Let's Get Wellington Moving

# COBHAM DRIVE CROSSING
## MONITORING REPORT

4 SEPTEMBER 2023

CONFIDENTIAL



wsp

# COBHAM DRIVE CROSSING
# MONITORING REPORT

Let's Get Wellington Moving

WSP
Wellington
L9 Majestic Centre
100 Willis Street
Wellington 6011, New Zealand
+64 4 471 7000
wsp.com/nz

| REV | DATE | DETAILS |
|---|---|---|
| 2 | 04/09/23 | For Approval |

| | NAME | DATE | SIGNATURE |
|---|---|---|---|
| Prepared by: | s 9(2)(a) | 24/08/23 | |
| Reviewed by: | | 24/08/23 | |
| Approved by: | | 04/09/23 | s 9(2)(a) |

This report ('Report') has been prepared by WSP exclusively for Waka Kotahi (on behalf of Let's Get Wellington Moving) ('Client') in relation to summarising monitoring around the impacts of the Cobham Crossing ('Purpose') and in accordance with Contract 9068 Cobham Crossing - Monitoring Data and Report dated 7 August 2023. The findings in this Report are based on and are subject to the assumptions specified in the Report and Offer of Services dated July 2023. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

WSP
Wellington
L9 Majestic Centre
100 Willis Street
Wellington 6011, New Zealand
+64 4 471 7000
wsp.com/nz

# TABLE OF CONTENTS


EXECUTIVE SUMMARY ..... II

INTRODUCTION ..... II

VEHICLES ..... II

ACTIVE TRAVEL ..... II

1 PROJECT BACKGROUND ..... 1

1.1 BACKGROUND ..... 1

1.2 PURPOSE ..... 1

2 DATA & ASSUMPTIONS ..... 2

2.1 DATA IDENTIFIED IN MONITORING PLAN ..... 2

2.2 AVAILABLE DATA ..... 3

2.2.1 TOMTOM DATA ..... 4

2.2.2 CROSSING DEMAND DATA ..... 4

2.2.3 TMS DATA ..... 4

2.2.4 VIDEO DATA ..... 4

2.3 ASSUMPTIONS ..... 5

3 FINDINGS ..... 6

3.1 VEHICLE FLOWS ..... 6

3.2 VEHICLE SPEEDS AND TRAVEL TIMES ..... 8

3.3 VEHICLE QUEUEING AND STOPPING BEHAVIOUR ..... 14

3.4 ACTIVE TRAVEL USE ..... 19

3.5 ACTIVE TRAVEL PERFORMANCE ..... 23

3.6 REVIEW OF KEY FINDINGS ..... 24

4 CONCLUSIONS ..... 25

4.1 VEHICLES ..... 25

4.2 ACTIVE TRAVEL ..... 25

5 LIMITATIONS ..... 26

# EXECUTIVE SUMMARY

## INTRODUCTION

A new signalised crossing for pedestrians and people on bikes was being constructed across SH1 Cobham Drive between the Troy Street roundabout and the intersection with Evans Bay Parade during 2022 and was opened to the public at the end of January 2023.

The purpose of this report is to document the monitoring undertaken.

## VEHICLES

Vehicle flows and vehicle travel times (and speeds) have been heavily influenced by Covid-19 restrictions and resulting changes in travel behaviour. As a result, it is difficult to draw any clear conclusions about the impact that the crossing has had on vehicle flows and travel times.

Vehicle queuing at the crossing is typically limited with slightly longer queues recorded on the weekend compared with the weekday, however no queues were recorded extending into the Troy Street roundabout during the two days of footage reviewed.

Vehicle stopping was typically good with some instances of stopping beyond the limit line, however, two instances of red-light running were identified during the two days of footage reviewed.

## ACTIVE TRAVEL

On average the crossing is used by 180-220 people per day. Approximately half of people using the crossing on the weekday and a third of people on the weekend did not activate the crossing for one or both legs of the crossing and instead crossed in a gap in traffic.

There are a higher proportion of people using the crossing travelling to or from the east (Miramar) compared with the west (Hataitai & City) and a higher proportion of people walking than those using a bike with limited numbers of scooters and other devices.

Total time (waiting + crossing) is less than 45 seconds for the majority of users and crossing time (which includes waiting in the median) is typically longer than waiting time for the first crossing movement.

# 1 PROJECT BACKGROUND

## 1.1 BACKGROUND

A new signalised crossing for pedestrians and people on bikes was being constructed across SH1 Cobham Drive between the Troy Street roundabout and the intersection with Evans Bay Parade during 2022 and was opened to the public at the end of January 2023.

Prior to the construction of the crossing (April 2022) the speed limits on adjacent sections of SH1 were lowered which may have also impacted on the travel time performance through the project area.

The design process identified several aspects that require monitoring following the opening of the crossing. This Monitoring Plan[1] set out the desired information to be monitored.

## 1.2 PURPOSE

The purpose of this report is to document the monitoring undertaken. Table 1 below identifies the specific elements that were to be identified (from the Monitoring Plan).

Table 1: Reason for monitoring

| Ref | Description | Reason for monitoring |
|---|---|---|
| 1 | Monitor speed of vehicles through crossing with both the short-term markings and the calcine bauxite surfacing (implemented approximately 6 months after opening). | Identified in road safety audits (detailed design December 2021 and preliminary design May 2021) |
| 2 | Monitor instances of vehicles failing to stop for signals / or late stopping | Identified in road safety audit (preliminary design May 2021) |
| 3 | Monitor instances of vehicles queuing across crossing blocking the path of pedestrians | Identified in road safety audit (preliminary design May 2021) |
| 4 | Monitor signal timings to ensure pedestrians are not unnecessarily delayed in the median | Identified in road safety audit (preliminary design May 2021) |
| 5 | Monitor queuing back from crossing towards / around Troy Street roundabout | Identified safety concern |
| 6 | Demand for the crossing (from pedestrians and people on bikes) | Public interest / justification for future improvements |
| 7 | Delays to vehicle users caused by the crossing | Public interest / justification for future improvements |
| 8 | Vehicle demand on SH1 and alternatives | Requested by Waka Kotahi |
| 9 | Determine origins and destinations for crossing users | Requested by Waka Kotahi, justify need (or otherwise) for shared path on west side of southern footpath |

[1] LGWM Cobham Crossing and Speed – Monitoring Plan, WSP, 2023

# 2 DATA & ASSUMPTIONS

## 2.1 DATA IDENTIFIED IN MONITORING PLAN

Table 2 below sets out the data requirements identified in the Monitoring Plan. At the time of preparing the monitoring plan, there was expected to be a delay between the opening of the crossing and the installation of the calcine bauxite high friction surfacing. As a result, three sets of post-construction data were envisaged, two weeks following opening, two weeks following application of the high friction surfacing and six months following construction.

The crossing was not opened without the application of the high-friction surfacing so one of those data sets was no longer required.

Table 2: Data identified in the monitoring plan

| Ref | Description | Data source | Reporting Metrics | Frequency |
|---|---|---|---|---|
| 1 | Speed of vehicles through crossing | Pneumatic loops or similar technology. | Average and 85th percentile travel speeds by day and time period | Pre and post construction |
| 6A | Demand for the crossing | Retrieve data logs from signal software for frequency of phases being called. | Frequency of pedestrian / cycle phase being called by day and time period | Post construction |
| 7 | Delays to vehicle users | Travel-time data on section of SH1. Data to be sourced from TomTom or similar. | Average and 85th percentile travel times by day and time period | Post construction |
| 8 | Vehicle demand on SH1 and alternatives | Pneumatic loops or similar technology | Average daily traffic and hourly flow profile by direction for weekdays and weekends for each of three sites to determine if there is a reduction in traffic on Cobham Drive compared to the adjacent sections. | Pre and post construction |
| 2 | Vehicles failing to stop for signals / or late stopping | Video data capture | Number of red-light runners by day and time period<br>Number of vehicles stopped past the limit line by day and time period | Post construction |
| 3 | Vehicles queuing across crossing blocking the path of pedestrians | Video data capture | Number of vehicles stopped between the cross-walk lines by day and time period | Post construction |

| Ref | Description | Data source | Reporting Metrics | Frequency |
|---|---|---|---|---|
| 4 | Signal timings for crossing users | Video data capture | Average time for users to cross from one side to the other (by direction) by day and time period | Post construction |
| 6 | Demand for the crossing | Video data capture | Frequency of pedestrian / cycle phase being called by day and time period<br>Number of pedestrians and cyclists to be counted for each crossing with key demographics to be noted (gender, age) | Post construction |
| 9 | Origins and destinations of crossing users | Video data capture | Number of users travelling between the following destinations:<br>• Tahitai path (west)<br>• Tahitai path (east)<br>• Alleyway to ASB / Tacy Street<br>• Southern footpath (west)<br>• Southern footpath (east)<br>Metrics should be recorded by user type (on foot or by bike), direction and by hour. | Post construction |
| 5 | Queuing back from crossing towards / around Troy Street | Video data capture | Frequency and duration of vehicles queuing back into the roundabout circulation lanes by day and time period | Post construction |

## 2.2 Available Data

Not all of the data originally proposed was captured. As a result, some of the proposed monitoring has been revised based on the available data. Table 3 Below summarise the changes to data based on the information provided.

Table 3: Available data

| Ref | Description | Change from monitoring plan |
|---|---|---|
| 1 | Speed of vehicles through crossing | Data sourced from TomTom to provide average corridor speed pre and post construction |
| 6A | Demand for the crossing | Data provided for one period post construction |
| 7 | Delays to vehicle users | Data sourced from TomTom to provide average corridor travel times pre and post construction |
| 8 | Vehicle demand on SH1 and alternatives | TMS data from SH1 Cobham Drive (site reference 01N01078) extracted pre and post construction |

| Ref | Description | Change from monitoring plan |
|---|---|---|
| 2 | Vehicles failing to stop for signals / or late stopping | Video data provided for one period post construction |
| 3 | Vehicles queuing across crossing blocking the path of pedestrians | Video data provided for one period post construction |
| 4 | Signal timings for crossing users | Video data provided for one period post construction |
| 6 | Demand for the crossing | Video data provided for one period post construction |
| 9 | Origins and destinations of crossing users | Video data provided for one period post construction, not all movements are able to be observed from the CCTV camera's viewpoint |
| 5 | Queuing back from crossing towards / around Troy Street | Video data provided for one period post construction |

### 2.2.1 TOMTOM DATA

Travel time data was extracted from TomTom for four routes:

— Calabar Road / Broadway roundabout to Ngauranga interchange (and the reverse trip)

— Hobart Street / Park Road / Miramar Avenue roundabout to Willis Street (and the reverse trip)

Data was extracted for the following two time periods:

— 1 March 2021 – 31 July 2021 (pre construction)

— 1 March 2023 – 31 July 2023 (post construction)

Travel time data was used to calculate average speed along the four routes.

### 2.2.2 CROSSING DEMAND DATA

Signals data was provided for the crossing to identify the number of times the pedestrian / cyclist phases were called at the crossing.

The data was provided for the following periods:

— 4-18 February 2023 (post construction)

— 10-24 June 2023 (post construction).

### 2.2.3 TMS DATA

Daily TMS data was extracted for site reference 01N01078 (which is adjacent to the crossing) for the period from 2019 to June 2023 from the Waka Kotahi open data portal.

### 2.2.4 VIDEO DATA

Two weeks of video footage (Sunday 11 June – Saturday 24 June 2023, 6am-9pm each day) was recorded from the CCTV camera (refer Figure 1) at the crossing. The following two days of video footage were analysed.

— Wednesday 21 June 6am-9pm

— Saturday 24 June 6am-9pm.

As can be seen by the viewpoint in Figure 1, not all elements of the crossing are clearly visible including the signal aspects for westbound traffic and the waiting area on the southern side of the crossing. As such the analysis undertaken has worked within these limitations.

Figure 1: Viewpoint from CCTV camera

## 2.3 ASSUMPTIONS

The following key assumptions have been made in analysing the data identified above:

- The data provided / extracted / analysed is representative of the period in question
- The Covid-19 restrictions on travel behaviour have not significantly influenced the travel behaviour and demand for the periods analysed.

The data source with the highest risk of being influenced by Covid-19 is the pre-construction travel time data from TomTom for the period 1 March 2021 – 31 July 2021. The presence of Covid-19 restriction may have led to fewer vehicles on the road and therefore faster travel times during this period.

