AUGUST 2022

FOLKL

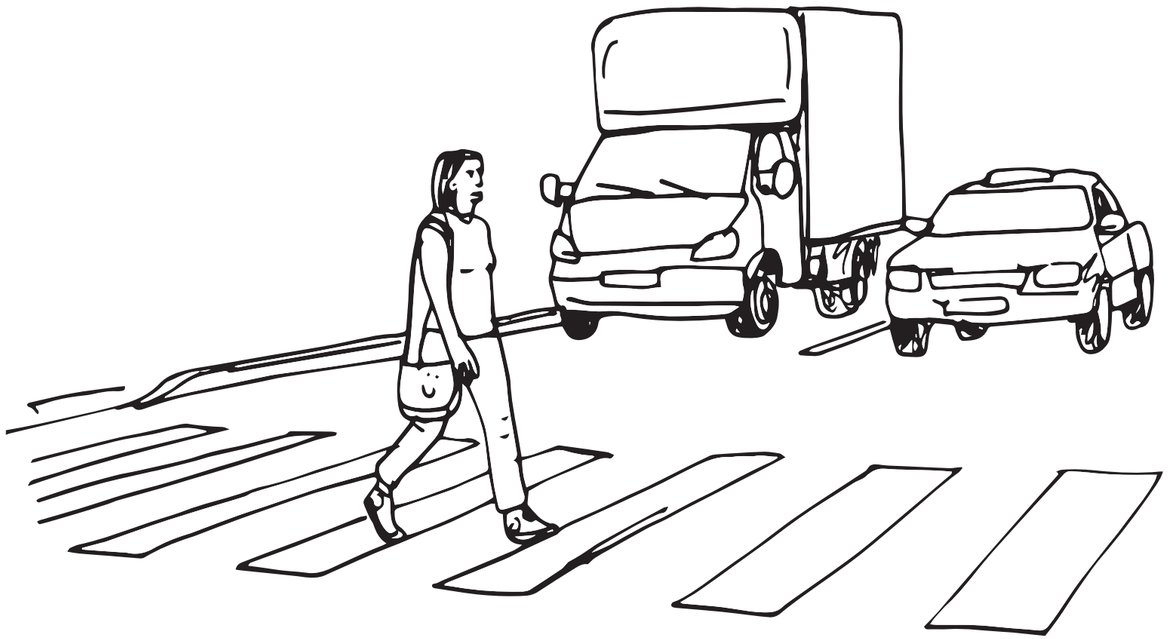
Wellington City Council.

Botanic Garden ki Paekākā to City - Bowen Street and The Terrace.

Pre-change Analysis.

Absolutely Positively
Wellington City Council
Me Heke Ki Pōneke

Contents.



Project Context.

Wellington City Council are introducing two transitional cycle lanes, Newtown to City, and Botanic Gardens to City in late 2022/early 2023.

This report covers the pre-change data gathered at the intersection of Bowen Street and The Terrace in the Wellington CBD. This data will be used as the benchmark and compared against post-change data that will be collected in February 2023.

This pre and post data analysis will allow Wellington City Council to understand how behaviour has been affected by the introduction of the transitional cycle lanes. It will also provide empirical data to justify further development.

Research Objectives.

To provide Wellington City Council with a thorough understanding of how and when this intersection is used between 6:00 AM and 8:00 PM.

This understanding is based on the following metrics:

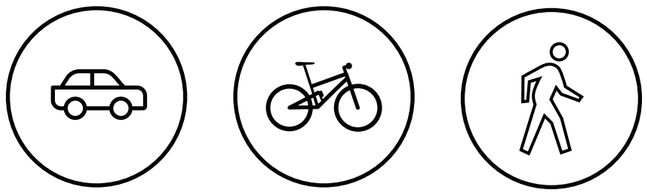
- → Total counts and direction by classification* (see Page 4 for detailed information on classification).
- → Trajectory and desire line, by classification, of users at the intersection.
- → Time distribution of users at the intersection.
- → Near-miss data and conflict avoidance (final report only, with benchmark comparison between two phases).

Methodology.

To effectively meet the research objectives, a descriptive use analysis of the area was conducted using FOLKL Vision. For this report, vehicle classifications are broken into three, defined as motor vehicle (car, van, bus, motorcycle, truck and heavy truck) cyclists, and pedestrians.

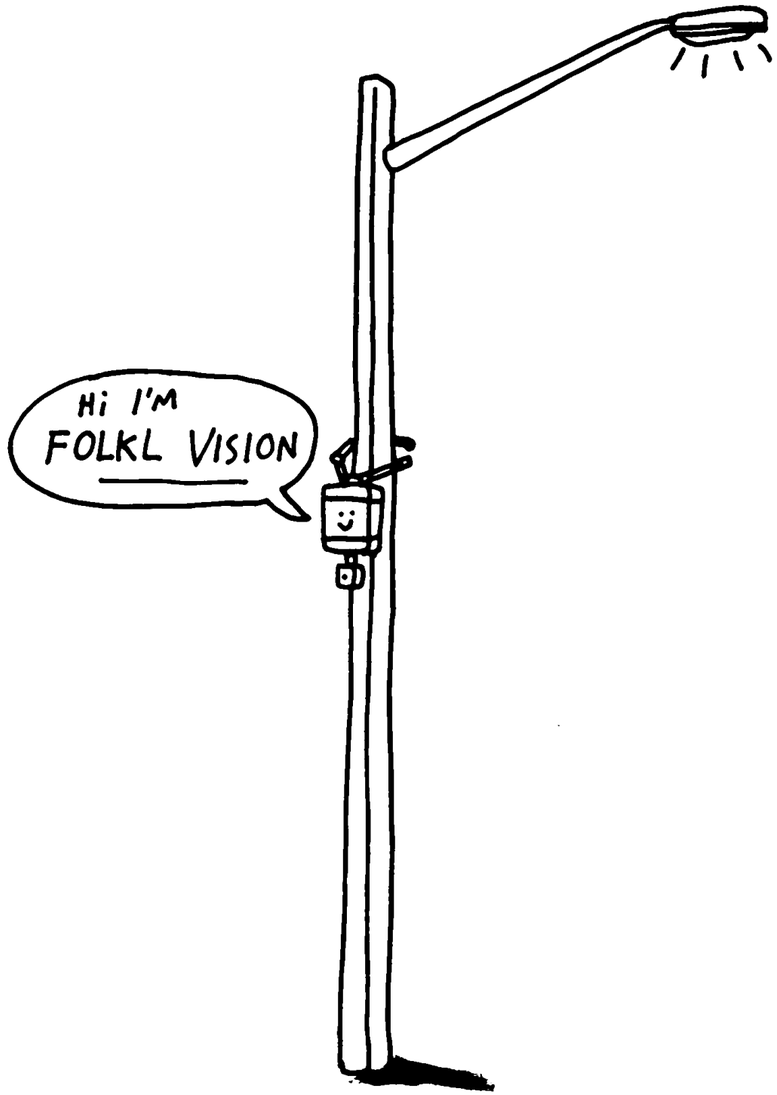
A mounted camera at the intersection was used for video observation of vehicle and pedestrian traffic trajectories. A mix of digital processing and manual coding were utilised to analyse the footage.

Mounted camera presence and purpose of the project was clearly indicated and explained with adjacent signage which included a link to a description of the specific work being undertaken and its relationship to the wider project.



The schedule of video observation was purposefully designed to capture data across a range of days, peak and off-peak traffic times. Filming took place between 6:00 AM and 8:00 PM, from Thursday 30 June to Wednesday 6 July 2022 (7 days). It is important to note that data analysed is a sample and is indicative of usage for the sample period only.

More information on FOLKL Vision can be found on page 23 of this report. All FOLKL research is conducted in accordance with the Research Association New Zealand Code of Practice and is General Data Protection Regulation (GDPR) compliant.



Summary of Findings.

Summary of Findings.

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This intersection experienced an average hourly usage of 939 motor vehicles, 38 cyclists and 383 pedestrians. When comparing weekend day usage against a weekday, there was a significant decrease in volume across all three classifications; motor vehicles -45%, cyclists -71% and pedestrians -94%.

