

# The Effectiveness of Two-Way Street Calming Pinch-Points

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## Summary

Research investigated the effect of roadway widths for street narrowings or “pinch-points” in Christchurch, with a particular focus on speed and yielding behaviour. A 6m wide 2-way pinch-point was found to be not effective in slowing most private vehicles down. Drivers travelled at a similar speed whether they were crossing the pinch-point by themselves or with opposing traffic approaching.

Approximately 40% of drivers reduced their vehicle speed when negotiating a 5m wide 2-way pinch-point. Around 20% of drivers avoided traversing with oncoming traffic and opted to wait until it was clear before proceeding. Male drivers also tended to travel faster through the narrowing when compared to female drivers.

For a 4.5m wide 1-way pinch-point where motor vehicles and cyclists approached them simultaneously, one of them gave way and waited nearly 60% of the time. Around 35% of the time cyclists and motorists shared the narrowing and 8% of the cyclists (mostly younger children) avoided the narrowing, using a bypass instead.

It is recommended that further research be conducted:

1. at more sites with different road widths and environment;
2. with heavy vehicle movements on these pinch-points;
3. to understand whether a longer pinch-point will alter driver behaviour.

## Study Aims

The principle of a traffic calming pinch-point is to reduce vehicle operating speeds and this in turn is anticipated to improve road safety. However, there is limited information available on the effectiveness of 2-way street calming devices.

The main objectives of the research were:

- To investigate road users’ behaviour at 2-way street calming devices.
- To assess the level of effectiveness of roadway width narrowing that achieves a desirable outcome for a 2-way street calming device.
- To investigate cyclists’ usage of the street calming devices when other motorised vehicles are sharing the space at the narrowing.



Typical Pinch-Point Studied

## Sites Studied (all in Christchurch)

### Mansfield Ave

- 6.0m-wide two-way narrowing



### Draper Street

- 5.0m-wide two-way narrowing



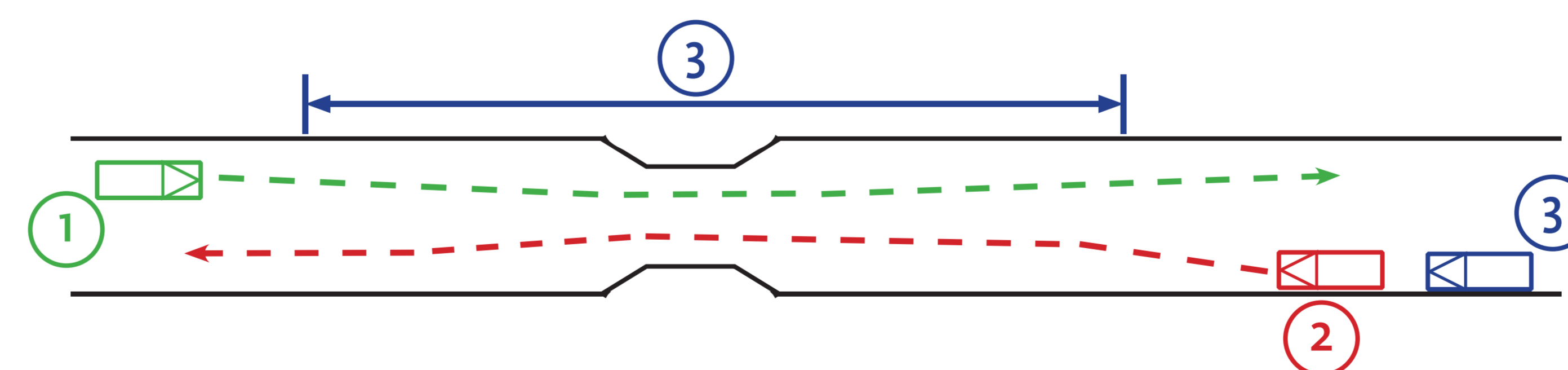
### Banks Ave

- 4.5m-wide one-way angled narrowing



## Data Collection

1. Subject Vehicle approaches the pinch-point
2. If required, Survey Vehicle approaches from the opposite direction
3. Separate observer records travel time of Subject Vehicle between two fixed points (road user behaviour also recorded, e.g. giving way, stopping)