# 3 FINDINGS

## 3.1 VEHICLE FLOWS

Figure 2 below shows the average daily vehicle flow per month between January 2019 and June 2023[2]. Figure 3 shows a subset of the average daily vehicle flow per month between January 2021 and June 2023.

The data indicates:

- Traffic flows have not returned to pre Covid-19 (2019) levels,
- Noticeable reductions in traffic flows occurred in the first half of 2020 and the end of 2021 / start of 2022 and are assumed to be related to Covid-19 restrictions,
- There are seasonal variations in traffic flows with lower daily flows in January and February, and
- Traffic flows have not reduced noticeably following opening of the crossing.

The analysis shows that traffic flows adjacent to the site have changed as a result of Covid-19 and while it is difficult to draw clear conclusions, it does not appear that traffic flows have reduced as a result of the crossing becoming operational.

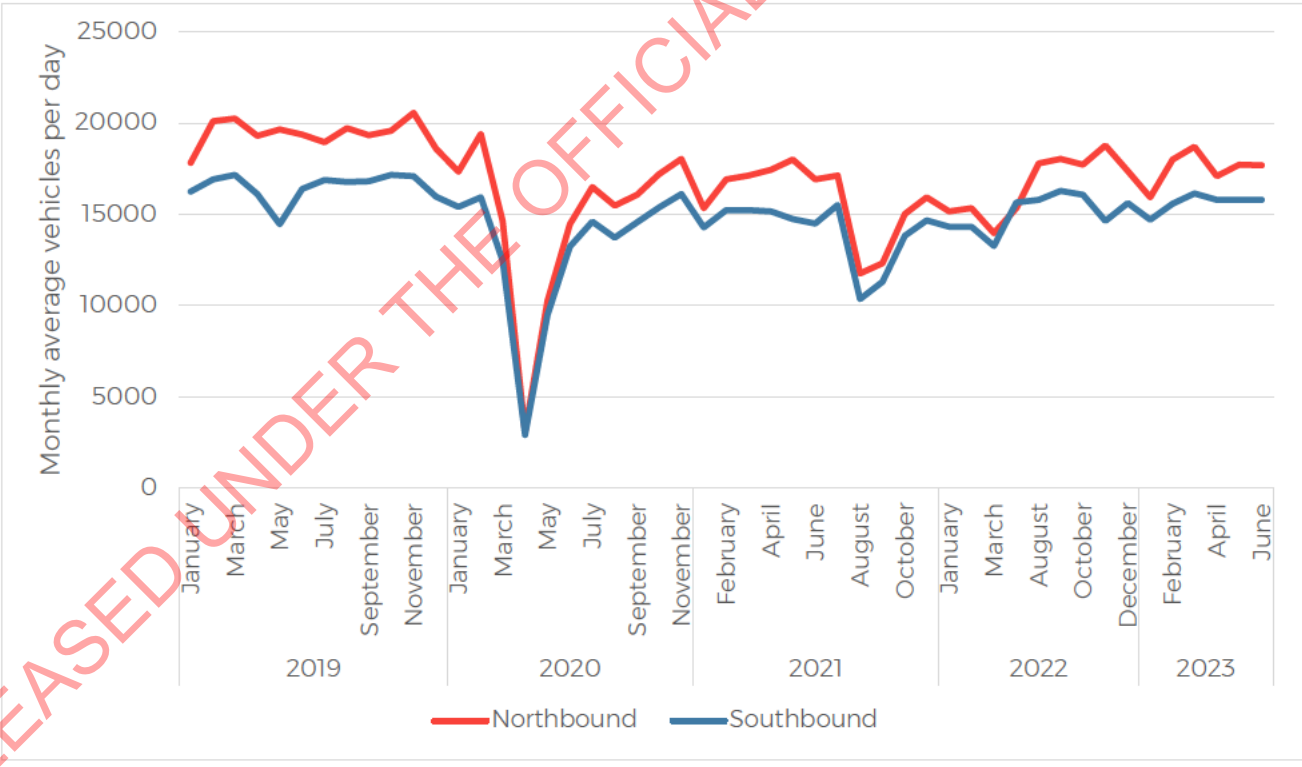


Figure 2: Average vehicles per day (2019-2023)

[2] Months with incomplete data have been removed from the data-set

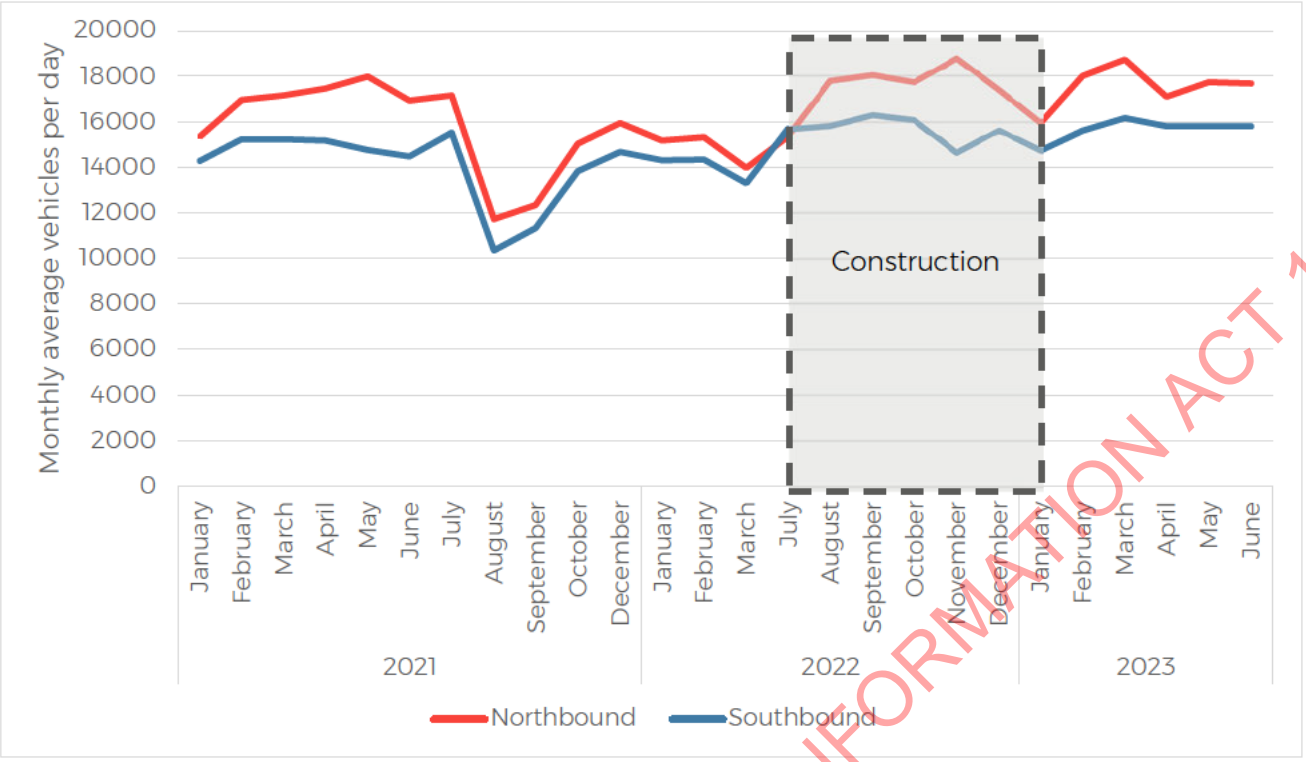


Figure 3: Average vehicles per day (2021-2023)

## 3.2 VEHICLE TRAVEL TIMES AND SPEEDS

Table 3 below shows the travel time ranges for two north-south routes which pass through the crossing area. Three different time periods were considered:

- Jan-Dec 2019 (pre-Covid and pre-construction)
- March 2021 –July 2021 (pre-construction but Covid impacts)
- March 2023 –July 2023 (post -construction with post-Covid behaviours)

Figure 4 - Figure 7 below show the travel times by time of day for the different directions for weekday and weekend for the Miramar to Willis Street route.

Table 4: Travel time (minutes) range from TomTom data[3]

| Route | Time Period | Southbound | | | Northbound | | |
|---|---|---|---|---|---|---|---|
| | | 2019 | 2021 | 2023 | 2019 | 2021 | 2023 |
| Airport to Ngauranga[4] | Early hours | 7.3 - 8.1 | 6.9 - 7.7 | 7.4 - 8.4 | 7.4 - 8.5 | 7.3 - 8.5 | 7.9 - 9.5 |
| | Weekday AM | 12.1 - 16.3 | 12.5 - 17.6 | 12.1 - 16.5 | 21.1 - 33.8 | 17.2 - 27.3 | 15.5 - 23.6 |
| | Weekday midday | 11.3 - 14.9 | 11.4 - 15.7 | 11.1 - 14.7 | 11.2 - 14.9 | 11.1 - 15.5 | 11 - 14.8 |
| | Weekday PM | 15.9 - 24.3 | 15.3 - 23.4 | 13.8 - 19.7 | 17.2 - 27.5 | 16 - 26.2 | 16.2 - 26.2 |
| | Weekend peak | 14.3 - 21.3 | 13.8 - 20.7 | 14 - 20.2 | 15.6 - 23.9 | 16 - 25.1 | 17.2 - 28.2 |
| Miramar to Willis Street[5] | Early hours | 11.9 - 13.4 | 12.5 - 13.9 | 13 - 14.7 | 11.8 - 13.3 | 12.6 - 14.3 | 13.3 - 15.2 |
| | Weekday AM | 24.4 - 35.1 | 27.8 - 40 | 27.3 - 39.4 | 25 - 38 | 24.3 - 35.9 | 22.5 - 31.8 |
| | Weekday midday | 16.8 - 22 | 19 - 25.9 | 18.3 - 23.8 | 15.1 - 18.9 | 16.5 - 21.2 | 16.5 - 20.4 |
| | Weekday PM | 24.2 - 36.1 | 26.3 - 38 | 23.8 - 32.7 | 23.9 - 37.7 | 25.7 - 40.8 | 24.7 - 37.5 |
| | Weekend peak | 22.2 - 32.9 | 25.1 - 37 | 24.6 - 35.3 | 19.3 - 27.6 | 22 - 31.4 | 23.3 - 34.8 |

The table above and figures below show no consistent patterns of changes in travel times through the project area. The following observations are made:

- There has been limited change in travel times in the southbound direction across the three time periods both on weekdays and weekends,

[3] Ranges are based on the difference between the mean speed and the 85th percentile speed
[4] Calabar Road / Broadway roundabout to Ngauranga interchange
[5] Hobart Street / Park Road / Miramar Avenue roundabout to Willis Street

- In the northbound direction:
  - The AM peak (weekday) shows travel times have improved across the three periods (lowest travel times in 2023),
  - The PM peak (weekday) shows travel times are similar in 2023 to 2019,
  - The weekend peak travel times have worsened across the three periods (longest travel times in 2023).

It is difficult to identify a clear conclusion about whether the crossing has had an impact on travel times through the area. As noted above, traffic flows adjacent to the site have changed because of Covid-19. Covid-19 restrictions changed travel patterns, some of those behavioural changes have remained following the removal of restrictions including more working from home which makes drawing conclusions challenging.

In addition to the changes in travel behaviour, there are various constraints to traffic flow (and travel times) along the SH1 corridor such as the capacity through the Mount Victoria tunnel and around the Basin Reserve. As a result, it is difficult to attribute changes in travel time to a specific location.