The way this intersection is used varies by each of these three classifications:

Motor vehicles

- → During the period of filming, motor vehicles accounted for 69% of total movements.
- → Bowen Street East carried the most motor vehicle traffic to and from this intersection.
- → Traffic volume and distribution across the weekdays was very consistent.
- → Weekdays follow a defined sharp AM peak, and a longer PM peak. Weekend days gradually build to a midday peak.

Cyclists

- → During the period of filming, cyclists accounted for 3% of total movements.
- → Bowen Street East carried the most cyclists to and from this intersection.
- → Cyclist volume distribution showed this area is common for commuters, with strong peaks at 8am and again at 4pm-6pm.

Pedestrians

- → During the period of filming, pedestrians accounted for 28% of total movements.
- → Crossing at Bowen Street West accounted for 56% of total crossing.
- → Usage of this intersection by pedestrians was significantly lower on weekend days, down 94%.
- → On weekdays there was a large spike in pedestrian usage at midday.

Findings.

Bowen Street East brings (38%) and takes (48%) the greatest volume of motor vehicle traffic to and from this intersection.

Museum Street brings and takes the least, account for only 1% of traffic volume.

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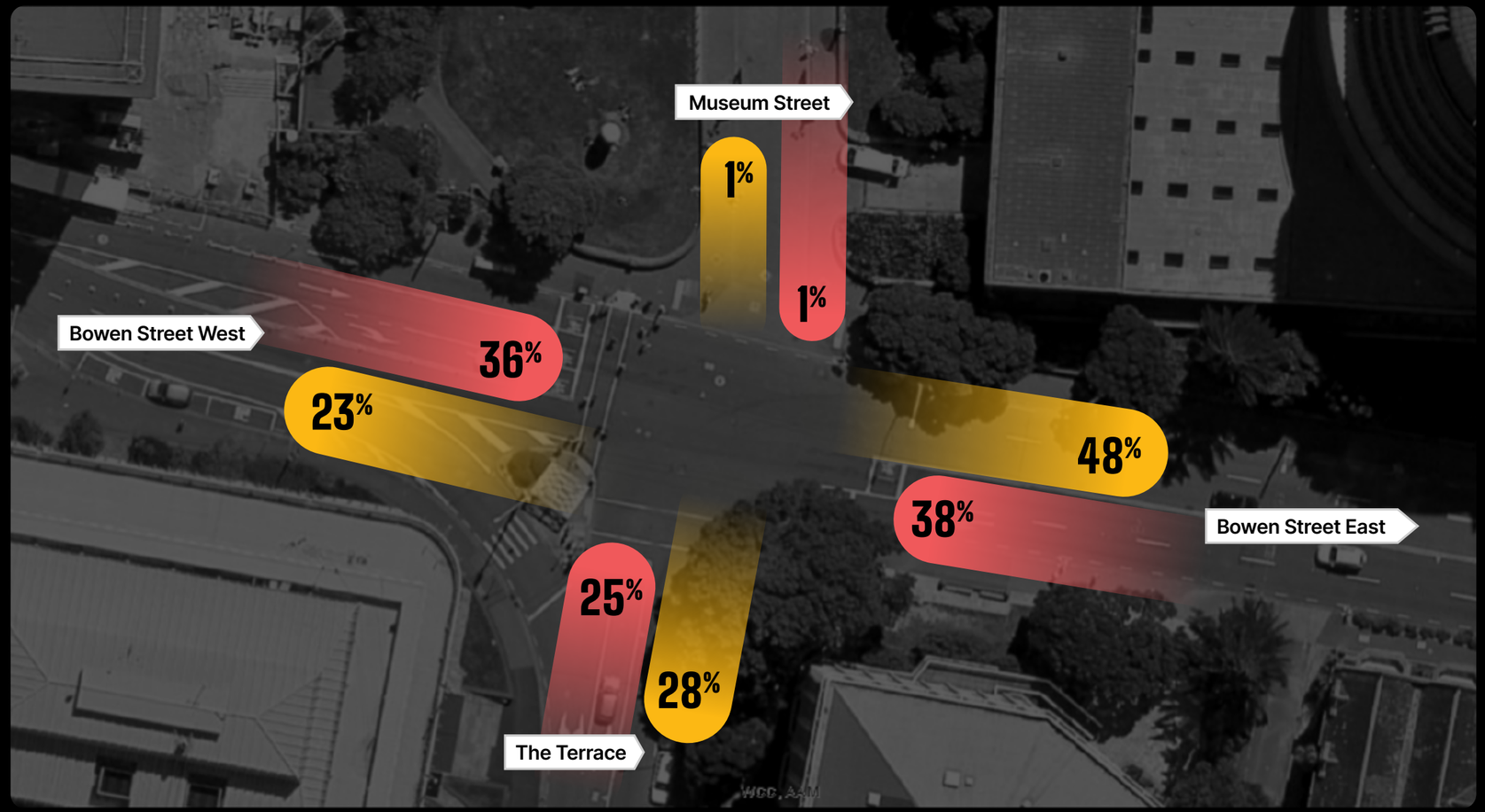
Motor vehicles



Key:

Arriving to

Leaving from

Source: FOLKL Research, Total motor vehicles utilising intersection: 78,008

Intersection behaviour of motor vehicles with an origin of **Museum Street** and **The Terrace.**

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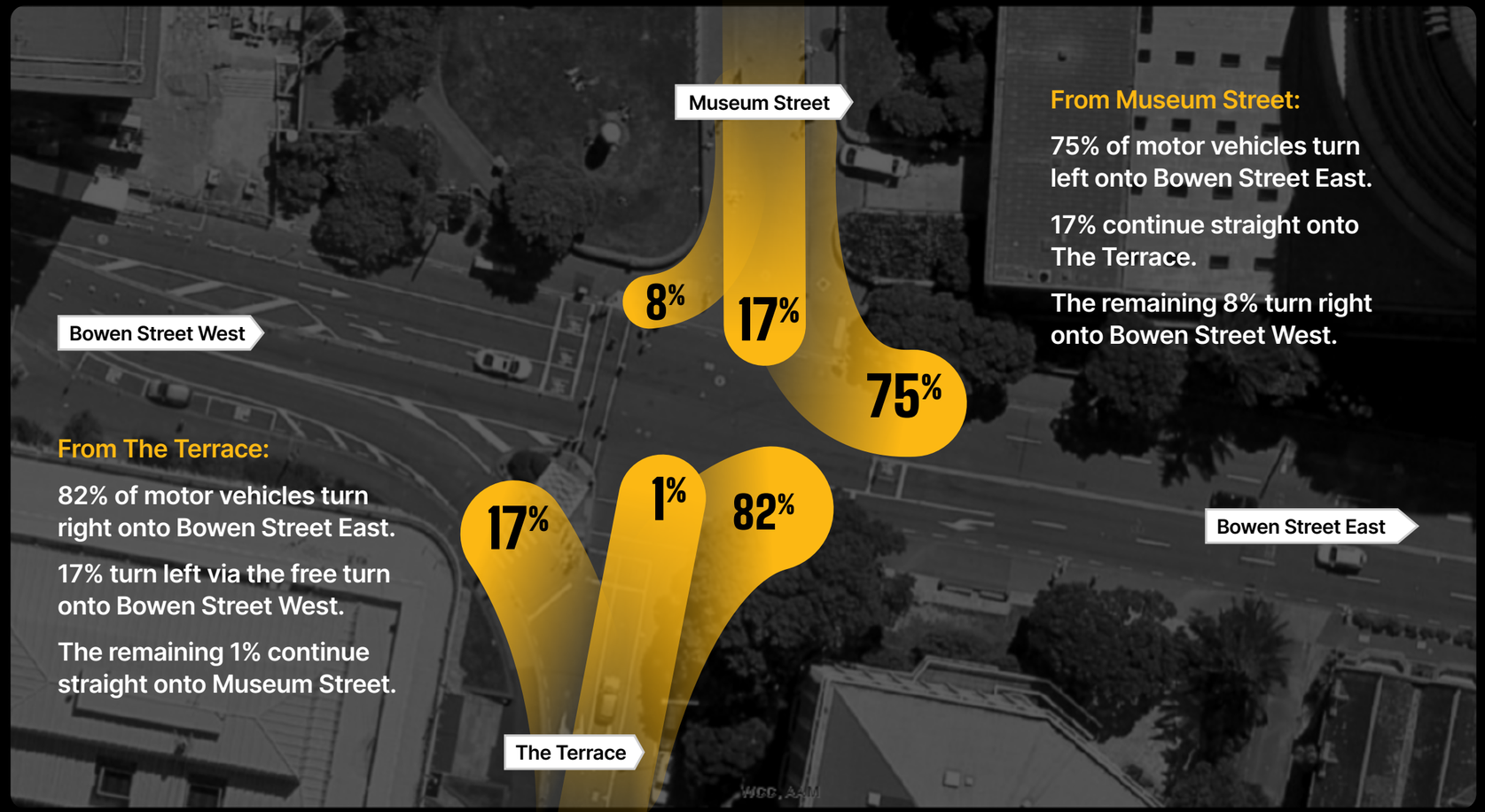
Motor vehicles



Source: FOLKL Research, Total motor vehicles arriving from: Museum Street - 996; The Terrace - 19,783.

