

5. CYCLE LANE RESEARCH

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| Corporate Plan Output: Pages 9.5.37 & 38 | |

The purpose of this report is to inform the Committee of the results of local research into the effectiveness of painted cycle lanes.

CYCLE LANE IMPACTS ON VEHICLES, CYCLES AND SAFETY

Over the last few years, Christchurch has marked cycle lanes on a number of its arterials and has plans to mark more. The use of cycle lanes has been based primarily on overseas examples and information. They are widely used in Australia, European and American cities. The reports available from these countries indicate that they are responsible for improving the safety of cyclists (reducing their risk), and contribute to increasing cycle numbers.

The City Streets and City Design Units have conducted local research in an effort to validate overseas information, and provide a basis for continuing to use (or not) cycle lanes as a form of cycle infrastructure.

The investigations and results are as follows:

- **Vehicle Speeds:** A survey of vehicle speeds was done on Milton Street before- and after- cycle lanes were marked. The results indicate that vehicle speeds do not change.

Comment: There are some particular considerations that must be attached to this result. Prior to cycle lane marking the combined vehicle/cycle lane width was 5m. After marking the cycle lane was 1.5m, vehicle lane was 3.5m. The after-marking situation still allows a wide vehicle lane – wide enough not to impact on vehicle speeds. Further surveys will be done on roads where cycle lane marking reduces vehicle lane widths below 3.5m.

- **Cycle and Vehicle Tracking:** A survey of where vehicles and cycles position themselves on the road was done on Milton Street before- and after- cycle lanes were marked. The results indicate that when cycle lanes are marked, vehicles track about 10cm closer to the cycle lane line than without. When lanes are marked, cyclists tend to track about 5cm further out from parked cars.

Comment: The combined result of marking cycle lanes is that cyclists and vehicles tend to track approximately 15cm closer to each other than when lanes are not marked. This is not necessarily a cause for concern (see next section), and it does provide two useful pieces of information:

- when cycle lanes are marked, cyclists feel more comfortable tracking a greater distance out from parked cars; and
- vehicle drivers tend to track close to a marked line on their left. This would indicate that the positioning of a cycle lane line could be used to “discipline” traffic alignment.

Further trial work is necessary to look at widening cycle lanes and reducing vehicle lane widths.

- **Cycle, Vehicle and Pedestrian Safety:** A collision study of roads with cycle lanes marked was done for the before- and after- marking cases. The results indicate that when cycle lanes are marked, cycle/vehicle collisions reduce. What is also very interesting to note is that vehicle/vehicle collisions also reduce, and for the central city area, marking cycle lanes reduces the incidence of pedestrians getting hit by passing cars.

Comment: The overall result is very encouraging – the risk of collision appears to reduce for cyclists and vehicles where cycle lanes are marked, and also reduces for pedestrians in the CBD. The following are hypotheses as to why the collision reductions occur (our research cannot conclusively give these as the only reasons):

- Cycle/vehicle collisions reduce due to the separation of the cycle/traffic streams and the imposition of some alignment “discipline” on both streams. Additionally, the cycle lanes bring the possible presence of cyclists to driver awareness.
- Vehicle/vehicle collisions reduce due to the imposition of alignment “discipline” on vehicle streams, meaning turning or swerving manoeuvres are more likely to be done with more awareness of the general road environment.
- Pedestrian/vehicle collisions reduce as the pedestrians now have a 1.5m “buffer” between parked cars and moving cars (i.e don’t step out from between parked cars into the traffic stream). Further, the actual traffic stream crossing distance is reduced by the width of cycle lanes on both sides.

The overall results of this research work are very encouraging for the expansion of the cycle lane network. Clearly future research is required in different road environments to check behaviour changes with wider cycle lanes and/or narrower traffic lanes. In addition, the collision patterns on roads with cycle lanes will continue to be monitored and evaluated as more lanes are marked.

Perhaps the one important area not covered by this research is the matter of car-door openings in front of cyclists. There is too little statistical information on this type of collision to evaluate one way, or the other, on the impacts of cycle lanes. At this stage, it is only possible to ensure the available information is evaluated at each research review to pick up patterns when they emerge. Meanwhile, research into wider cycle lanes and/or the development of “safety strips” between parked cars and cycle lanes may go some way to reducing the incidence of this type of collision.

Recommendation: That the information be received.

Chairman’s

- Recommendation:**
1. That the information be received.
 2. That in future traffic safety promotion programmes it be emphasised that motorists should avoid encroaching on to the marked cycle lanes.