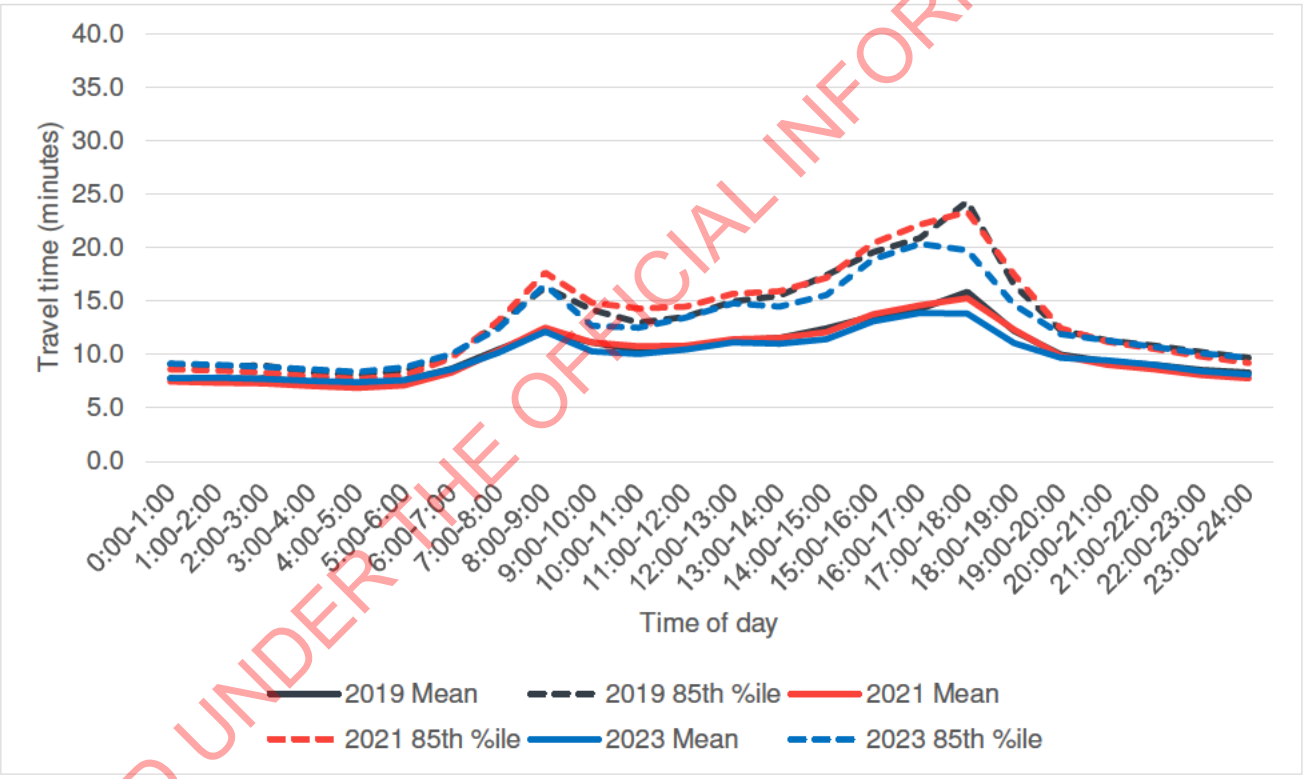


Figure 4: Travel times from TomTom for Miramar to Willis Street – southbound on weekdays

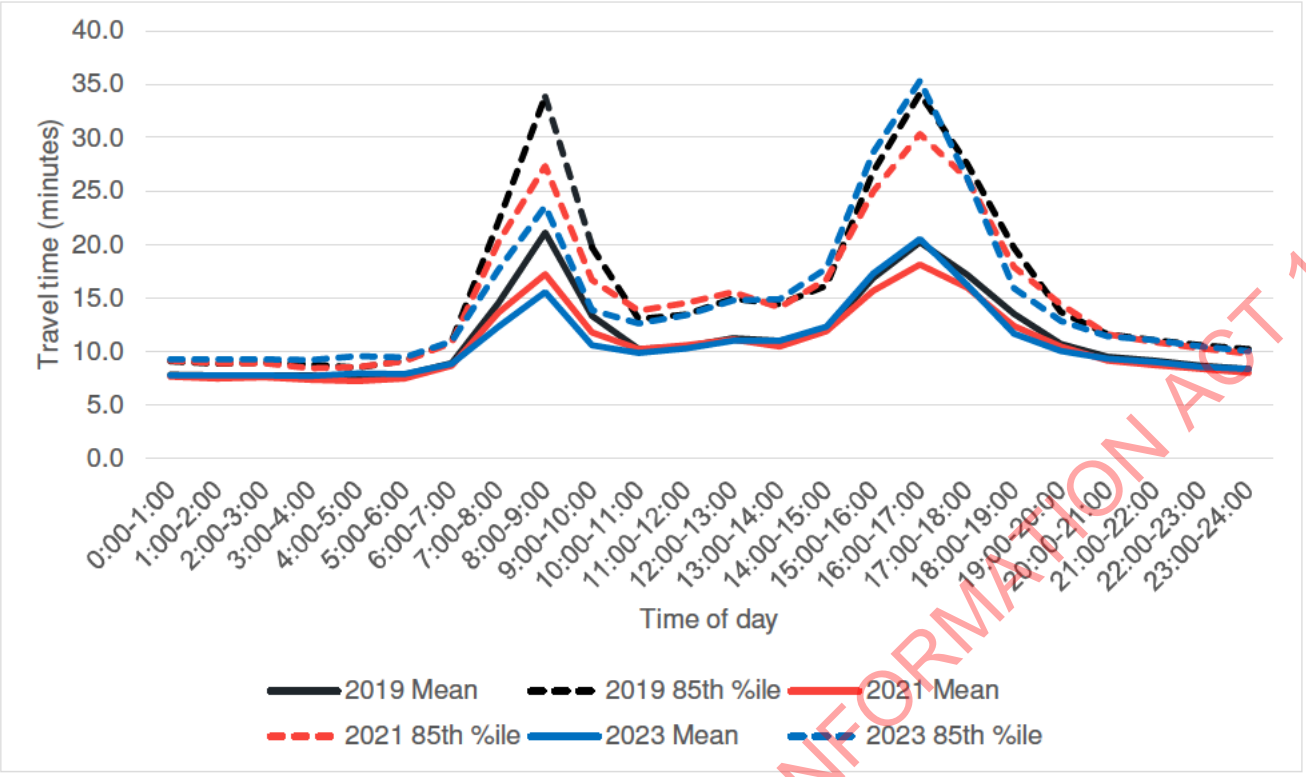


Figure 5: Travel times from TomTom for Miramar to Willis Street – northbound on weekdays

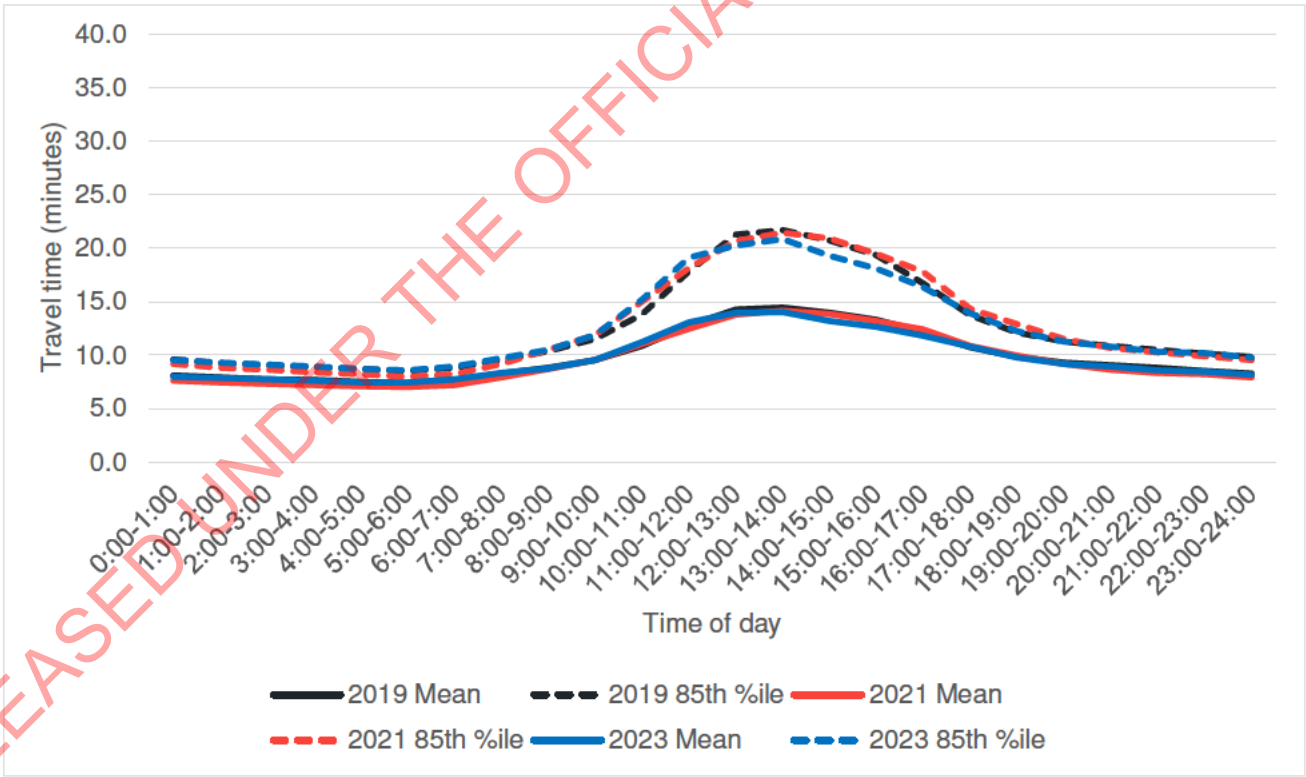


Figure 6: Travel times from TomTom for Miramar to Willis Street – southbound on weekends

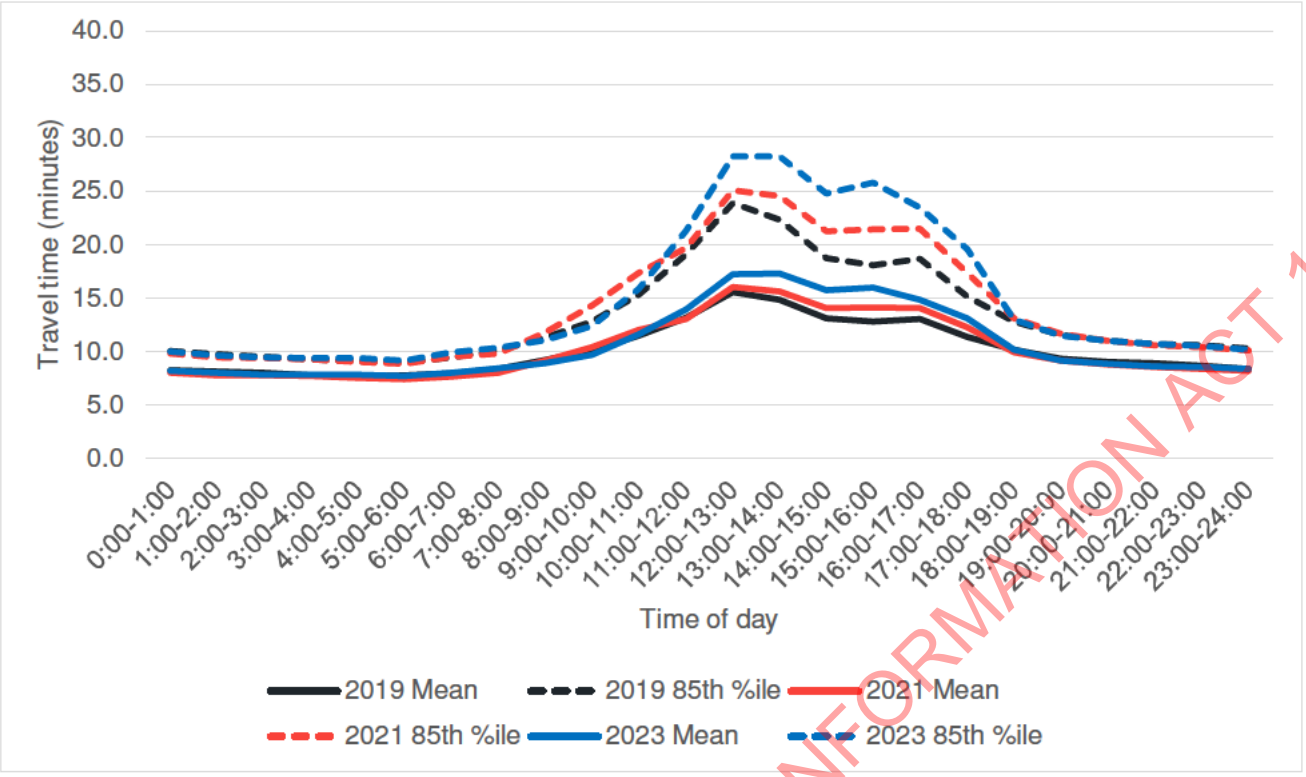


Figure 7: Travel times from TomTom for Miramar to Willis Street – northbound on weekends

Speeds are the inverse of travel times and therefore similar conclusions apply to the speeds along the routes. Figure 8 - Figure 11 below show the travel times by time of day for the different directions for weekday and weekend for the Miramar to Willis Street route.