Intersection behaviour of motor vehicles with an origin of **Bowen Street**.

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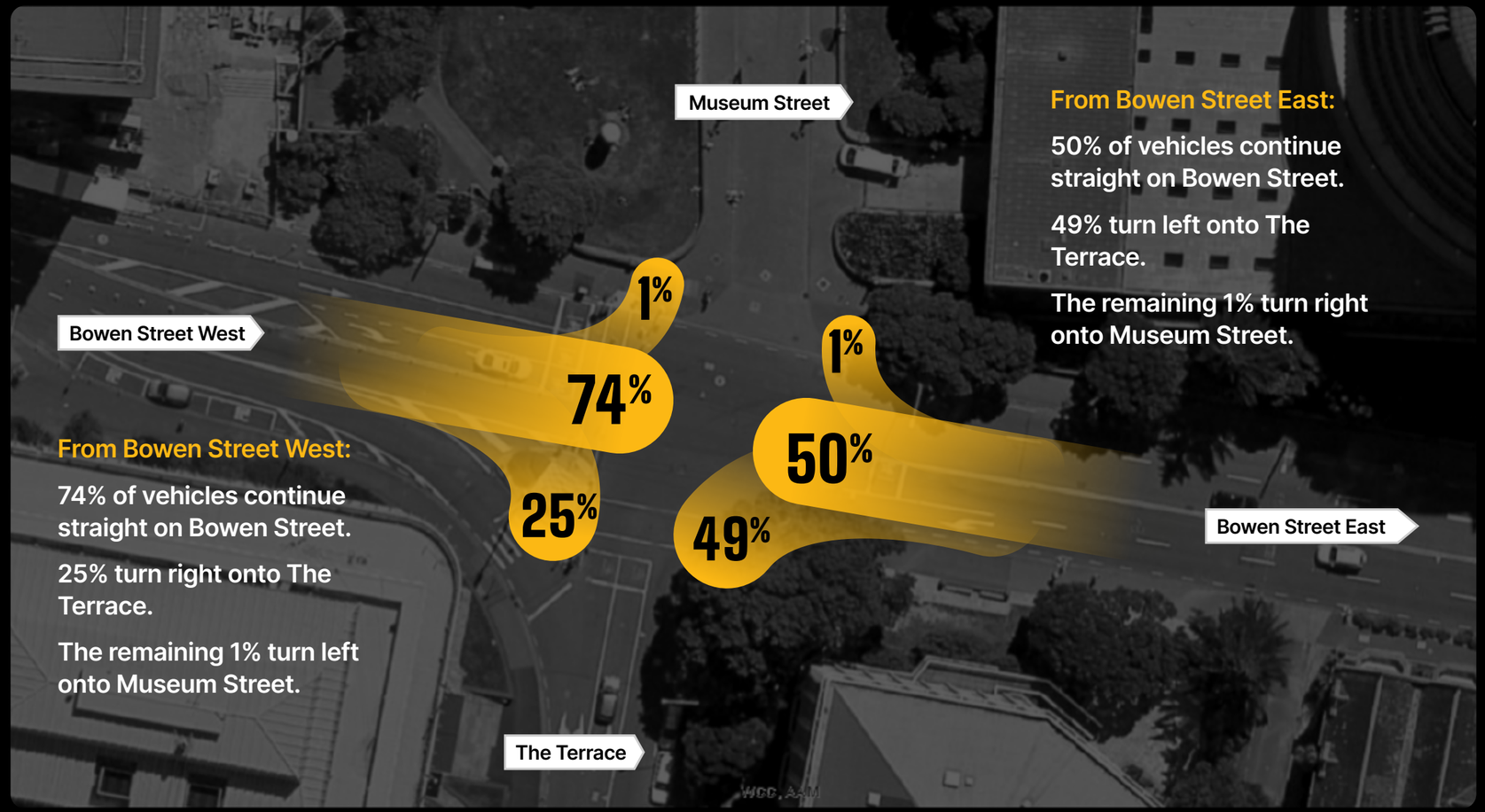
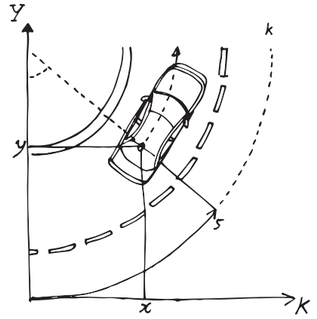
Motor vehicles



Source: FOLKL Research, Total motor vehicles arriving from: Bowen Street West - 27,682; Bowen Street East - 29,547.

Weekday behaviour is consistent between the days. There is a sharp increase in traffic volumes, peaking at 8am, with up to 1,770 vehicles per hour. There is a afternoon peak period at 4pm and 5pm.

On average, the weekend days experienced 45% fewer motor vehicles.
On weekend days, the greatest volume of motor vehicle traffic was at midday.



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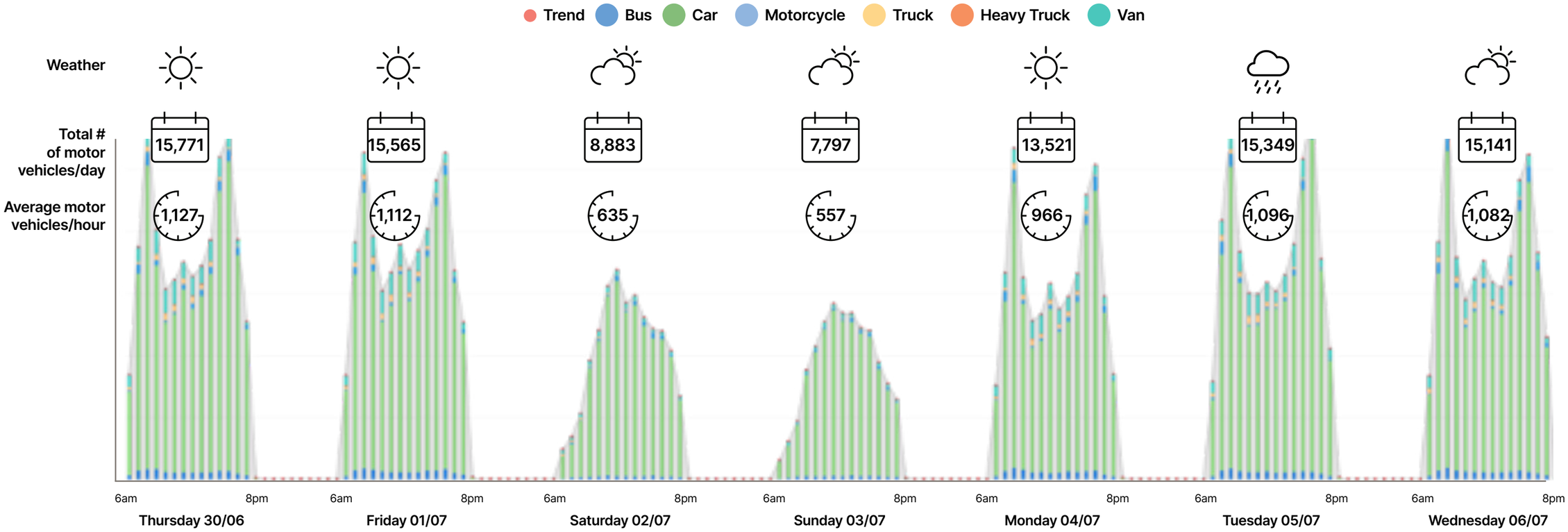
Distribution of motor vehicle movements at intersection between 6:00am and 8:00pm.



