	96.7%	96.1%

## Location

GPS Information [Load Google Map \(internet required\)](#)  
(Latitude, Longitude -37.825508, 145.000423)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

OH&S SYSTEM CERTIFIED TO ISO 4801:2001

ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.

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Site Charles St

Direction Both directions ▼

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	11:00	10:00	10:00	10:00	11:00	11:00	N/A	11:00	N/A	10:00	N/A	11:00
PM Peak	16:00	18:00	18:00	18:00	18:00	19:00	12:00	N/A	18:00	N/A	18:00	N/A	12:00
00:00	12	4	2	8	13	25	29	93	13	39	8	54	27
01:00	12	3	0	3	7	23	19	67	9	25	5	42	22
02:00	6	1	0	0	6	21	21	55	8	13	2	42	22
03:00	3	0	6	3	2	23	20	57	9	14	3	43	22
04:00	2	2	4	5	4	24	22	63	9	17	3	46	24
05:00	4	9	8	14	4	20	25	84	12	39	7	45	23
06:00	9	18	23	22	20	21	26	139	19	92	19	47	24
07:00	11	55	49	40	38	24	20	237	35	193	39	44	23
08:00	19	45	73	60	65	28	22	312	45	262	52	50	26
09:00	33	51	57	54	63	60	30	348	49	258	51	90	46
10:00	35	54	75	69	74	61	31	399	57	307	60	92	46
11:00	41	56	64	45	64	82	59	411	59	270	53	141	72
12:00	66	56	86	74	89	71	97	539	76	371	74	168	85
13:00	61	90	76	70	79	62	54	492	71	376	75	116	59
14:00	61	63	71	74	75	69	57	470	67	344	68	126	63
15:00	45	72	68	103	110	72	68	538	77	398	80	140	71
16:00	68	76	94	115	96	49	62	560	80	449	90	111	56
17:00	55	85	129	175	120	59	65	688	98	564	113	124	62
18:00	57	106	186	193	189	68	60	859	123	731	146	128	65
19:00	51	57	120	151	127	83	47	636	91	506	102	130	66
20:00	34	52	37	52	36	62	32	305	45	211	43	94	48
21:00	24	36	23	36	22	36	31	208	29	141	28	67	35
22:00	13	16	46	78	45	33	24	255	36	198	40	57	30
23:00	7	8	8	18	6	20	17	84	11	47	9	37	19
Total	729	1015	1305	1462	1354	1096	938	7899	1128	5865	1170	2034	1036
% Heavy	3.16%	4.24%	5.29%	4.79%	4.14%	1.55%	1.49%	3.70%		4.45%		1.52%	



Site Charles St

Direction Northbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	09:00	10:00	10:00	10:00	11:00	11:00	N/A	10:00	N/A	10:00	N/A	11:00
PM Peak	16:00	18:00	18:00	18:00	18:00	19:00	12:00	N/A	18:00	N/A	18:00	N/A	12:00
00:00	5	2	1	6	5	11	13	43	6	19	4	24	12
01:00	4	1	0	0	4	9	6	24	3	9	2	15	8
02:00	3	1	0	0	3	8	7	22	3	7	1	15	8
03:00	1	0	2	2	1	11	8	25	4	6	1	19	10
04:00	1	2	3	3	2	10	9	30	4	11	2	19	10
05:00	1	2	1	4	0	9	11	28	4	8	1	20	10
06:00	5	3	6	6	4	8	10	42	5	24	5	18	9
07:00	5	12	16	7	10	9	8	67	10	50	10	17	9
08:00	7	9	15	14	17	12	9	83	12	62	12	21	11
09:00	10	25	30	25	29	23	16	158	22	119	23	39	20
10:00	14	25	35	32	37	23	11	177	25	143	28	34	17
11:00	17	20	19	22	27	38	28	171	25	105	21	66	34
12:00	28	28	43	39	43	37	60	278	39	181	36	97	49
13:00	35	44	33	33	30	32	27	234	34	175	35	59	30
14:00	25	26	33	36	28	33	29	210	30	148	29	62	31
15:00	25	27	31	48	41	33	34	239	34	172	35	67	34
16:00	40	38	54	66	52	25	37	312	45	250	50	62	31
17:00	29	38	77	108	70	30	36	388	55	322	65	66	33
18:00	28	63	114	126	111	40	34	516	74	442	88	74	37
19:00	28	32	72	105	76	56	26	395	56	313	63	82	42
20:00	22	23	16	28	17	30	13	149	22	106	22	43	22
21:00	11	14	9	11	8	17	16	86	12	53	10	33	17
22:00	8	11	11	14	10	18	12	84	12	54	11	30	16
23:00	3	5	5	8	4	9	6	40	5	25	5	15	8
Total	355	451	626	743	629	531	466	3801	541	2804	559	997	508
% Heavy	3.66%	4.43%	4.79%	3.63%	4.13%	1.88%	1.29%	3.47%		4.14%		1.60%	



Site Charles St

Direction Southbound ▼[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	07:00	08:00	08:00	08:00	11:00	11:00	N/A	11:00	N/A	08:00	N/A	11:00
PM Peak	12:00	17:00	18:00	17:00	18:00	15:00	12:00	N/A	18:00	N/A	18:00	N/A	15:00
00:00	7	2	1	2	8	14	16	50	7	20	4	30	15
01:00	8	2	0	3	3	14	13	43	6	16	3	27	14
02:00	3	0	0	0	3	13	14	33	5	6	1	27	14
03:00	2	0	4	1	1	12	12	32	5	8	2	24	12
04:00	1	0	1	2	2	14	13	33	5	6	1	27	14
05:00	3	7	7	10	4	11	14	56	8	31	6	25	13
06:00	4	15	17	16	16	13	16	97	14	68	14	29	15
07:00	6	43	33	33	28	15	12	170	25	143	29	27	14
08:00	12	36	58	46	48	16	13	229	33	200	40	29	15
09:00	23	26	27	29	34	37	14	190	27	139	28	51	26
10:00	21	29	40	37	37	38	20	222	32	164	32	58	29
11:00	24	36	45	23	37	44	31	240	34	165	32	75	38
12:00	38	28	43	35	46	34	37	261	37	190	38	71	36
13:00	26	46	43	37	49	30	27	258	37	201	40	57	29
14:00	36	37	38	38	47	36	28	260	37	196	39	64	32
15:00	20	45	37	55	69	39	34	299	43	226	45	73	37
16:00	28	38	40	49	44	24	25	248	35	199	40	49	25
17:00	26	47	52	67	50	29	29	300	43	242	48	58	29
18:00	29	43	72	67	78	28	26	343	49	289	58	54	28
19:00	23	25	48	46	51	27	21	241	35	193	39	48	24
20:00	12	29	21	24	19	32	19	156	23	105	21	51	26
21:00	13	22	14	25	14	19	15	122	17	88	18	34	18
22:00	5	5	35	64	35	15	12	171	24	144	29	27	14
23:00	4	3	3	10	2	11	11	44	6	22	4	22	11
Total	374	564	679	719	725	565	472	4098	587	3061	611	1037	528
% Heavy	2.67%	4.08%	5.74%	5.98%	4.14%	1.24%	1.69%	3.90%		4.74%		1.45%	

# TRANS TRAFFIC SURVEY

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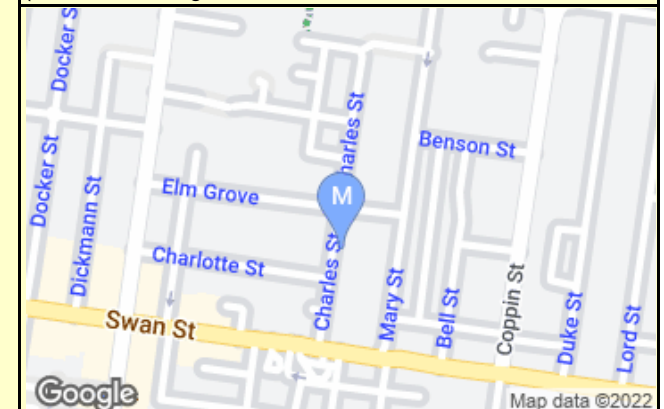
## AUTOMATIC COUNT SUMMARY

Street Name :	Charles St	Location :	Outside Property 61
Suburb :	Richmond	Start Date :	00:00 Tue 01/March/2022
Machine ID:	CX86SFE2	Finish Date :	00:00 Tue 08/March/2022
Site ID:	12811	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information Lat 37° 49' 30.04 South Long 145° 0' 1.89 East		Direction of Travel		
		Both directions	Northbound	Southbound
Traffic Volume : Weekdays Average		945	433	512
(Vehicles/Day) 7 Day Average		935	446	489
Weekday AM	11:00	59	25	34
Peak hour starts PM	18:00	96	55	41
Speeds : 85th Percentile		29.2	29.6	28.9
(Km/Hr) Average		25.0	25.4	24.5
Classification % :	Light Vehicles up to 5.5m	97.7%	97.3%	98.0%

## Location

GPS Information [Load Google Map \(internet required\)](#)  
(Latitude, Longitude -37.825011, 145.000526)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015  
OH&S SYSTEM CERTIFIED TO ISO 4801:2001  
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open. These results should be used for indicative assessment only."





Site Charles St

Direction

Both directions ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	11:00	08:00	11:00	11:00	11:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	18:00	15:00	18:00	18:00	18:00	13:00	14:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	5	3	0	8	4	11	16	47	6	20	4	27	14
01:00	8	4	2	5	4	8	13	44	6	23	4	21	11
02:00	5	2	1	0	3	11	7	29	4	11	2	18	10
03:00	1	0	1	2	1	18	11	34	5	5	1	29	15
04:00	3	2	3	1	2	14	8	33	5	11	2	22	11
05:00	4	6	8	7	5	12	9	51	7	30	6	21	11
06:00	32	26	20	31	26	15	8	158	22	135	26	23	12
07:00	35	36	49	35	30	19	17	221	31	185	37	36	19
08:00	45	50	63	60	39	27	27	311	43	257	50	54	28
09:00	40	35	47	43	21	43	24	253	36	186	37	67	35
10:00	42	44	57	46	41	55	32	317	45	230	46	87	44
11:00	58	56	47	72	65	73	71	442	63	298	59	144	73
12:00	66	59	64	78	72	83	60	482	69	339	68	143	72
13:00	60	56	52	63	80	105	83	499	71	311	62	188	95
14:00	57	51	55	70	57	99	85	474	67	290	57	184	93
15:00	74	84	80	69	68	61	67	503	72	375	75	128	65
16:00	62	58	69	59	68	61	58	435	63	316	63	119	61
17:00	75	77	76	79	73	64	62	506	72	380	75	126	64
18:00	94	63	108	118	97	58	41	579	82	480	96	99	50
19:00	67	32	90	76	78	63	44	450	64	343	69	107	54
20:00	40	27	52	31	54	39	31	274	39	204	40	70	35
21:00	29	17	41	24	37	24	24	196	27	148	29	48	25
22:00	20	12	11	21	41	32	15	152	22	105	21	47	24
23:00	14	11	15	4	32	12	10	98	14	76	16	22	12
Total	936	811	1011	1002	998	1007	823	6588	935	4758	945	1830	933
% Heavy	2.35%	2.47%	2.47%	2.50%	4.41%	1.29%	0.73%	2.35%		2.86%		1.04%	



Site Charles St

Direction Northbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	11:00	10:00	11:00	11:00	11:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	18:00	17:00	18:00	18:00	18:00	13:00	14:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	5	2	0	3	2	6	4	22	3	12	2	10	5
01:00	4	2	0	3	3	4	6	22	3	12	2	10	5
02:00	3	1	1	0	1	8	1	15	2	6	1	9	5
03:00	1	0	0	1	1	12	5	20	3	3	1	17	9
04:00	1	1	2	0	1	9	5	19	3	5	1	14	7
05:00	2	2	2	3	1	8	4	22	3	10	2	12	6
06:00	13	8	4	8	9	10	4	56	8	42	8	14	7
07:00	8	12	17	13	14	8	7	79	11	64	13	15	8
08:00	11	10	8	15	10	11	10	75	10	54	10	21	11
09:00	21	14	15	19	7	16	13	105	15	76	15	29	15
10:00	18	20	27	18	20	21	13	137	20	103	20	34	17
11:00	25	24	19	26	35	33	36	198	28	129	25	69	35
12:00	31	29	30	34	34	40	28	226	33	158	31	68	34
13:00	27	24	23	24	44	60	42	244	35	142	29	102	52
14:00	23	21	19	29	27	50	51	220	31	119	23	101	51
15:00	30	35	30	28	31	26	37	217	31	154	31	63	32
16:00	31	24	41	28	33	28	35	220	32	157	31	63	32
17:00	38	39	39	30	47	28	34	255	36	193	38	62	31
18:00	54	39	66	62	55	40	16	332	47	276	55	56	28
19:00	37	21	53	37	41	37	27	253	36	189	38	64	32
20:00	22	11	32	19	29	24	16	153	22	113	22	40	20
21:00	15	11	18	13	19	14	11	101	14	76	15	25	13
22:00	11	6	7	13	20	20	6	83	12	57	11	26	13
23:00	8	7	10	2	16	6	5	54	8	43	9	11	6
Total	439	363	463	428	500	519	416	3128	446	2193	433	935	474
% Heavy	2.96%	2.75%	3.46%	2.80%	5.20%	1.54%	0.48%	2.78%		3.51%		1.07%	



Site Charles St

Direction Southbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	11:00	11:00	11:00	11:00	N/A	11:00	N/A	08:00	N/A	11:00
PM Peak	15:00	15:00	15:00	18:00	18:00	14:00	13:00	N/A	15:00	N/A	15:00	N/A	13:00
00:00	0	1	0	5	2	5	12	25	3	8	2	17	9
01:00	4	2	2	2	1	4	7	22	3	11	2	11	6
02:00	2	1	0	0	2	3	6	14	2	5	1	9	5
03:00	0	0	1	1	0	6	6	14	2	2	0	12	6
04:00	2	1	1	1	1	5	3	14	2	6	1	8	4
05:00	2	4	6	4	4	4	5	29	4	20	4	9	5
06:00	19	18	16	23	17	5	4	102	14	93	18	9	5
07:00	27	24	32	22	16	11	10	142	20	121	24	21	11
08:00	34	40	55	45	29	16	17	236	33	203	40	33	17
09:00	19	21	32	24	14	27	11	148	21	110	22	38	20
10:00	24	24	30	28	21	34	19	180	25	127	26	53	27
11:00	33	32	28	46	30	40	35	244	35	169	34	75	38
12:00	35	30	34	44	38	43	32	256	36	181	37	75	38
13:00	33	32	29	39	36	45	41	255	36	169	33	86	43
14:00	34	30	36	41	30	49	34	254	36	171	34	83	42
15:00	44	49	50	41	37	35	30	286	41	221	44	65	33
16:00	31	34	28	31	35	33	23	215	31	159	32	56	29
17:00	37	38	37	49	26	36	28	251	36	187	37	64	33
18:00	40	24	42	56	42	18	25	247	35	204	41	43	22
19:00	30	11	37	39	37	26	17	197	28	154	31	43	22
20:00	18	16	20	12	25	15	15	121	17	91	18	30	15
21:00	14	6	23	11	18	10	13	95	13	72	14	23	12
22:00	9	6	4	8	21	12	9	69	10	48	10	21	11
23:00	6	4	5	2	16	6	5	44	6	33	7	11	6
Total	497	448	548	574	498	488	407	3460	489	2565	512	895	459
% Heavy	1.81%	2.23%	1.64%	2.26%	3.61%	1.02%	0.98%	1.97%		2.30%		1.01%	

# TRANS TRAFFIC SURVEY

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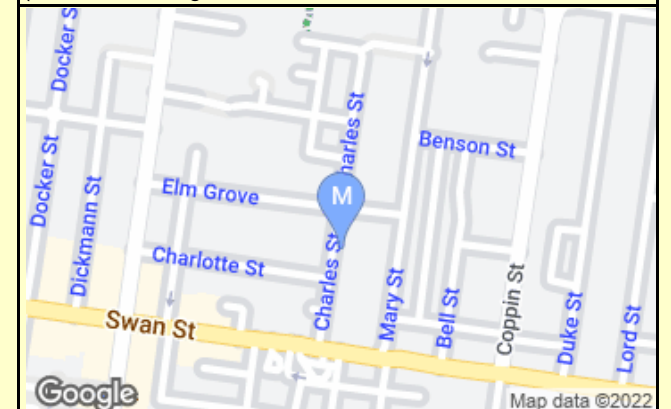
## AUTOMATIC COUNT SUMMARY

Street Name :	Charles St	Location :	Outside Property 61
Suburb :	Richmond	Start Date :	00:00 Sat 12/March/2022
Machine ID:	K354KXNE	Finish Date :	00:00 Sat 19/March/2022
Site ID:	12811	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information		Lat 37° 49' 30.04 South Long 145° 0' 1.89 East	Direction of Travel		
			Both directions	Northbound	Southbound
Traffic Volume : (Vehicles/Day)	Weekdays Average	847	419	428	
	7 Day Average	794	394	400	
Weekday	AM	10:00	44	21	23
Peak hour starts	PM	18:00	99	61	38
Speeds : (Km/Hr)	85th Percentile	30.1	30.6	29.6	
	Average	26.0	26.6	25.5	
Classification % :	Light Vehicles up to 5.5m	97.9%	97.5%	98.3%	

## Location

GPS Information [Load Google Map \(internet required\)](#)  
(Latitude, Longitude -37.825011, 145.000526)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

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### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.

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# AUTOMATIC COUNTER SUMMARY AND DATA SHEET



Site Charles St

Direction Both directions ▼

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Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	08:00	08:00	10:00	11:00	11:00	N/A	11:00	N/A	10:00	N/A	11:00
PM Peak	12:00	18:00	18:00	18:00	18:00	15:00	12:00	N/A	18:00	N/A	18:00	N/A	12:00
00:00	10	3	2	8	11	11	13	58	8	34	7	24	13
01:00	9	4	0	2	7	6	10	38	5	22	4	16	9
02:00	7	2	0	0	5	7	8	29	4	14	3	15	8
03:00	2	0	4	3	3	6	6	24	3	12	2	12	7
04:00	1	2	4	3	3	7	4	24	3	13	2	11	6
05:00	4	7	4	7	3	6	7	38	5	25	5	13	7
06:00	9	14	17	16	18	8	9	91	12	74	14	17	9
07:00	10	42	34	29	31	13	9	168	23	146	28	22	12
08:00	11	47	59	51	46	18	16	248	35	214	42	34	17
09:00	27	42	42	39	51	35	29	265	37	201	41	64	33
10:00	27	37	53	48	61	50	23	299	42	226	44	73	37
11:00	33	42	46	29	41	65	47	303	43	191	37	112	57
12:00	58	38	56	55	64	54	69	394	56	271	53	123	62
13:00	49	62	49	46	57	51	44	358	51	263	52	95	48
14:00	53	50	54	60	54	56	31	358	52	271	55	87	44
15:00	38	49	59	68	73	61	45	393	56	287	58	106	55
16:00	47	59	66	82	61	38	39	392	56	315	63	77	40
17:00	36	68	97	107	75	42	55	480	68	383	77	97	50
18:00	35	74	129	156	97	39	42	572	82	491	99	81	42
19:00	31	40	104	111	71	52	34	443	64	357	71	86	44
20:00	29	32	30	49	33	38	23	234	33	173	34	61	31
21:00	16	22	19	20	18	25	14	134	20	95	19	39	20
22:00	9	11	30	60	26	22	16	174	25	136	27	38	20
23:00	6	11	6	18	9	17	11	78	11	50	10	28	15
Total	557	758	964	1067	918	727	604	5595	794	4264	847	1331	686
% Heavy	2.69%	2.77%	2.80%	2.62%	1.96%	0.55%	1.49%	2.18%		2.56%		0.98%	





Site Charles St

Direction Northbound ▼

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Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	09:00	10:00	10:00	10:00	11:00	11:00	N/A	10:00	N/A	10:00	N/A	11:00
PM Peak	13:00	18:00	18:00	18:00	18:00	19:00	12:00	N/A	18:00	N/A	18:00	N/A	12:00
00:00	5	2	1	6	5	7	8	34	5	19	4	15	8
01:00	4	2	0	0	4	2	5	17	2	10	2	7	4
02:00	4	2	0	0	2	3	4	15	2	8	2	7	4
03:00	1	0	1	2	2	3	4	13	2	6	1	7	4
04:00	1	2	3	3	2	3	2	16	2	11	2	5	3
05:00	3	2	1	3	0	1	4	14	2	9	2	5	3
06:00	5	3	8	3	7	2	5	33	4	26	5	7	4
07:00	6	11	9	4	9	5	4	48	6	39	7	9	5
08:00	4	9	13	14	9	8	10	67	9	49	9	18	9
09:00	9	24	19	16	24	11	14	117	16	92	19	25	13
10:00	12	18	26	25	27	23	10	141	20	108	21	33	17
11:00	12	18	13	14	17	35	19	128	18	74	14	54	27
12:00	29	21	30	34	29	28	40	211	30	143	28	68	34
13:00	32	28	23	22	25	22	22	174	25	130	26	44	22
14:00	23	21	22	34	23	26	17	166	24	123	25	43	22
15:00	23	23	27	36	27	32	22	190	27	136	28	54	28
16:00	25	29	36	46	35	20	21	212	30	171	34	41	21
17:00	20	26	56	61	40	20	30	253	36	203	41	50	26
18:00	22	49	83	88	60	19	29	350	50	302	61	48	25
19:00	20	26	61	69	44	38	18	276	40	220	44	56	29
20:00	18	18	15	31	19	22	12	135	19	101	20	34	17
21:00	10	7	11	10	9	12	8	67	10	47	9	20	10
22:00	6	8	9	16	9	12	7	67	10	48	10	19	10
23:00	4	6	4	6	4	8	5	37	5	24	5	13	7
Total	298	355	471	543	432	362	320	2781	394	2099	419	682	352
% Heavy	3.02%	3.66%	3.18%	3.50%	2.55%	0.83%	1.25%	2.66%		3.19%		1.03%	



Site Charles St

Direction Southbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	08:00	08:00	08:00	11:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	14:00	17:00	18:00	18:00	15:00	14:00	12:00	N/A	17:00	N/A	18:00	N/A	12:00
00:00	5	1	1	2	6	4	5	24	3	15	3	9	5
01:00	5	2	0	2	3	4	5	21	3	12	2	9	5
02:00	3	0	0	0	3	4	4	14	2	6	1	8	4
03:00	1	0	3	1	1	3	2	11	1	6	1	5	3
04:00	0	0	1	0	1	4	2	8	1	2	0	6	3
05:00	1	5	3	4	3	5	3	24	3	16	3	8	4
06:00	4	11	9	13	11	6	4	58	8	48	9	10	5
07:00	4	31	25	25	22	8	5	120	17	107	21	13	7
08:00	7	38	46	37	37	10	6	181	26	165	33	16	8
09:00	18	18	23	23	27	24	15	148	21	109	22	39	20
10:00	15	19	27	23	34	27	13	158	22	118	23	40	20
11:00	21	24	33	15	24	30	28	175	25	117	23	58	30
12:00	29	17	26	21	35	26	29	183	26	128	25	55	28
13:00	17	34	26	24	32	29	22	184	26	133	26	51	26
14:00	30	29	32	26	31	30	14	192	28	148	30	44	22
15:00	15	26	32	32	46	29	23	203	29	151	30	52	27
16:00	22	30	30	36	26	18	18	180	26	144	29	36	19
17:00	16	42	41	46	35	22	25	227	32	180	36	47	24
18:00	13	25	46	68	37	20	13	222	32	189	38	33	17
19:00	11	14	43	42	27	14	16	167	24	137	27	30	15
20:00	11	14	15	18	14	16	11	99	14	72	14	27	14
21:00	6	15	8	10	9	13	6	67	10	48	10	19	10
22:00	3	3	21	44	17	10	9	107	15	88	17	19	10
23:00	2	5	2	12	5	9	6	41	6	26	5	15	8
Total	259	403	493	524	486	365	284	2814	400	2165	428	649	334
% Heavy	2.32%	1.99%	2.43%	1.72%	1.44%	0.27%	1.76%	1.71%		1.94%		0.92%	

# TRANS TRAFFIC SURVEY

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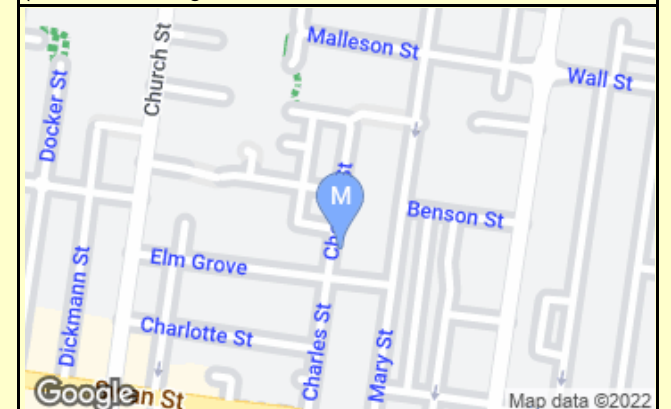
## AUTOMATIC COUNT SUMMARY

Street Name :	Charles St	Location :	Outside Property 41
Suburb :	Richmond	Start Date :	00:00 Tue 01/March/2022
Machine ID:	MD00QXA4	Finish Date :	00:00 Tue 08/March/2022
Site ID:	12812	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information		Lat 37° 49' 27.66 South	Direction of Travel		
			Both directions	Northbound	Southbound
Long 145° 0' 2.34 East					
Traffic Volume : (Vehicles/Day)		Weekdays Average	652	331	321
		7 Day Average	669	337	332
Weekday	AM	10:00	39	21	18
Peak hour starts	PM	18:00	54	32	22
Speeds : (Km/Hr)		85th Percentile	32.0	32.8	31.1
		Average	27.0	27.5	26.4
Classification % :		Light Vehicles up to 5.5m	96.7%	97.1%	96.4%

## Location

GPS Information [Load Google Map \(internet required\)](#)  
(Latitude, Longitude -37.824351, 145.000649)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

OH&S SYSTEM CERTIFIED TO ISO 4801:2001

ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.