The figures below show no consistent patterns of changes in vehicle speeds through the project area. The following observations are made:

- There has been limited change in vehicle speeds in the southbound direction across the three time periods both on weekdays and weekends,
- In the northbound direction:
  - The AM peak (weekday) shows vehicle speeds have improved across the three periods (fastest vehicle speeds in 2023),
  - The PM peak (weekday) shows vehicle speeds are similar in 2023 to 2019,
  - The weekend peak vehicle speeds have worsened across the three periods (slowest vehicle speeds in 2023).

It is difficult to identify a clear conclusion about whether the crossing (and speed limit changes) have had an impact on vehicle speeds through the area. As noted above, traffic flows adjacent to the site have changed because of Covid-19. Covid-19 restrictions changed travel patterns, some of those behavioural changes have remained following the removal of restrictions including more working from home which makes drawing conclusions challenging.

In addition to the changes in travel behaviour, there are various constraints to traffic flow (and vehicle speeds) along the SH1 corridor such as the capacity through the Mount Victoria tunnel and around the Basin Reserve. As a result, it is difficult to attribute changes in vehicle speeds to a specific location.

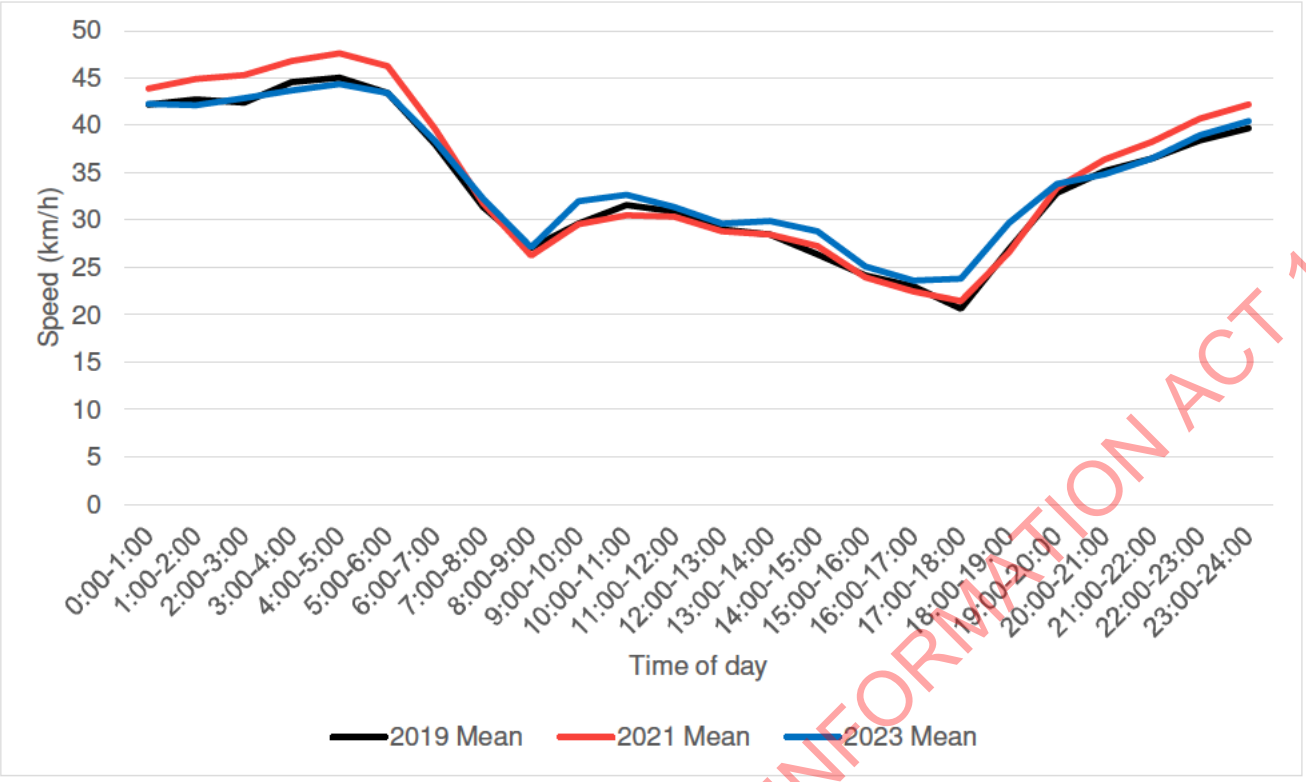


Figure 8: Average speeds from TomTom for Miramar to Willis Street – southbound on weekdays

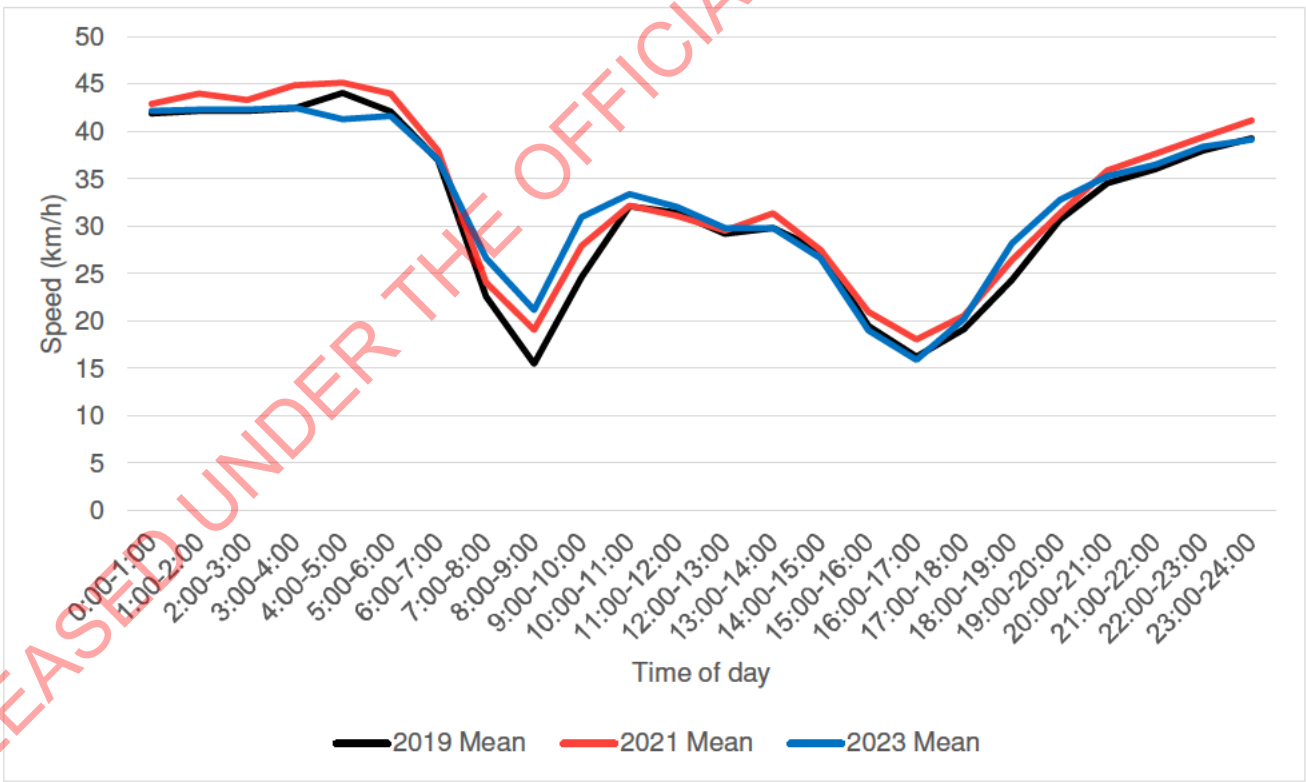


Figure 9: Average speeds from TomTom for Miramar to Willis Street – northbound on weekdays

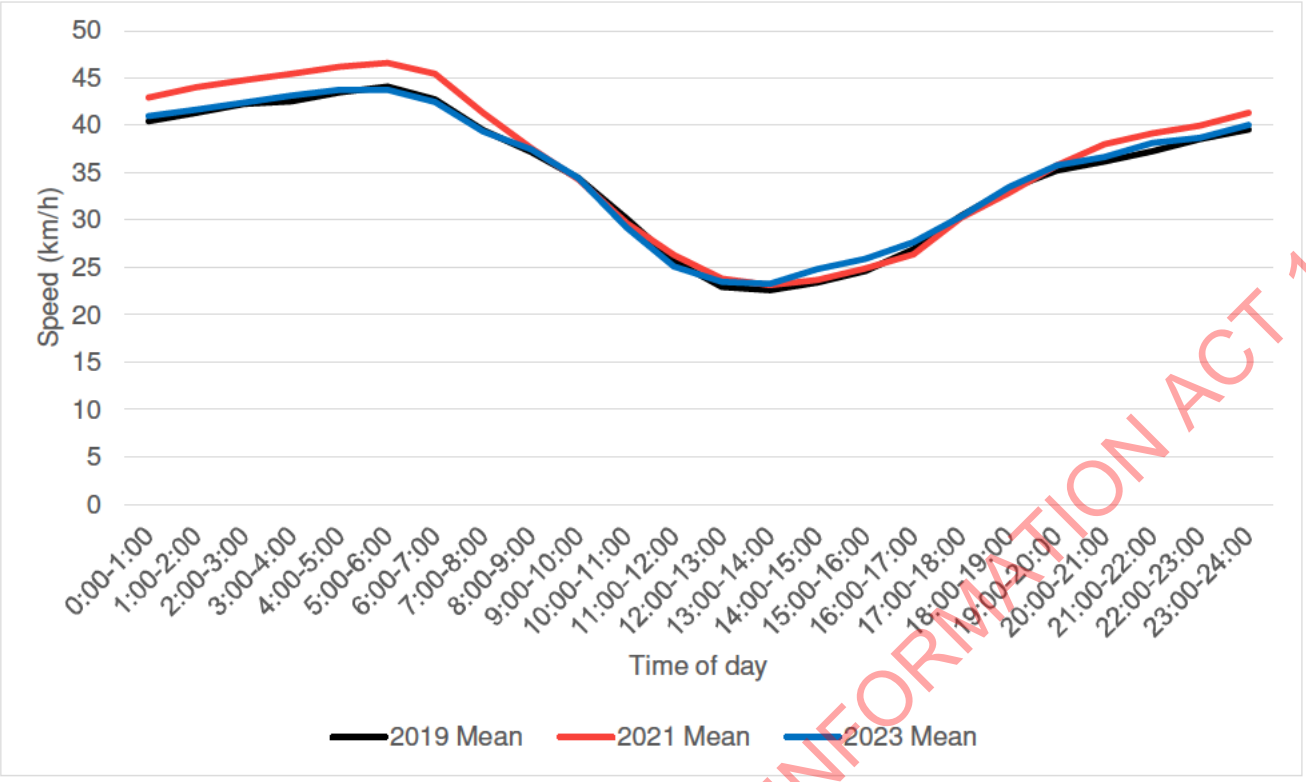


Figure 10: Average speeds from TomTom for Miramar to Willis Street – southbound on weekends