Source: FOLKL Research.

Bowen Street East brings (48%) and takes (43%) the greatest volume of cyclists to and from this intersection.

A greater percentage of cyclsits utilise **Museum Street** (6% and 10%) when compared against motor vehicles (1%).

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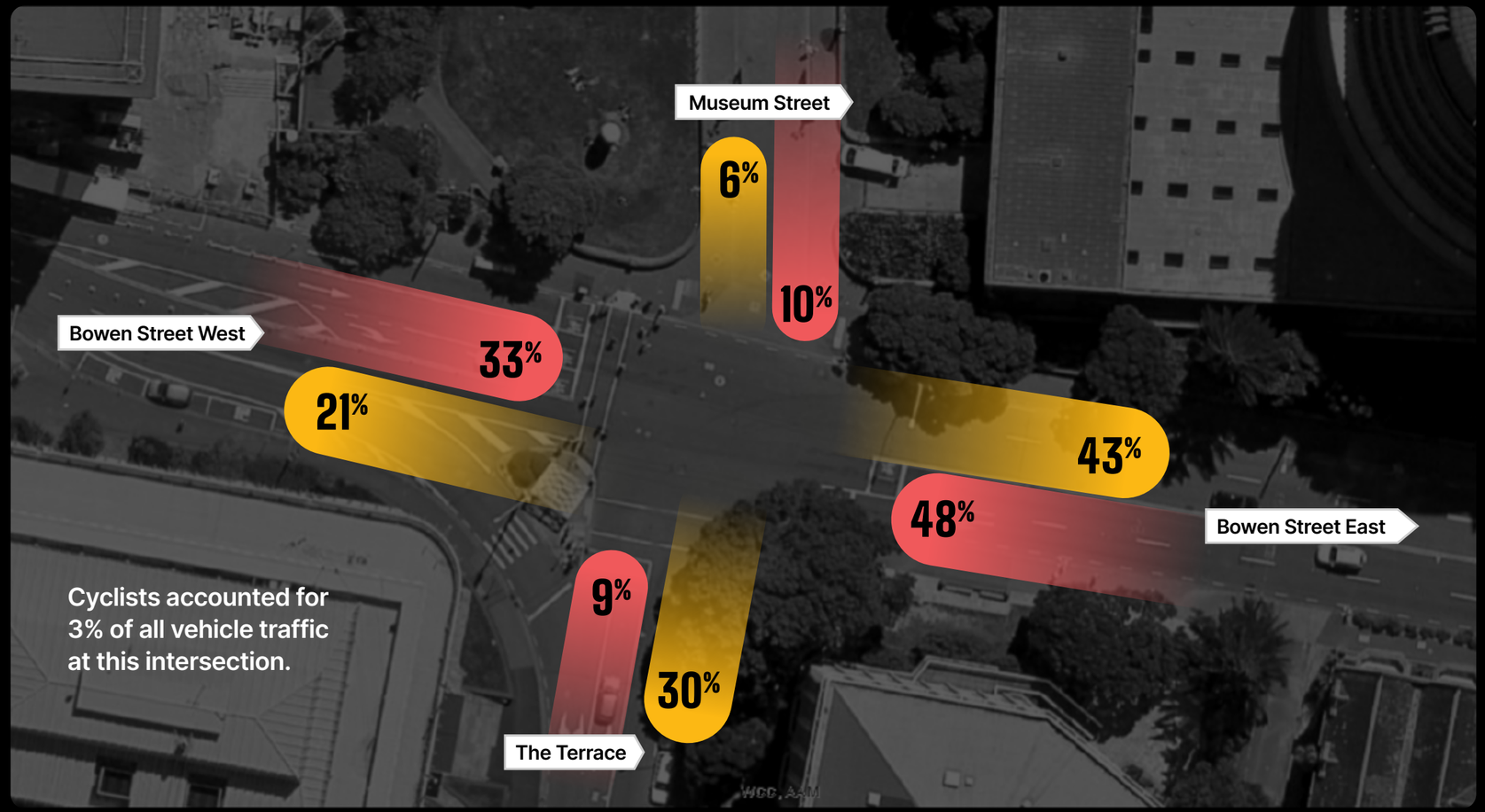
Cyclists



Key:

Arriving to

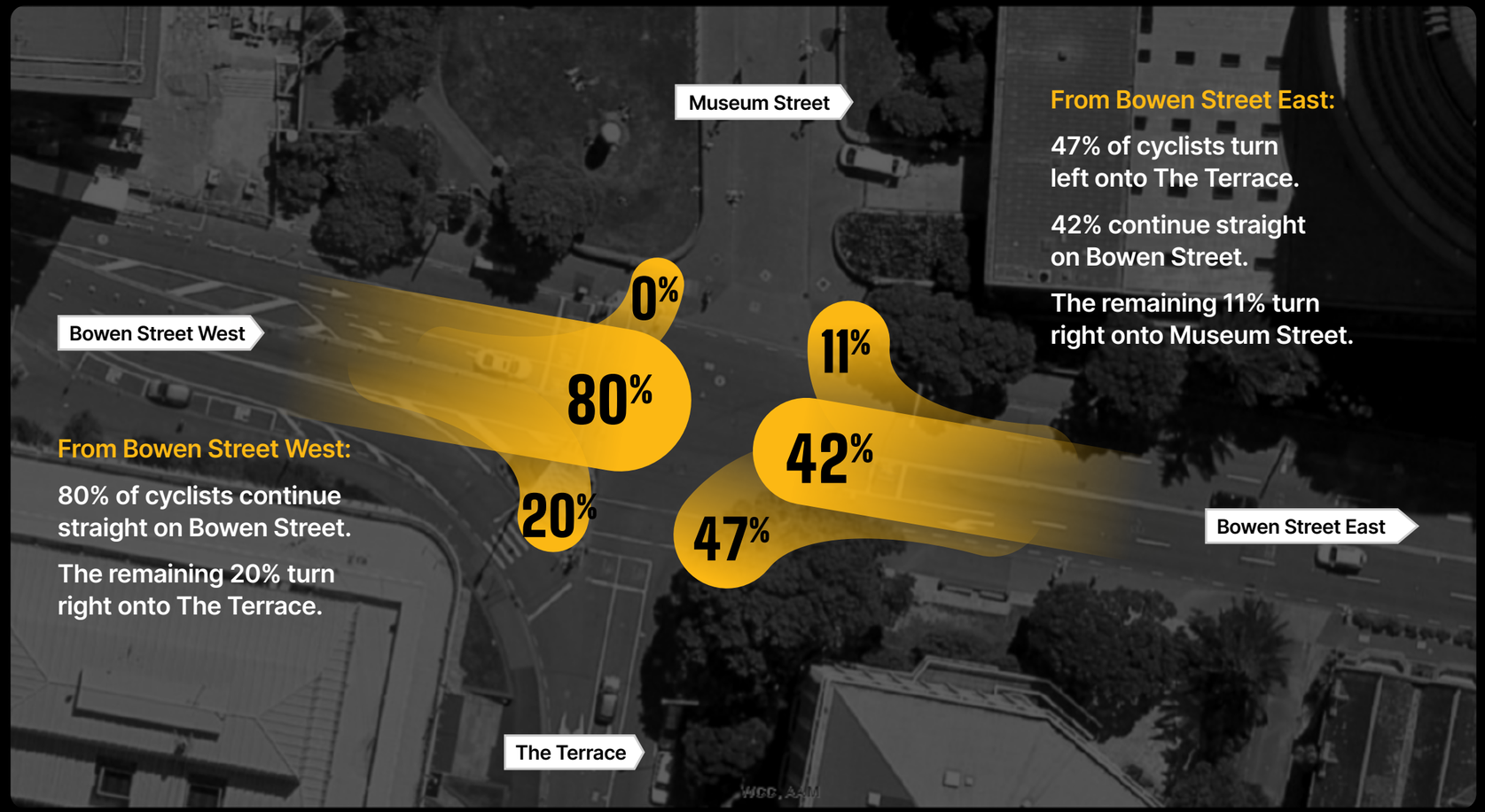
Leaving from

Source: FOLKL Research, Total cyclists utilising intersection: 2,473.

