Christchurch Central Business District Cycle Signal Safety Audits

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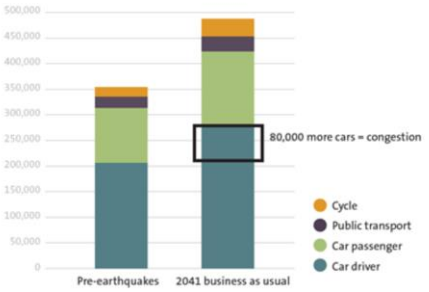
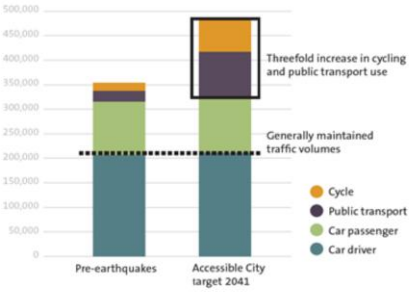
Sensitivity: General

Accessible City Plan – Strategic Approach

1. Opportunity to rebalance the transport system for the central city.
2. The recovery plan promotes a significant increase in the number of people living, working and visiting the central city.
3. Enabling increased activity in the central city without worsening traffic congestion.
4. Increasing travel choices by prioritising routes for different travel modes – Walking, cycling, public transport and general traffic.
5. Providing more enjoyable journeys.



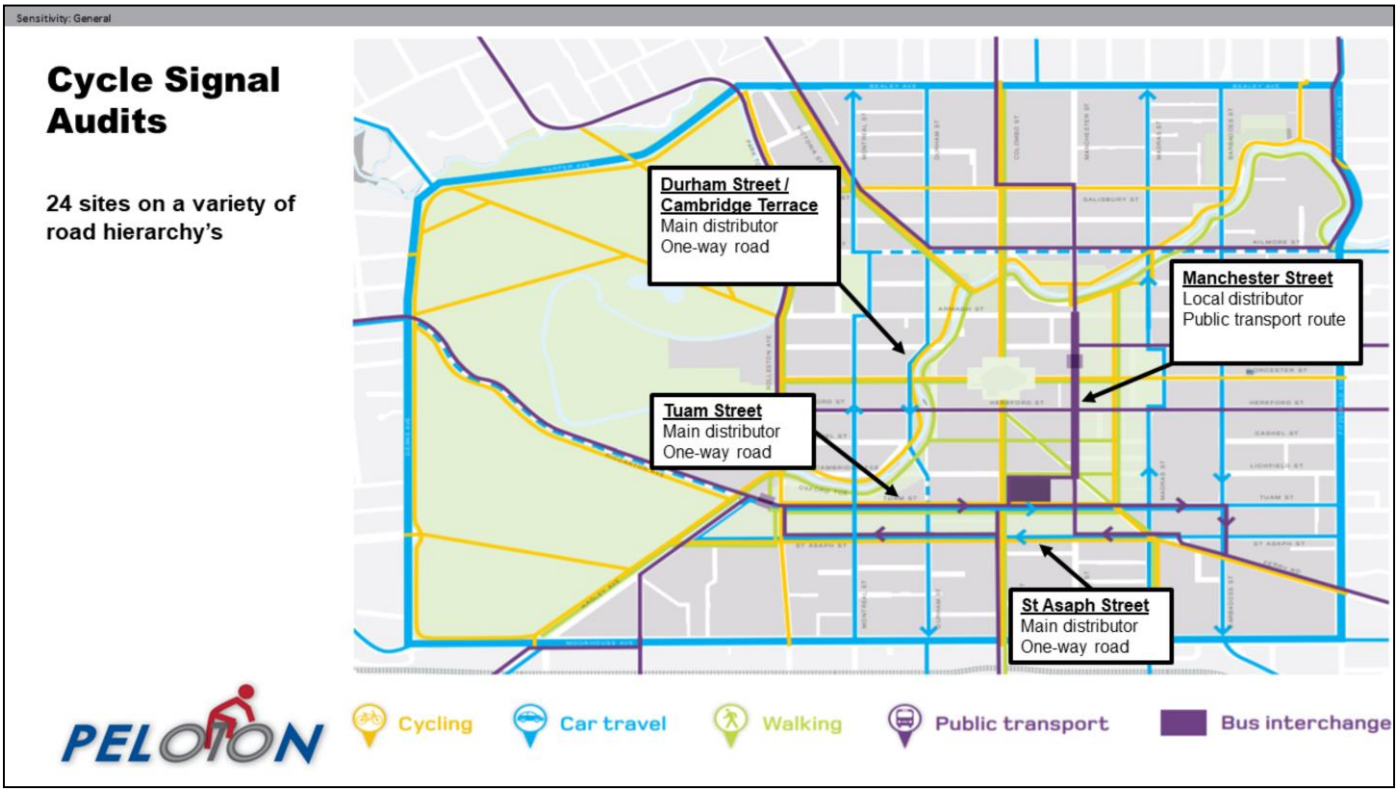


- The strategic approach following the Christchurch earthquakes was to provide opportunity to rebalance the transport system in the central city.
- The recovery plan predicted an increase in people living, working and visiting the central city.
- The idea was to increase the activity within central city without worsening congestion and road network

- The graph below details pre-earthquake figures of 200,000 cars
- In 2041 it is expected to be business as usual with an additional 80,000 more vehicles, which may increase congestion.