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Site Charles St

Direction

Both directions ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	10:00	09:00	11:00	11:00	09:00	11:00	N/A	11:00	N/A	10:00	N/A	11:00
PM Peak	18:00	17:00	15:00	18:00	18:00	13:00	14:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	5	3	0	5	4	5	13	35	5	17	3	18	10
01:00	10	4	2	5	3	5	20	49	7	24	5	25	13
02:00	5	2	3	2	2	9	13	36	5	14	3	22	12
03:00	1	1	1	3	1	17	16	40	5	7	1	33	17
04:00	4	1	3	1	2	10	6	27	4	11	2	16	8
05:00	6	8	13	12	6	4	5	54	7	45	8	9	5
06:00	27	23	20	26	23	7	5	131	19	119	23	12	6
07:00	26	26	30	23	33	18	8	164	22	138	27	26	14
08:00	35	36	36	46	37	23	21	234	33	190	37	44	22
09:00	29	30	37	33	25	59	35	248	36	154	31	94	48
10:00	43	38	37	37	40	54	40	289	40	195	39	94	48
11:00	39	27	34	48	50	54	59	311	44	198	39	113	58
12:00	43	40	42	55	43	51	40	314	45	223	45	91	47
13:00	37	39	37	44	32	69	58	316	46	189	38	127	65
14:00	42	35	31	57	48	61	60	334	47	213	43	121	62
15:00	39	40	51	30	42	33	36	271	39	202	41	69	36
16:00	36	30	42	40	36	60	41	285	40	184	36	101	52
17:00	45	51	45	56	35	44	48	324	46	232	45	92	47
18:00	53	46	48	58	66	36	48	355	50	271	54	84	44
19:00	41	38	40	46	49	39	44	297	42	214	42	83	42
20:00	27	15	33	25	36	22	35	193	27	136	27	57	29
21:00	26	15	29	30	33	15	26	174	25	133	26	41	21
22:00	18	12	14	18	31	26	22	141	20	93	19	48	24
23:00	18	12	17	7	38	8	10	110	15	92	18	18	10
Total	655	572	645	707	715	729	709	4732	669	3294	652	1438	740
% Heavy	3.66%	3.15%	3.88%	4.81%	4.90%	1.37%	1.55%	3.32%		4.13%		1.46%	



Site Charles St

Direction Northbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	10:00	10:00	11:00	11:00	10:00	11:00	N/A	11:00	N/A	10:00	N/A	11:00
PM Peak	18:00	17:00	18:00	18:00	18:00	13:00	14:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	4	2	0	2	3	2	7	20	3	11	2	9	5
01:00	5	2	1	3	2	4	12	29	4	13	3	16	8
02:00	3	1	2	1	1	6	6	20	3	8	2	12	7
03:00	1	1	0	2	1	10	9	24	3	5	1	19	10
04:00	2	0	2	0	0	5	3	12	2	4	1	8	4
05:00	2	2	3	5	1	2	3	18	2	13	2	5	3
06:00	8	6	5	6	5	2	2	34	5	30	6	4	2
07:00	6	9	12	9	13	6	5	60	8	49	9	11	6
08:00	12	11	9	17	11	9	7	76	11	60	12	16	8
09:00	15	15	19	19	11	26	14	119	17	79	16	40	21
10:00	20	20	22	18	23	29	18	150	21	103	21	47	24
11:00	20	16	20	21	25	23	32	157	22	102	20	55	28
12:00	20	20	21	27	18	23	18	147	21	106	22	41	21
13:00	21	20	19	25	23	37	28	173	25	108	22	65	33
14:00	20	18	13	24	25	29	34	163	23	100	20	63	32
15:00	20	25	20	17	21	16	18	137	20	103	21	34	18
16:00	21	16	25	24	21	28	19	154	22	107	21	47	24
17:00	24	29	26	29	16	23	29	176	24	124	24	52	27
18:00	31	27	27	34	39	22	25	205	29	158	32	47	25
19:00	23	23	22	24	27	22	24	165	23	119	23	46	23
20:00	14	9	17	13	18	16	20	107	15	71	14	36	18
21:00	15	11	14	19	18	8	13	98	14	77	15	21	11
22:00	11	7	10	11	19	14	10	82	12	58	12	24	12
23:00	10	7	9	4	20	4	5	59	8	50	10	9	5
Total	328	297	318	354	361	366	361	2385	337	1658	331	727	375
% Heavy	2.74%	2.36%	3.77%	4.52%	4.16%	1.37%	1.39%	2.89%		3.56%		1.38%	





Site Charles St

Direction Southbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	08:00	08:00	08:00	08:00	08:00	09:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	12:00	17:00	15:00	14:00	18:00	13:00	13:00	N/A	12:00	N/A	12:00	N/A	13:00
00:00	1	1	0	3	1	3	6	15	2	6	1	9	5
01:00	5	2	1	2	1	1	8	20	3	11	2	9	5
02:00	2	1	1	1	1	3	7	16	2	6	1	10	5
03:00	0	0	1	1	0	7	7	16	2	2	0	14	7
04:00	2	1	1	1	2	5	3	15	2	7	1	8	4
05:00	4	6	10	7	5	2	2	36	5	32	6	4	2
06:00	19	17	15	20	18	5	3	97	14	89	17	8	4
07:00	20	17	18	14	20	12	3	104	14	89	18	15	8
08:00	23	25	27	29	26	14	14	158	22	130	25	28	14
09:00	14	15	18	14	14	33	21	129	19	75	15	54	27
10:00	23	18	15	19	17	25	22	139	19	92	18	47	24
11:00	19	11	14	27	25	31	27	154	22	96	19	58	30
12:00	23	20	21	28	25	28	22	167	24	117	23	50	26
13:00	16	19	18	19	9	32	30	143	21	81	16	62	32
14:00	22	17	18	33	23	32	26	171	24	113	23	58	30
15:00	19	15	31	13	21	17	18	134	19	99	20	35	18
16:00	15	14	17	16	15	32	22	131	18	77	15	54	28
17:00	21	22	19	27	19	21	19	148	22	108	21	40	20
18:00	22	19	21	24	27	14	23	150	21	113	22	37	19
19:00	18	15	18	22	22	17	20	132	19	95	19	37	19
20:00	13	6	16	12	18	6	15	86	12	65	13	21	11
21:00	11	4	15	11	15	7	13	76	11	56	11	20	10
22:00	7	5	4	7	12	12	12	59	8	35	7	24	12
23:00	8	5	8	3	18	4	5	51	7	42	8	9	5
Total	327	275	327	353	354	363	348	2347	332	1636	321	711	365
% Heavy	4.59%	4.00%	3.98%	5.10%	5.65%	1.38%	1.72%	3.75%		4.71%		1.55%	

# TRANS TRAFFIC SURVEY

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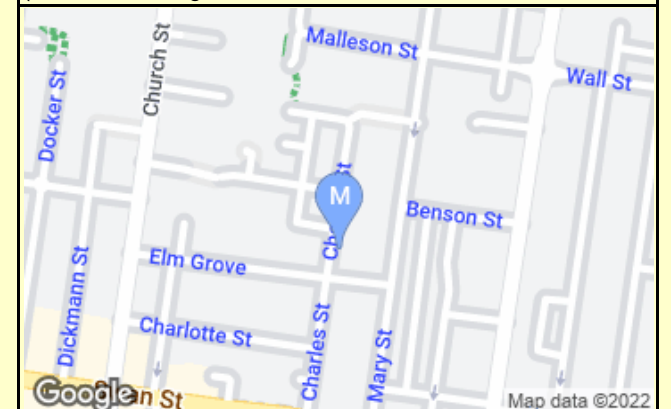
## AUTOMATIC COUNT SUMMARY

Street Name :	Charles St	Location :	Outside Property 41
Suburb :	Richmond	Start Date :	00:00 Sat 12/March/2022
Machine ID:	L790N9JW	Finish Date :	00:00 Sat 19/March/2022
Site ID:	12812	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information      Lat    37° 49' 27.66 South  Long 145° 0' 2.34 East		Direction of Travel		
		Both directions	Northbound	Southbound
Traffic Volume : (Vehicles/Day)	Weekdays Average	617	315	302
	7 Day Average	579	298	281
Weekday            AM	11:00	37	17	20
Peak hour starts    PM	16:00	49	27	22
Speeds : (Km/Hr)	85th Percentile	31.8	32.6	30.9
	Average	27.1	27.7	26.4
Classification % :	Light Vehicles up to 5.5m	96.7%	96.7%	96.8%

## Location

GPS Information [Load Google Map \(internet required\)](#)  
(Latitude, Longitude -37.824351, 145.000649)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

OH&S SYSTEM CERTIFIED TO ISO 4801:2001

ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.

These results should be used for indicative assessment only."



Site Charles St

Direction

Both directions

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	11:00	11:00	11:00	10:00	11:00	10:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	12:00	18:00	16:00	18:00	18:00	13:00	12:00	N/A	16:00	N/A	16:00	N/A	13:00
00:00	15	4	2	7	13	15	16	72	10	41	8	31	16
01:00	5	3	0	3	5	2	4	22	3	16	3	6	4
02:00	8	1	0	0	5	7	8	29	4	14	2	15	8
03:00	3	0	6	3	3	4	5	24	3	15	3	9	5
04:00	0	4	4	5	3	2	2	20	3	16	3	4	2
05:00	3	11	6	11	7	0	1	39	5	38	7	1	1
06:00	10	17	21	21	24	4	5	102	14	93	20	9	5
07:00	12	30	28	24	22	6	6	128	17	116	23	12	6
08:00	16	41	37	32	34	16	8	184	27	160	32	24	13
09:00	20	44	38	37	34	37	22	232	32	173	35	59	30
10:00	22	37	36	37	46	32	28	238	35	178	36	60	32
11:00	28	47	47	38	25	45	27	257	37	185	37	72	37
12:00	51	38	34	45	30	43	47	288	41	198	39	90	46
13:00	26	43	42	44	44	53	41	293	41	199	40	94	47
14:00	36	35	32	47	37	36	30	253	35	187	38	66	33
15:00	31	38	44	38	39	40	40	270	38	190	37	80	41
16:00	40	45	57	52	48	26	41	309	45	242	49	67	35
17:00	34	38	50	52	42	24	41	281	39	216	43	65	35
18:00	29	49	51	68	49	28	28	302	44	246	49	56	29
19:00	24	25	50	60	38	25	28	250	35	197	39	53	27
20:00	26	26	31	44	31	30	15	203	28	158	31	45	23
21:00	21	13	12	25	17	21	7	116	16	88	18	28	15
22:00	12	14	18	16	14	15	21	110	15	74	15	36	19
23:00	10	9	5	15	9	20	13	81	12	48	10	33	17
Total	482	612	651	724	619	531	484	4103	579	3088	617	1015	526
% Heavy	3.73%	3.43%	5.22%	4.83%	3.39%	1.69%	1.24%	3.51%		4.18%		1.48%	



Site Charles St

Direction Northbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	11:00	09:00	11:00	10:00	11:00	10:00	N/A	11:00	N/A	10:00	N/A	11:00
PM Peak	12:00	18:00	18:00	18:00	18:00	13:00	12:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	6	2	1	4	6	9	9	37	5	19	4	18	9
01:00	2	2	0	1	2	0	1	8	1	7	1	1	1
02:00	4	1	0	0	2	4	4	15	2	7	1	8	4
03:00	2	0	3	2	2	4	4	17	2	9	2	8	4
04:00	0	2	3	3	2	1	1	12	2	10	2	2	1
05:00	1	2	0	3	1	0	0	7	1	7	1	0	0
06:00	4	7	8	8	9	1	2	39	5	36	8	3	2
07:00	6	10	10	4	5	2	2	39	5	35	7	4	2
08:00	4	14	9	9	12	7	3	58	9	48	10	10	5
09:00	8	23	20	17	18	11	10	107	15	86	17	21	11
10:00	14	16	20	18	23	15	11	117	17	91	18	26	14
11:00	10	25	20	20	14	23	11	123	18	89	17	34	17
12:00	26	21	18	23	15	21	24	148	21	103	20	45	23
13:00	14	20	21	22	24	31	19	151	21	101	20	50	25
14:00	14	17	18	25	21	19	21	135	19	95	19	40	20
15:00	20	23	24	19	16	21	19	142	20	102	20	40	21
16:00	22	26	29	29	29	16	24	175	25	135	27	40	21
17:00	19	17	31	32	24	14	21	158	22	123	25	35	19
18:00	16	34	34	36	30	11	16	177	26	150	30	27	14
19:00	14	19	28	33	23	16	16	149	21	117	23	32	16
20:00	20	14	14	26	18	16	8	116	16	92	18	24	12
21:00	13	3	8	15	9	10	5	63	9	48	10	15	8
22:00	8	11	10	6	8	10	13	66	9	43	9	23	12
23:00	6	5	4	8	5	10	8	46	7	28	6	18	9
Total	253	314	333	363	318	272	252	2105	298	1581	315	524	270
% Heavy	2.77%	3.50%	5.11%	5.23%	4.09%	1.84%	1.19%	3.56%		4.24%		1.53%	



Site Charles St

Direction  ▼[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	08:00	08:00	10:00	09:00	10:00	N/A	11:00	N/A	08:00	N/A	11:00
PM Peak	12:00	13:00	16:00	18:00	15:00	12:00	12:00	N/A	12:00	N/A	16:00	N/A	12:00
00:00	9	2	1	3	7	6	7	35	5	22	4	13	7
01:00	3	1	0	2	3	2	3	14	2	9	2	5	3
02:00	4	0	0	0	3	3	4	14	2	7	1	7	4
03:00	1	0	3	1	1	0	1	7	1	6	1	1	1
04:00	0	2	1	2	1	1	1	8	1	6	1	2	1
05:00	2	9	6	8	6	0	1	32	4	31	6	1	1
06:00	6	10	13	13	15	3	3	63	9	57	12	6	3
07:00	6	20	18	20	17	4	4	89	12	81	16	8	4
08:00	12	27	28	23	22	9	5	126	18	112	22	14	8
09:00	12	21	18	20	16	26	12	125	17	87	18	38	19
10:00	8	21	16	19	23	17	17	121	18	87	18	34	18
11:00	18	22	27	18	11	22	16	134	19	96	20	38	20
12:00	25	17	16	22	15	22	23	140	20	95	19	45	23
13:00	12	23	21	22	20	22	22	142	20	98	20	44	22
14:00	22	18	14	22	16	17	9	118	16	92	19	26	13
15:00	11	15	20	19	23	19	21	128	18	88	17	40	20
16:00	18	19	28	23	19	10	17	134	20	107	22	27	14
17:00	15	21	19	20	18	10	20	123	17	93	18	30	16
18:00	13	15	17	32	19	17	12	125	18	96	19	29	15
19:00	10	6	22	27	15	9	12	101	14	80	16	21	11
20:00	6	12	17	18	13	14	7	87	12	66	13	21	11
21:00	8	10	4	10	8	11	2	53	7	40	8	13	7
22:00	4	3	8	10	6	5	8	44	6	31	6	13	7
23:00	4	4	1	7	4	10	5	35	5	20	4	15	8
Total	229	298	318	361	301	259	232	1998	281	1507	302	491	256
% Heavy	4.80%	3.36%	5.35%	4.43%	2.66%	1.54%	1.29%	3.45%		4.11%		1.43%	



# TRANS TRAFFIC SURVEY

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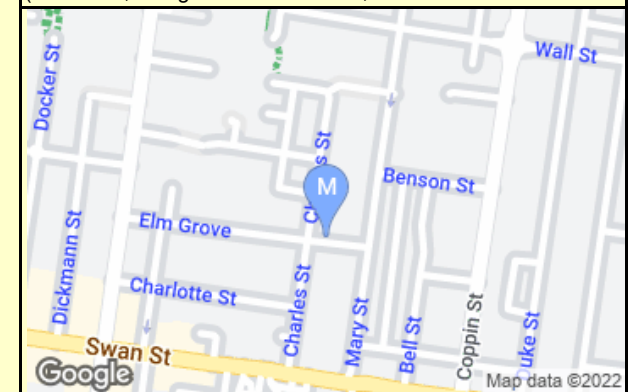
## AUTOMATIC COUNT SUMMARY

<b>Street Name :</b>	McNamara St	<b>Location :</b>	East of Charles St
<b>Suburb :</b>	Richmond	<b>Start Date :</b>	00:00 Tue 01/March/2022
<b>Machine ID:</b>	ME317FVV	<b>Finish Date :</b>	00:00 Tue 08/March/2022
<b>Site ID:</b>	12813	<b>Speed Zone :</b>	50 km/h
<b>Prepared By :</b>	Vo Son Binh	<b>Email:</b>	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information    Lat    37° 49' 28.52 South		Direction of Travel		
		Both directions	Westbound	Eastbound
Long    145° 0' 2.65 East				
Traffic Volume : (Vehicles/Day)	Weekdays Average	227	168	59
	7 Day Average	231	167	64
Weekday AM	08:00	13	13	0
Peak hour start PM	17:00	30	19	11
Speeds : (Km/Hr)	85th Percentile	22.1	21.8	23.1
	Average	19.8	19.3	20.6
Classification % :	Light Vehicles up to 5.5m	96.7%	97.1%	97.0%

## Location

**GPS Information** [Load Google Map \(internet required\)](#)  
(Latitude, Longitude: -37.824589, 145.000737)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



**QUALITY ASSURED COMPANY BY ISO 9001:2015**

**OH&S SYSTEM CERTIFIED TO ISO 4801:2001**

**ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015**

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open. These results should be used for indicative assessment only."