Intersection behaviour of cyclists with an origin of **Bowen Street**.

FOLKL

Cyclists

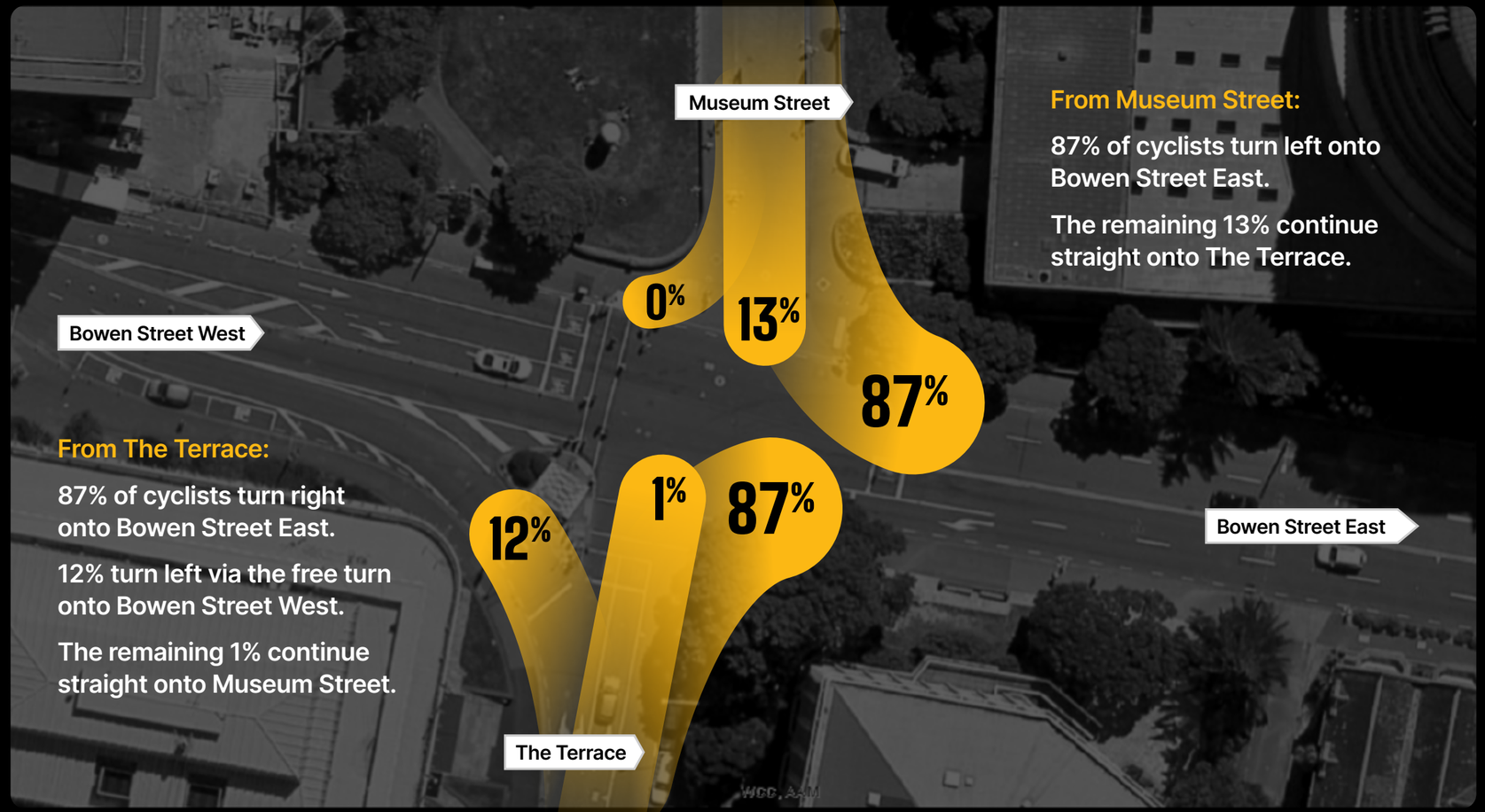


Source: FOLKL Research, Total motor vehicles arriving from: Bowen Street West - 829; Bowen Street East - 1,180.

Intersection behaviour of cyclists with an origin of **Museum Street** and **The Terrace**.

FOLKL

Cyclists

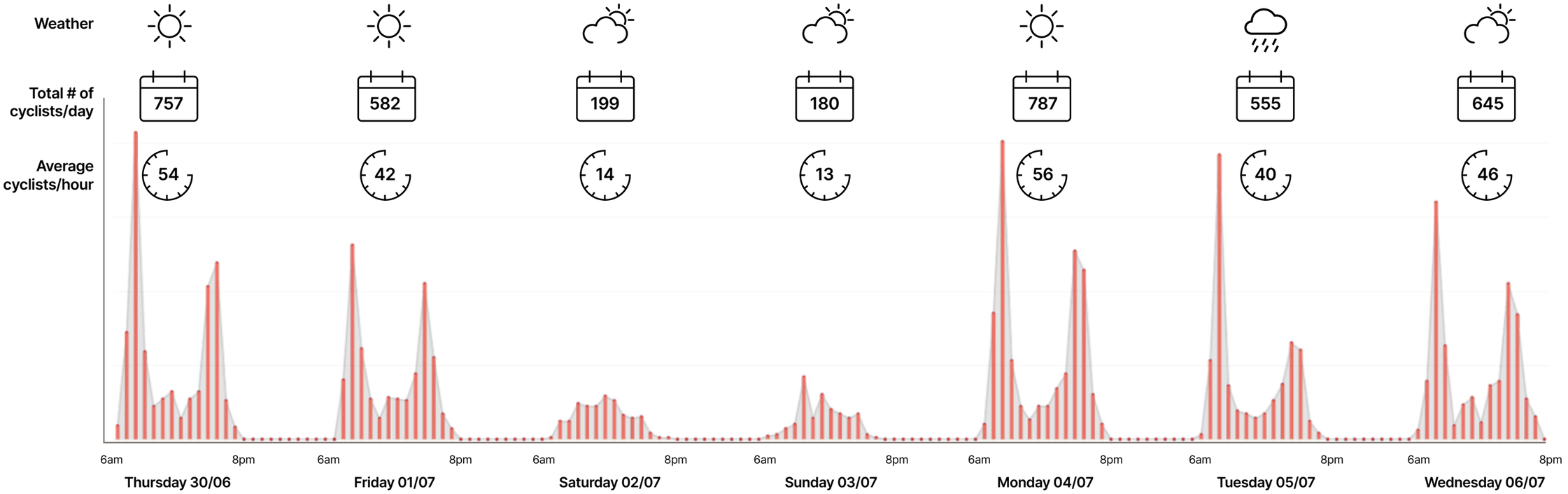


Source: FOLKL Research, Total motor vehicles arriving from: Museum Street - 996; The Terrace - 19,783.

Weekday behaviour is consistent between the days, with obvious peaks coinciding with commuting at 8am and again at 4pm and 5pm. The weekday with the lowest numbers of riders, Tuesdays the 5th, experienced rainy weather.

There was a 71% decrease in the average daily cyclists using this intersection on weekend days when compared to weekdays.

Distribution of cyclist movements at intersection between 6:00am and 8:00pm.



Source: FOLKL Research.

Over half (56%) of the pedestrian crossing movements take place at **Bowen Street West**.

Bowen Street East had the least number of pedestrian crossing movements, just 1%, due to the complete absence of a crossing site.