150 samples collected at each two-way site

- 50 unopposed (free-flowing) cars
- 100 cars opposed by survey vehicle

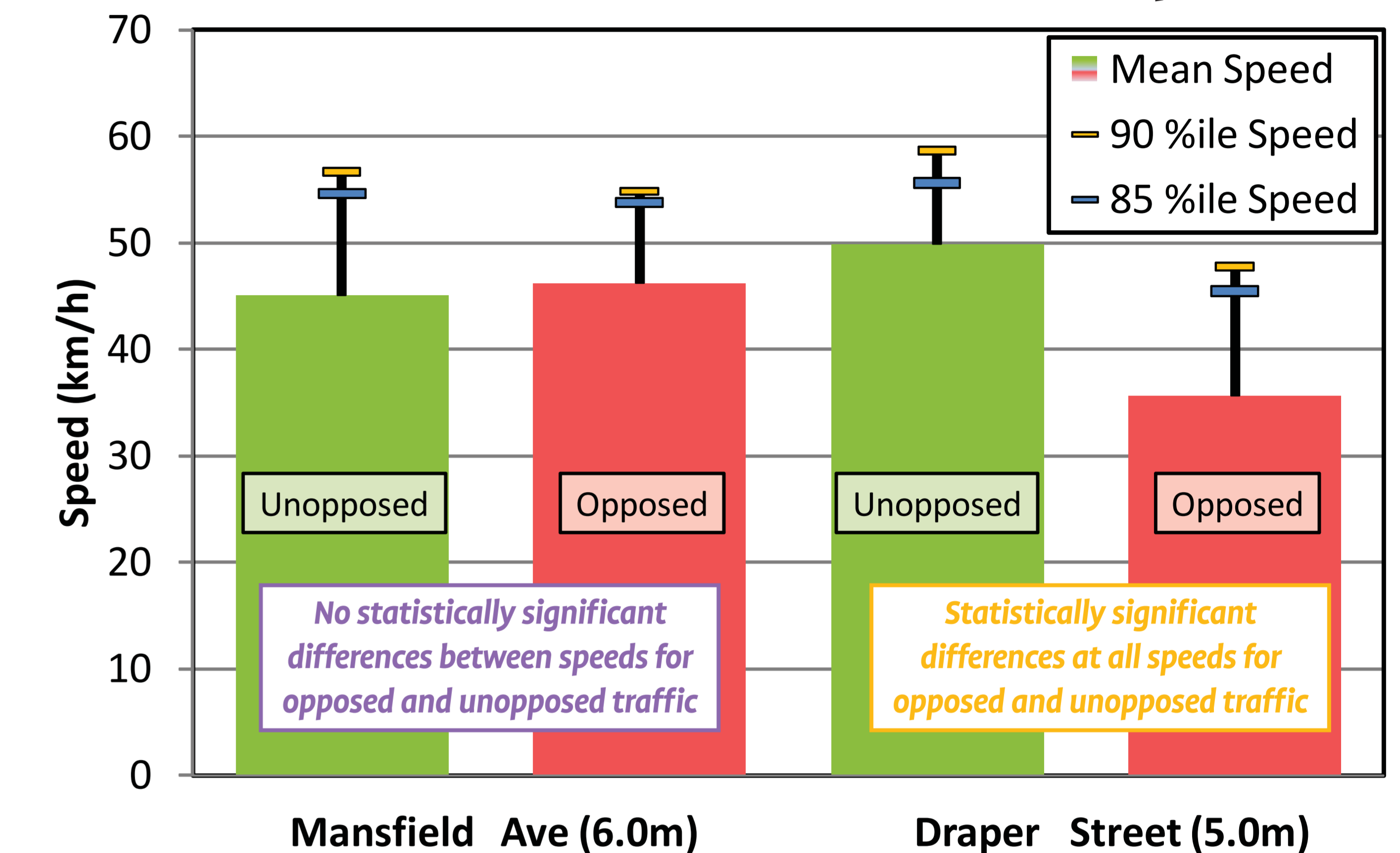
100 samples collected at Banks Ave site

- Cyclists opposed by cars

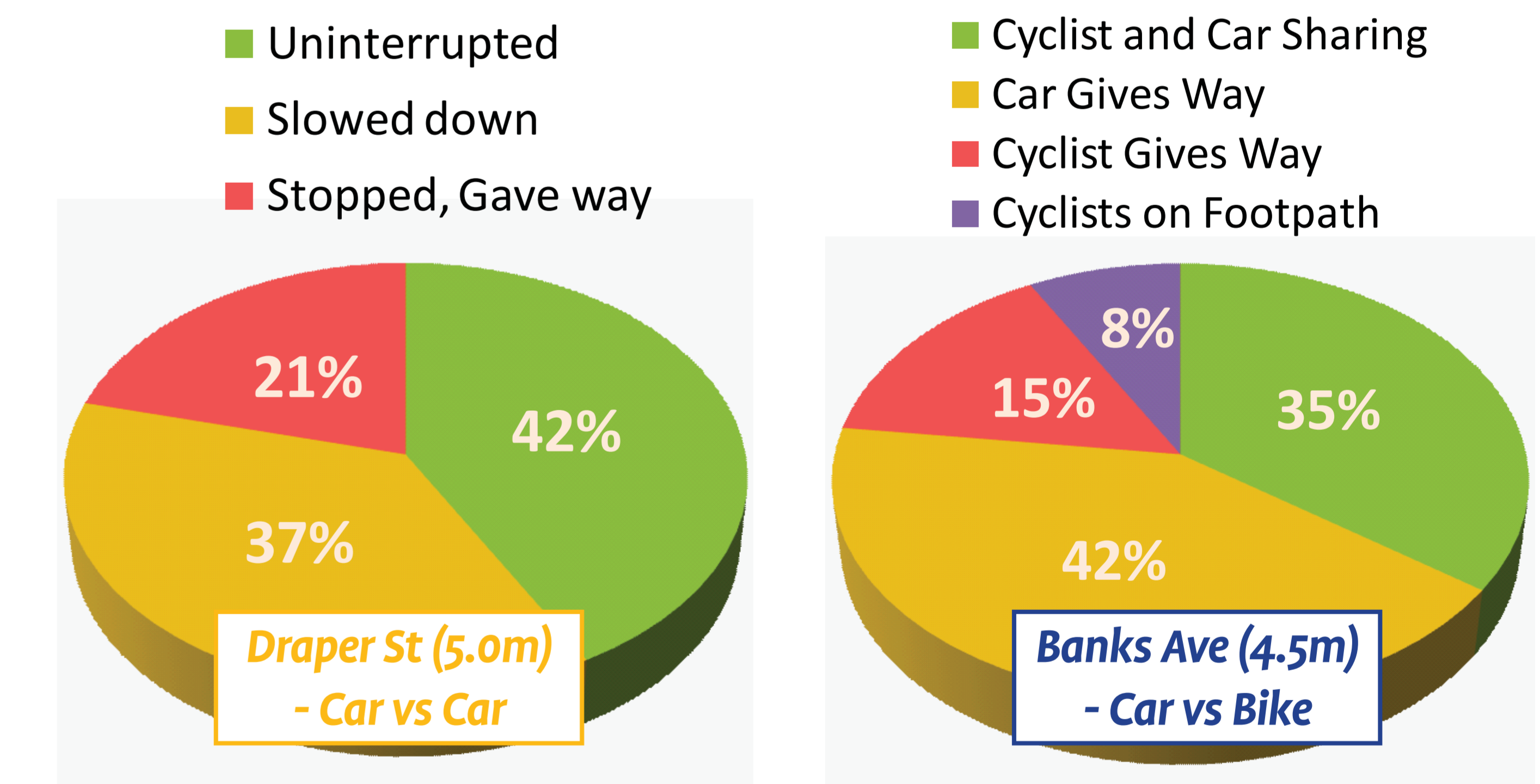


Survey Vehicle Used

## Results: Effect of Width and Traffic on Speeds



## Results: Driver Behaviour at Pinch-Points



## Key Recommendations for Further Research

- Assess the effectiveness of 5m and 6m wide pinch-points on wider commercial vehicles.
- Examine driver behaviour at widths between 5m and 6m and also slightly less than 5m.
- Consider the range of traffic volumes that would be effective to achieve the objectives of two-way pinch-point devices without causing it to become a safety issue for the road users.
- Determine whether the length of the pinch-point changes the behaviour of road users.
- Investigate whether the night-time driving environment changes road user behaviour.
- Compare other roads with similar roadway widths to see if they also show similar results.

Research Report for Details:

CHAI C. (2011). The Investigation of Suitable Roadway Widths for Pinch-points. Master of Engineering in Transportation (MET) Research Report, Dept of Civil and Natural Resources Engineering, University of Canterbury, Christchurch, New Zealand.