Site McNamara St

Direction Both directions ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	06:00	11:00	08:00	08:00	06:00	11:00	11:00	N/A	11:00	N/A	08:00	N/A	11:00
PM Peak	17:00	17:00	18:00	17:00	17:00	14:00	13:00	N/A	17:00	N/A	17:00	N/A	13:00
00:00	1	2	0	1	1	3	5	13	1	5	1	8	5
01:00	0	1	0	1	1	3	2	8	1	3	1	5	3
02:00	0	1	1	1	1	4	5	13	2	4	1	9	6
03:00	1	0	2	1	2	3	1	10	1	6	1	4	3
04:00	0	1	1	0	0	2	0	4	0	2	0	2	2
05:00	0	3	1	1	1	4	0	10	1	6	1	4	2
06:00	8	5	6	11	7	3	1	41	5	37	7	4	2
07:00	5	6	15	12	4	4	1	47	6	42	8	5	4
08:00	2	3	31	26	2	6	7	77	11	64	13	13	7
09:00	4	1	15	20	2	9	5	56	8	42	8	14	7
10:00	2	5	18	17	5	15	11	73	10	47	9	26	14
11:00	2	16	17	18	5	31	19	108	15	58	11	50	26
12:00	2	14	20	17	1	24	18	96	13	54	10	42	22
13:00	1	16	10	15	4	25	31	102	15	46	9	56	29
14:00	2	14	12	21	1	26	22	98	13	50	10	48	25
15:00	10	20	24	27	15	20	18	134	19	96	19	38	20
16:00	16	14	14	19	25	13	12	113	16	88	17	25	14
17:00	28	28	29	36	30	23	22	196	28	151	30	45	24
18:00	27	23	31	30	23	15	16	165	23	134	27	31	16
19:00	16	18	21	20	29	16	7	127	18	104	21	23	12
20:00	7	13	18	7	9	11	5	70	9	54	10	16	9
21:00	7	7	6	13	3	3	13	52	8	36	7	16	9
22:00	4	1	6	6	7	14	2	40	6	24	4	16	9
23:00	3	1	2	2	6	4	1	19	2	14	2	5	3
Total	148	213	300	322	184	281	224	1672	231	1167	227	505	273
% Heavy	3.38%	2.82%	4.67%	2.17%	2.17%	2.49%	4.91%	3.23%		3.08%		3.56%	



Site McNamara St

Direction

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	06:00	00:00	07:00	07:00	06:00	11:00	11:00	N/A	10:00	N/A	06:00	N/A	11:00
PM Peak	17:00	17:00	18:00	18:00	19:00	12:00	13:00	N/A	17:00	N/A	17:00	N/A	13:00
00:00	1	1	0	0	0	1	1	4	0	2	0	2	2
01:00	0	0	0	0	0	0	1	1	0	0	0	1	1
02:00	0	0	0	0	0	1	1	2	0	0	0	2	2
03:00	0	0	0	0	0	1	0	1	0	0	0	1	1
04:00	0	0	0	0	0	1	0	1	0	0	0	1	1
05:00	0	0	0	0	0	2	0	2	0	0	0	2	1
06:00	3	1	1	1	4	0	0	10	1	10	2	0	0
07:00	1	1	3	2	1	1	0	9	1	8	1	1	1
08:00	0	0	0	1	0	0	0	1	0	1	0	0	0
09:00	2	0	0	1	0	2	0	5	1	3	0	2	1
10:00	1	0	2	1	2	4	1	11	2	6	1	5	3
11:00	2	1	0	1	0	6	5	15	2	4	1	11	6
12:00	0	0	1	2	0	10	10	23	3	3	0	20	10
13:00	0	2	1	0	1	6	15	25	4	4	1	21	11
14:00	1	1	0	4	0	6	6	18	2	6	1	12	7
15:00	5	2	8	4	4	10	7	40	5	23	4	17	9
16:00	6	6	6	7	6	3	2	36	5	31	6	5	3
17:00	12	13	9	11	8	3	4	60	9	53	11	7	4
18:00	11	13	12	12	6	5	3	62	9	54	11	8	4
19:00	10	6	10	8	17	7	4	62	9	51	10	11	6
20:00	2	8	7	3	2	7	2	31	4	22	4	9	5
21:00	3	3	1	6	1	0	5	19	3	14	3	5	3
22:00	2	0	2	5	3	9	0	21	3	12	2	9	5
23:00	2	0	2	1	2	2	0	9	1	7	1	2	1
Total	64	58	65	70	57	87	67	468	64	314	59	154	87
% Heavy	1.56%	0.00%	9.23%	4.29%	3.51%	3.45%	2.99%	3.63%		3.82%		3.25%	



Site McNamara St

Direction Westbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	06:00	11:00	08:00	08:00	11:00	11:00	11:00	N/A	11:00	N/A	08:00	N/A	11:00
PM Peak	17:00	15:00	17:00	17:00	17:00	14:00	17:00	N/A	17:00	N/A	17:00	N/A	17:00
00:00	0	1	0	1	1	2	4	9	1	3	1	6	3
01:00	0	1	0	1	1	3	1	7	1	3	1	4	2
02:00	0	1	1	1	1	3	4	11	2	4	1	7	4
03:00	1	0	2	1	2	2	1	9	1	6	1	3	2
04:00	0	1	1	0	0	1	0	3	0	2	0	1	1
05:00	0	3	1	1	1	2	0	8	1	6	1	2	1
06:00	5	4	5	10	3	3	1	31	4	27	5	4	2
07:00	4	5	12	10	3	3	1	38	5	34	7	4	3
08:00	2	3	31	25	2	6	7	76	11	63	13	13	7
09:00	2	1	15	19	2	7	5	51	7	39	8	12	6
10:00	1	5	16	16	3	11	10	62	8	41	8	21	11
11:00	0	15	17	17	5	25	14	93	13	54	10	39	20
12:00	2	14	19	15	1	14	8	73	10	51	10	22	12
13:00	1	14	9	15	3	19	16	77	11	42	8	35	18
14:00	1	13	12	17	1	20	16	80	11	44	9	36	18
15:00	5	18	16	23	11	10	11	94	14	73	15	21	11
16:00	10	8	8	12	19	10	10	77	11	57	11	20	11
17:00	16	15	20	25	22	20	18	136	19	98	19	38	20
18:00	16	10	19	18	17	10	13	103	14	80	16	23	12
19:00	6	12	11	12	12	9	3	65	9	53	11	12	6
20:00	5	5	11	4	7	4	3	39	5	32	6	7	4
21:00	4	4	5	7	2	3	8	33	5	22	4	11	6
22:00	2	1	4	1	4	5	2	19	3	12	2	7	4
23:00	1	1	0	1	4	2	1	10	1	7	1	3	2
Total	84	155	235	252	127	194	157	1204	167	853	168	351	186
% Heavy	4.76%	3.87%	3.40%	1.59%	1.57%	2.06%	5.73%	3.07%		2.81%		3.70%	

# TRANS TRAFFIC SURVEY

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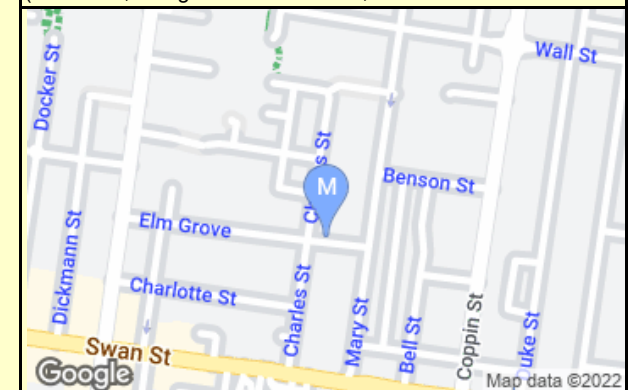
## AUTOMATIC COUNT SUMMARY

<b>Street Name :</b>	McNamara St	<b>Location :</b>	East of Charles St
<b>Suburb :</b>	Richmond	<b>Start Date :</b>	00:00 Sat 12/March/2022
<b>Machine ID:</b>	MD12RWSA	<b>Finish Date :</b>	00:00 Sat 19/March/2022
<b>Site ID:</b>	12813	<b>Speed Zone :</b>	50 km/h
<b>Prepared By :</b>	Vo Son Binh	<b>Email:</b>	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information    Lat    37° 49' 28.52 South		Direction of Travel		
		Both directions	Westbound	Eastbound
Long    145° 0' 2.65 East				
Traffic Volume : (Vehicles/Day)	Weekdays Average	289	186	103
	7 Day Average	264	169	95
Weekday AM	08:00	18	16	2
Peak hour start PM	18:00	33	20	13
Speeds : (Km/Hr)	85th Percentile	23.5	22.4	25.4
	Average	21.2	20.2	22.6
Classification % :	Light Vehicles up to 5.5m	97.4%	97.1%	97.9%

## Location

**GPS Information** [Load Google Map \(internet required\)](#)  
(Latitude, Longitude: -37.824589, 145.000737)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



**QUALITY ASSURED COMPANY BY ISO 9001:2015**

**OH&S SYSTEM CERTIFIED TO ISO 4801:2001**

**ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015**

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open. These results should be used for indicative assessment only."





Site McNamara St

Direction Both directions ▼

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	09:00	08:00	08:00	10:00	11:00	N/A	10:00	N/A	08:00	N/A	11:00
PM Peak	15:00	17:00	17:00	18:00	16:00	12:00	12:00	N/A	18:00	N/A	18:00	N/A	12:00
00:00	0	2	1	4	1	5	3	16	2	8	2	8	5
01:00	1	3	0	2	1	0	1	8	1	7	1	1	1
02:00	0	2	1	2	1	4	4	14	2	6	1	8	5
03:00	1	0	2	3	1	0	0	7	1	7	2	0	0
04:00	1	1	2	2	2	2	1	11	1	8	2	3	2
05:00	2	2	0	1	2	2	0	9	1	7	1	2	1
06:00	1	7	7	2	2	2	1	22	3	19	4	3	2
07:00	2	12	8	11	9	3	2	47	6	42	9	5	3
08:00	3	23	17	21	24	9	4	101	14	88	18	13	7
09:00	6	15	20	19	19	15	5	99	14	79	16	20	11
10:00	10	16	15	16	24	22	14	117	16	81	15	36	18
11:00	11	18	12	20	11	20	16	108	15	72	14	36	19
12:00	19	12	16	21	18	28	20	134	18	86	17	48	25
13:00	10	16	18	16	18	17	17	112	16	78	15	34	18
14:00	17	16	16	12	13	13	13	100	14	74	14	26	14
15:00	23	16	19	26	14	10	13	121	17	98	20	23	13
16:00	17	16	26	20	37	16	10	142	20	116	23	26	14
17:00	8	24	42	46	29	8	17	174	25	149	30	25	13
18:00	13	19	37	65	32	20	17	203	29	166	33	37	19
19:00	16	18	21	39	22	17	9	142	20	116	23	26	14
20:00	6	7	6	14	7	12	4	56	8	40	8	16	8
21:00	2	3	12	9	5	11	12	54	8	31	7	23	12
22:00	4	4	7	35	11	8	4	73	10	61	12	12	7
23:00	0	3	3	4	3	4	4	21	3	13	2	8	5
Total	173	255	308	410	306	248	191	1891	264	1452	289	439	236
% Heavy	0.58%	3.92%	1.95%	3.66%	2.94%	2.42%	2.09%	2.70%		2.82%		2.28%	



Site McNamara St

Direction

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	10:00	10:00	10:00	10:00	10:00	10:00	N/A	10:00	N/A	10:00	N/A	10:00
PM Peak	18:00	18:00	18:00	22:00	18:00	19:00	18:00	N/A	18:00	N/A	18:00	N/A	12:00
00:00	0	1	0	3	0	4	1	9	1	4	1	5	3
01:00	1	1	0	2	0	0	0	4	1	4	1	0	0
02:00	0	2	0	2	0	3	2	9	1	4	1	5	3
03:00	0	0	0	2	1	0	0	3	0	3	1	0	0
04:00	1	0	0	1	1	0	0	3	0	3	1	0	0
05:00	1	0	0	0	0	0	0	1	0	1	0	0	0
06:00	0	2	3	0	0	1	0	6	1	5	1	1	1
07:00	1	0	1	1	3	0	0	6	1	6	1	0	0
08:00	2	2	3	3	0	3	2	15	2	10	2	5	3
09:00	2	2	4	3	4	2	2	19	2	15	3	4	2
10:00	4	3	5	8	8	10	4	42	6	28	5	14	7
11:00	3	3	5	6	2	4	2	25	3	19	3	6	3
12:00	6	5	5	10	8	8	9	51	7	34	7	17	9
13:00	6	8	3	6	6	7	5	41	6	29	6	12	6
14:00	8	9	6	8	5	5	6	47	7	36	7	11	6
15:00	8	4	6	8	3	3	4	36	5	29	6	7	4
16:00	8	2	11	7	12	3	6	49	7	40	8	9	5
17:00	4	6	11	12	8	3	8	52	7	41	8	11	6
18:00	9	10	12	22	13	4	11	81	12	66	13	15	8
19:00	8	8	5	21	10	12	4	68	10	52	10	16	8
20:00	3	2	3	7	3	8	2	28	4	18	4	10	5
21:00	1	1	10	3	3	5	5	28	4	18	4	10	5
22:00	1	1	5	31	8	4	1	51	7	46	9	5	3
23:00	0	1	2	3	1	1	2	10	1	7	1	3	2
Total	77	73	100	169	99	90	76	684	95	518	103	166	89
% Heavy	0.00%	6.85%	1.00%	3.55%	3.03%	1.11%	1.32%	2.49%		2.90%		1.20%	



Site McNamara St

Direction Westbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	09:00	08:00	08:00	11:00	11:00	N/A	08:00	N/A	08:00	N/A	11:00
PM Peak	15:00	17:00	17:00	18:00	16:00	12:00	13:00	N/A	17:00	N/A	17:00	N/A	12:00
00:00	0	1	1	1	1	1	2	7	1	4	1	3	2
01:00	0	2	0	0	1	0	1	4	0	3	0	1	1
02:00	0	0	1	0	1	1	2	5	1	2	0	3	2
03:00	1	0	2	1	0	0	0	4	1	4	1	0	0
04:00	0	1	2	1	1	2	1	8	1	5	1	3	2
05:00	1	2	0	1	2	2	0	8	1	6	1	2	1
06:00	1	5	4	2	2	1	1	16	2	14	3	2	1
07:00	1	12	7	10	6	3	2	41	5	36	8	5	3
08:00	1	21	14	18	24	6	2	86	12	78	16	8	4
09:00	4	13	16	16	15	13	3	80	12	64	13	16	9
10:00	6	13	10	8	16	12	10	75	10	53	10	22	11
11:00	8	15	7	14	9	16	14	83	12	53	11	30	16
12:00	13	7	11	11	10	20	11	83	11	52	10	31	16
13:00	4	8	15	10	12	10	12	71	10	49	9	22	12
14:00	9	7	10	4	8	8	7	53	7	38	7	15	8
15:00	15	12	13	18	11	7	9	85	12	69	14	16	9
16:00	9	14	15	13	25	13	4	93	13	76	15	17	9
17:00	4	18	31	34	21	5	9	122	18	108	22	14	7
18:00	4	9	25	43	19	16	6	122	17	100	20	22	11
19:00	8	10	16	18	12	5	5	74	10	64	13	10	6
20:00	3	5	3	7	4	4	2	28	4	22	4	6	3
21:00	1	2	2	6	2	6	7	26	4	13	3	13	7
22:00	3	3	2	4	3	4	3	22	3	15	3	7	4
23:00	0	2	1	1	2	3	2	11	2	6	1	5	3
Total	96	182	208	241	207	158	115	1207	169	934	186	273	147
% Heavy	1.04%	2.75%	2.40%	3.73%	2.90%	3.16%	2.61%	2.82%		2.78%		2.93%	

# TRANS TRAFFIC SURVEY

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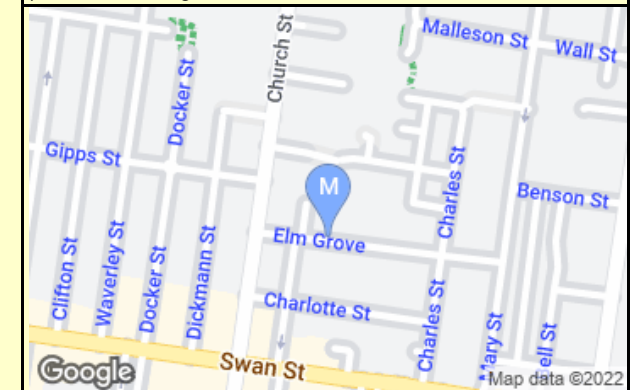
## AUTOMATIC COUNT SUMMARY

<b>Street Name :</b>	Elm Grove	<b>Location :</b>	Outside Property 5
<b>Suburb :</b>	Richmond	<b>Start Date :</b>	00:00 Tue 01/March/2022
<b>Machine ID:</b>	MD00QXA4	<b>Finish Date :</b>	00:00 Tue 08/March/2022
<b>Site ID:</b>	12814	<b>Speed Zone :</b>	40 km/h
<b>Prepared By :</b>	Vo Son Binh	<b>Email:</b>	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information		Direction of Travel		
Lat	37° 49' 27.93 South	Both directions	Westbound	Eastbound
Long	144° 59' 56.65 East			
<b>Traffic Volume :</b>	Weekdays Average	691	363	328
<b>(Vehicles/Day)</b>	7 Day Average	720	385	335
<b>Weekday</b>	AM	40	21	19
<b>Peak hour start</b>	PM	71	40	31
<b>Speeds :</b>	85th Percentile	34.8	35.2	34.4
<b>(Km/Hr)</b>	Average	29.8	30.2	29.5
<b>Classification % :</b>	Light Vehicles up to 5.5m	95.8%	95.7%	95.3%

## Location

**GPS Information** [Load Google Map \(internet required\)](#)  
(Latitude, Longitude: -37.824426, 144.999069)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



**QUALITY ASSURED COMPANY BY ISO 9001:2015**

**OH&S SYSTEM CERTIFIED TO ISO 4801:2001**

**ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015**

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open. These results should be used for indicative assessment only."



Site Elm Grove

Direction Both directions ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	11:00	10:00	11:00	11:00	11:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	17:00	17:00	18:00	18:00	19:00	12:00	13:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	6	2	0	4	1	7	15	35	4	13	2	22	12
01:00	4	2	2	2	2	9	13	34	5	12	2	22	12
02:00	0	1	1	2	2	9	20	35	5	6	1	29	15
03:00	1	1	0	1	0	7	13	23	3	3	0	20	10
04:00	1	0	1	0	1	3	10	16	2	3	0	13	7
05:00	2	4	6	7	5	1	9	34	5	24	4	10	6
06:00	15	23	14	13	11	10	10	96	13	76	15	20	11
07:00	26	36	23	40	32	18	10	185	27	157	32	28	14
08:00	28	37	47	44	32	25	11	224	31	188	37	36	19
09:00	26	36	29	40	21	54	23	229	31	152	30	77	40
10:00	41	23	54	37	36	55	30	276	39	191	38	85	43
11:00	33	41	39	51	37	68	41	310	43	201	40	109	57
12:00	33	35	53	44	56	109	58	388	55	221	44	167	85
13:00	37	38	41	47	53	105	78	399	55	216	42	183	93
14:00	28	39	36	52	54	94	61	364	51	209	43	155	79
15:00	41	60	50	58	58	64	66	397	57	267	54	130	67
16:00	39	50	49	45	53	56	46	338	47	236	46	102	52
17:00	53	64	61	71	77	39	63	428	61	326	66	102	53
18:00	53	59	78	93	75	55	52	465	66	358	71	107	55
19:00	17	27	56	51	78	66	23	318	45	229	45	89	46
20:00	20	27	45	26	41	31	21	211	30	159	31	52	28
21:00	16	17	20	27	35	11	16	142	20	115	23	27	15
22:00	13	10	17	19	22	23	11	115	16	81	16	34	18
23:00	8	6	6	7	21	15	6	69	9	48	9	21	11
Total	541	638	728	781	803	934	706	5131	720	3491	691	1640	848
% Heavy	4.62%	5.64%	4.67%	3.97%	3.86%	3.53%	4.53%	4.33%		4.50%		3.96%	



Site Elm Grove

Direction [Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	11:00	10:00	11:00	10:00	10:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	13:00	17:00	17:00	18:00	19:00	12:00	13:00	N/A	18:00	N/A	17:00	N/A	13:00
00:00	2	1	0	2	1	2	10	18	2	6	1	12	7
01:00	2	1	2	1	0	5	9	20	3	6	1	14	7
02:00	0	1	1	1	2	3	11	19	3	5	1	14	7
03:00	0	1	0	1	0	1	7	10	1	2	0	8	4
04:00	1	0	0	0	0	1	7	9	1	1	0	8	4
05:00	0	0	0	2	1	0	5	8	1	3	0	5	3
06:00	4	8	6	3	3	2	5	31	4	24	5	7	4
07:00	13	17	11	18	14	6	4	83	12	73	15	10	5
08:00	14	18	19	14	13	11	3	92	12	78	15	14	7
09:00	14	14	14	17	11	28	5	103	14	70	14	33	17
10:00	21	10	24	15	20	31	9	130	19	90	18	40	20
11:00	16	22	19	26	16	25	20	144	20	99	19	45	24
12:00	17	13	19	21	26	50	30	176	25	96	19	80	41
13:00	25	18	19	26	30	45	40	203	28	118	23	85	43
14:00	14	17	20	23	29	39	22	164	23	103	21	61	31
15:00	21	31	28	29	27	35	29	200	28	136	27	64	33
16:00	22	32	24	27	23	23	15	166	23	128	25	38	19
17:00	24	34	31	42	22	17	25	195	28	153	31	42	22
18:00	23	29	28	44	33	21	24	202	29	157	31	45	23
19:00	9	10	22	23	42	31	9	146	21	106	21	40	21
20:00	12	17	16	10	16	15	12	98	14	71	14	27	15
21:00	9	9	9	15	18	3	7	70	10	60	12	10	6
22:00	6	6	10	12	15	10	5	64	9	49	10	15	8
23:00	6	3	3	4	11	6	4	37	5	27	5	10	5
Total	275	312	325	376	373	410	317	2388	335	1661	328	727	376
% Heavy	4.73%	5.77%	5.23%	4.52%	4.29%	3.90%	3.79%	4.56%		4.88%		3.85%	





Site Elm Grove

Direction [Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	09:00	10:00	08:00	11:00	11:00	10:00	N/A	11:00	N/A	08:00	N/A	11:00
PM Peak	18:00	17:00	18:00	18:00	17:00	13:00	14:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	4	1	0	2	0	5	5	17	2	7	1	10	5
01:00	2	1	0	1	2	4	4	14	2	6	1	8	5
02:00	0	0	0	1	0	6	9	16	2	1	0	15	8
03:00	1	0	0	0	0	6	6	13	2	1	0	12	6
04:00	0	0	1	0	1	2	3	7	1	2	0	5	3
05:00	2	4	6	5	4	1	4	26	4	21	4	5	3
06:00	11	15	8	10	8	8	5	65	9	52	10	13	7
07:00	13	19	12	22	18	12	6	102	15	84	17	18	9
08:00	14	19	28	30	19	14	8	132	19	110	22	22	12
09:00	12	22	15	23	10	26	18	126	17	82	16	44	23
10:00	20	13	30	22	16	24	21	146	20	101	20	45	23
11:00	17	19	20	25	21	43	21	166	23	102	21	64	33
12:00	16	22	34	23	30	59	28	212	30	125	25	87	44
13:00	12	20	22	21	23	60	38	196	27	98	19	98	50
14:00	14	22	16	29	25	55	39	200	28	106	22	94	48
15:00	20	29	22	29	31	29	37	197	29	131	27	66	34
16:00	17	18	25	18	30	33	31	172	24	108	21	64	33
17:00	29	30	30	29	55	22	38	233	33	173	35	60	31
18:00	30	30	50	49	42	34	28	263	37	201	40	62	32
19:00	8	17	34	28	36	35	14	172	24	123	24	49	25
20:00	8	10	29	16	25	16	9	113	16	88	17	25	13
21:00	7	8	11	12	17	8	9	72	10	55	11	17	9
22:00	7	4	7	7	7	13	6	51	7	32	6	19	10
23:00	2	3	3	3	10	9	2	32	4	21	4	11	6
Total	266	326	403	405	430	524	389	2743	385	1830	363	913	472
% Heavy	4.51%	5.52%	4.22%	3.46%	3.49%	3.24%	5.14%	4.12%		4.15%		4.05%	

# TRANS TRAFFIC SURVEY

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## AUTOMATIC COUNT SUMMARY

<b>Street Name :</b>	Elm Grove	<b>Location :</b>	Outside Property 5
<b>Suburb :</b>	Richmond	<b>Start Date :</b>	00:00 Sat 12/March/2022
<b>Machine ID:</b>	22669AYR	<b>Finish Date :</b>	00:00 Sat 19/March/2022
<b>Site ID:</b>	12814	<b>Speed Zone :</b>	40 km/h
<b>Prepared By :</b>	Vo Son Binh	<b>Email:</b>	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information		Direction of Travel		
Lat	37° 49' 27.93 South	Both directions	Westbound	Eastbound
Long	144° 59' 56.65 East			
<b>Traffic Volume :</b>	Weekdays Average	717	393	324
<b>(Vehicles/Day)</b>	7 Day Average	675	370	305
<b>Weekday</b>	AM	37	19	18
<b>Peak hour start</b>	PM	83	50	33
<b>Speeds :</b>	85th Percentile	34.7	35.0	34.4
<b>(Km/Hr)</b>	Average	29.9	30.3	29.4
<b>Classification % :</b>	Light Vehicles up to 5.5m	96.8%	96.8%	96.8%

## Location

**GPS Information** [Load Google Map \(internet required\)](#)  
(Latitude, Longitude: -37.824426, 144.999069)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



**QUALITY ASSURED COMPANY BY ISO 9001:2015**

**OH&S SYSTEM CERTIFIED TO ISO 4801:2001**

**ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015**

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open. These results should be used for indicative assessment only."