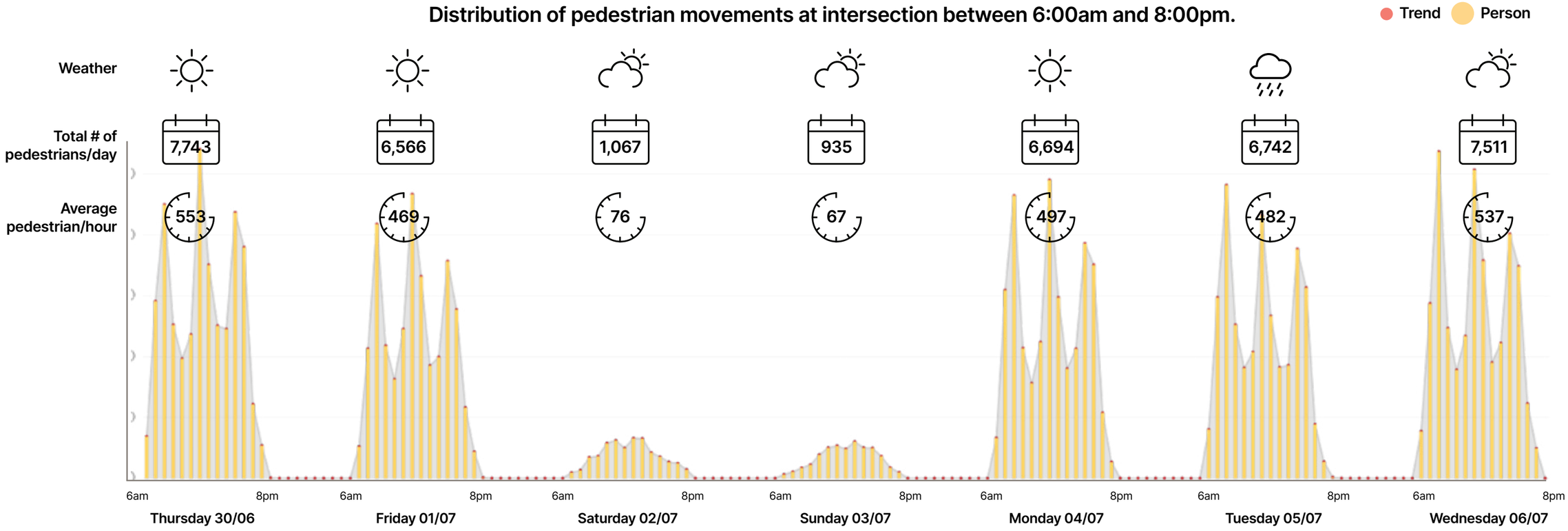
Pedestrians

Source: FOLKL Research, Total cyclists utilising intersection: 37,528.

Weekday behaviour is consistent between the days, with obvious peaks coinciding with commuting at 8am and again at 4pm and 5pm. There is a significant spike in pedestrians at 12pm, often (3 out of 5 weekdays) accounting for the highest volume per hour.

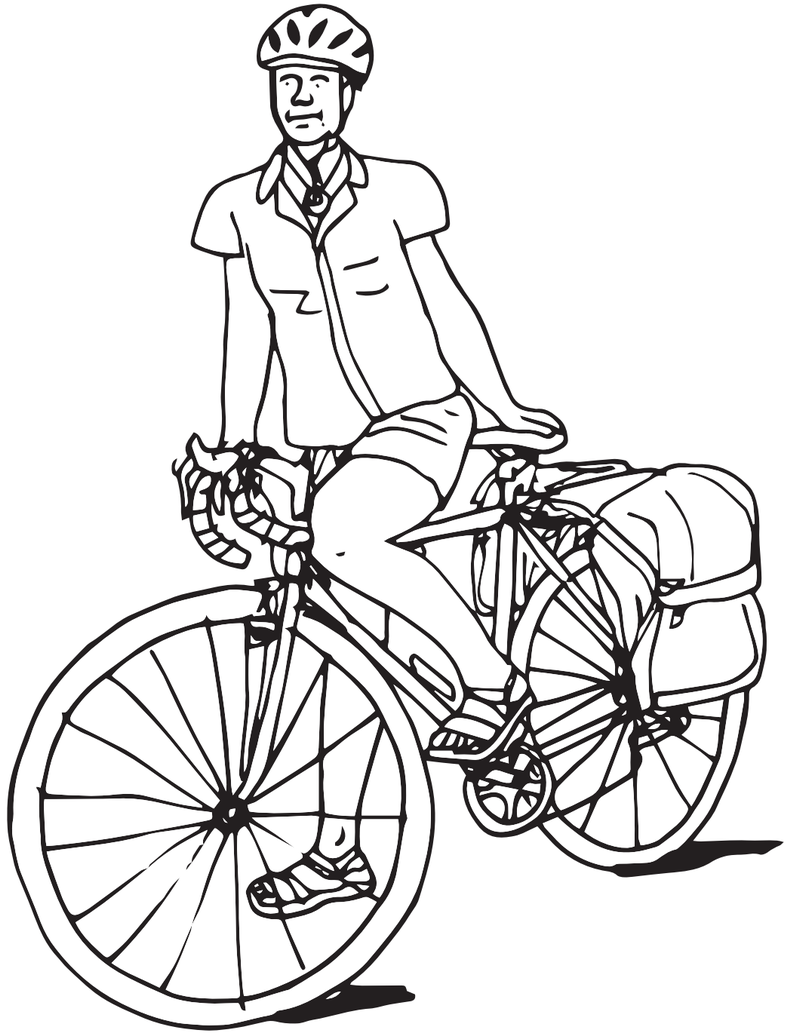
There was a 94% decrease in the average daily pedestrians using this intersection on weekend days when compared to weekdays.

Distribution of pedestrian movements at intersection between 6:00am and 8:00pm.



Source: FOLKL Research.

Ngā mihi
Thank you.



Appendix.

Average Daily Traffic.

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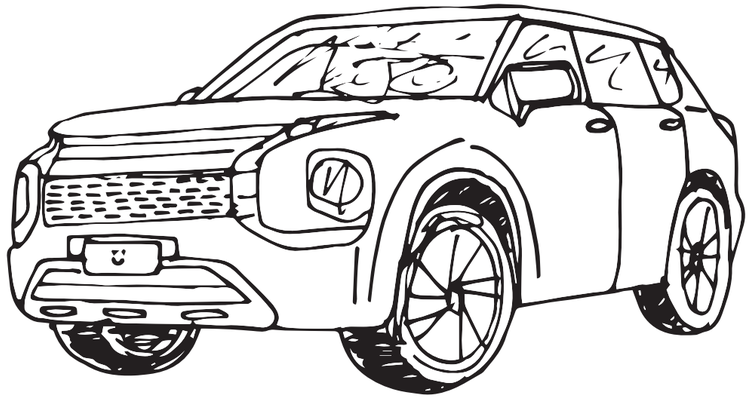
This table shows the average daily traffic recorded by classification at this intersection between 6:00am and 8:00pm over the 7 day period.

Average Daily Traffic (recorded between 6:00am and 8:00pm)			
Time frame/Classification	Pedestrian	Cyclist	Motor Vehicle
All days (7)	5,323	529	13,147
Weekdays (5)	7,051	665	15,069
Weekend days (2)	1,001	190	8,340



Source: FOLKL Research.

Collision Points.