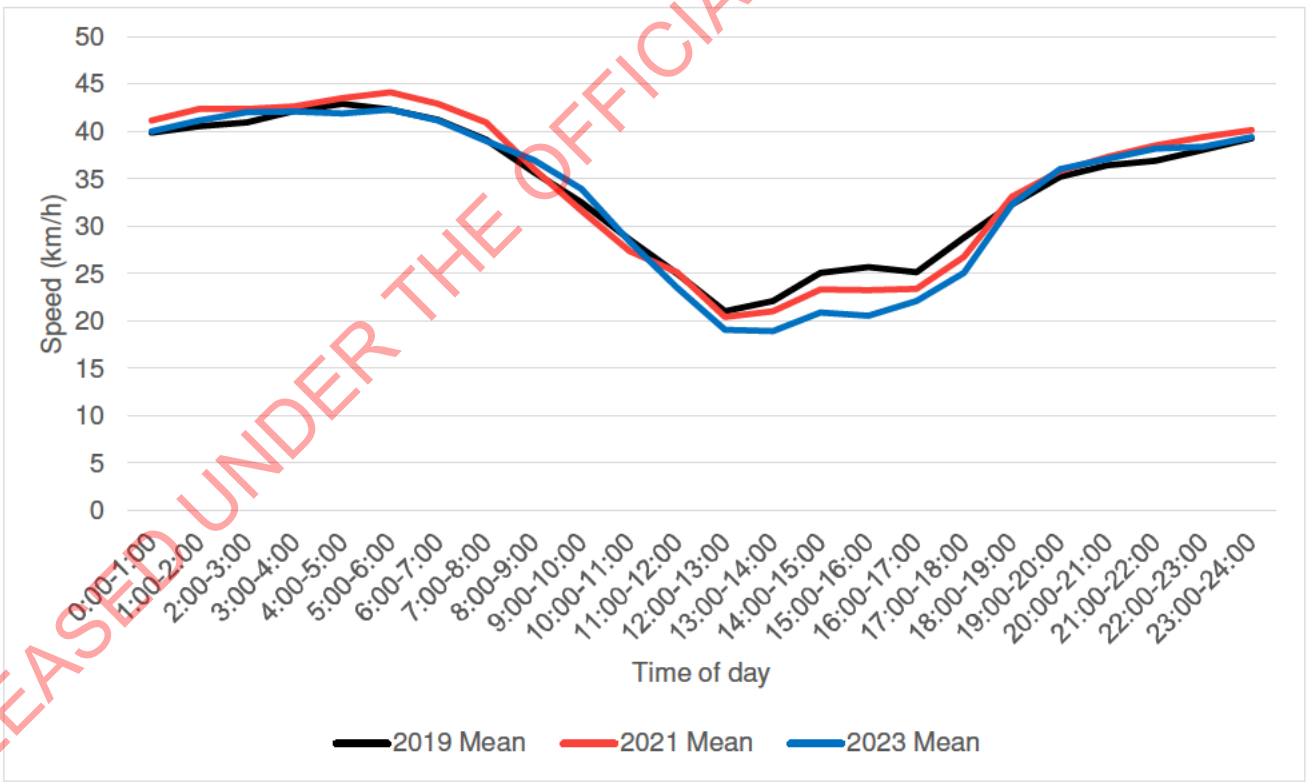


Figure 11: Average speeds from TomTom for Miramar to Willis Street – northbound on weekends

## 3.3 VEHICLE QUEUEING AND STOPPING BEHAVIOUR

Figure 12 below shows the distribution of average vehicles queued per lane in the westbound direction from the video data analysis. The eastbound direction was not able to be captured due to the view of the camera.

The figure indicates that the majority of occasions that vehicles are stopped by the crossing, queuing does not exceed more than five vehicles per lane. Weekday and weekend distributions are largely similar with a slightly wider distribution on the weekend.

The maximum average queue per lane identified was 17 vehicles which, based on 7m per vehicle, equates to a queue of around 120m. The distance from the crossing to the roundabout is approximately 150m. Due to the position and angle of the camera, for longer queues it was difficult to determine which vehicles were completely stopped.

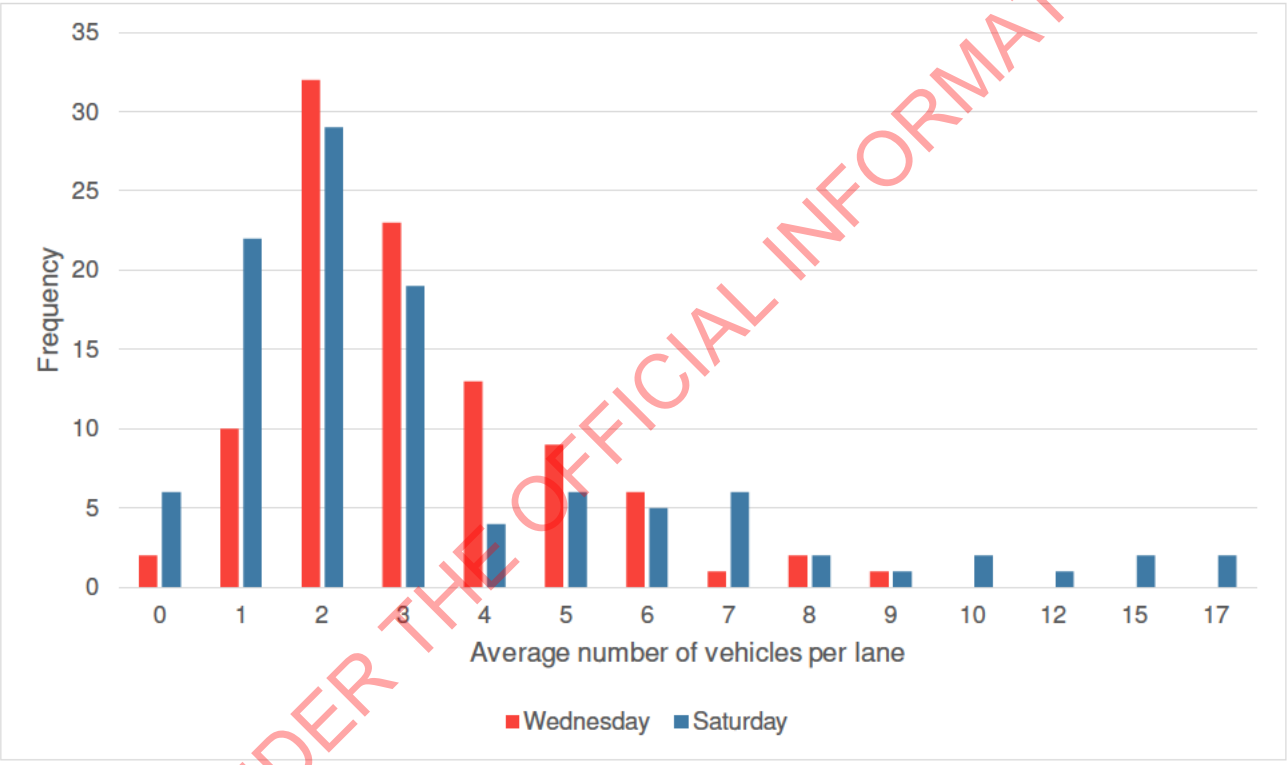


Figure 12: Average vehicles queued per lane westbound when signal turns green

Further analysis showed that queues of 10 vehicles or more (average per lane) only occurred between 11am and 1pm on Saturday. This time period was also when queues back through the crossing from downstream constraints were noted. Figure 13 below shows stopped vehicles in a queue extending back from a constraint downstream of the crossing. Therefore, although the long queues are recorded when the crossing was operated they are primarily due to downstream constraints.

Figure 13: Vehicles queued from downstream constraint (Saturday at around 11.45am)

Figure 14 shows the number of vehicles stopped / queued in front of the limit line by direction and day of week as captured from the video analysis. The purpose of capturing this data was to understand whether there was an issue with vehicles slowing down in time for the crossing.

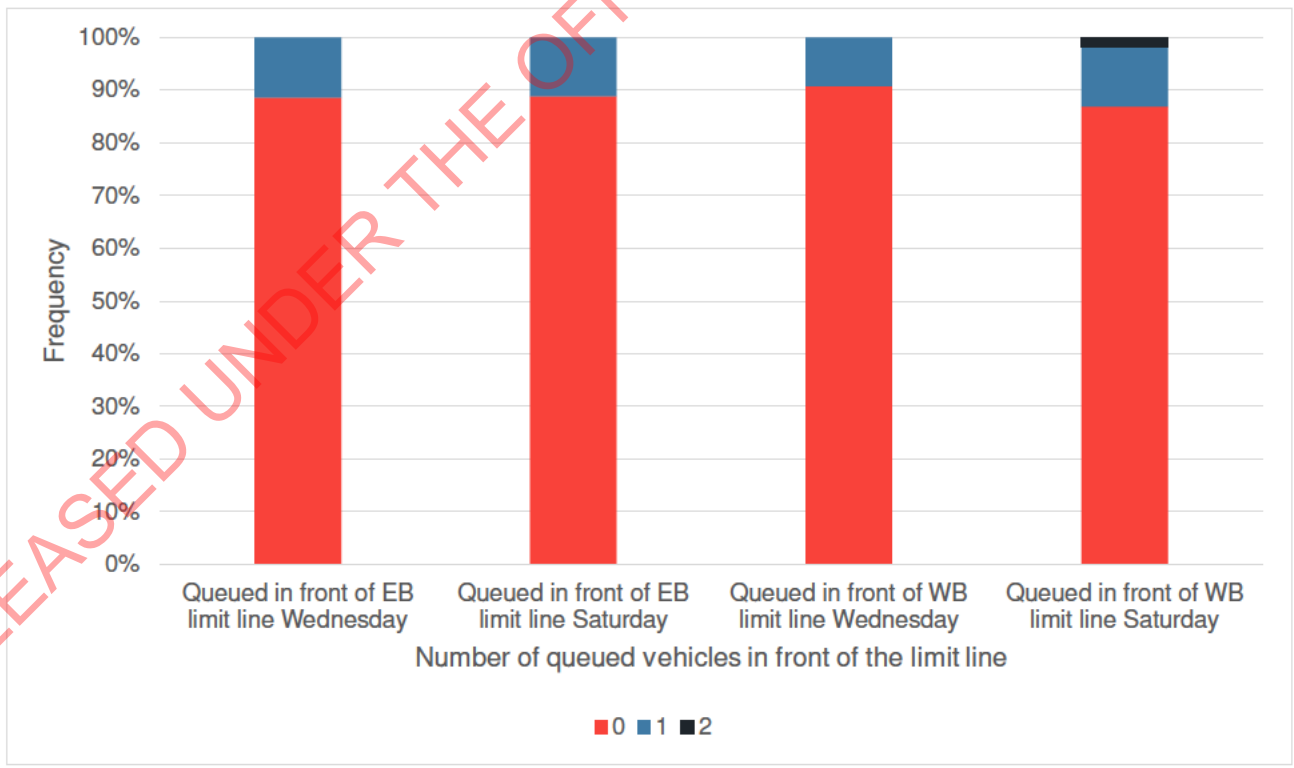


Figure 14: Number of vehicles queued in front of the limit line by direction and day

The figure indicates that in approximately 10% of instances a vehicle was recording as being queued in front of the limit line. There does not appear to be a significant difference by day of week or direction of travel. Figure 15 below shows an example of where a vehicle is queued in front of the limit line due to waiting in a queue from a downstream constraint and Figure 16 shows an example of where a vehicle is queued in front of the limit line due to late stopping for the crossing. In some instances vehicles were noticed to creep forward in anticipation of the signal changing to green.

Figure 15: Vehicles queued in front of limit line (Saturday at around 11.50am)

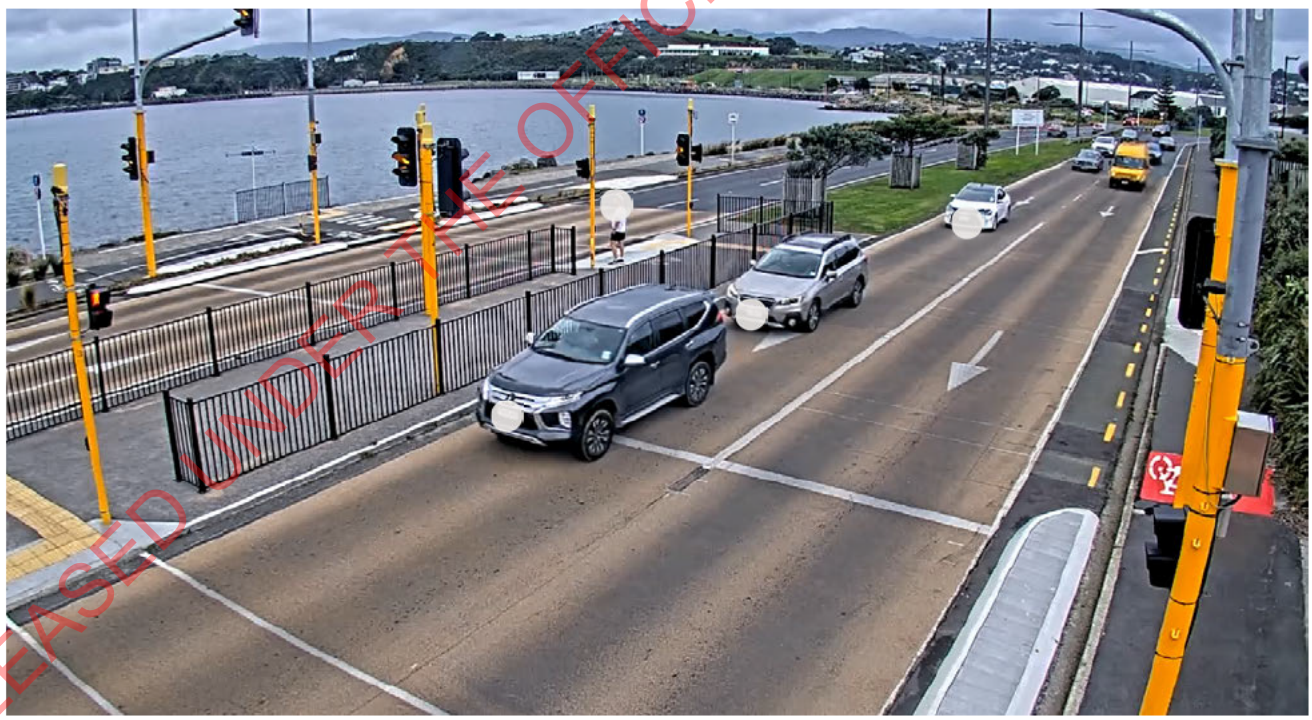

Figure 16: Vehicles queued in front of limit line (Saturday at around 10.30am)

Figure 17 below shows that two vehicles were identified as running a red light on each of the two days analysed. All the instances occurred in the eastbound direction. It should be noted that the westbound signals are not visible from the camera, so the assessment was based on the crossing signal display.