Site Elm Grove

Direction Both directions ▼

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	11:00	11:00	09:00	10:00	11:00	10:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	16:00	18:00	18:00	18:00	18:00	15:00	12:00	N/A	18:00	N/A	18:00	N/A	15:00
00:00	11	2	1	5	6	15	11	51	7	25	5	26	14
01:00	4	0	0	1	5	3	4	17	2	10	2	7	4
02:00	4	1	0	0	0	8	2	15	2	5	1	10	6
03:00	2	0	2	0	1	6	5	16	2	5	1	11	6
04:00	0	3	0	2	2	1	0	8	1	7	1	1	1
05:00	1	7	7	7	3	8	1	34	5	25	5	9	6
06:00	6	14	18	14	15	4	4	75	10	67	13	8	5
07:00	4	23	28	38	25	10	5	133	18	118	23	15	9
08:00	9	39	42	39	42	21	11	203	28	171	34	32	17
09:00	12	32	33	45	39	37	17	215	29	161	32	54	28
10:00	20	31	38	32	53	46	37	257	36	174	35	83	43
11:00	25	42	47	44	33	54	35	280	40	191	37	89	45
12:00	28	42	48	40	57	42	59	316	45	215	43	101	51
13:00	38	49	50	55	51	64	38	345	49	243	48	102	52
14:00	40	40	45	44	43	46	38	296	42	212	43	84	43
15:00	37	42	54	65	57	68	40	363	52	255	51	108	55
16:00	45	50	61	90	56	38	31	371	52	302	60	69	35
17:00	19	58	72	101	60	39	37	386	55	310	62	76	40
18:00	25	75	100	132	82	44	34	492	70	414	83	78	40
19:00	27	34	73	99	58	35	23	349	51	291	58	58	30
20:00	14	32	32	47	30	32	22	209	30	155	31	54	28
21:00	11	15	14	22	14	28	15	119	17	76	15	43	22
22:00	5	10	30	61	25	18	15	164	23	131	26	33	19
23:00	4	8	6	18	8	11	12	67	9	44	8	23	12
Total	391	649	801	1001	765	678	496	4781	675	3607	717	1174	611
% Heavy	1.53%	4.01%	3.25%	2.90%	4.05%	3.39%	2.82%	3.24%		3.27%		3.15%	



Site Elm Grove

Direction [Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	11:00	11:00	11:00	10:00	10:00	11:00	N/A	11:00	N/A	11:00	N/A	10:00
PM Peak	16:00	18:00	18:00	18:00	12:00	13:00	12:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	3	1	0	2	3	8	5	22	3	9	2	13	7
01:00	2	0	0	1	1	2	2	8	1	4	1	4	2
02:00	1	1	0	0	0	5	2	9	1	2	0	7	4
03:00	1	0	2	0	1	4	3	11	1	4	1	7	4
04:00	0	0	0	0	1	1	0	2	0	1	0	1	1
05:00	0	1	1	1	1	3	0	7	1	4	1	3	2
06:00	1	8	6	8	4	1	1	29	4	27	5	2	1
07:00	1	8	12	12	9	1	2	45	6	42	8	3	2
08:00	3	15	20	11	11	8	5	73	10	60	12	13	7
09:00	8	8	12	17	20	12	7	84	11	65	13	19	10
10:00	11	11	16	14	24	21	11	108	15	76	15	32	17
11:00	8	19	31	21	15	18	16	128	19	94	18	34	17
12:00	11	20	21	13	35	16	22	138	20	100	20	38	19
13:00	17	27	21	26	27	36	15	169	24	118	23	51	26
14:00	16	23	26	21	24	23	22	155	22	110	22	45	23
15:00	16	23	29	29	33	32	18	180	26	130	26	50	26
16:00	20	26	26	39	27	14	17	169	24	138	27	31	16
17:00	10	29	26	40	25	21	19	170	24	130	26	40	21
18:00	11	35	34	51	32	16	13	192	27	163	33	29	15
19:00	10	16	23	40	22	13	10	134	20	111	22	23	12
20:00	10	17	14	22	15	13	12	103	15	78	16	25	13
21:00	7	5	11	11	8	15	8	65	9	42	8	23	12
22:00	4	5	24	50	20	8	10	121	17	103	20	18	10
23:00	2	5	4	11	5	5	8	40	5	27	5	13	7
Total	173	303	359	440	363	296	228	2162	305	1638	324	524	274
% Heavy	2.31%	2.64%	3.62%	3.41%	5.51%	2.36%	2.19%	3.33%		3.66%		2.29%	



Site Elm Grove

Direction [Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	08:00	08:00	08:00	11:00	10:00	N/A	10:00	N/A	08:00	N/A	11:00
PM Peak	16:00	18:00	18:00	18:00	18:00	15:00	12:00	N/A	18:00	N/A	18:00	N/A	12:00
00:00	8	1	1	3	3	7	6	29	4	16	3	13	7
01:00	2	0	0	0	4	1	2	9	1	6	1	3	2
02:00	3	0	0	0	0	3	0	6	1	3	1	3	2
03:00	1	0	0	0	0	2	2	5	1	1	0	4	2
04:00	0	3	0	2	1	0	0	6	1	6	1	0	0
05:00	1	6	6	6	2	5	1	27	4	21	4	6	4
06:00	5	6	12	6	11	3	3	46	6	40	8	6	4
07:00	3	15	16	26	16	9	3	88	12	76	15	12	7
08:00	6	24	22	28	31	13	6	130	18	111	22	19	10
09:00	4	24	21	28	19	25	10	131	18	96	19	35	18
10:00	9	20	22	18	29	25	26	149	21	98	20	51	26
11:00	17	23	16	23	18	36	19	152	21	97	19	55	28
12:00	17	22	27	27	22	26	37	178	25	115	23	63	32
13:00	21	22	29	29	24	28	23	176	25	125	25	51	26
14:00	24	17	19	23	19	23	16	141	20	102	21	39	20
15:00	21	19	25	36	24	36	22	183	26	125	25	58	29
16:00	25	24	35	51	29	24	14	202	28	164	33	38	19
17:00	9	29	46	61	35	18	18	216	31	180	36	36	19
18:00	14	40	66	81	50	28	21	300	43	251	50	49	25
19:00	17	18	50	59	36	22	13	215	31	180	36	35	18
20:00	4	15	18	25	15	19	10	106	15	77	15	29	15
21:00	4	10	3	11	6	13	7	54	8	34	7	20	10
22:00	1	5	6	11	5	10	5	43	6	28	6	15	9
23:00	2	3	2	7	3	6	4	27	4	17	3	10	5
Total	218	346	442	561	402	382	268	2619	370	1969	393	650	337
% Heavy	0.92%	5.20%	2.94%	2.50%	2.74%	4.19%	3.36%	3.17%		2.95%		3.85%	

# TRANS TRAFFIC SURVEY

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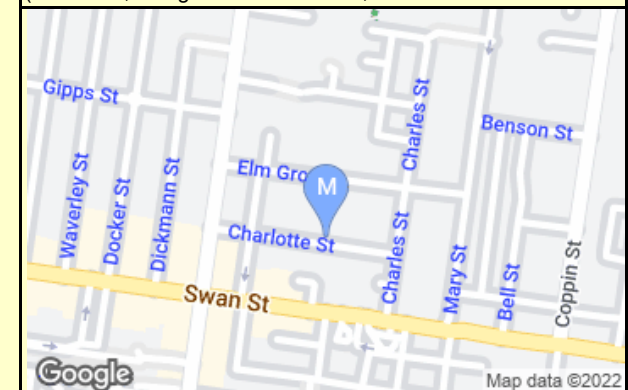
## AUTOMATIC COUNT SUMMARY

<b>Street Name :</b>	Charlotte St	<b>Location :</b>	Outside Property 23
<b>Suburb :</b>	Richmond	<b>Start Date :</b>	00:00 Tue 01/March/2022
<b>Machine ID:</b>	MD00QXA4	<b>Finish Date :</b>	00:00 Tue 08/March/2022
<b>Site ID:</b>	12815	<b>Speed Zone :</b>	40 km/h
<b>Prepared By :</b>	Vo Son Binh	<b>Email:</b>	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information		Direction of Travel		
Lat	37° 49' 30.41 South	Both directions	Westbound	Eastbound
Long	144° 59' 58.17 East			
<b>Traffic Volume : (Vehicles/Day)</b>	Weekdays Average	615	287	328
	7 Day Average	610	291	319
<b>Weekday</b>	AM	32	14	18
<b>Peak hour start</b>	PM	82	44	38
<b>Speeds : (Km/Hr)</b>	85th Percentile	36.3	35.4	37.5
	Average	30.3	29.5	31.2
<b>Classification % :</b>	Light Vehicles up to 5.5m	97.9%	98.3%	97.8%

## Location

**GPS Information** [Load Google Map \(internet required\)](#)  
(Latitude, Longitude: -37.825114, 144.999492)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



**QUALITY ASSURED COMPANY BY ISO 9001:2015**

**OH&S SYSTEM CERTIFIED TO ISO 4801:2001**

**ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015**

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open. These results should be used for indicative assessment only."





Site Charlotte St

Direction

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	11:00	11:00	08:00	11:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	18:00	17:00	18:00	18:00	19:00	19:00	16:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	0	0	0	3	1	12	15	31	4	4	0	27	14
01:00	4	2	1	1	4	10	6	28	4	12	2	16	8
02:00	0	0	1	0	0	8	13	22	3	1	0	21	11
03:00	3	0	1	0	0	6	3	13	1	4	1	9	5
04:00	0	0	1	0	0	2	3	6	0	1	0	5	3
05:00	5	6	10	11	4	3	5	44	6	36	7	8	5
06:00	19	14	19	12	12	5	1	82	11	76	16	6	3
07:00	21	21	29	30	16	7	7	131	18	117	22	14	8
08:00	28	26	26	24	37	10	8	159	22	141	28	18	9
09:00	16	22	24	31	26	37	9	165	24	119	23	46	24
10:00	18	24	29	34	23	51	12	191	27	128	26	63	33
11:00	31	19	36	45	31	66	29	257	36	162	32	95	49
12:00	34	29	40	33	44	59	31	270	38	180	36	90	45
13:00	34	34	32	38	40	68	38	284	40	178	35	106	54
14:00	26	19	34	25	35	50	38	227	32	139	27	88	44
15:00	40	40	42	33	53	40	39	287	41	208	42	79	41
16:00	35	33	39	24	50	43	50	274	38	181	36	93	47
17:00	55	66	51	47	62	51	35	367	52	281	56	86	44
18:00	82	56	90	100	87	63	18	496	71	415	82	81	41
19:00	68	47	78	63	92	78	21	447	64	348	69	99	50
20:00	33	19	41	32	46	49	13	233	33	171	33	62	32
21:00	22	12	10	19	54	30	8	155	22	117	24	38	19
22:00	12	4	9	11	25	26	7	94	14	61	12	33	17
23:00	6	1	5	4	18	24	3	61	9	34	6	27	14
Total	592	494	648	620	760	798	412	4324	610	3114	615	1210	620
% Heavy	1.69%	2.43%	3.24%	2.26%	2.50%	1.50%	0.24%	2.06%		2.44%		1.07%	



Site Charlotte St

Direction  ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	08:00	11:00	11:00	08:00	11:00	11:00	N/A	11:00	N/A	08:00	N/A	11:00
PM Peak	18:00	17:00	18:00	18:00	19:00	13:00	13:00	N/A	18:00	N/A	18:00	N/A	13:00
00:00	0	0	0	2	0	8	5	15	2	2	0	13	7
01:00	4	2	0	1	3	7	3	20	3	10	2	10	5
02:00	0	0	1	0	0	5	8	14	2	1	0	13	7
03:00	3	0	0	0	0	4	3	10	1	3	1	7	4
04:00	0	0	1	0	0	0	2	3	0	1	0	2	1
05:00	4	4	7	6	2	2	2	27	4	23	5	4	3
06:00	13	8	9	5	8	1	1	45	6	43	9	2	1
07:00	12	12	17	18	10	4	5	78	11	69	13	9	5
08:00	16	17	16	18	23	3	3	96	13	90	18	6	3
09:00	5	10	11	18	11	15	5	75	11	55	11	20	11
10:00	12	13	15	21	10	21	6	98	14	71	15	27	14
11:00	18	6	20	28	20	29	15	136	19	92	18	44	23
12:00	20	14	26	21	24	32	12	149	21	105	21	44	22
13:00	19	19	16	22	22	39	24	161	23	98	19	63	32
14:00	15	12	20	17	16	20	20	120	17	80	16	40	20
15:00	24	24	27	16	32	21	19	163	23	123	25	40	21
16:00	15	18	17	14	15	21	23	123	17	79	16	44	22
17:00	26	38	24	18	27	22	15	170	24	133	27	37	19
18:00	38	31	36	52	34	30	9	230	33	191	38	39	20
19:00	33	23	35	29	50	33	13	216	31	170	34	46	23
20:00	18	9	15	19	32	23	8	124	18	93	18	31	16
21:00	11	6	4	10	28	18	6	83	12	59	12	24	12
22:00	7	1	7	8	13	18	6	60	9	36	7	24	12
23:00	3	1	2	0	11	12	3	32	5	17	3	15	8
Total	316	268	326	343	391	388	216	2248	319	1644	328	604	311
% Heavy	2.53%	1.87%	3.99%	1.46%	2.56%	2.32%	0.46%	2.27%		2.49%		1.66%	

# AUTOMATIC COUNTER SUMMARY AND DATA SHEET



Site Charlotte St

Direction Westbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	11:00	11:00	11:00	09:00	11:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	18:00	17:00	18:00	18:00	18:00	19:00	16:00	N/A	18:00	N/A	18:00	N/A	19:00
00:00	0	0	0	1	1	4	10	16	2	2	0	14	7
01:00	0	0	1	0	1	3	3	8	1	2	0	6	3
02:00	0	0	0	0	0	3	5	8	1	0	0	8	4
03:00	0	0	1	0	0	2	0	3	0	1	0	2	1
04:00	0	0	0	0	0	2	1	3	0	0	0	3	2
05:00	1	2	3	5	2	1	3	17	2	13	2	4	2
06:00	6	6	10	7	4	4	0	37	5	33	7	4	2
07:00	9	9	12	12	6	3	2	53	7	48	9	5	3
08:00	12	9	10	6	14	7	5	63	9	51	10	12	6
09:00	11	12	13	13	15	22	4	90	13	64	12	26	13
10:00	6	11	14	13	13	30	6	93	13	57	11	36	19
11:00	13	13	16	17	11	37	14	121	17	70	14	51	26
12:00	14	15	14	12	20	27	19	121	17	75	15	46	23
13:00	15	15	16	16	18	29	14	123	17	80	16	43	22
14:00	11	7	14	8	19	30	18	107	15	59	11	48	24
15:00	16	16	15	17	21	19	20	124	18	85	17	39	20
16:00	20	15	22	10	35	22	27	151	21	102	20	49	25
17:00	29	28	27	29	35	29	20	197	28	148	29	49	25
18:00	44	25	54	48	53	33	9	266	38	224	44	42	21
19:00	35	24	43	34	42	45	8	231	33	178	35	53	27
20:00	15	10	26	13	14	26	5	109	15	78	15	31	16
21:00	11	6	6	9	26	12	2	72	10	58	12	14	7
22:00	5	3	2	3	12	8	1	34	5	25	5	9	5
23:00	3	0	3	4	7	12	0	29	4	17	3	12	6
Total	276	226	322	277	369	410	196	2076	291	1470	287	606	309
% Heavy	0.72%	3.10%	2.48%	3.25%	2.44%	0.73%	0.00%	1.83%		2.38%		0.50%	

# TRANS TRAFFIC SURVEY

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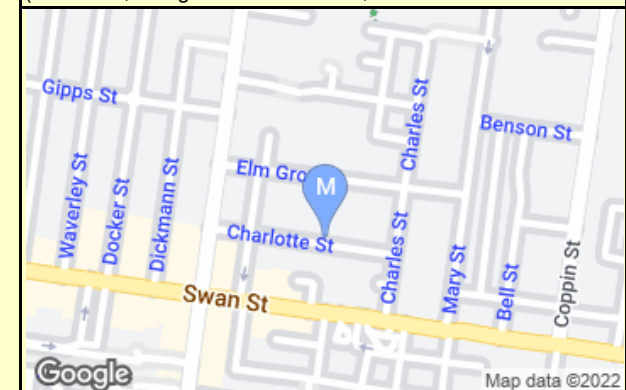
## AUTOMATIC COUNT SUMMARY

<b>Street Name :</b>	Charlotte St	<b>Location :</b>	Outside Property 23
<b>Suburb :</b>	Richmond	<b>Start Date :</b>	00:00 Sat 12/March/2022
<b>Machine ID:</b>	MD722R32	<b>Finish Date :</b>	00:00 Sat 19/March/2022
<b>Site ID:</b>	12815	<b>Speed Zone :</b>	40 km/h
<b>Prepared By :</b>	Vo Son Binh	<b>Email:</b>	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information		Direction of Travel		
Lat	37° 49' 30.41 South	Both directions	Westbound	Eastbound
Long	144° 59' 58.17 East			
<b>Traffic Volume : (Vehicles/Day)</b>	Weekdays Average	563	254	309
	7 Day Average	540	245	295
<b>Weekday AM</b>	11:00	30	12	18
<b>Peak hour start PM</b>	18:00	82	43	39
<b>Speeds : (Km/Hr)</b>	85th Percentile	36.3	35.3	37.2
	Average	31.0	30.2	31.3
<b>Classification % :</b>	Light Vehicles up to 5.5m	97.2%	97.6%	96.9%

## Location

**GPS Information** [Load Google Map \(internet required\)](#)  
(Latitude, Longitude: -37.825114, 144.999492)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



**QUALITY ASSURED COMPANY BY ISO 9001:2015**

**OH&S SYSTEM CERTIFIED TO ISO 4801:2001**

**ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015**

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open. These results should be used for indicative assessment only."



Site Charlotte St

Direction  ▼

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	09:00	11:00	10:00	11:00	11:00	11:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	18:00	18:00	18:00	19:00	18:00	19:00	12:00	N/A	18:00	N/A	18:00	N/A	18:00
00:00	3	1	0	0	2	11	11	28	4	6	1	22	12
01:00	6	1	1	1	4	10	9	32	4	13	3	19	10
02:00	1	0	0	0	4	11	8	24	4	5	1	19	10
03:00	1	0	0	0	1	6	7	15	3	2	0	13	7
04:00	1	0	0	1	1	6	3	12	2	3	0	9	5
05:00	4	4	4	7	2	5	5	31	4	21	4	10	5
06:00	0	6	12	9	8	6	3	44	7	35	7	9	5
07:00	4	26	25	18	20	9	6	108	15	93	18	15	8
08:00	8	16	26	26	19	14	8	117	16	95	18	22	12
09:00	12	23	23	31	24	31	18	162	23	113	22	49	25
10:00	11	23	44	30	31	27	20	186	27	139	27	47	24
11:00	11	33	40	37	35	34	25	215	31	156	30	59	30
12:00	31	27	40	36	43	36	43	256	37	177	35	79	40
13:00	29	53	49	40	29	31	25	256	37	200	40	56	29
14:00	28	19	33	35	31	28	24	198	28	146	29	52	26
15:00	19	33	39	41	32	28	34	226	31	164	32	62	32
16:00	26	31	41	46	52	21	35	252	36	196	39	56	29
17:00	24	39	64	105	56	23	19	330	46	288	57	42	22
18:00	32	68	117	112	80	44	35	488	69	409	82	79	41
19:00	25	30	78	115	59	54	23	384	54	307	61	77	40
20:00	13	31	18	31	22	35	26	176	24	115	22	61	32
21:00	13	12	18	22	16	22	16	119	17	81	16	38	21
22:00	3	7	22	31	15	19	9	106	16	78	16	28	15
23:00	5	2	1	6	3	12	6	35	5	17	3	18	10
Total	310	485	695	780	589	523	418	3800	540	2859	563	941	490
% Heavy	3.23%	3.71%	3.60%	2.95%	1.70%	0.76%	3.35%	2.74%		3.01%		1.91%	

# AUTOMATIC COUNTER SUMMARY AND DATA SHEET



Site Charlotte St

Direction

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	10:00	11:00	11:00	11:00	11:00	11:00	11:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	18:00	18:00	18:00	19:00	18:00	19:00	18:00	N/A	18:00	N/A	18:00	N/A	18:00
00:00	2	1	0	0	2	8	7	20	3	5	1	15	8
01:00	5	1	0	1	2	7	6	22	3	9	2	13	7
02:00	1	0	0	0	1	7	4	13	2	2	0	11	6
03:00	1	0	0	0	1	4	5	11	2	2	0	9	5
04:00	1	0	0	1	1	4	1	8	1	3	0	5	3
05:00	3	3	3	5	1	3	3	21	3	15	3	6	3
06:00	0	5	10	3	7	3	2	30	5	25	5	5	3
07:00	3	16	13	11	12	5	3	63	9	55	11	8	4
08:00	5	10	18	20	12	8	3	76	10	65	12	11	6
09:00	6	13	9	15	12	17	8	80	12	55	11	25	13
10:00	8	13	24	17	14	19	10	105	15	76	15	29	15
11:00	6	22	25	22	20	25	13	133	19	95	18	38	19
12:00	20	16	24	21	22	17	17	137	20	103	21	34	17
13:00	14	29	28	20	20	15	14	140	20	111	22	29	15
14:00	15	12	13	22	22	15	11	110	16	84	17	26	13
15:00	12	23	23	25	20	16	15	134	18	103	20	31	16
16:00	12	16	21	20	29	12	15	125	18	98	20	27	14
17:00	13	17	29	39	24	11	11	144	20	122	24	22	12
18:00	22	38	58	41	39	17	23	238	34	198	39	40	21
19:00	15	18	43	45	29	29	12	191	27	150	30	41	21
20:00	5	20	10	19	13	18	17	102	14	67	13	35	18
21:00	9	6	10	16	10	12	9	72	10	51	10	21	12
22:00	1	4	19	27	12	9	2	74	11	63	13	11	6
23:00	4	1	1	2	2	6	5	21	3	10	2	11	6
Total	183	284	381	392	327	287	216	2070	295	1567	309	503	263
% Heavy	3.83%	3.17%	3.67%	4.34%	1.83%	0.70%	3.24%	3.00%		3.38%		1.79%	





Site Charlotte St

Direction [Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	09:00	11:00	10:00	09:00	10:00	09:00	11:00	N/A	10:00	N/A	10:00	N/A	09:00
PM Peak	13:00	18:00	18:00	18:00	18:00	18:00	12:00	N/A	18:00	N/A	18:00	N/A	12:00
00:00	1	0	0	0	0	3	4	8	1	1	0	7	4
01:00	1	0	1	0	2	3	3	10	1	4	1	6	3
02:00	0	0	0	0	3	4	4	11	2	3	1	8	4
03:00	0	0	0	0	0	2	2	4	1	0	0	4	2
04:00	0	0	0	0	0	2	2	4	1	0	0	4	2
05:00	1	1	1	2	1	2	2	10	1	6	1	4	2
06:00	0	1	2	6	1	3	1	14	2	10	2	4	2
07:00	1	10	12	7	8	4	3	45	6	38	7	7	4
08:00	3	6	8	6	7	6	5	41	6	30	6	11	6
09:00	6	10	14	16	12	14	10	82	11	58	11	24	12
10:00	3	10	20	13	17	8	10	81	12	63	12	18	9
11:00	5	11	15	15	15	9	12	82	12	61	12	21	11
12:00	11	11	16	15	21	19	26	119	17	74	14	45	23
13:00	15	24	21	20	9	16	11	116	17	89	18	27	14
14:00	13	7	20	13	9	13	13	88	12	62	12	26	13
15:00	7	10	16	16	12	12	19	92	13	61	12	31	16
16:00	14	15	20	26	23	9	20	127	18	98	19	29	15
17:00	11	22	35	66	32	12	8	186	26	166	33	20	10
18:00	10	30	59	71	41	27	12	250	35	211	43	39	20
19:00	10	12	35	70	30	25	11	193	27	157	31	36	19
20:00	8	11	8	12	9	17	9	74	10	48	9	26	14
21:00	4	6	8	6	6	10	7	47	7	30	6	17	9
22:00	2	3	3	4	3	10	7	32	5	15	3	17	9
23:00	1	1	0	4	1	6	1	14	2	7	1	7	4
Total	127	201	314	388	262	236	202	1730	245	1292	254	438	227
% Heavy	2.36%	4.48%	3.50%	1.55%	1.53%	0.85%	3.47%	2.43%		2.55%		2.05%	

# TRANS TRAFFIC SURVEY

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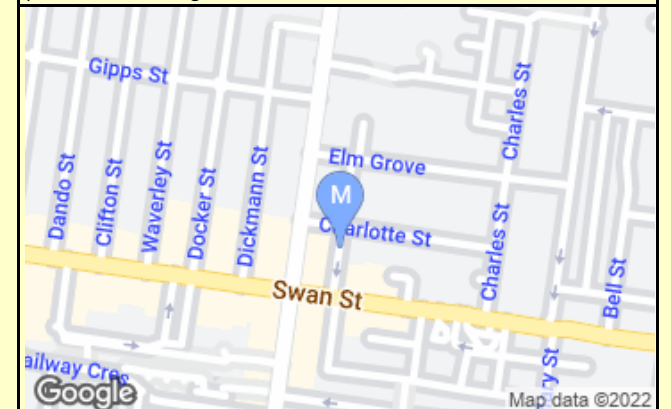
## AUTOMATIC COUNT SUMMARY

Street Name :	St Crispin St	Location :	South of Charlotte St
Suburb :	Richmond	Start Date :	00:00 Tue 01/March/2022
Machine ID:	ME14FXYE	Finish Date :	00:00 Tue 08/March/2022
Site ID:	12816	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information		Lat 37° 49' 31.01 South	Direction of Travel		
			Both directions	Northbound	Southbound
		Long 144° 59' 54.59 East			
Traffic Volume : (Vehicles/Day)		Weekdays Average	107	41	66
		7 Day Average	104	39	65
Weekday	AM	11:00	7	3	4
Peak hour starts	PM	18:00	18	8	10
Speeds : (Km/Hr)		85th Percentile	21.3	20.1	22.4
		Average	18.9	17.8	19.7
Classification % :		Light Vehicles up to 5.5m	97.2%	97.6%	97.0%

## Location

GPS Information [Load Google Map \(internet required\)](#)  
(Latitude, Longitude -37.825280, 144.998498)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

OH&S SYSTEM CERTIFIED TO ISO 4801:2001

ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.