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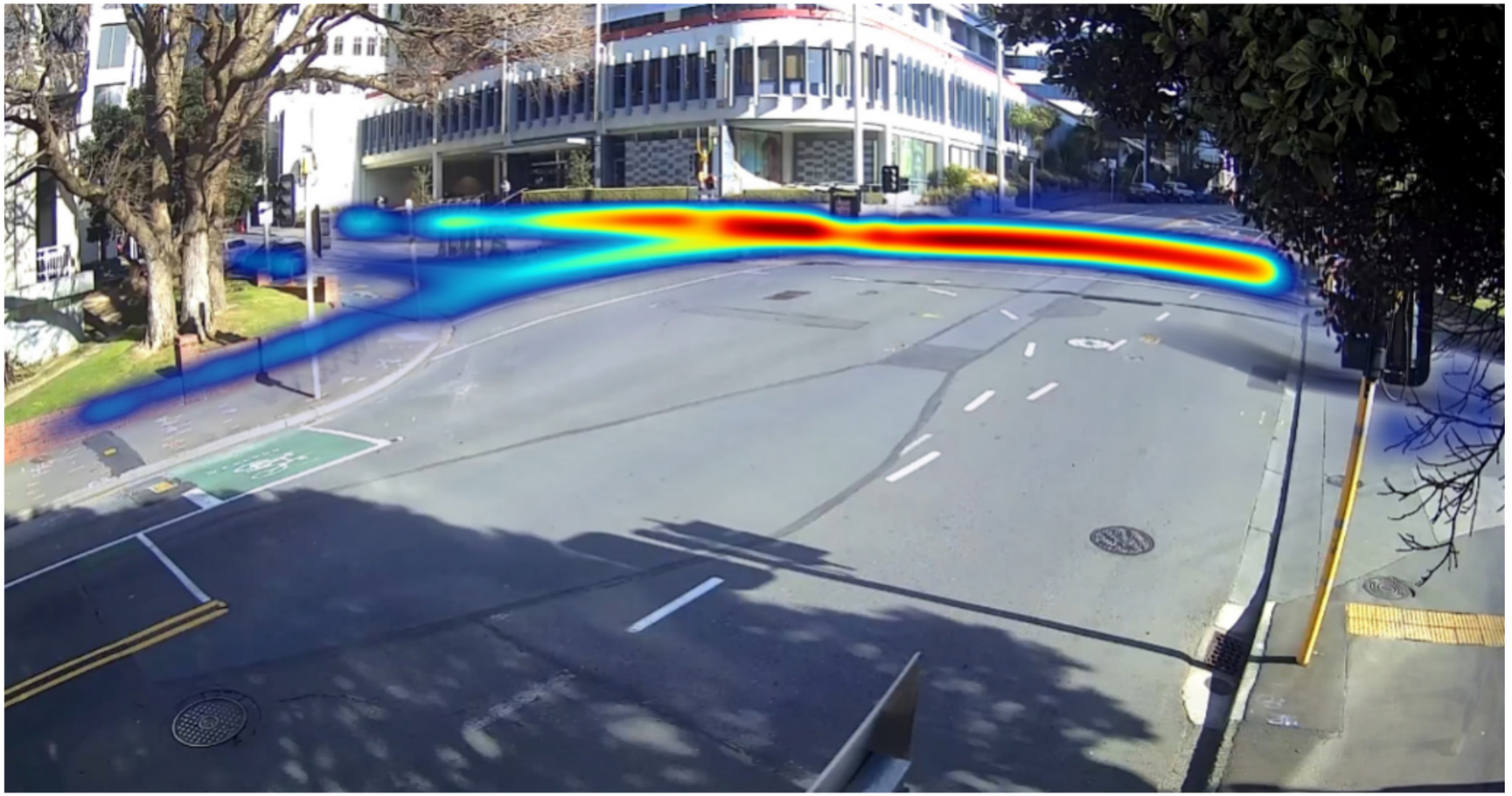
This heatmap shows areas where pedestrians and cyclists intersect with other vehicles. Hot areas represent places with high potential collision occurrence. Cold areas represent areas with lower collision occurrence.

Please note: This aspect of analysis is still in development and will be further refined for the final report.

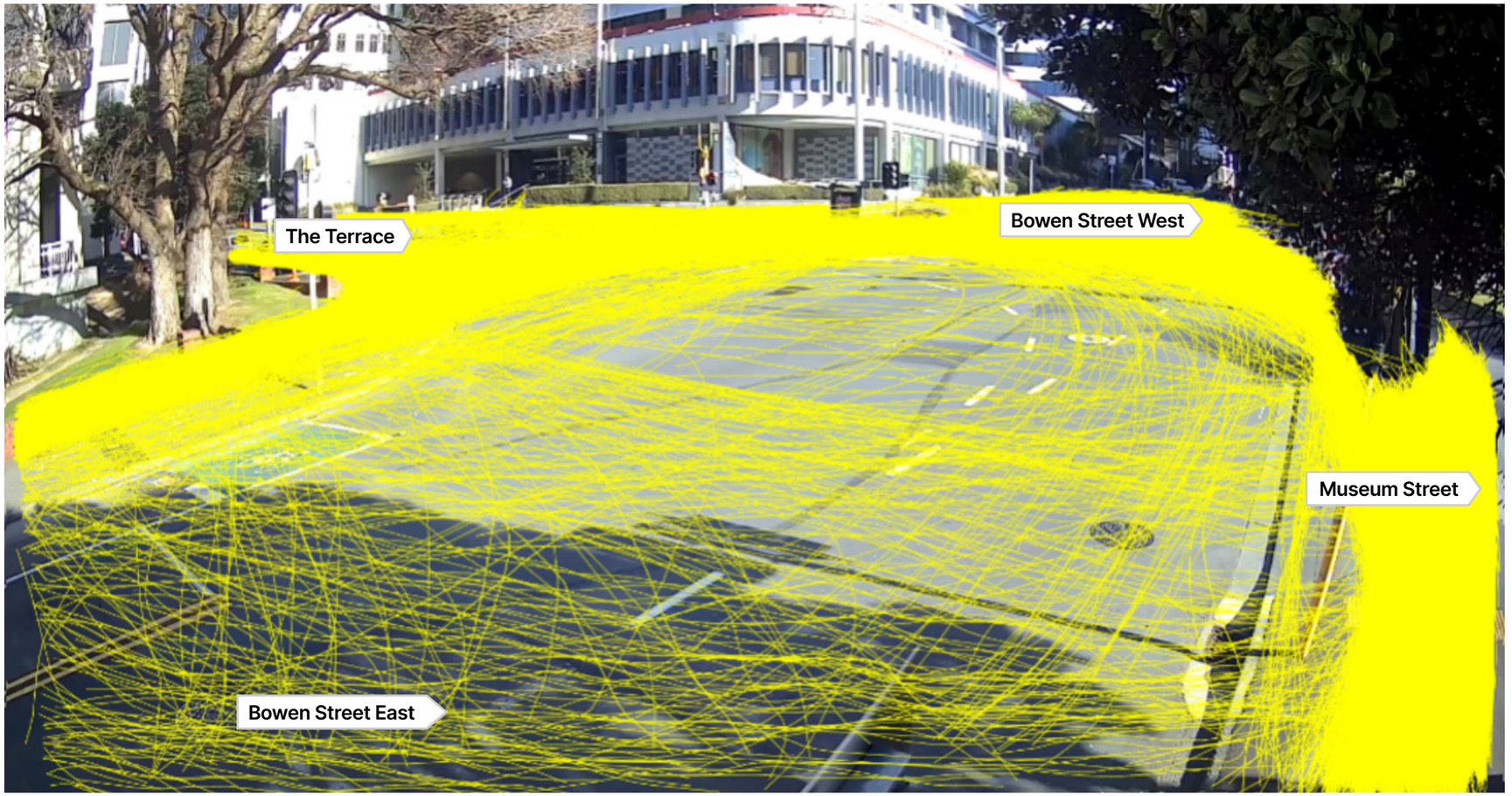


Source: FOLKL Research.

Trajectory lines.
Pedestrian.

The yellow lines on this image represent the path followed by pedestrians at this intersection.