Figure 18 and Figure 19 below show the red-light runners, in the Saturday occurrence the crossing user had crossed prior to the signal changing to red for vehicles. In the Wednesday occurrence the vehicle ran the red signal while a user was waiting to cross but the vehicle passed the crossing within the all red time (Figure 19 shows the point in time when the crossing signal changed to green for the crossing user.

One potential incident per day equates to approximately 0.5% of users being out at risk (refer crossing use information in section 3.4 below). In both instances, the vehicles did not appear to be travelling significantly above the posted speed limit of 60km/h (based on judgment as accurate speed information was not available). A potential incident between a crossing user and a vehicle travelling at speeds over 30km/h has a higher potential for serious injury or death to result.

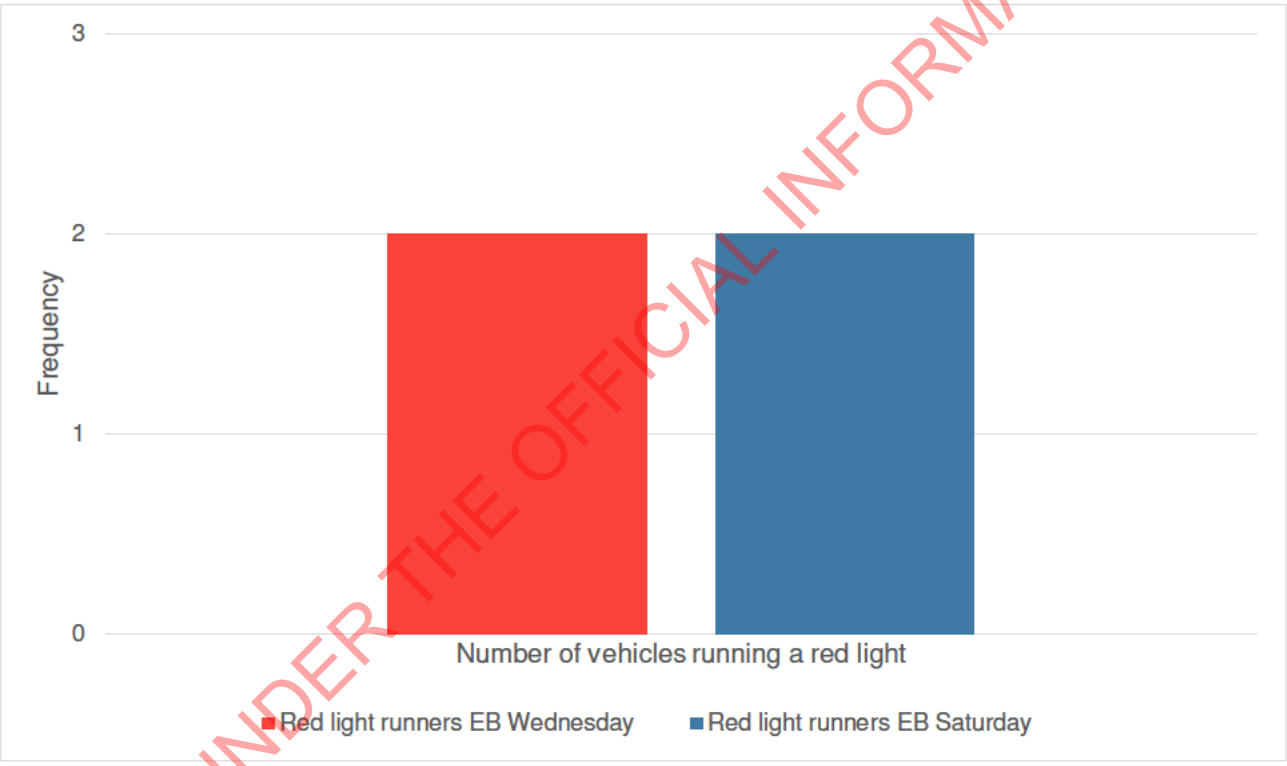


Figure 17: Number of red light runners by day

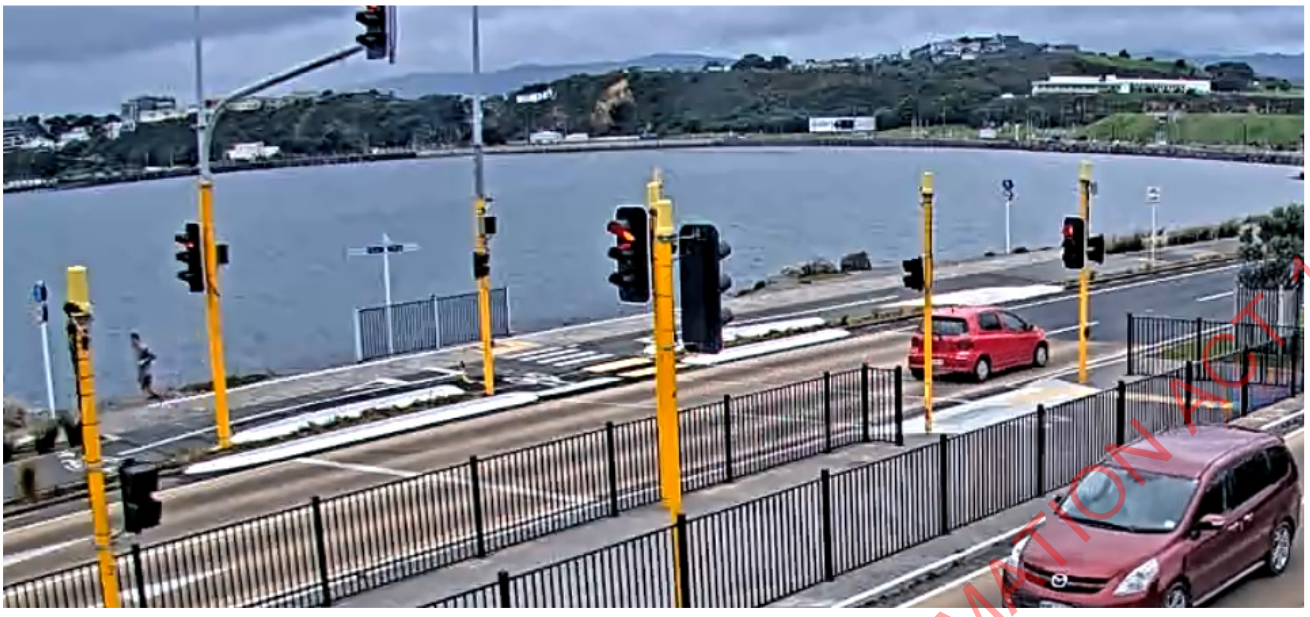

Figure 18: Eastbound vehicle running a red light (Saturday at around 10.15am)

Figure 19: Eastbound vehicle running a red light (Wednesday at around 5.00pm)

## 3.4 ACTIVE TRAVEL USE

Figure 20 below shows the average number of crossing activations per day recorded in the signal control system.

The data indicates:

- On average the crossing is activated 80-100 times per day,
- February and June data is typically similar except for Saturdays where June has higher demand (which is expected to be related to winter sports taking place at Ākau tangi).

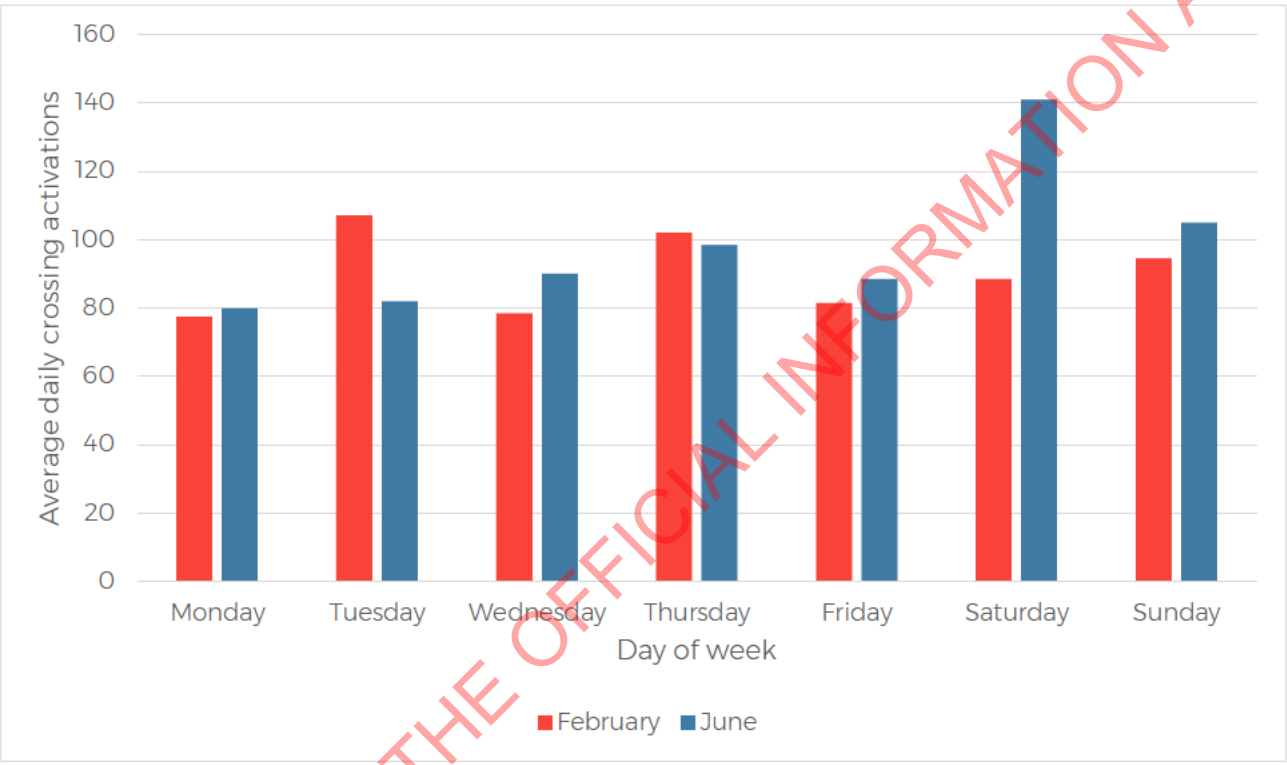


Figure 20: Average daily crossing activations

Figure 21 below shows the total number of people using the crossing by day of the week (from the video analysis) and also shows how many of those people activated the crossing.

The data indicates:

- On average the crossing is used by 180-220 people per day (compared to the 80-100 activations recorded by the system shown in Figure 20),
- Approximately half of people using the crossing on the weekday and a third of people on the weekend did not activate the crossing for one or both legs of the crossing and instead crossed in a gap in traffic,
- 13 people were identified as crossing the road directly adjacent to the crossing in the grass area to the east of the crossing.