These results should be used for indicative assessment only."



Site St Crispin St

Direction

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	08:00	06:00	10:00	11:00	11:00	10:00	00:00	N/A	11:00	N/A	11:00	N/A	00:00
PM Peak	18:00	18:00	19:00	18:00	18:00	19:00	12:00	N/A	18:00	N/A	18:00	N/A	19:00
00:00	0	0	0	0	0	3	4	7	1	0	0	7	4
01:00	0	0	0	0	0	0	2	2	0	0	0	2	2
02:00	1	0	0	0	1	2	0	4	0	2	0	2	2
03:00	0	0	0	1	0	0	0	1	0	1	0	0	0
04:00	0	0	1	0	1	1	0	3	0	2	0	1	1
05:00	1	1	2	1	0	0	0	5	1	5	1	0	0
06:00	4	3	0	0	1	0	0	8	1	8	1	0	0
07:00	3	2	3	2	2	2	0	14	2	12	2	2	2
08:00	6	2	3	3	6	2	2	24	4	20	4	4	3
09:00	3	2	1	5	2	4	1	18	2	13	2	5	3
10:00	2	1	6	8	8	6	0	31	4	25	5	6	3
11:00	6	3	3	10	12	5	2	41	6	34	7	7	4
12:00	3	5	5	4	10	4	8	39	5	27	6	12	6
13:00	1	3	6	5	8	5	2	30	3	23	4	7	4
14:00	6	2	6	6	6	7	8	41	6	26	5	15	8
15:00	4	7	2	11	13	9	7	53	7	37	7	16	8
16:00	6	7	2	6	7	8	7	43	6	28	5	15	8
17:00	5	3	4	14	9	4	4	43	6	35	7	8	4
18:00	18	8	18	21	27	19	4	115	16	92	18	23	12
19:00	15	8	23	18	25	24	7	120	16	89	16	31	16
20:00	5	6	8	4	17	13	3	56	8	40	8	16	9
21:00	2	3	2	2	7	8	3	27	4	16	3	11	6
22:00	0	3	2	1	7	7	2	22	3	13	3	9	5
23:00	1	1	1	5	6	7	0	21	3	14	3	7	4
Total	92	70	98	127	175	140	66	768	104	562	107	206	114
% Heavy	5.43%	1.43%	5.10%	5.51%	8.00%	0.00%	1.52%	4.30%		5.69%		0.49%	



Site St Crispin St

Direction Northbound ▼

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Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	06:00	11:00	10:00	11:00	11:00	10:00	00:00	N/A	11:00	N/A	11:00	N/A	11:00
PM Peak	18:00	18:00	19:00	17:00	18:00	19:00	12:00	N/A	19:00	N/A	18:00	N/A	19:00
00:00	0	0	0	0	0	0	1	1	0	0	0	1	1
01:00	0	0	0	0	0	0	1	1	0	0	0	1	1
02:00	0	0	0	0	0	1	0	1	0	0	0	1	1
03:00	0	0	0	1	0	0	0	1	0	1	0	0	0
04:00	0	0	1	0	1	1	0	3	0	2	0	1	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	2	0	0	0	0	0	0	2	0	2	0	0	0
07:00	0	0	0	1	0	1	0	2	0	1	0	1	1
08:00	2	1	0	0	1	0	1	5	1	4	1	1	1
09:00	0	0	0	0	1	1	0	2	0	1	0	1	1
10:00	0	0	4	2	3	2	0	11	1	9	2	2	1
11:00	2	2	1	6	5	2	1	19	3	16	3	3	2
12:00	0	3	2	0	4	1	5	15	2	9	2	6	3
13:00	0	0	2	3	3	3	1	12	1	8	1	4	2
14:00	4	0	0	3	2	1	2	12	2	9	2	3	2
15:00	2	2	0	4	2	3	3	16	2	10	2	6	3
16:00	4	1	1	3	1	1	3	14	2	10	2	4	2
17:00	0	1	1	8	3	1	1	15	2	13	3	2	1
18:00	12	4	6	5	13	11	0	51	7	40	8	11	6
19:00	11	2	14	7	13	14	4	65	9	47	8	18	9
20:00	0	1	4	3	11	7	0	26	4	19	4	7	4
21:00	0	1	1	0	5	2	0	9	1	7	1	2	1
22:00	0	0	1	1	3	2	1	8	1	5	1	3	2
23:00	0	0	0	0	4	3	0	7	1	4	1	3	2
Total	39	18	38	47	75	57	24	298	39	217	41	81	47
% Heavy	5.13%	0.00%	10.53%	10.64%	4.00%	0.00%	0.00%	4.70%		6.45%		0.00%	



Site St Crispin St

Direction Southbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 7/03/2022	Tuesday 1/03/2022	Wednesday 2/03/2022	Thursday 3/03/2022	Friday 4/03/2022	Saturday 5/03/2022	Sunday 6/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	08:00	06:00	07:00	10:00	11:00	10:00	00:00	N/A	08:00	N/A	11:00	N/A	00:00
PM Peak	18:00	16:00	18:00	18:00	18:00	19:00	14:00	N/A	18:00	N/A	18:00	N/A	19:00
00:00	0	0	0	0	0	3	3	6	1	0	0	6	3
01:00	0	0	0	0	0	0	1	1	0	0	0	1	1
02:00	1	0	0	0	1	1	0	3	0	2	0	1	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	1	1	2	1	0	0	0	5	1	5	1	0	0
06:00	2	3	0	0	1	0	0	6	1	6	1	0	0
07:00	3	2	3	1	2	1	0	12	2	11	2	1	1
08:00	4	1	3	3	5	2	1	19	3	16	3	3	2
09:00	3	2	1	5	1	3	1	16	2	12	2	4	2
10:00	2	1	2	6	5	4	0	20	3	16	3	4	2
11:00	4	1	2	4	7	3	1	22	3	18	4	4	2
12:00	3	2	3	4	6	3	3	24	3	18	4	6	3
13:00	1	3	4	2	5	2	1	18	2	15	3	3	2
14:00	2	2	6	3	4	6	6	29	4	17	3	12	6
15:00	2	5	2	7	11	6	4	37	5	27	5	10	5
16:00	2	6	1	3	6	7	4	29	4	18	3	11	6
17:00	5	2	3	6	6	3	3	28	4	22	4	6	3
18:00	6	4	12	16	14	8	4	64	9	52	10	12	6
19:00	4	6	9	11	12	10	3	55	7	42	8	13	7
20:00	5	5	4	1	6	6	3	30	4	21	4	9	5
21:00	2	2	1	2	2	6	3	18	3	9	2	9	5
22:00	0	3	1	0	4	5	1	14	2	8	2	6	3
23:00	1	1	1	5	2	4	0	14	2	10	2	4	2
Total	53	52	60	80	100	83	42	470	65	345	66	125	67
% Heavy	5.66%	1.92%	1.67%	2.50%	11.00%	0.00%	2.38%	4.04%		5.22%		0.80%	

# TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. [traffic@trafficsurvey.com.au](mailto:traffic@trafficsurvey.com.au) - W. [www.trafficsurvey.com.au](http://www.trafficsurvey.com.au)

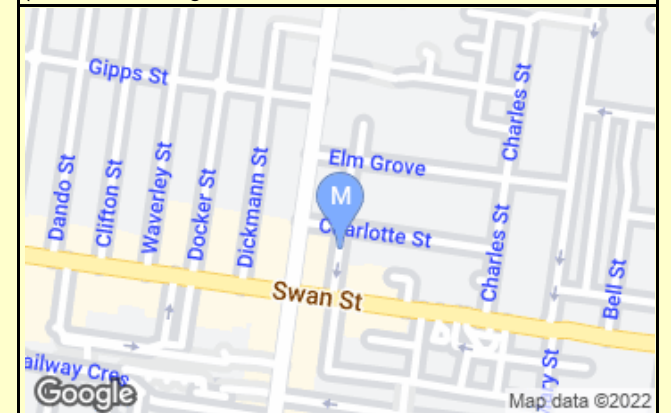
## AUTOMATIC COUNT SUMMARY

Street Name :	St Crispin St	Location :	South of Charlotte St
Suburb :	Richmond	Start Date :	00:00 Sat 12/March/2022
Machine ID:	ME14FXYE	Finish Date :	00:00 Sat 19/March/2022
Site ID:	12816	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	<a href="mailto:binh@trafficsurvey.com.au">binh@trafficsurvey.com.au</a>

GPS information		Lat 37° 49' 31.01 South	Direction of Travel		
			Both directions	Northbound	Southbound
Long 144° 59' 54.59 East					
Traffic Volume : (Vehicles/Day)		Weekdays Average	122	80	42
		7 Day Average	131	89	42
Weekday	AM	10:00	4	2	2
Peak hour starts	PM	18:00	21	14	7
Speeds : (Km/Hr)		85th Percentile	22.4	22.0	23.9
		Average	20.0	20.0	20.8
Classification % :		Light Vehicles up to 5.5m	94.7%	94.4%	95.3%

## Location

GPS Information [Load Google Map \(internet required\)](#)  
(Latitude, Longitude -37.825280, 144.998498)



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)  
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

OH&S SYSTEM CERTIFIED TO ISO 4801:2001

ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

### Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.

These results should be used for indicative assessment only."



Site St Crispin St

Direction

Both directions

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Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	00:00	10:00	11:00	03:00	11:00	10:00	00:00	N/A	11:00	N/A	10:00	N/A	00:00
PM Peak	20:00	18:00	18:00	19:00	18:00	19:00	15:00	N/A	19:00	N/A	18:00	N/A	19:00
00:00	3	0	0	0	0	3	12	18	3	3	0	15	8
01:00	1	0	0	0	0	0	0	1	0	1	0	0	0
02:00	1	0	0	0	0	0	0	1	0	1	0	0	0
03:00	0	0	0	3	3	0	0	6	1	6	1	0	0
04:00	0	0	0	0	0	2	0	2	0	0	0	2	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	1	1	0	0	0	2	0	2	0	0	0
07:00	0	3	0	2	3	0	0	8	1	8	2	0	0
08:00	2	5	1	3	2	2	0	15	3	13	2	2	1
09:00	1	0	1	3	5	2	0	12	2	10	2	2	1
10:00	1	6	6	0	9	9	1	32	4	22	4	10	6
11:00	3	0	8	1	10	9	6	37	5	22	4	15	8
12:00	1	6	4	12	12	8	6	49	7	35	6	14	7
13:00	4	15	9	6	12	3	4	53	7	46	9	7	4
14:00	6	6	11	10	10	7	8	58	8	43	8	15	8
15:00	6	9	7	4	10	7	19	62	9	36	7	26	13
16:00	6	11	10	14	11	5	3	60	8	52	11	8	5
17:00	8	10	6	14	9	16	7	70	10	47	9	23	13
18:00	6	25	30	23	19	6	14	123	17	103	21	20	11
19:00	5	9	21	29	14	38	18	134	19	78	15	56	28
20:00	10	0	7	23	9	28	9	86	12	49	10	37	19
21:00	5	8	5	7	6	16	14	61	9	31	6	30	16
22:00	0	9	2	10	2	5	5	33	5	23	5	10	5
23:00	0	2	0	1	0	7	0	10	1	3	0	7	4
Total	69	124	129	166	146	173	126	933	131	634	122	299	158
% Heavy	2.90%	2.42%	5.43%	6.02%	11.64%	5.78%	0.79%	5.36%		6.15%		3.68%	





Site St Crispin St

Direction Northbound ▼

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Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	00:00	08:00	11:00	03:00	11:00	11:00	00:00	N/A	11:00	N/A	10:00	N/A	00:00
PM Peak	20:00	18:00	18:00	19:00	18:00	19:00	15:00	N/A	19:00	N/A	18:00	N/A	19:00
00:00	2	0	0	0	0	2	10	14	2	2	0	12	6
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	3	3	0	0	6	1	6	1	0	0
04:00	0	0	0	0	0	2	0	2	0	0	0	2	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	2	2	0	0	4	1	4	1	0	0
08:00	0	2	0	0	0	2	0	4	1	2	0	2	1
09:00	0	0	0	2	2	0	0	4	1	4	1	0	0
10:00	0	2	2	0	5	5	0	14	2	9	2	5	3
11:00	0	0	5	0	7	7	2	21	3	12	2	9	5
12:00	0	2	2	5	7	5	5	26	4	16	3	10	5
13:00	4	13	7	5	7	2	2	40	5	36	7	4	2
14:00	2	5	8	5	8	7	5	40	6	28	5	12	6
15:00	2	5	5	2	8	7	13	42	6	22	5	20	10
16:00	0	7	7	10	8	5	2	39	5	32	7	7	4
17:00	4	5	5	7	5	13	5	44	6	26	5	18	10
18:00	2	16	23	15	13	2	10	81	11	69	14	12	6
19:00	4	7	13	23	10	31	13	101	14	57	11	44	22
20:00	8	0	2	18	7	21	7	63	9	35	7	28	14
21:00	2	7	5	5	5	13	10	47	7	24	5	23	12
22:00	0	7	2	8	2	5	5	29	4	19	4	10	5
23:00	0	2	0	0	0	5	0	7	1	2	0	5	3
Total	30	80	86	110	99	134	89	628	89	405	80	223	115
% Heavy	6.67%	3.75%	3.49%	5.45%	12.12%	4.48%	0.00%	5.10%		6.42%		2.69%	



Site St Crispin St

Direction Southbound ▼

[Back to Site Summary Page](#)

Day Date	Monday 14/03/2022	Tuesday 15/03/2022	Wednesday 16/03/2022	Thursday 17/03/2022	Friday 18/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	7 days		Weekday		Weekend	
								Total	Average	Total	Average	Total	Average
AM Peak	11:00	10:00	10:00	08:00	10:00	10:00	11:00	N/A	08:00	N/A	08:00	N/A	10:00
PM Peak	16:00	18:00	19:00	18:00	18:00	19:00	15:00	N/A	18:00	N/A	18:00	N/A	19:00
00:00	1	0	0	0	0	1	2	4	1	1	0	3	2
01:00	1	0	0	0	0	0	0	1	0	1	0	0	0
02:00	1	0	0	0	0	0	0	1	0	1	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	1	1	0	0	0	2	0	2	0	0	0
07:00	0	3	0	0	1	0	0	4	0	4	1	0	0
08:00	2	3	1	3	2	0	0	11	2	11	2	0	0
09:00	1	0	1	1	3	2	0	8	1	6	1	2	1
10:00	1	4	4	0	4	4	1	18	2	13	2	5	3
11:00	3	0	3	1	3	2	4	16	2	10	2	6	3
12:00	1	4	2	7	5	3	1	23	3	19	3	4	2
13:00	0	2	2	1	5	1	2	13	2	10	2	3	2
14:00	4	1	3	5	2	0	3	18	2	15	3	3	2
15:00	4	4	2	2	2	0	6	20	3	14	2	6	3
16:00	6	4	3	4	3	0	1	21	3	20	4	1	1
17:00	4	5	1	7	4	3	2	26	4	21	4	5	3
18:00	4	9	7	8	6	4	4	42	6	34	7	8	5
19:00	1	2	8	6	4	7	5	33	5	21	4	12	6
20:00	2	0	5	5	2	7	2	23	3	14	3	9	5
21:00	3	1	0	2	1	3	4	14	2	7	1	7	4
22:00	0	2	0	2	0	0	0	4	1	4	1	0	0
23:00	0	0	0	1	0	2	0	3	0	1	0	2	1
Total	39	44	43	56	47	39	37	305	42	229	42	76	43
% Heavy	0.00%	0.00%	9.30%	7.14%	10.64%	10.26%	2.70%	5.90%		5.68%		6.58%	



# Appendix D

## SIDRA Modelling Results – Existing Intersection Performance

# SITE LAYOUT

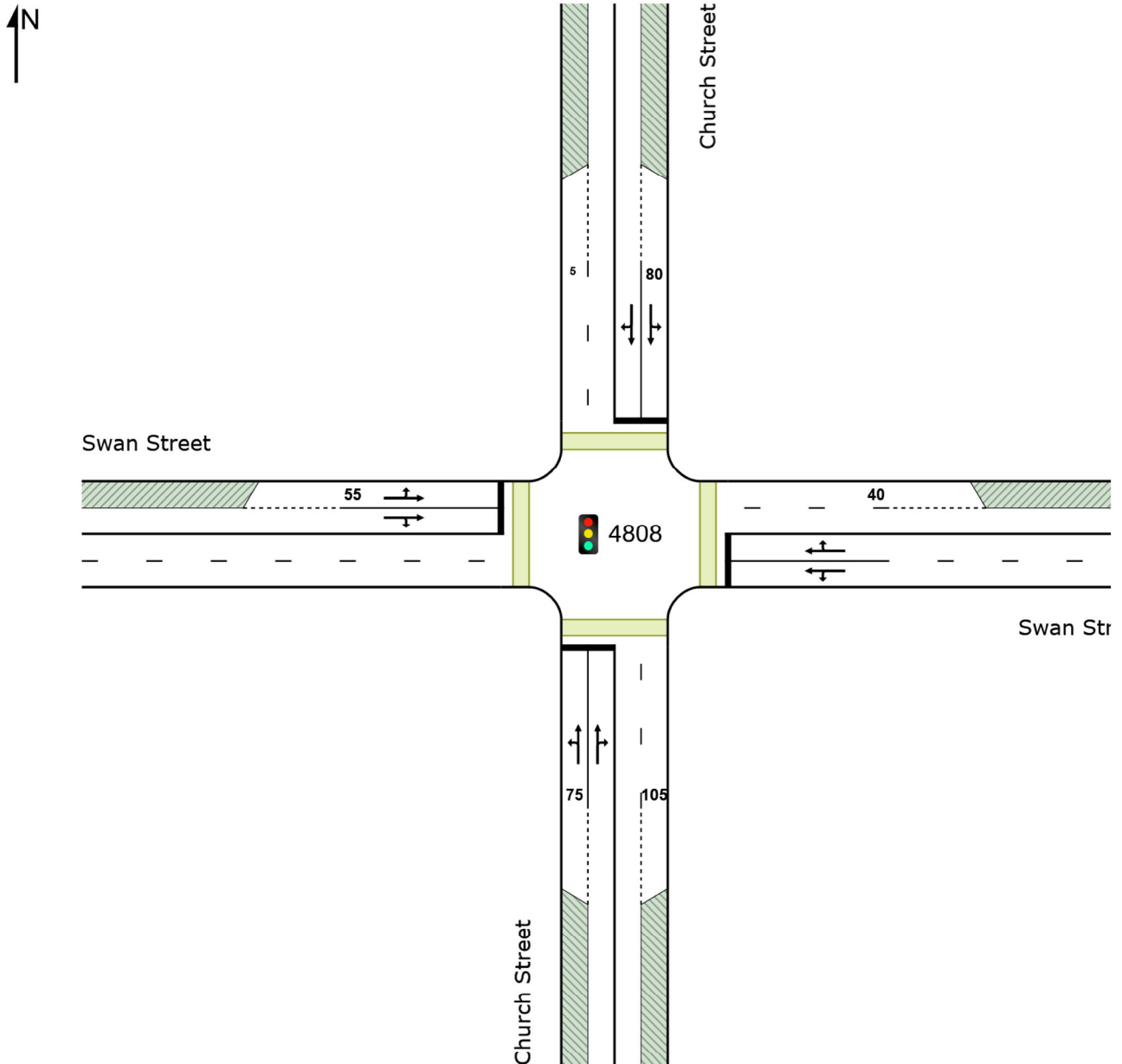
 **Site: 4808 [Church Street / Swan Street - 8AM - 9AM (Site Folder: General)]**

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



**Site: 4808 [Church Street / Swan Street - 8AM - 9AM (Site Folder: General)]**

Signals - EQUISAT (Fixed-Time/SCATS) Isolated    Cycle Time = 100 seconds (Site User-Given Phase Times)

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Intersection and Approach LOS values are based on average delay for all vehicle movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- \* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped ped	Dist ] m			sec	m	m/sec
South: Church Street												
P1	Full	117	123	44.4	LOS E	0.3	0.3	0.94	0.94	209.9	215.2	1.03
East: Swan Street												
P2	Full	126	133	44.4	LOS E	0.4	0.4	0.95	0.95	210.0	215.2	1.02
North: Church Street												

P3 Full	132	139	44.4	LOS E	0.4	0.4	0.95	0.95	210.0	215.2	1.02
West: Swan Street											
P4 Full	361	380	44.9	LOS E	1.0	1.0	0.96	0.96	210.4	215.2	1.02
All Pedestrians	736	775	44.7	LOS E	1.0	1.0	0.95	0.95	210.2	215.2	1.02

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)  
 Pedestrian movement LOS values are based on average delay per pedestrian movement.  
 Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

 **Site: 4808 [Church Street / Swan Street - 8AM - 9AM (Site Folder: General)]**

New Site  
Site Category: (None)  
Signals - EQUISAT (Fixed-Time/SCATS) Isolated    Cycle Time = 100 seconds (Site User-Given Phase Times)