- The accessible city target is to increase the threshold for cycling and public transport use by generating more enjoyable journeys through the use of shared areas, cycleways and public transport routes.

- The overall goal was provide more enjoyable journeys for pedestrians, cyclists and PT users.



Commissioned by Christchurch City Council (CCC) to undertake site audits for cycle signal infrastructure only.

- 24 sites were audited over 3 days
- Spending around an hour at each site undertaking sites notes and taking pictures

The route carried out by the audit team were the intersections on Manchester St

- Manchester Street is a local distributor and is the main public transport route into and out of Christchurch
- Anticipated to have around 13,000 vehicles per day with around 100-200 cyclists per day.
- Bus turning movements at intersections were a lot higher

- St Asaph Street which is a one-way route out of Christchurch and is a distributor route
- Caters for around 12,000 VpD and 200-300 CpD

- Similar to St Asaph Street, Tuam Street is a one-way and heading into Christchurch CBD

- Durham Street and Cambridge are roads situated in the very centre of the CBD and cater for both cyclist and pedestrian users

- **Manchester Street** – public transport route (local distributor) ***13,000 Vehicles per day / 60 cyclists per day***

- **St Asaph Street** – one-way road out of the city (main distributor) ***12,000 VpD / 230 CpD***

- **Tuam Street** – one way road into the city (main distributor) ***11,000 VpD / 220 CpD***

- **Durham Street/Cambridge Terrace** – one-way (main distributor) ***13,000 VpD / 50 CpD***

The reason for the audits was to identify potential safety risks with the existing cycle signal infrastructure at each intersection

For example these were:

- **Appropriateness of poles and cycle handrails**
- **Poles installed incorrectly**
- **Low-level signal aspects**
- **Inconsistency of cycle push buttons**
- **Intermittent cycle detectors / ped detector cameras**

Poles & Handrails

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- Alignment of poles with the crossing
- Pole foundations
- Handrails restricting shared footpaths
- Manoeuvrability for cyclists

Low Level Signal Lanterns

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- Identified locations where Type 11 cycle poles have been installed
- Risk of users potentially head striking low level cycle lanterns
- Identifying Type 10 cycle mast arm pole locations
- Undertaking a review of signal lanterns overhanging into the vehicle lanes
- No part of the signal lantern or backing board is to be closer than 300mm from the kerb face

Cycle Push Buttons & Kerbside Pedestrian Detector Cameras

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- Council requirement to ‘fail safe’ all pedestrian and cycle crossings
- Removal of existing cycle call accept units
- Installation of cycle and pedestrian demand push button units
- Kerbside detector logic and intended operation
- Detector height to maximise detection zone

Cycle Detectors & Operation

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- Incorrect loop positions
- Identification of faulty or intermittent cycle detector loops
- Adequate pavement markings to identify the position of cycle detector loops to cyclists
- Loop detector operation and logic
- Consistency with the route and adjacent intersections
- Poor loop conditions

Treatment Options

Based on the site reviews and common findings at each site a number of potential mass action treatments have been identified.

All treatments have been recommended in alignment with cyclist vulnerability.

Low cost

Low to medium cost

High cost

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Work Programme Hierarchy

Low cost (<$5k) Minor works

Low to medium cost ($5k - $10k) Requires some work

High cost (>$10k) Requires signal and civil works

The existing routes are currently within the CBD's 30km/h speed limit zone and is considered safe system impact tolerances for vulnerable users.

Low cost

Re-alignment of a ped camera, or

cutting a new cycle loop

Low to medium cost

Replace type 11 poles with standard type 1 signal poles and install the cycle aspects higher to remove the potential for cyclists to conflict with the aspects.

Confirm if cycle handrails are needed or whether they are creating extra obstacles for cyclists to negotiate

High cost

P - No separation between pedestrians and cyclists on the crossing with a shared path on both sides. Confirm if this crossing can be converted to a shared crossing with shared ped/cycle lanterns. This can also remove the hazards created by installing additional cycle poles.

Conclusion

Development of cycle signal facilities has increased considerably since the Christchurch rebuild.

1. Understanding the type of user and facility required.
2. Future developments and the surrounding environment.
3. Cycle desire lines and network impacts on road users.
4. Design consistency to make the route more intuitive for cyclists.
5. Developing standard operating procedures.
6. Undertaking a lessons learnt workshops.
7. Talking to others i.e. cycling groups