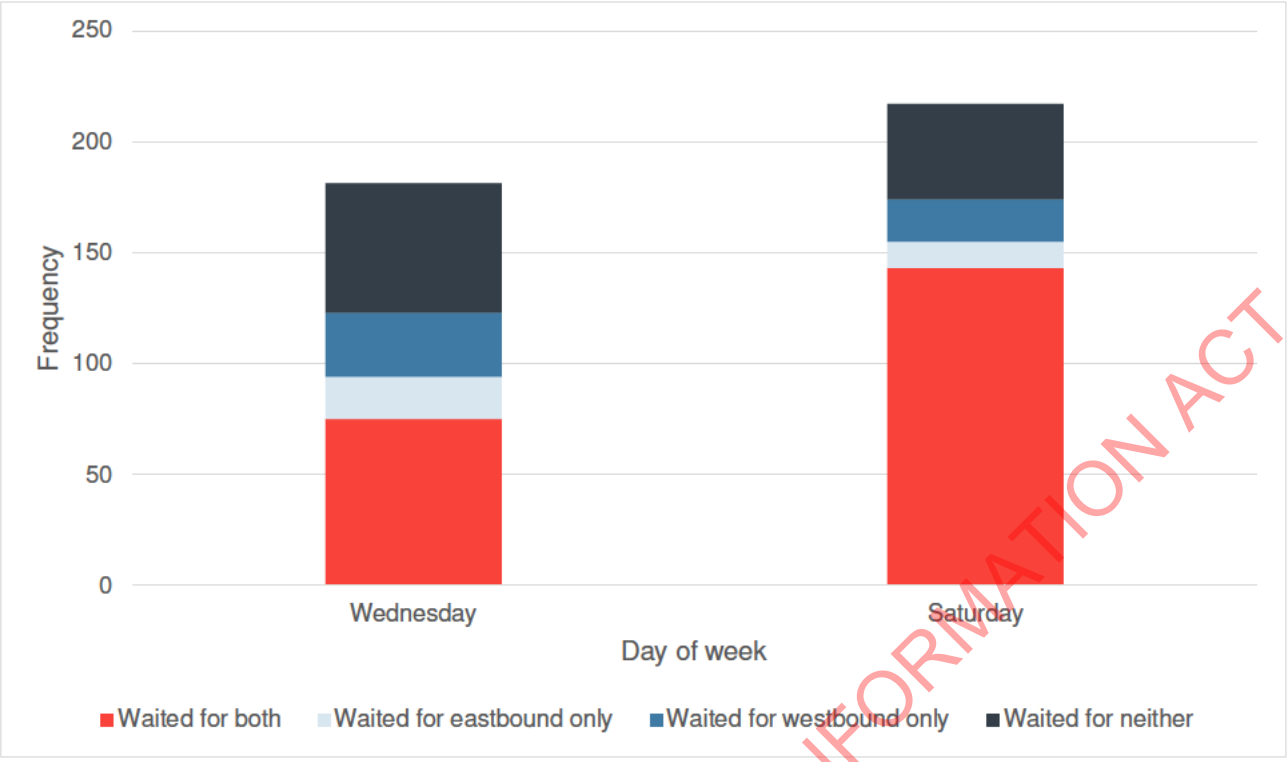


Figure 21: Number of people who wait for the crossings by day of week

Figure 22 below shows the average number of crossing activations per day recorded in the signal control system. Activations throughout the day follow typical urban transport patterns with noticeable commuter peaks in the morning and afternoon / evening and a midday peak in the weekend.

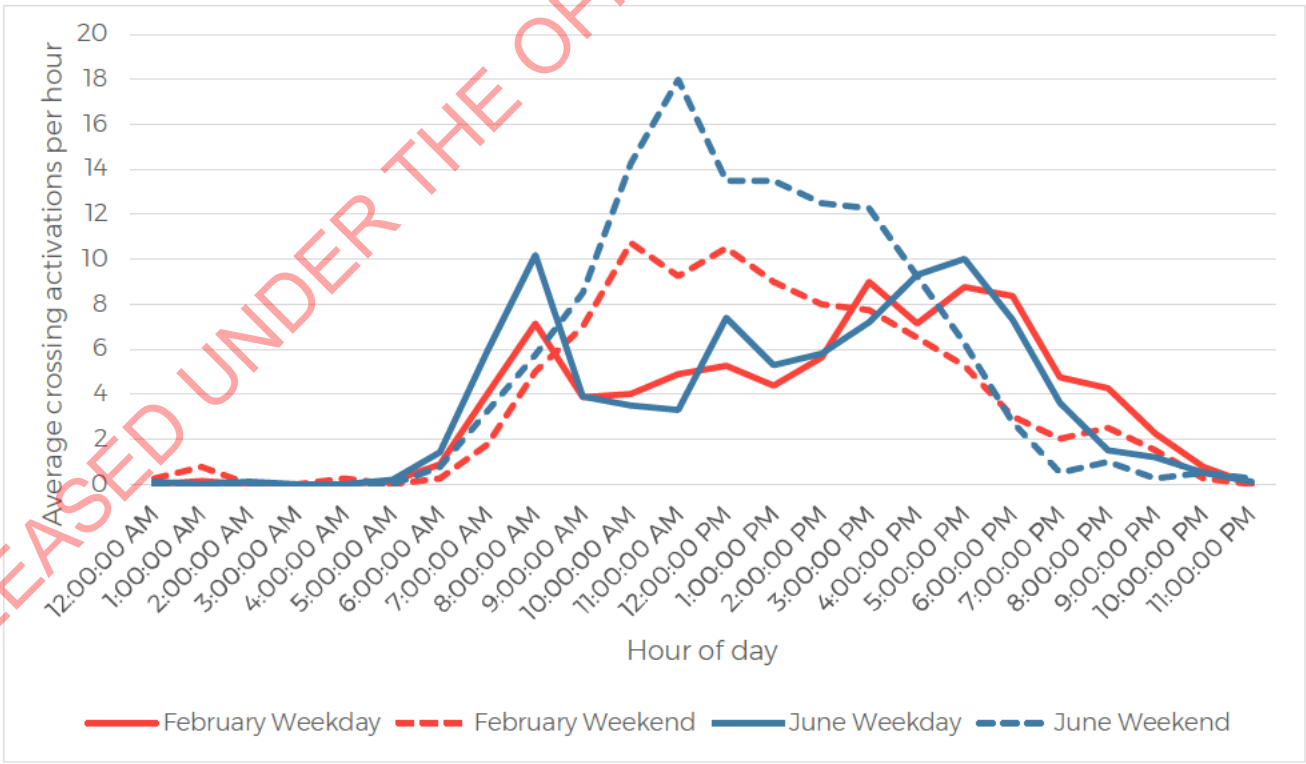


Figure 22: Average crossing activations by time of day

Figure 23 below shows the number of people crossing the road from the two days of video analysis and reflects similar patterns to the activations recorded in the control system shown in Figure 22.

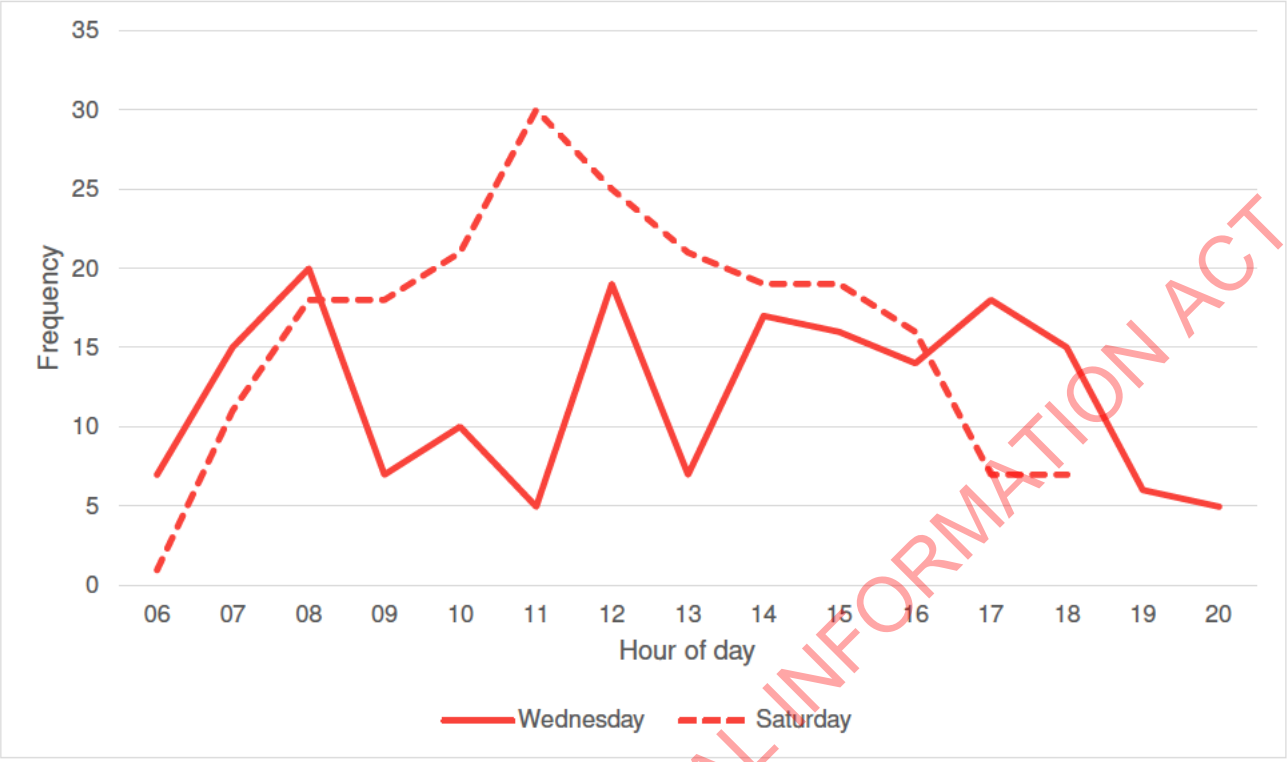


Figure 23: Number of people crossing the road by time of day

Figure 24 and Figure 25 below show some key route choice and demographic information about the people using the crossing.

The data indicates:

- There are a higher proportion of people using the crossing travelling to or from the east (Miramar) compared with the west (Hataitai & City),
- The majority of users are estimated to be between 18 and 65, with a higher proportion of those estimated to be under 18 travelling to or from the east,
- There were a higher proportion of people walking than those using a bike with limited numbers of micro-mobility and other devices,
- There was a higher proportion of people estimated to be male using the crossing than those estimated to be female.