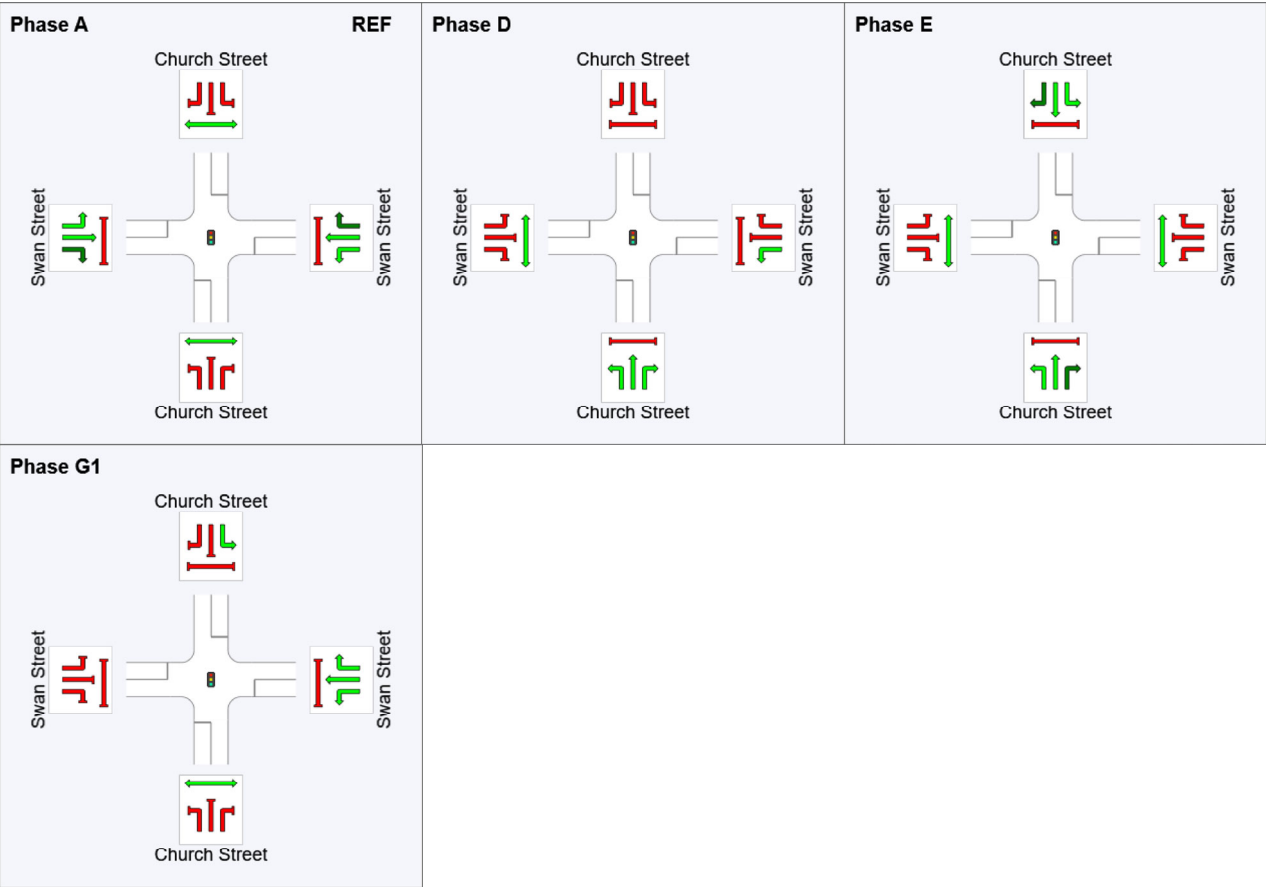
Timings based on settings in the Site Phasing & Timing dialog  
Phase Times specified by the user  
Phase Sequence: AM Phasing  
Reference Phase: Phase A  
Input Phase Sequence: A, D, E, G1  
Output Phase Sequence: A, D, E, G1

## Phase Timing Summary

Phase	A	D	E	G1
Phase Change Time (sec)	0	47	61	89
Green Time (sec)	44	8	27	5
Phase Time (sec)	50	9	33	8
Phase Split	50%	9%	33%	8%













See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

## Output Phase Sequence



REF: Reference Phase  
VAR: Variable Phase



	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

# SITE LAYOUT

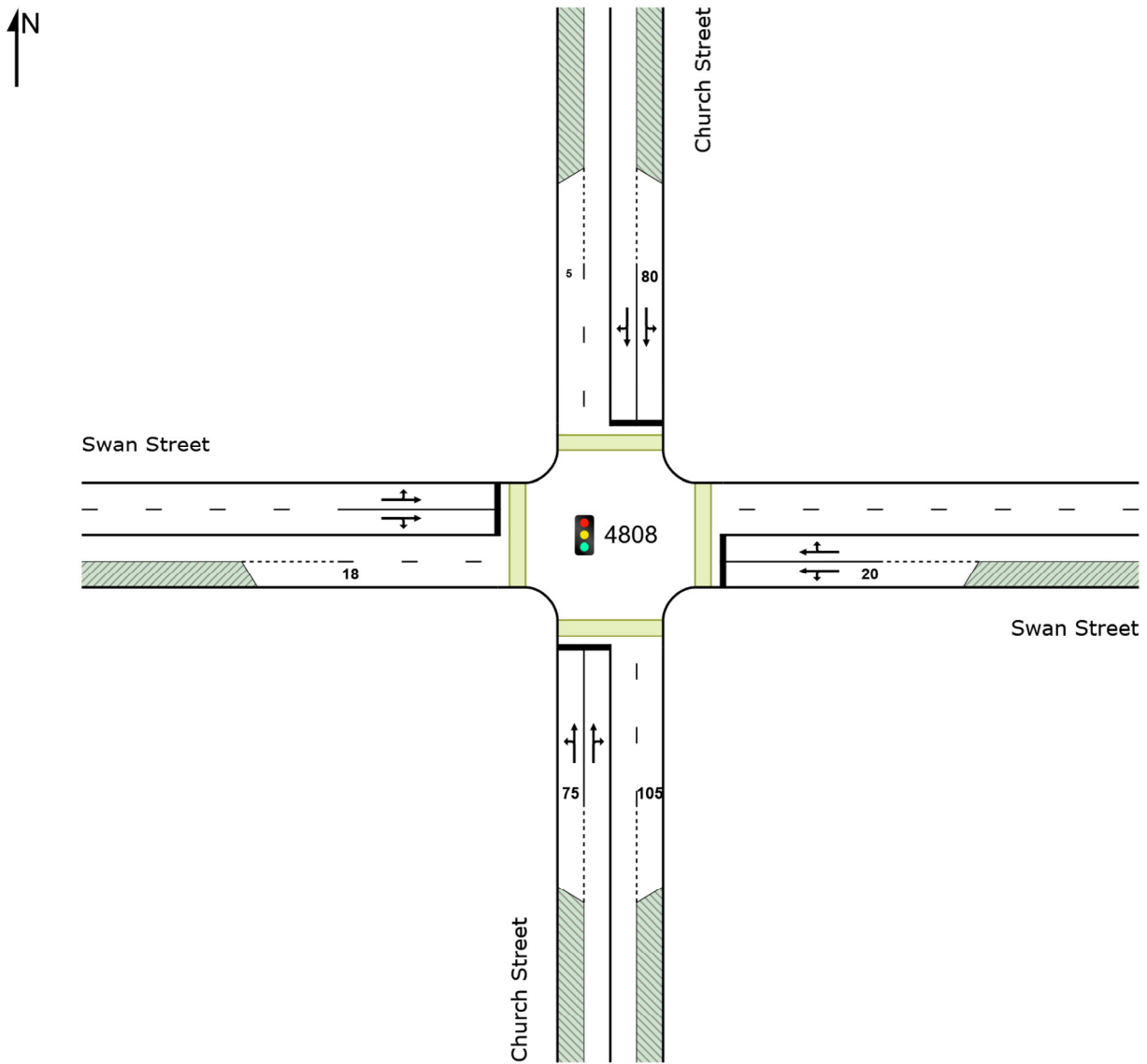
 **Site: 4808 [Church Street / Swan Street - 5:30PM - 6:30PM]**  
**(Site Folder: General)]**

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



**Site: 4808 [Church Street / Swan Street - 5:30PM - 6:30PM  
(Site Folder: General)]**

Signals - EQUISAT (Fixed-Time/SCATS) Isolated      Cycle Time = 119 seconds (Site User-Given Phase Times)

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Intersection and Approach LOS values are based on average delay for all vehicle movements.  
 Delay Model: SIDRA Standard (Geometric Delay is included).  
 Queue Model: SIDRA Standard.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- \* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped ped	Dist ] m			sec	m	m/sec
South: Church Street												
P1	Full	110	116	53.9	LOS E	0.4	0.4	0.95	0.95	219.4	215.2	0.98
East: Swan Street												
P2	Full	116	122	53.9	LOS E	0.4	0.4	0.95	0.95	219.5	215.2	0.98
North: Church Street												

P3 Full	129	136	54.0	LOS E	0.4	0.4	0.95	0.95	219.5	215.2	0.98
West: Swan Street											
P4 Full	337	355	54.5	LOS E	1.2	1.2	0.96	0.96	220.0	215.2	0.98
All Pedestrians	692	728	54.2	LOS E	1.2	1.2	0.96	0.96	219.7	215.2	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)  
Pedestrian movement LOS values are based on average delay per pedestrian movement.  
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

 **Site: 4808 [Church Street / Swan Street - 5:30PM - 6:30PM]**  
**(Site Folder: General)]**

New Site  
Site Category: (None)  
Signals - EQUISAT (Fixed-Time/SCATS) Isolated    Cycle Time = 119 seconds (Site User-Given Phase Times)

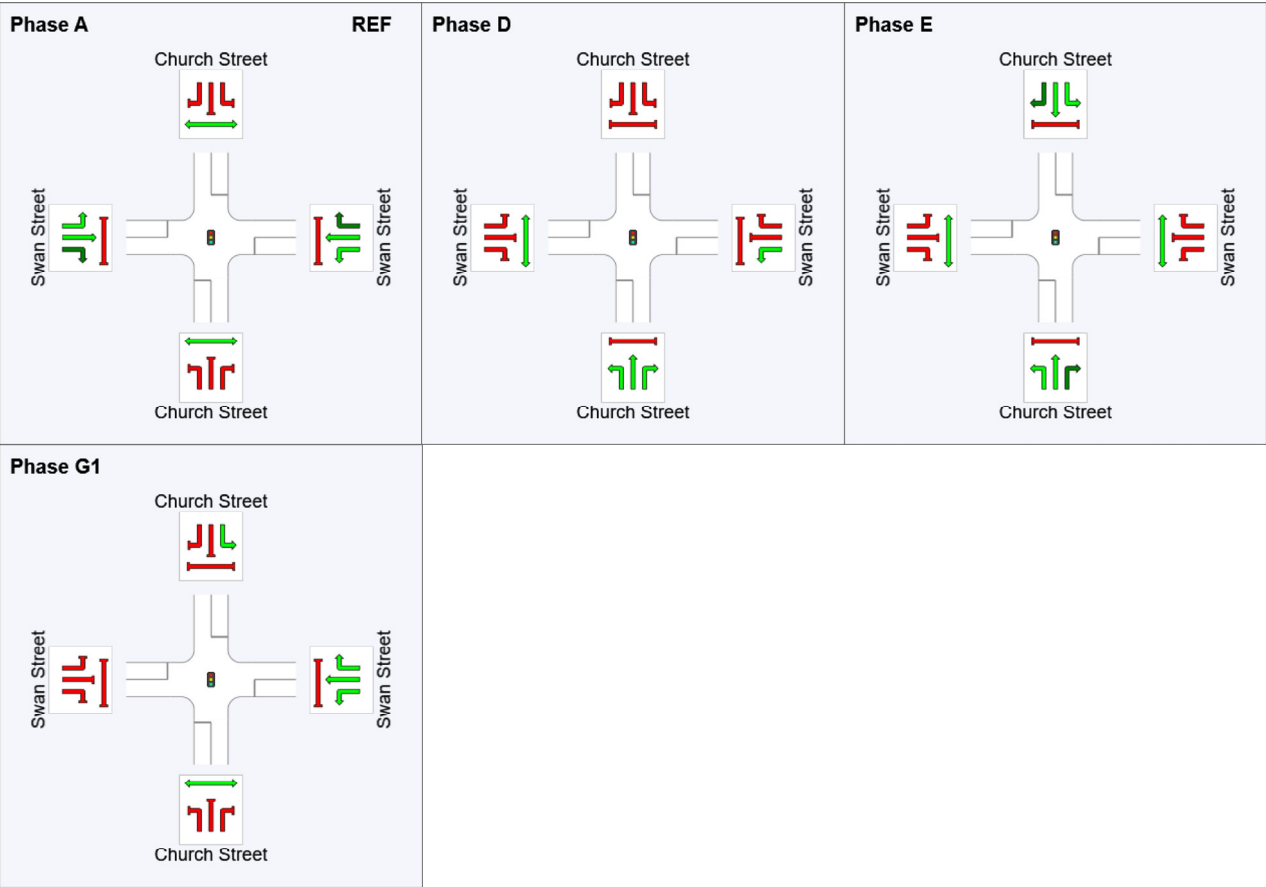
Timings based on settings in the Site Phasing & Timing dialog  
Phase Times specified by the user  
Phase Sequence: PM Phasing  
Reference Phase: Phase A  
Input Phase Sequence: A, D, E, G1  
Output Phase Sequence: A, D, E, G1

## Phase Timing Summary












Phase	A	D	E	G1
Phase Change Time (sec)	0	57	75	111
Green Time (sec)	56	12	33	2
Phase Time (sec)	62	15	39	3
Phase Split	52%	13%	33%	3%

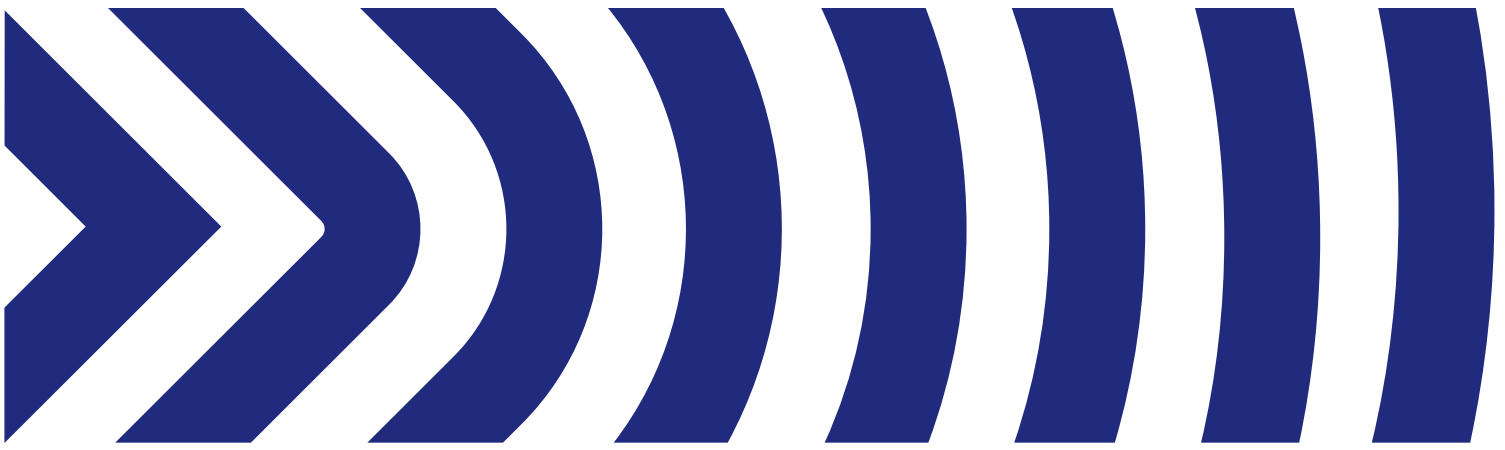
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

## Output Phase Sequence



REF: Reference Phase  
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied



# Appendix E

## Crash Data Analysis

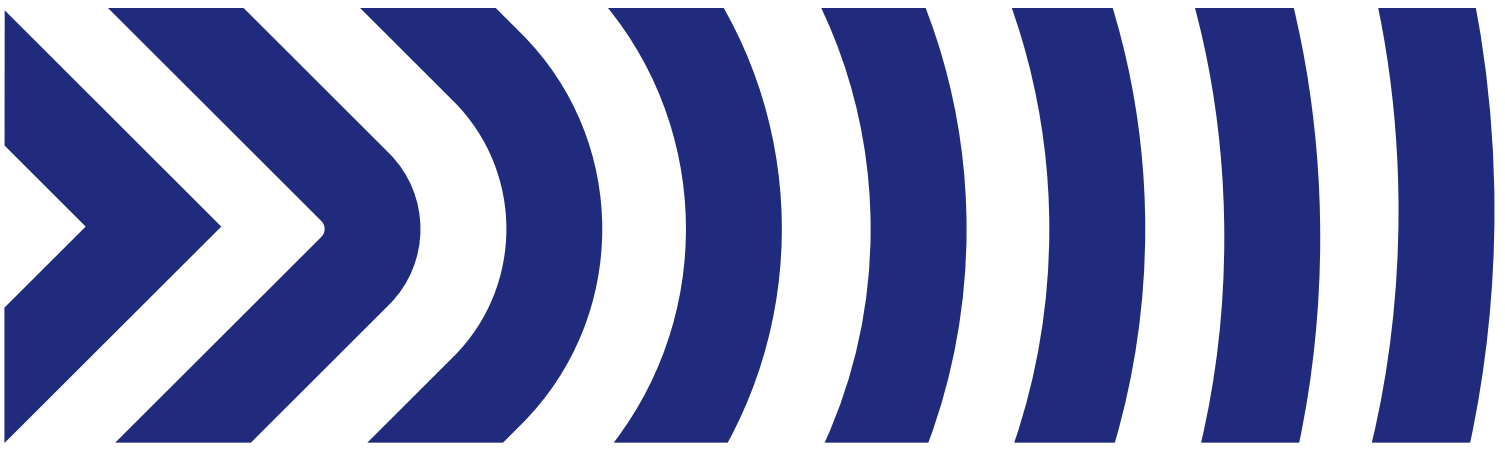


Crash Incidents																	
	Accident No.	Location		Date (dd/mm/yyyy)	Day	Time	Severity	Type (DCA Code)	DCA Descriptions	Light	Weather	Surface	Pedestrian	Vehicle 1	Vehicle 2	Vehicle 3	Vehicle 4
Local Area Accidents	T20170001108	Church Street (b/Gipps and Elm Grove)	Church Street 23m N Of Elm Grove	17/01/2017	Tuesday	5:00 PM	Other(V)	130	Rear End (Vehicles In Same Lane)	Unknown	Not known	Dry	-	S	S		
	T20170018984		Church Street 2m N Of Elm Grove	3/10/2017	Tuesday	10:25 AM	Other(B)	163	Vehicle Strikes Door Of Parked/Stationary Vehicle	Day	Clear	Dry	-	N	N (B)		
	T20190003902		Church Street at Elm Grove Intersection	28/02/2019	Thursday	12:40 PM	Serious(B)	135	Lane Change Left	Day	Not known	Dry	-	S	S (B)		
	T20200005862	Church Street b/w Elm Grove and Swan Street)	Church Street 7m S Of Elm Grove	11/03/2020	Wednesday	8:15 AM	Other(B)	163	Vehicle Strikes Door Of Parked/Stationary Vehicle	Day	Clear	Dry	-	S	S (B)		
	T20200004262		Church Street 13m S Of Elm Grove	21/02/2020	Friday	11:00 PM	Other(B)	140	U Turn	Dark Street lights on	Clear	Dry	-	NE	SW (B)		
	T20200019671		Church Street at Charlotte Street Intersection	7/11/2020	Saturday	2:00 PM	Other(B)	121	Right Through	Day	Not known	Dry	-	S	N		
	T20180007091		Church Street 19m S Of Charlotte Street	14/04/2018	Saturday	6:00 PM	Other(M)	160	Vehicle Collides With Vehicle Parked On Left Of Road	Dusk/Dawn	Raining	Wet	-	N (M)	N		
	T20170015928	Church Street and Swan Street Intersection		4/08/2017	Friday	4:13 PM	Other(V)	133	Lane Side Swipe (Vehicles In Parallel Lanes)	Day	Clear	Dry	-	NW	NW		
	T20170024050			16/12/2017	Saturday	2:30 AM	Other(P)	100	Ped Near Side. Ped Hit By Vehicle From The Right.	Dark Street lights on	Clear	Dry	Pedestrian	E			
	T20180006207			1/04/2018	Sunday	5:12 PM	Other(P)	108	Ped Struck Walking To/From Or Boarding/Alighting Vehicle.	Day	Clear	Dry	Pedestrian	NW			
	T20190008790			8/05/2019	Wednesday	3:45 PM	Other(B)	133	Lane Side Swipe (Vehicles In Parallel Lanes)	Day	Clear	Unknown	-	S	S (B)		
	T20200009754			4/04/2020	Saturday	12:20 PM	Other(V)	130	Rear End (Vehicles In Same Lane)	Day	Not known	Unknown	-	S	S		
	T20200012043			22/06/2020	Monday	8:40 AM	Other(M)	110	Cross Traffic	Day	Not known	Dry	-	NW	SW (M)		
	T20210024263			25/11/2021	Thursday	3:30 PM	Other(B)	121	Right Through	Day	Not known	Dry	-	E	W (B)		
	T20180001917	Swan Street (b/w Church Street and Yan	Swan Street 9m E Of Church Street	31/01/2018	Wednesday	5:00 PM	Other(V)	131	Left Rear	Day	Clear	Dry	-	W	W		
	T20190022170		Swan Street 36m W of Yan Lane	8/11/2019	Friday	11:15 PM	Other(P)	100	Ped Near Side. Ped Hit By Vehicle From The Right.	Dark		Wet	Pedestrian	W			
	T20200010668	Swan Street (b/w Bright Street and Harvey Street)	Swan Street 26m E Of Brighton Street	1/06/2020	Monday	10:15 PM	Other(B)	163	Vehicle Strikes Door Of Parked/Stationary Vehicle	Dark Street lights on	Raining	Wet	-	SE	SE (B)		
T20190000710	Swan Street 18m W Of Charles Street		13/01/2019	Sunday	2:40 AM	Other(P)	102	Far Side. Ped Hit By Vehicle From The Left	Dark Street lights on	Clear	Dry	Pedestrian	E				
T20170008001	Swan Street At Harvey Street		21/04/2017	Friday	7:30 PM	Other(B)	121	Right Through	Dark Street lights on	Raining	Wet	-	SE	NW (B)			
T20170010824			2/06/2017	Friday	8:10 PM	Other(V)	130	Rear End(Vehicles In Same Lane)	Dark Street lights unknown	Clear	Unknown	-	E	E	E		

\*Period of data is from 1/7/2017 to 23/2/2022

Legend	
(V)	Vehicles
(M)	Motorbike
(B)	Bicycle
(P)	Pedestrians

Traffix Group



# Appendix F

## Parking Survey Results

# G31387 - Charlotte Street, Richmond Parking Surveys

Supervised By:  
Surveyed By:

Survey Dates & Times: See below

Location	Restriction	Capacity Min - Max	Wednesday, 2 March 2022	Thursday, 3 March 2022		Thursday, 17 March 2022		Saturday, 26 March 2022	
			9:30am	4:00pm	6:30pm	11:30am	1:30pm	1:45pm	6:30pm
OFF-STREET CARPARKING									
RICHMOND LIBRARY CARPARK AT 6 CHARLOTTE STREET, RICHMOND									
	2P 7am-7pm	19	12	19	19	17	17	18	19
	No Stopping Council Library Vehicle Excepted	1	1	1	1	1	1	0	1
ON-STREET CARPARKING									
ST CRISPIN STREET									
East Side									
Charlotte Street to Swan Street	Permit Zone (Area 20)	4	1	3	1	3	3	2	4
CHARLOTTE STREET									
North Side									
Church Street to Charles Street	2P 7am-Midnight MON - SAT	4	3	4	4	4	4	3	4
	Permit Zone	19	14	11	17	14	14	13	17
South Side									
Church Street to Charles Street	2P 7am-Midnight MON - SAT	20	10	12	18	15	15	12	20
	1/4P 8am-10pm	1	0	1	0	1	1	0	0
	2P Disabled only 8am-8pm	1	0	1	0	0	1	0	1

# G31387 - Charlotte Street, Richmond Parking Surveys

Supervised By:  
Surveyed By:

Survey Dates & Times: See below

Location	Restriction	Capacity Min - Max	Wednesday, 2 March 2022	Thursday, 3 March 2022		Thursday, 17 March 2022		Saturday, 26 March 2022	
			9:30am	4:00pm	6:30pm	11:30am	1:30pm	1:45pm	6:30pm
CHARLES STREET									
East Side									
Swan Street to 73 Charles Street	Permit Zone	6	5	6	6	4	5	6	6
71 Charles Street to McNamara Street	Permit Zone	10	6	10	8	6	8	10	10
Elm Grove to 37 Charles Street	Permit Zone	5	3	5	4	3	3	3	5
West Side									
Elm Grove to laneway into Parker Street	2P 7am-Midnight MON - SAT	1	0	1	1	1	1	1	1
Charlotte Street to Elm Grove	2P 7am-Midnight MON - SAT	7	6	7	6	6	5	6	7
	P Disabled Parking	1	0	0	1	0	0	1	1
Swan Street to Charlotte Street	2P 7am-Midnight MON - SAT	4	4	2	4	4	3	4	4
	Loading Zone 15mins 7am-6pm MON - SAT	2	1	0	1	0	0	0	2
	Permit Zone All Other Times								
ELM GROVE									
North Side									
Charles Street to Church Street	2P 7am-Midnight MON - SAT	23	14	19	23	21	21	21	23
South Side									
Charles Street to Church Street	Permit Zone	20	13	12	20	9	13	17	18
	1P Disabled	2	2	1	2	1	1	0	0

# G31387 - Charlotte Street, Richmond Parking Surveys

Supervised By:  
Surveyed By:

Survey Dates & Times: See below

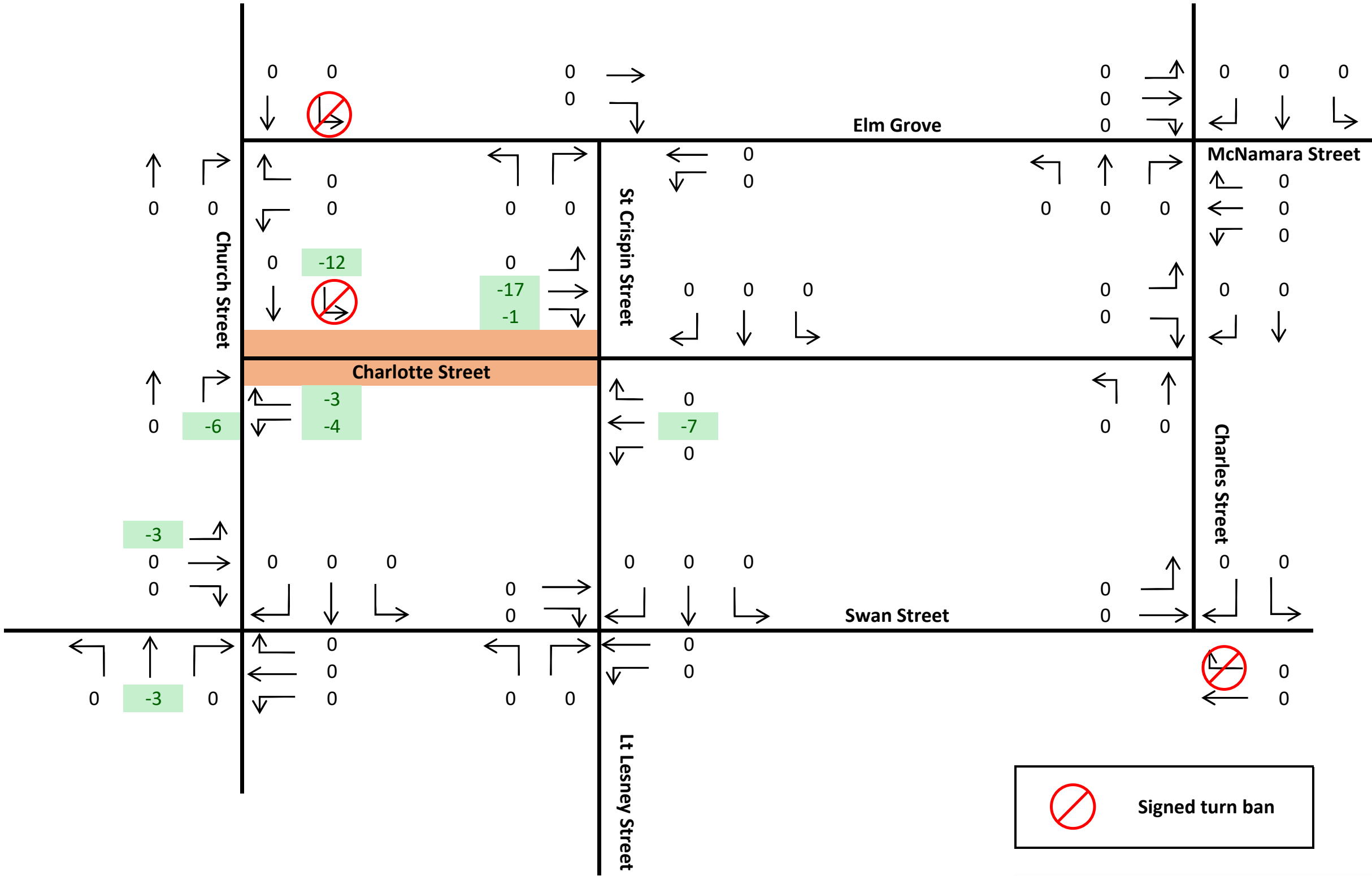
Location	Restriction	Capacity Min - Max	Wednesday, 2 March 2022	Thursday, 3 March 2022		Thursday, 17 March 2022		Saturday, 26 March 2022	
			9:30am	4:00pm	6:30pm	11:30am	1:30pm	1:45pm	6:30pm
CHURCH STREET									
East Side									
Property 381 to Charlotte Street	2P 8am-5pm MON - FRI (8am-12:30pm)	11	7	9	11	11	11	10	11
Charlotte Street to Swan Street	No Stopping Zone	0	0	0	0	0	0	0	0
West Side									
Swan Street to Gipp Street	2P Meter 8am-5pm MON - FRI (8:30am-5:30pm SAT) 1/4P 5:30pm - 11:30pm	2	2	2	2	2	2	2	2
	Authorised Car Share	1	1	1	1	1	1	1	1
	2P 8am-5pm MON - FRI (8:30am-5:30pm SAT)	19	9	13	19	15	12	14	19
	P Disabled only 7am-5pm MON - FRI	1	0	1	1	0	0	1	1
	1/4P 7am - 9pm	1	0	1	1	1	1	1	1
SWAN STREET									
North Side									
Church Street to St Crispin	Clearway 4:30pm-6:30pm MON-FRI Loading Zone 15min All Other Times	2	0	0	0	0	0	0	0
St Crispin Street to Yan Lane	Clearway 4:30pm-6:30pm MON-FRI 2P Meter 8:30am-4:30pm MON-FRI (8:30am-5:30pm SAT)	11	3	0	12	5	10	*7	14
Yan Lane to opposite Harvey Street	Clearway 4:30pm-6:30pm MON-FRI 2P Meter 8:30am-4:30pm(8:30am-5:30pm SAT)	12	4	1	12	8	6	*2	13
South Side									
Church Street to Yan Lane	Clearway 7:00am-9:15am MON-FRI 2P Meter 9:15am-5:30pm MON-FRI (8:30am-5:30pm SAT)	14	5	2	12	9	9	8	13
Yan Lane to Harvey Street	Clearway 7:00am-9:15am MON-FRI 2P Meter 9:15am-5:30pm MON-FRI (8:30am-5:30am SAT)	5	0	2	5	1	2	4	5



# Appendix G

## Traffic Volume Redistribution Diagrams

Redistribution - Decreases in Turning Movements  
AM Peak (8:00-9:00)

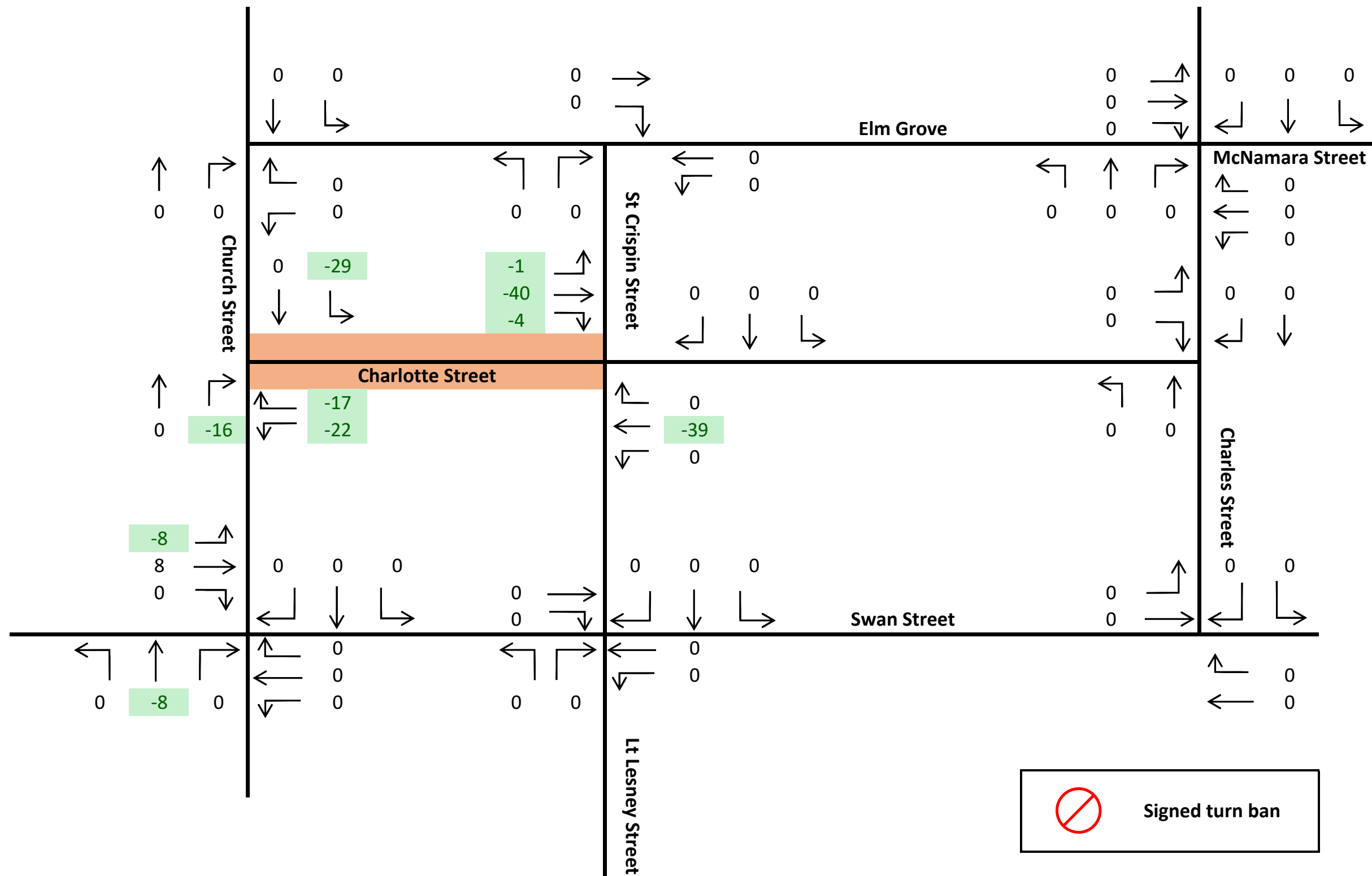


 Signed turn ban

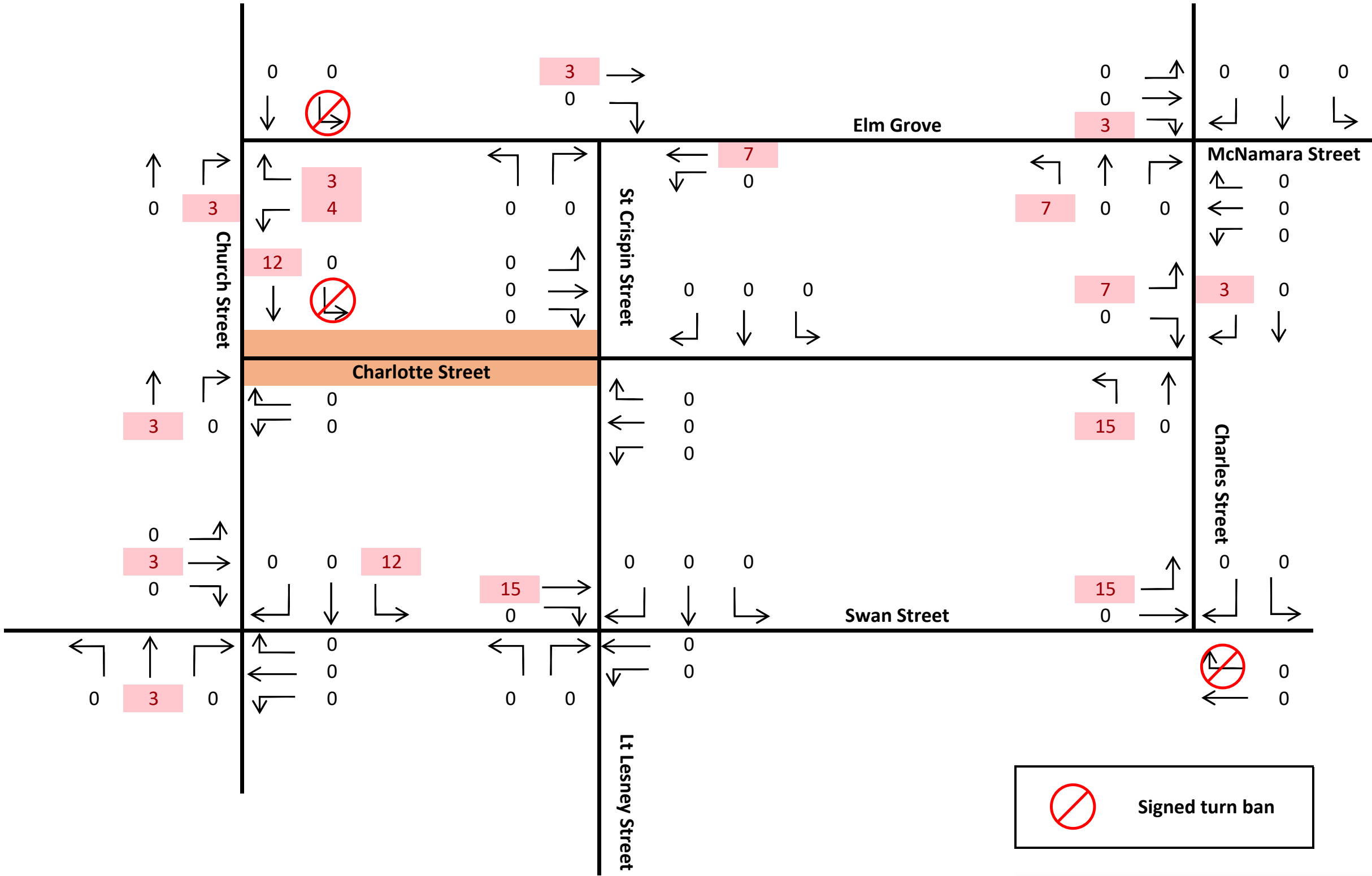


### Redistribution - Decreases in Turning Movements

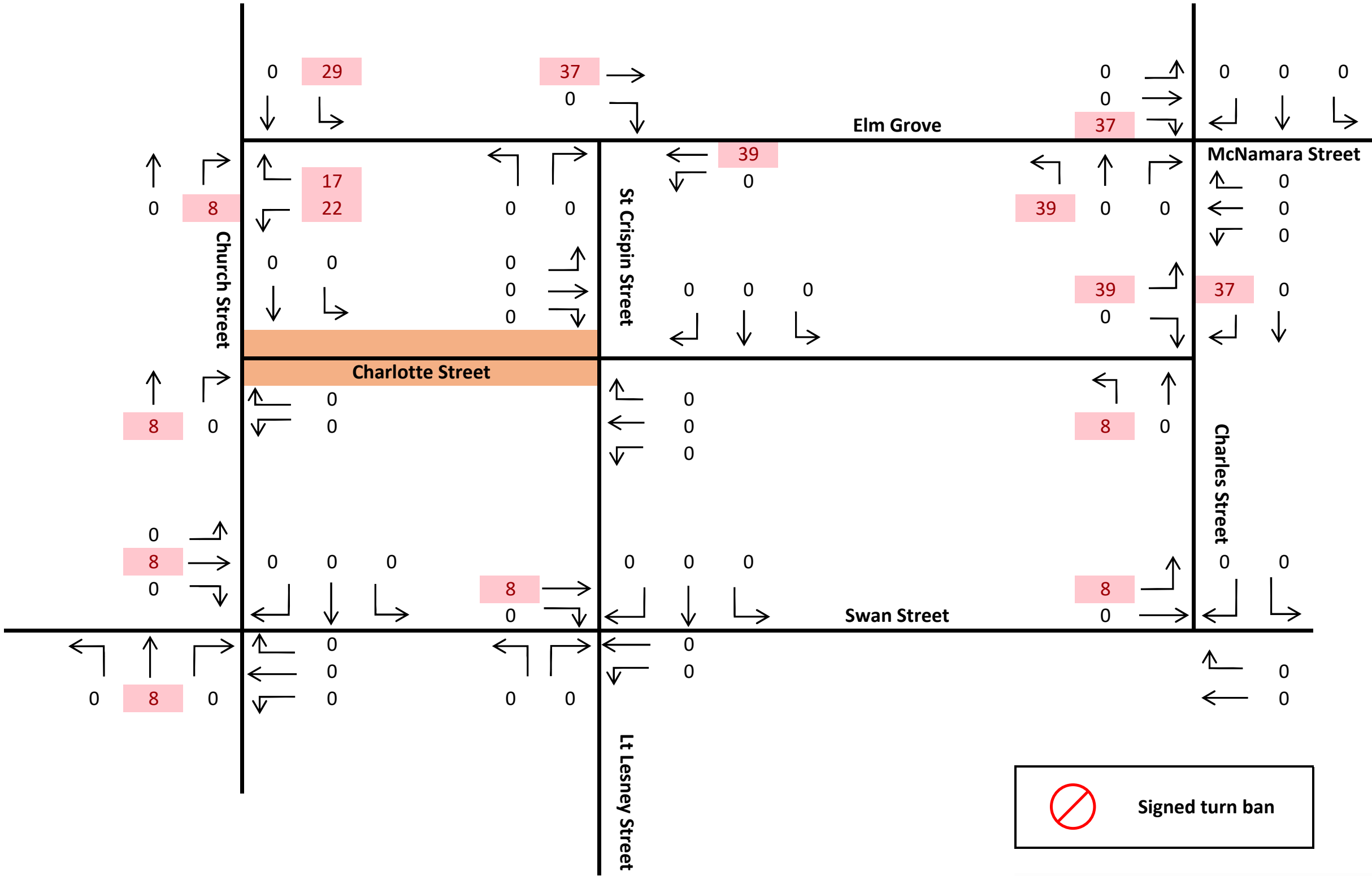
#### PM Peak (17:30-18:30)



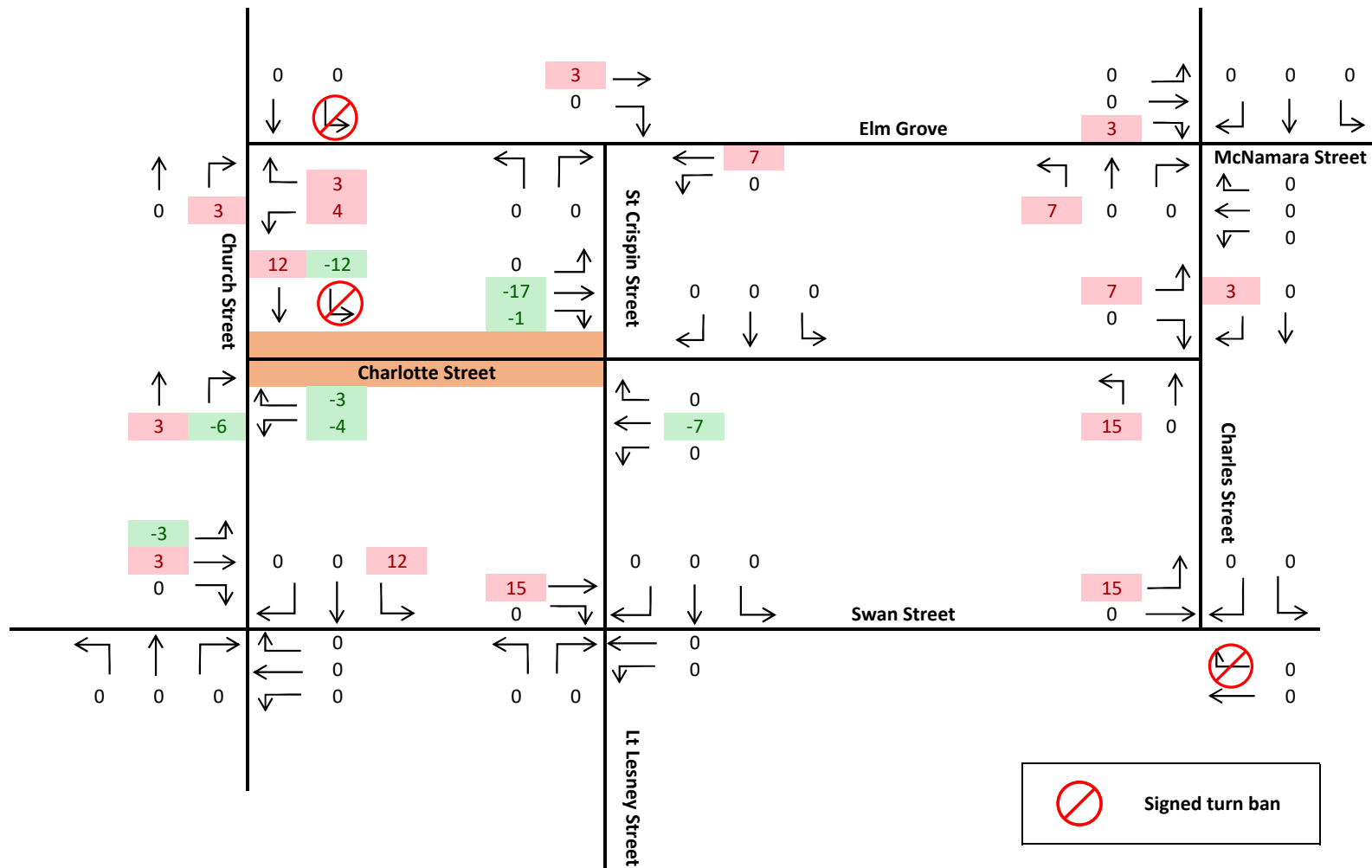
Redistribution - Increases in Turning Movements  
AM Peak (8:00-9:00)