Pedestrians

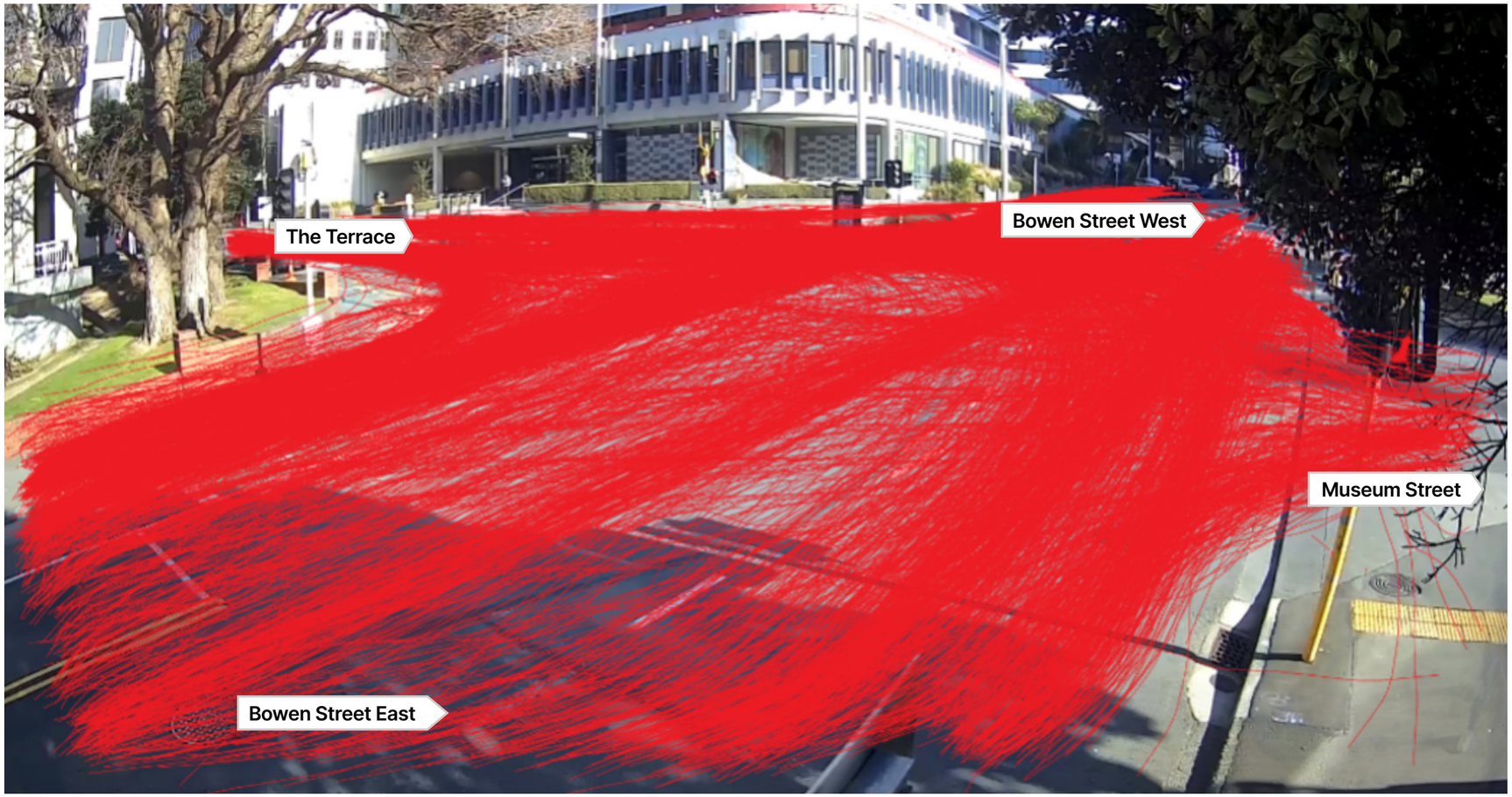


Source: FOLKL Research.

Trajectory lines.
Cyclists.

The yellow lines on this image represent the path followed by pedestrians at this intersection.

Cyclists



Source: FOLKL Research.

Daily and hourly distribution of cyclist movements.

Cyclists

Time	Thursday 30/06	Friday 01/07	Saturday 02/07	Sunday 03/07	Monday 04/07	Tuesday 05/07	Wednesday 06/07
06:00 – 07:00	9	0	1	2	10	3	6
07:00 – 08:00	72	40	12	3	85	53	39
08:00 – 09:00	207	131	12	7	201	192	160
09:00 – 10:00	59	61	24	10	53	36	63
10:00 – 11:00	22	27	22	42	22	19	9
11:00 – 12:00	27	14	22	14	13	17	23
12:00 – 13:00	32	28	29	30	22	14	28
13:00 – 14:00	14	27	26	20	22	17	11
14:00 – 15:00	27	26	16	17	34	26	36
15:00 – 16:00	32	44	14	14	44	37	39
16:00 – 17:00	103	105	15	17	127	65	105
17:00 – 18:00	119	55	4	3	114	60	84
18:00 – 19:00	26	17	1	1	30	12	27
19:00 – 20:00	8	7	1	0	10	4	15

Source: FOLKL Research.

FOLKL Vision.

FOLKL Vision is a proprietary traffic analysis tool which combines digital processing with manual coding to produce a robust understanding of how people use space. The purpose of FOLKL Vision is to provide an indication of use rather than completely accurate traffic counts.

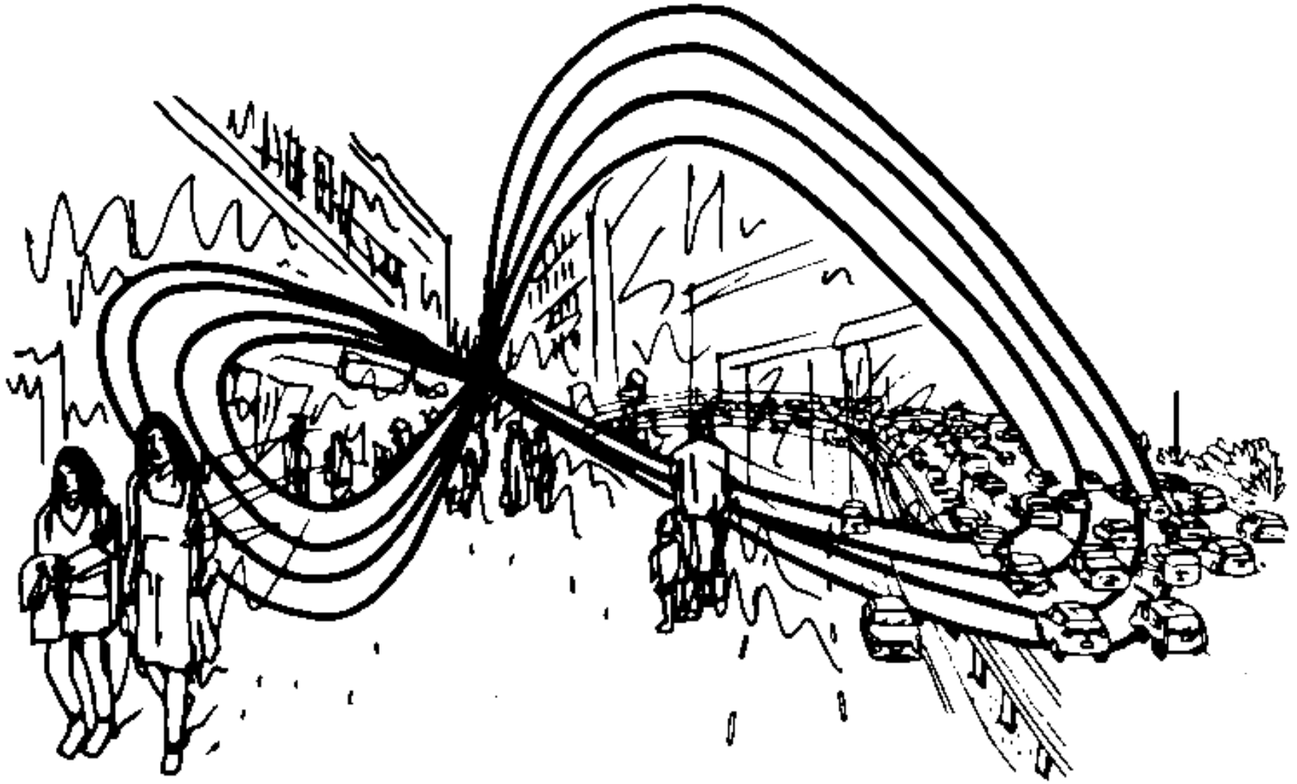
The accuracy of digital processing traffic counts ranges from 95% - 100%. Speed calculation is 90% - 100%, and is dependent on precision distance of measurement.

Manual coding is used to inform digital processing strategy and determine margin of error within the sample.

For this project, 15 minute windows of video observation footage were selected at random across each of the 7 days. Traffic counts determined through digital processing were cross-checked with manual counts. The result was an accuracy level of 95.5%.

Accuracy level of

95.5%



Source: FOLKL Research.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