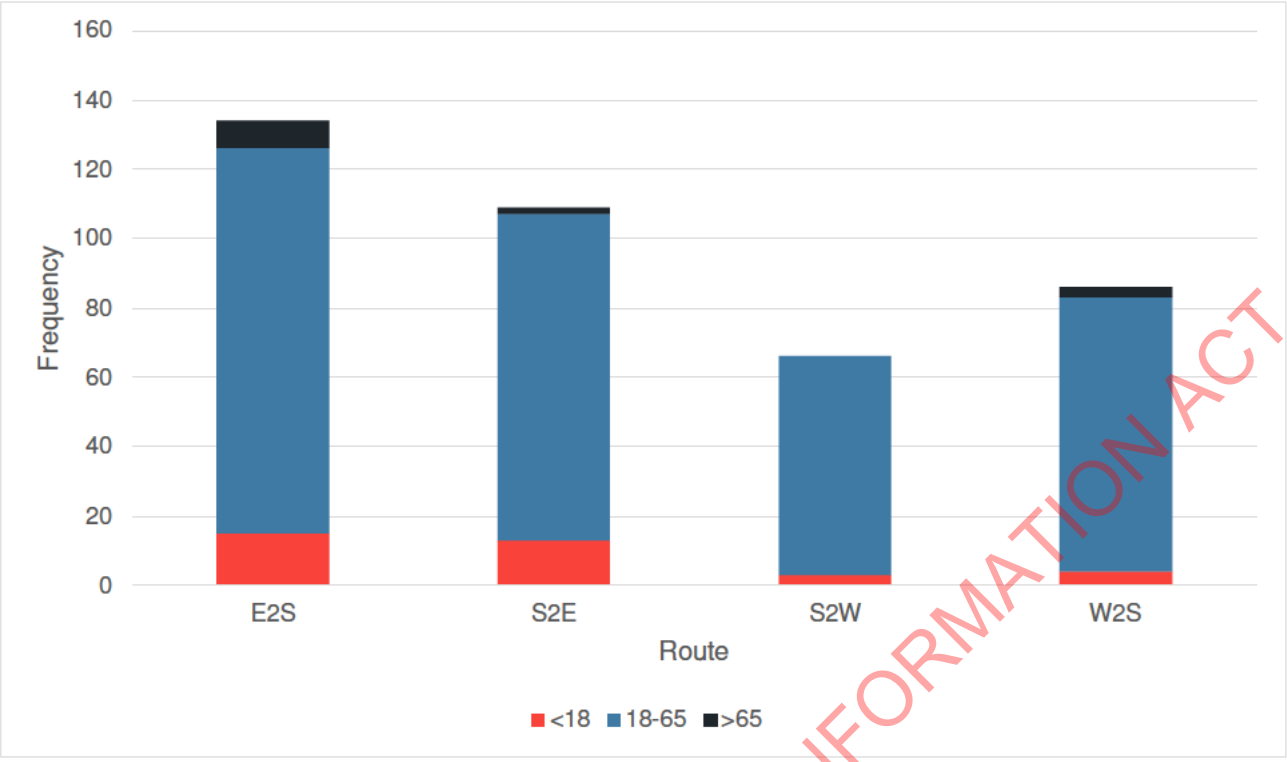


Figure 24: Route taken and age of people using the crossing (E2S = east to south, S2E = south to east, S2W = south to west and W2S = west to south)

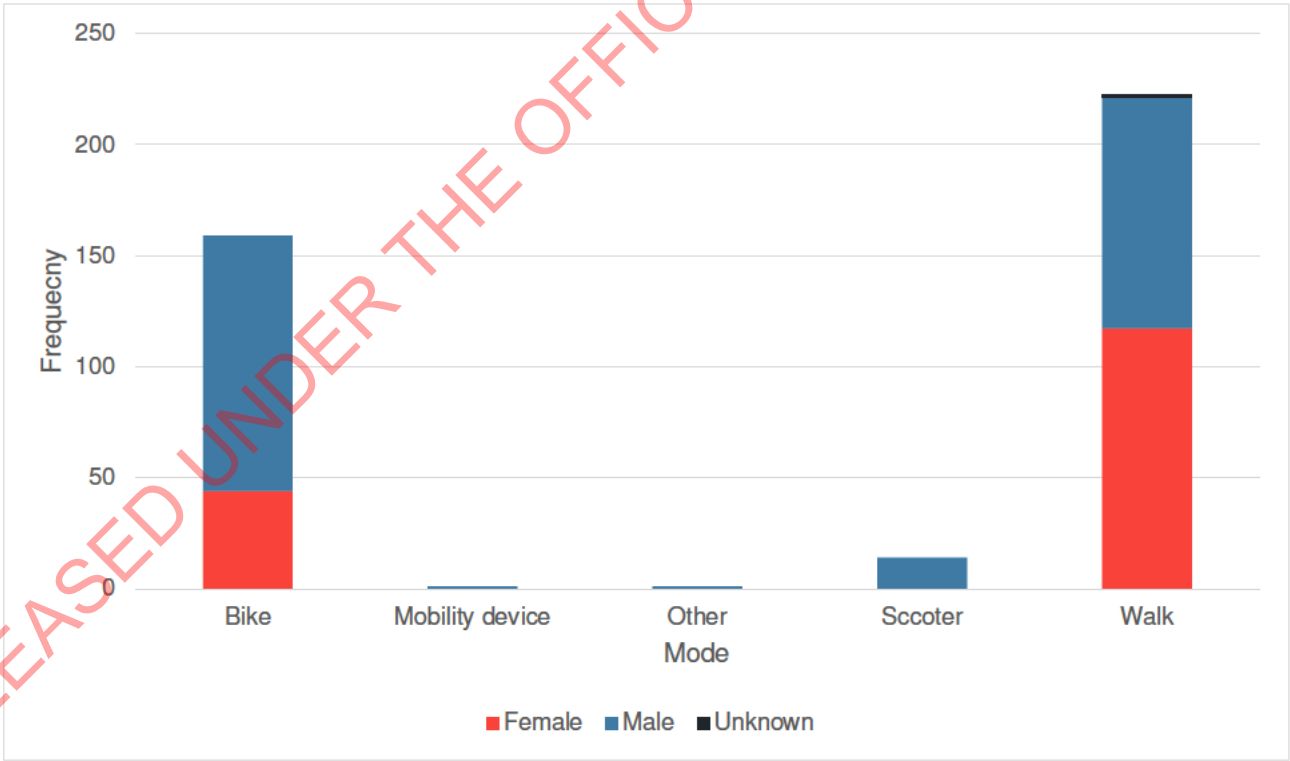


Figure 25: Mode of transport used by people using the crossing

## 3.5 ACTIVE TRAVEL PERFORMANCE

Figure 26 shows the distribution of waiting time and crossing time estimated from the video analysis for a weekday and weekend.

The data indicates:

- Total time (waiting + crossing) is less than 45 seconds for the majority of users,
- Crossing time (which includes waiting in the median) is typically longer than waiting time for the first crossing movement,
- Two instances were identified where the person crossing was too slow to make the second crossing which was activated by the signal call ahead function and had to wait for another signal cycle before they could make the second crossing.

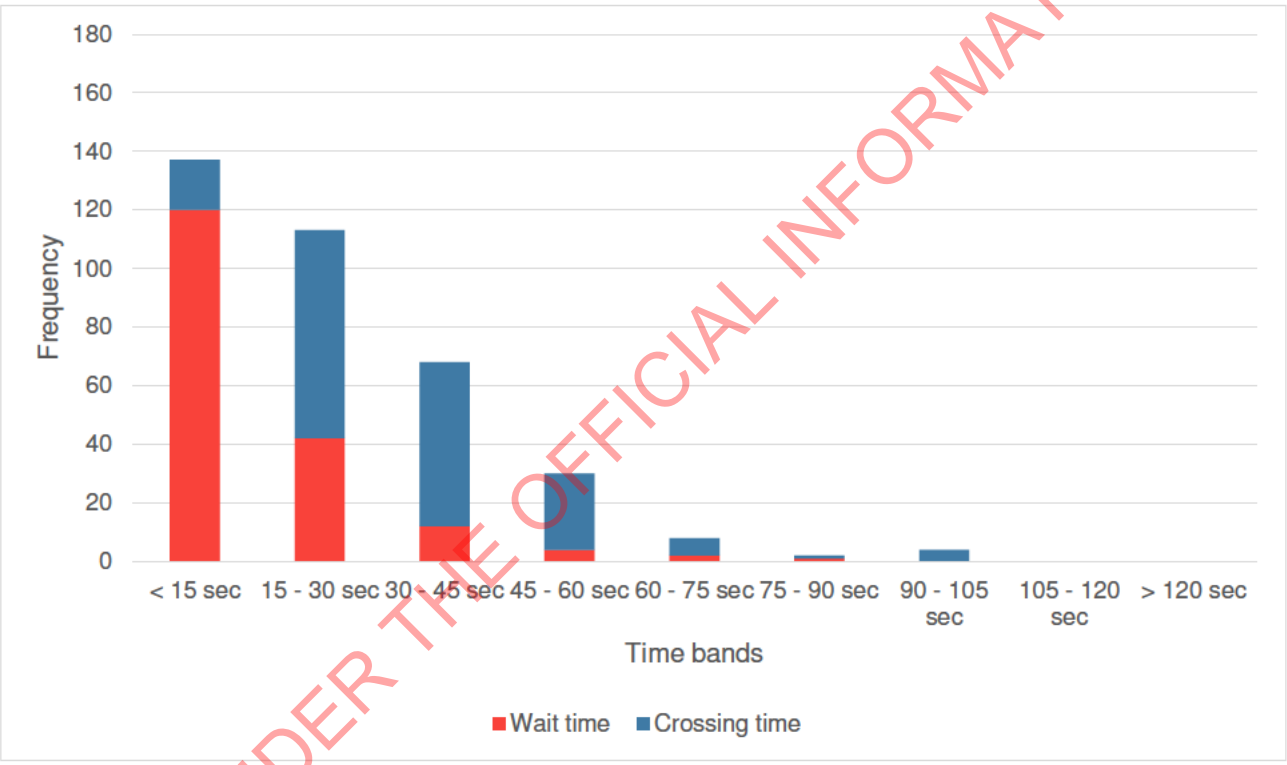


Figure 26: Wait and crossing time distribution for people who used the crossing on a weekday

## 3.6 REVIEW OF KEY FINDINGS

Table 5 below provides comment on the key findings against the reasons for monitoring identified (as per Table 1).

Table 5: Key findings in relation to reasons for monitoring

| Ref | Description | Reason for monitoring | Key findings |
|---|---|---|---|
| 1 | Monitor speed of vehicles through crossing with both the short-term markings and the calcine bauxite surfacing (implemented approximately 6 months after opening). | Identified in road safety audits (detailed design December 2021 and preliminary design May 2021) | Accurate speed data not captured |
| 2 | Monitor instances of vehicles failing to stop for signals / or late stopping | Identified in road safety audit (preliminary design May 2021) | Two instances of failure to stop and evidence of stopping beyond the limit line identified (some due to downstream queuing and some due to poor vehicle stopping position |
| 3 | Monitor instances of vehicles queuing across crossing blocking the path of pedestrians | Identified in road safety audit (preliminary design May 2021) | None identified |
| 4 | Monitor signal timings to ensure pedestrians are not unnecessarily delayed in the median | Identified in road safety audit (preliminary design May 2021) | Total time (waiting + crossing) is less than 45 seconds for the majority of users |
| 5 | Monitor queuing back from crossing towards / around Troy Street roundabout | Identified safety concern | No queues extending back to roundabout identified |
| 6 | Demand for the crossing (from pedestrians and people on bikes) | Public interest / justification for future improvements | On average the crossing is used by 180-220 people per day |
| 7 | Delays to vehicle users caused by the crossing | Public interest / justification for future improvements | Unable to draw clear conclusions |
| 8 | Vehicle demand on SH1 and alternatives | Requested by Waka Kotahi | Unable to draw clear conclusions |
| 9 | Determine origins and destinations for crossing users | Requested by Waka Kotahi, justify need (or otherwise) for shared path on west side of southern footpath | Higher proportion of people using the crossing travelling to or from the east (Miramar) compared with the west (Hataitai & City). Camera footage did not capture information to inform an assessment of the need for a shared path |

# 4 CONCLUSIONS

## 4.1 VEHICLES

- Vehicle flows and vehicle travel times (and speeds) have been heavily influenced by Covid-19 restrictions and resulting changes in travel behaviour. As a result, it is difficult to draw any clear conclusions about the impact that the crossing has had on vehicle flows and travel times.
- Vehicle queuing at the crossing is typically limited with slightly longer queues recorded on the weekend compared with the weekday, however no queues were recorded extending into the Troy Street roundabout during the two days of footage reviewed.
- Vehicle stopping was typically good with some instances of stopping beyond the limit line, however, two instances of red-light running were identified during the two days of footage reviewed.

## 4.2 ACTIVE TRAVEL

- On average the crossing is used by 180-220 people per day. Approximately half of people using the crossing on the weekday and a third of people on the weekend did not activate the crossing for one or both legs of the crossing and instead crossed in a gap in traffic.
- There are a higher proportion of people using the crossing travelling to or from the east (Miramar) compared with the west (Hataitai & City) and a higher proportion of people walking than those using a bike with limited numbers of scooters and other devices.
- Total time (waiting + crossing) is less than 45 seconds for the majority of users and crossing time (which includes waiting in the median) is typically longer than waiting time for the first crossing movement.

# 5 LIMITATIONS

This report ('Report') has been prepared by WSP exclusively for Waka Kotahi (on behalf of Let's Get Wellington Moving) ('Client') in relation to summarising monitoring around the impacts of the Cobham Crossing ('Purpose') and in accordance with Contract 9068 Cobham Crossing - Monitoring Data and Report dated 7 August 2023. The findings in this Report are based on and are subject to the assumptions specified in the Report and Offer of Services dated July 2023. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

In preparing this Report, WSP has relied upon data, surveys, analyses, designs, plans and other information ('Client Data') provided by or on behalf of the Client. Except as otherwise stated in this Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable for any incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

.