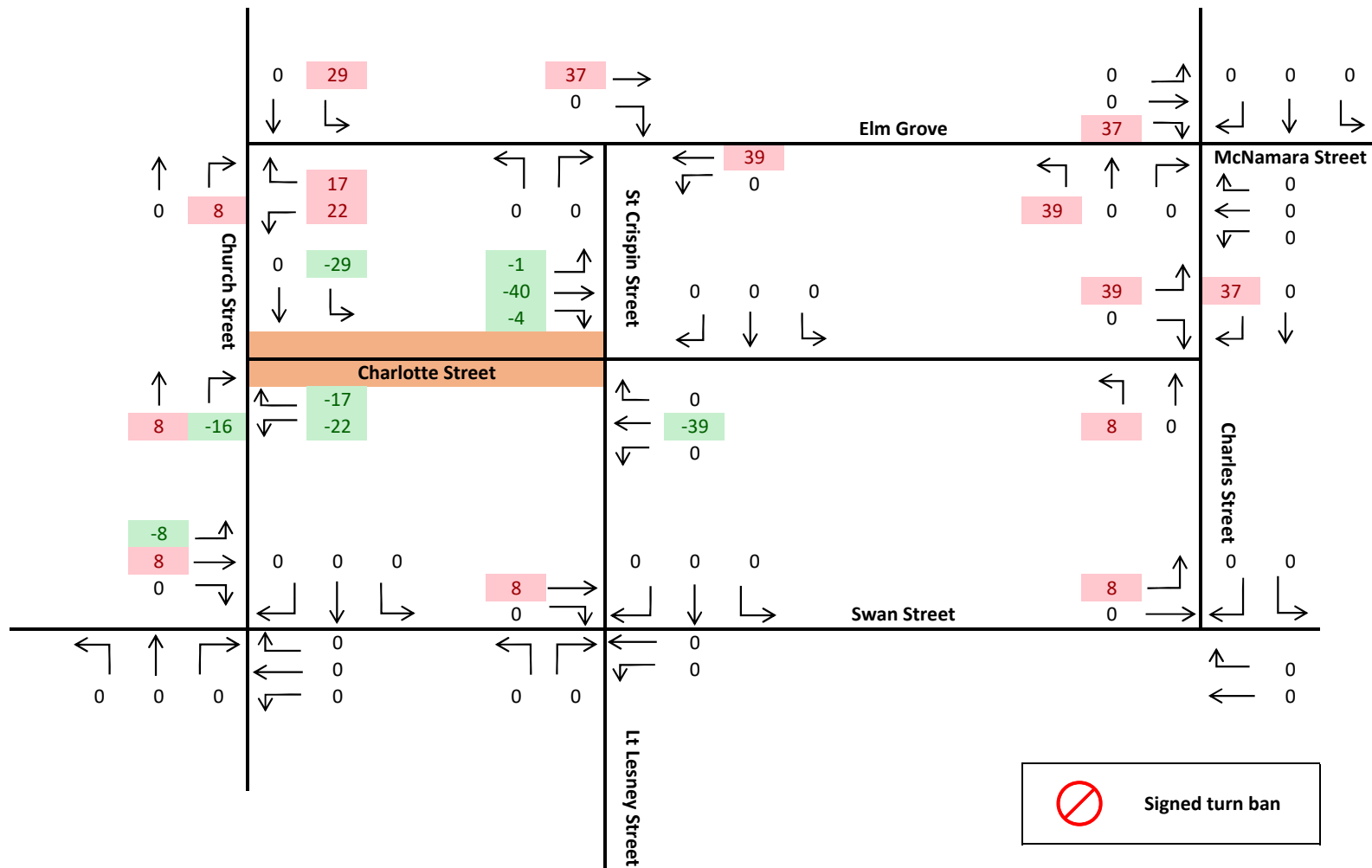
Redistribution - Increases in Turning Movements  
PM Peak (17:30-18:30)



Redistribution - Net Change in Turning Movements  
AM Peak (8:00-9:00)



Redistribution - Net Change in Turning Movements  
PM Peak (17:30-18:30)



Traffix Group



# Appendix H

**SIDRA Modelling Results – Post Public Space  
Intersection Performance**

# SITE LAYOUT

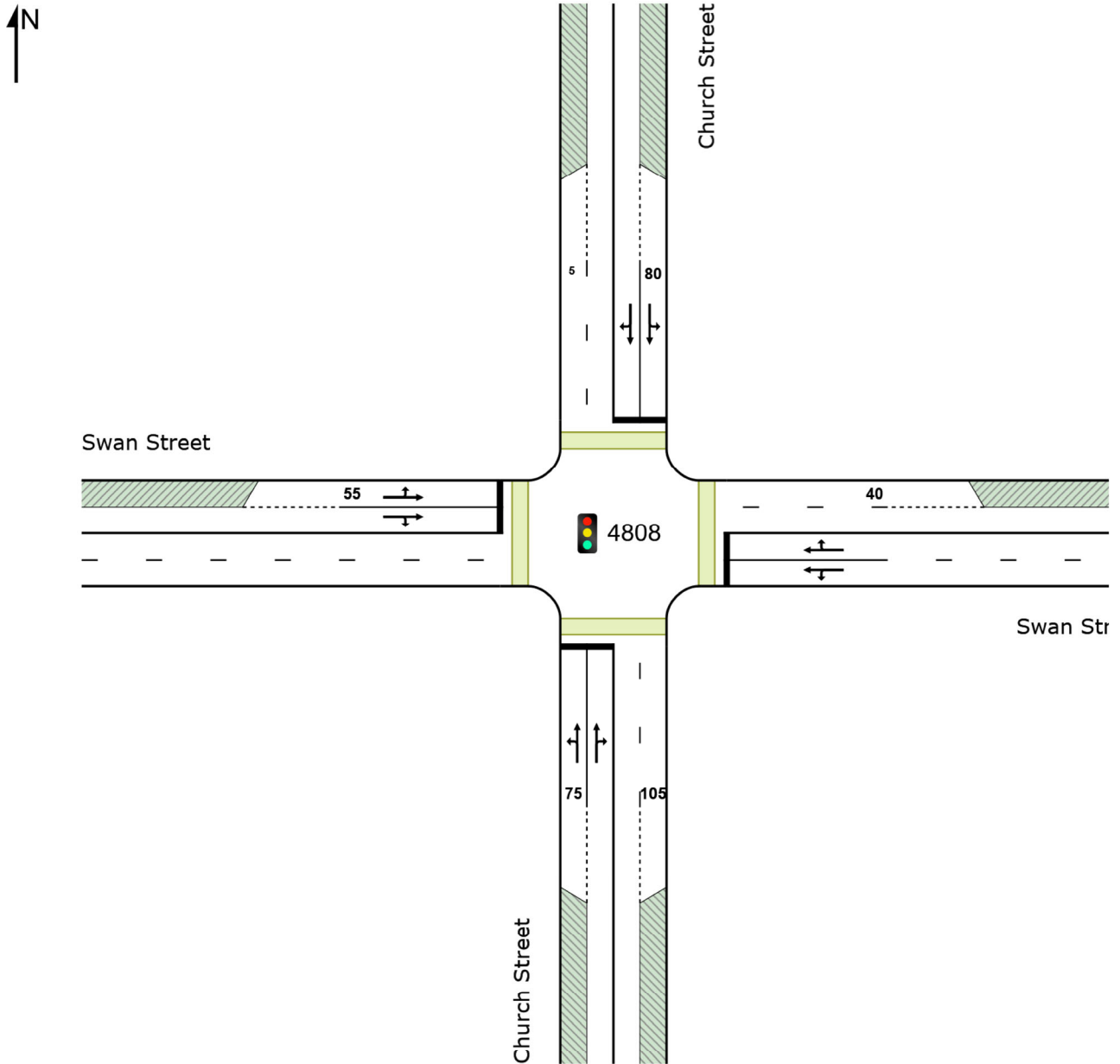
 **Site: 4808 [Church Street / Swan Street - 8AM - 9AM - Redistribution (Site Folder: General)]**

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



**Site: 4808 [Church Street / Swan Street - 8AM - 9AM - Redistribution (Site Folder: General)]**

Signals - EQUISAT (Fixed-Time/SCATS) Isolated    Cycle Time = 100 seconds (Site User-Given Phase Times)

- \* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped ped	Dist ] m			sec	m	m/sec
South: Church Street												
P1	Full	117	123	44.4	LOS E	0.3	0.3	0.94	0.94	209.9	215.2	1.03
East: Swan Street												
P2	Full	126	133	44.4	LOS E	0.4	0.4	0.95	0.95	210.0	215.2	1.02
North: Church Street												



P3 Full	132	139	44.4	LOS E	0.4	0.4	0.95	0.95	210.0	215.2	1.02
West: Swan Street											
P4 Full	361	380	44.9	LOS E	1.0	1.0	0.96	0.96	210.4	215.2	1.02
All Pedestrians	736	775	44.7	LOS E	1.0	1.0	0.95	0.95	210.2	215.2	1.02

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)  
 Pedestrian movement LOS values are based on average delay per pedestrian movement.  
 Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

 **Site: 4808 [Church Street / Swan Street - 8AM - 9AM - Redistribution (Site Folder: General)]**

New Site  
Site Category: (None)  
Signals - EQUISAT (Fixed-Time/SCATS) Isolated    Cycle Time = 100 seconds (Site User-Given Phase Times)

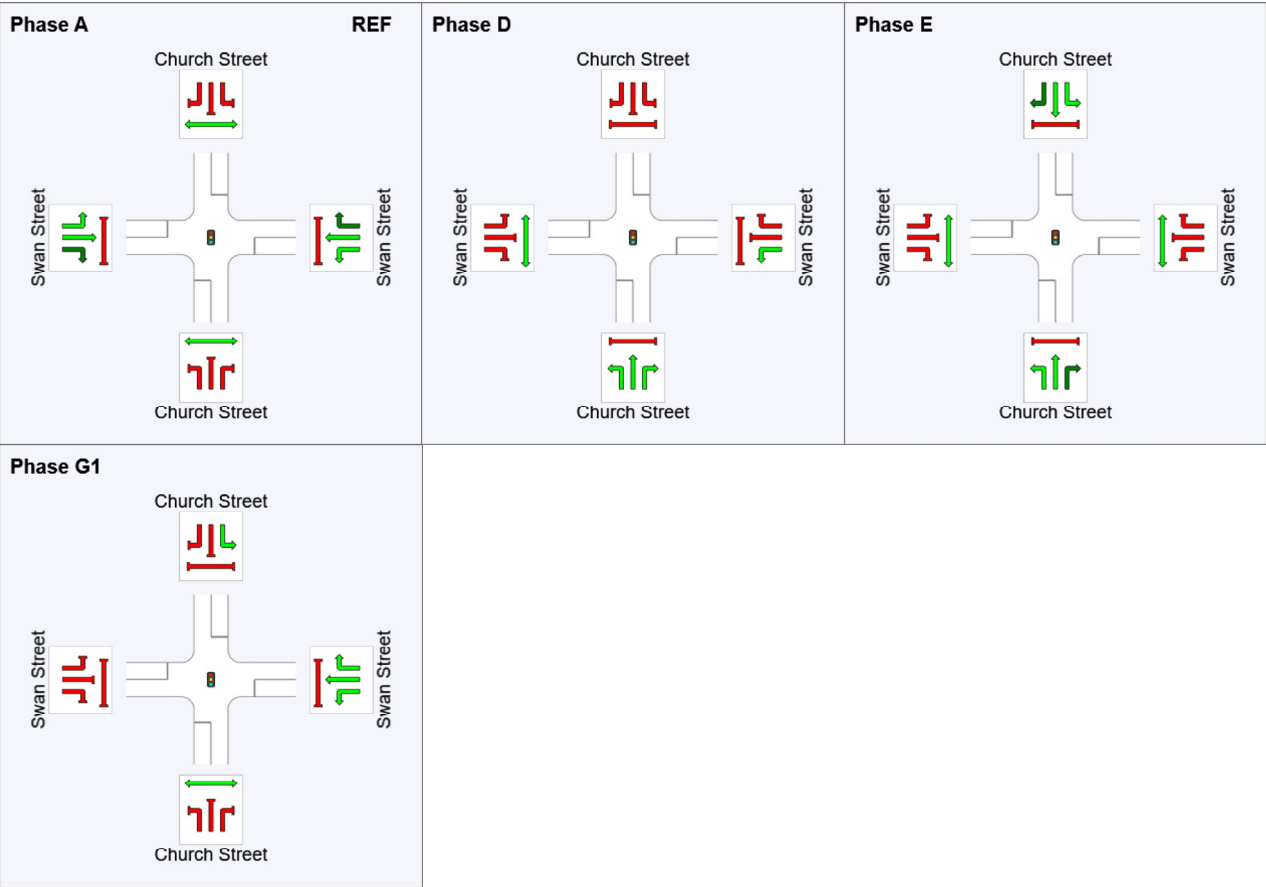
Timings based on settings in the Site Phasing & Timing dialog  
Phase Times specified by the user  
Phase Sequence: AM Phasing  
Reference Phase: Phase A  
Input Phase Sequence: A, D, E, G1  
Output Phase Sequence: A, D, E, G1

## Phase Timing Summary












Phase	A	D	E	G1
Phase Change Time (sec)	0	47	61	89
Green Time (sec)	44	8	27	5
Phase Time (sec)	50	9	33	8
Phase Split	50%	9%	33%	8%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

## Output Phase Sequence



REF: Reference Phase  
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

# SITE LAYOUT

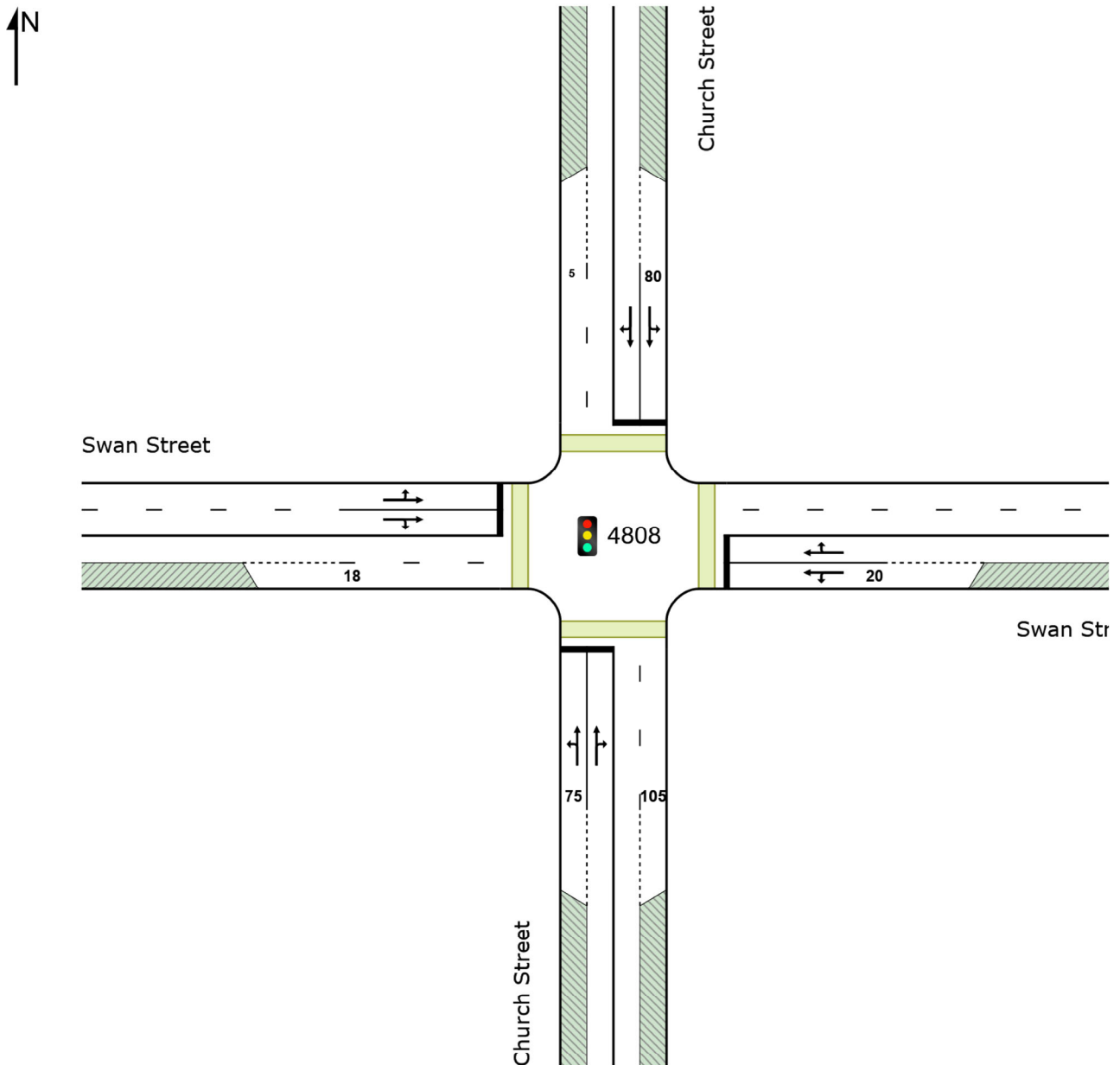
 **Site: 4808 [Church Street / Swan Street - 5:30PM - 6:30PM - Redistribution (Site Folder: General)]**

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



**Site: 4808 [Church Street / Swan Street - 5:30PM - 6:30PM - Redistribution (Site Folder: General)]**

Signals - EQUISAT (Fixed-Time/SCATS) Isolated      Cycle Time = 119 seconds (Site User-Given Phase Times)

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Intersection and Approach LOS values are based on average delay for all vehicle movements.  
 Delay Model: SIDRA Standard (Geometric Delay is included).  
 Queue Model: SIDRA Standard.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- \* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[ Ped ped	Dist ] m			sec	m	m/sec
South: Church Street												
P1	Full	110	116	53.9	LOS E	0.4	0.4	0.95	0.95	219.4	215.2	0.98
East: Swan Street												
P2	Full	116	122	53.9	LOS E	0.4	0.4	0.95	0.95	219.5	215.2	0.98
North: Church Street												

P3 Full	129	136	54.0	LOS E	0.4	0.4	0.95	0.95	219.5	215.2	0.98
West: Swan Street											
P4 Full	337	355	54.5	LOS E	1.2	1.2	0.96	0.96	220.0	215.2	0.98
All Pedestrians	692	728	54.2	LOS E	1.2	1.2	0.96	0.96	219.7	215.2	0.98

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)  
 Pedestrian movement LOS values are based on average delay per pedestrian movement.  
 Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

 **Site: 4808 [Church Street / Swan Street - 5:30PM - 6:30PM - Redistribution (Site Folder: General)]**

New Site  
Site Category: (None)  
Signals - EQUISAT (Fixed-Time/SCATS) Isolated    Cycle Time = 119 seconds (Site User-Given Phase Times)

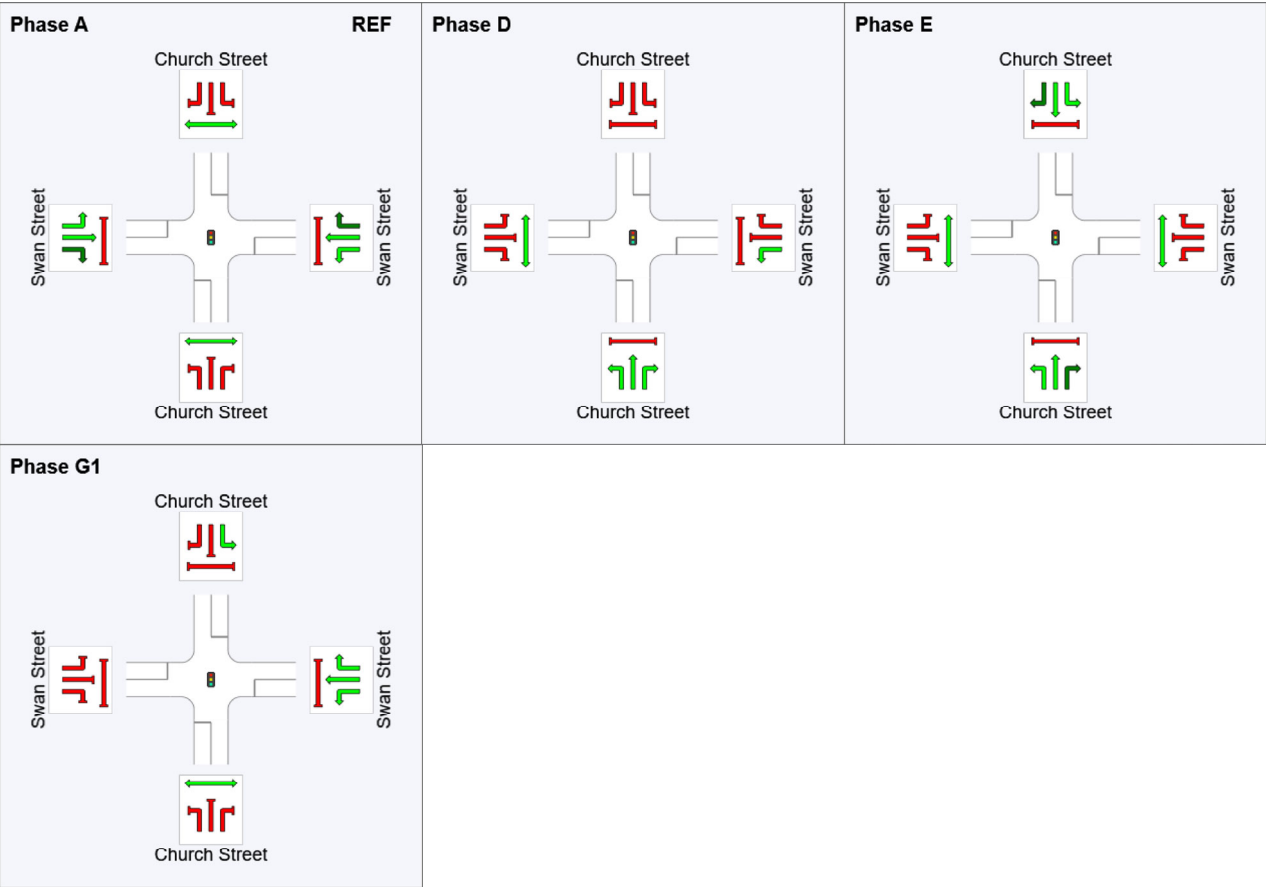
Timings based on settings in the Site Phasing & Timing dialog  
Phase Times specified by the user  
Phase Sequence: PM Phasing  
Reference Phase: Phase A  
Input Phase Sequence: A, D, E, G1  
Output Phase Sequence: A, D, E, G1

## Phase Timing Summary













Phase	A	D	E	G1
Phase Change Time (sec)	0	57	75	111
Green Time (sec)	56	12	33	2
Phase Time (sec)	62	15	39	3
Phase Split	52%	13%	33%	3%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

## Output Phase Sequence



REF: Reference Phase  
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied