Council Workshop
AGENDA

Notice of Workshop Te Pānui o te Hui:

A Council Workshop will be held on:

Date: **Tuesday 17 February 2026**
Time: **9.30 am**
Venue: **Camellia Chambers, Civic Offices, 53 Hereford Street, Christchurch**

Membership Ngā Mema

Chairperson	Mayor Phil Mauger
Deputy Chairperson	Deputy Mayor Victoria Henstock
Members	Councillor Kelly Barber
	Councillor David Cartwright
	Councillor Melanie Coker
	Councillor Pauline Cotter
	Councillor Celeste Donovan
	Councillor Tyrone Fields
	Councillor Tyla Harrison-Hunt
	Councillor Nathaniel Herz Jardine
	Councillor Yani Johanson
	Councillor Aaron Keown
	Councillor Sam MacDonald
	Councillor Jake McLellan
	Councillor Andrei Moore
	Councillor Mark Peters
	Councillor Tim Scandrett

13 February 2026

Principal Advisor
Mary Richardson
Chief Executive
Tel: 941 8999
mary.richardson@ccc.govt.nz

Note: This forum has no decision-making powers and is purely for information sharing.

To find upcoming meetings, watch a recording after the meeting date, or view copies of meeting Agendas and Notes, go to:
https://www.ccc.govt.nz/the-council/meetings-agendas-and-minutes/

TABLE OF CONTENTS NGĀ IHIRANGI

1. Apologies Ngā Whakapāha

Apologies will be recorded at the workshop.

2. Traffic Signal Operation and Optimisation

Reference Te Tohutoro: 26/248494

Presenter(s) Te Kaipāhō : Stephen Wright – Acting Head of Transport & Waste Management
Lachlan Beban – Principal Advisor Transportation
Gerard Rooney – Real Time Operations Engineer

1. Detail Te Whakamahuki

Purpose and Origin of the Workshop	The purpose of the workshop is to respond to advice requests resolved by the Finance and Performance Committee on 17 December, relating to the development of the draft Annual Plan. Specifically, the Committee requested that staff provide advice in time for the February 2026 draft Annual Plan adoption meeting on whether to consult on improving traffic flow through targeted traffic signal optimisation and green light rephasing. *This report was previously presented to the Council Workshop on 3 February 26, however there was insufficient time to cover questions from elected members.*
Timing	This workshop is expected to last for 20 minutes.
Outcome Sought	The workshop will advise elected members on the scale and scope of the Council's traffic signal and transport technology assets, how these systems operate, the level of control available, how they are managed, and how real-time optimisation services are provided. It will also outline the scope and impacts of different approaches to traffic signal optimisation and re-phasing. The workshop will provide practical examples of where and how optimisation opportunities can be identified, including: • Central City traffic signal timings and coordination • Right-turn arrow operation • Improvements to pedestrian protection (red left and right turn arrows) • Public transport signal optimisation In addition, the workshop will address common issues and questions relating to traffic signal operation, helping to explain how signals work and the impacts and considerations that must be taken into account when designing signal phasing and timings. To advise elected members on how we intend to use the Life in Christchurch Survey, general public feedback, and other tools to understand public sentiment on traffic signal operations and identify where improvements are perceived to be needed.
ELT Consideration	N/A

Next Steps	We will continue to work on optimisation opportunities within existing opportunities. Such as when we undertake traffic signal asset renewals. We will work with the Life in Christchurch Survey team to develop a series of questions to gain public feedback on traffic signal operations and specific signal functions, such as right turn arrows and pedestrian protection. This information will then be used by the RTO team to assess where to provide targeted optimisation.
Key points / Background	The Council manages and operates approximately 307 signalised intersections, 89 pedestrian crossings, 145 Variable Speed Limit Signs, 4 variable message signs (VMS), traffic CCTV, and other transport technology infrastructure. This infrastructure is connected through a complex communications network, including fibre, radio, and other wireless technologies, linking assets to central control systems. These systems include SCATS (Sydney Coordinated Adaptive Traffic System), which manages the operation of traffic signals and provides visibility and operational control over signal phasing and timings, as well as raises alarms for traffic signals in fault. SCATS dynamically adjusts traffic signal timings in real time using detector data to optimise traffic flow across the network. This helps reduce delays and stops, improve travel reliability, and lower fuel use and emissions by creating coordinated "green waves," adapting to congestion, and prioritising emergency vehicles where required. SCATS links intersections by automatically adjusting cycle lengths, phase splits, and offsets based on actual traffic demand. For SCATS to operate effectively, appropriate settings and parameters must be programmed and maintained by the Real Time Operations (RTO) team. As with any system, the outputs are dependent on the quality of the inputs, and the team regularly reviews, adapts, and refines these traffic signal phase configurations to optimise how SCATS manages the network. The team monitors the transport network using SCATS, CCTV, and other tools to identify issues such as unusual congestion, crashes, or other factors impacting traffic flow. Where possible, they take action to minimise network impacts by adjusting signal phasing and timings manually. In addition to business-as-usual operation and optimisation, the team manages all transport technology assets and undertakes asset renewals, approves the design of new signal infrastructure, and implements changes in response to safety concerns. The team also upgrades signals to better accommodate the long-term impacts of road works. Across all funded works, opportunities to modernise the network by installing new signal infrastructure that provides greater adaptability and flexibility are prioritised. Asset age is a contributing factor in relation to the range of functionality available to actively manage traffic signal operation. Generally, the older the infrastructure, the more limited the feature set becomes to adjust settings and optimise performance. Since 2020, there has been no dedicated budget for signal optimisation. Signal optimisation is currently being carried out as part of business-as-usual and resources are made available from existing staff within the RTO team, or through asset renew projects.

	All signal optimisation and changes to signal timings require careful balance and prioritisation. Simply put, increasing green time for one approach at an intersection means reducing green time for another. The presentation and workshop will outline some of the common issues raised by road users in relation to signal timings, explore potential opportunities to improve efficiency, and highlight the possible impacts of making changes.
Useful Links	N/A

Attachments Ngā Tāpirihanga

No.	Title	Reference	Page
A	Traffic Signal Operation and Optimisation. version 2	26/264130	8

Signatories Ngā Kaiwaitohu

Authors	Jann Kuhlmann - Team Leader Real Time Operations Lachlan Beban - Principal Advisor Transportation Signals
Approved By	Stephen Wright - Head of Transport & Waste Management Brent Smith - General Manager City Infrastructure

Traffic Signal Operation and Optimisation

Gerard Rooney, Stephen Wright &
Lachlan Beban

03 February 2026

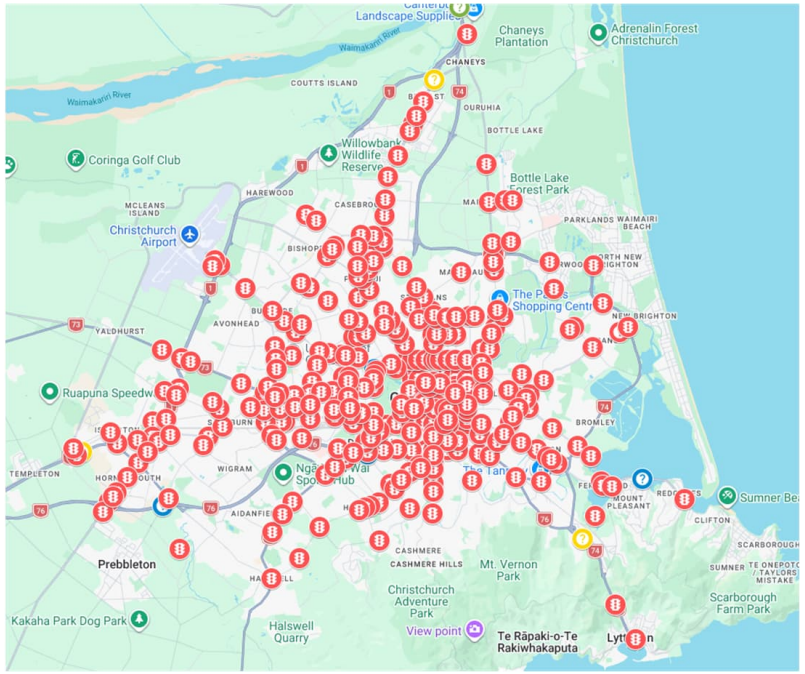
Christchurch City Council

Contents

Real Time Operations

Real Time Operations

- RTO manages, maintains and operates a network of over 377 CCC signalized sites
- Operate 43, on behalf of NZTA, WDC, SDC and the airport.
- 100's of CCTV
- A vast communications networks connecting to all these assets



SCATS

- CCC uses the Sydney Coordinated Adaptive Traffic System (SCATS).
- SCATS continuously collects data from vehicle detectors
- SCATS automatically adjusts signal timings:
  - Overall cycle length
  - Phase splits
  - Offsets between intersections
- Adjustments occur both at individual intersections and across the wider network

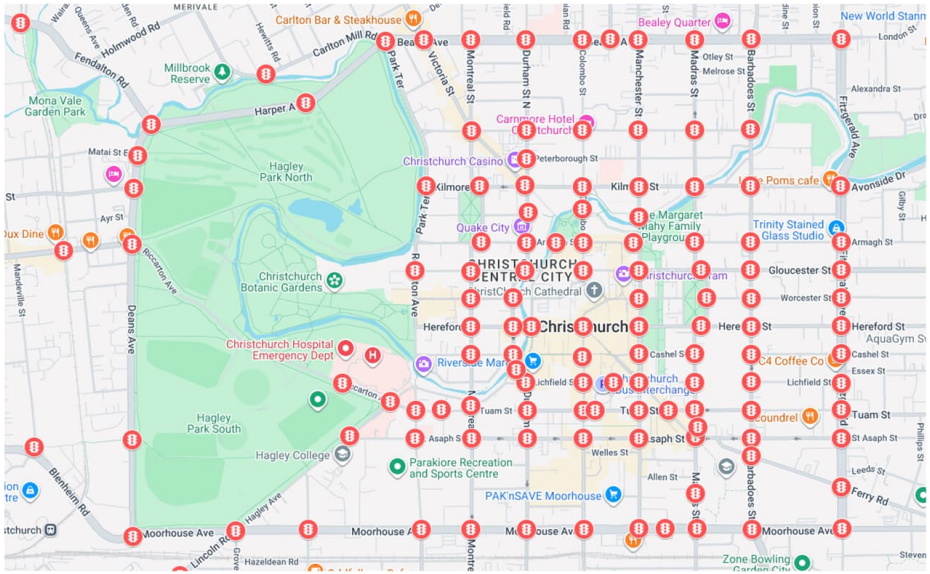
SCATS Issues

- 1. Limitations and problems in real-world operation.
- 2. Struggles under heavy or unusual congestion.
- 3. Detection reliance and limitations.
- 4. Dependent on reliable hardware and communications

Central City traffic signals

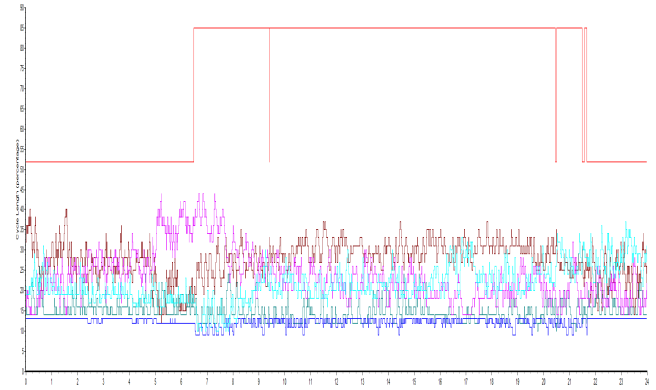
Central City traffic signal timings and coordination

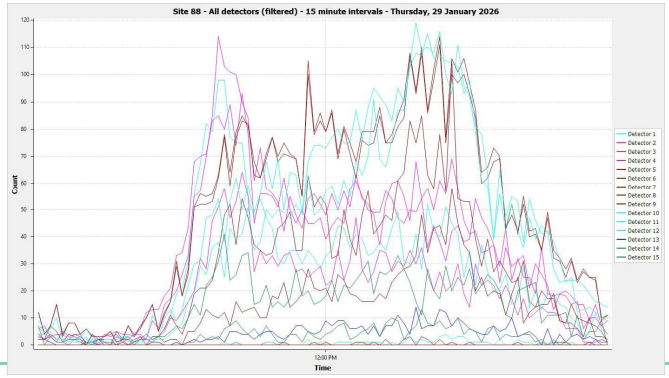
- CBD network operates on two fixed cycle lengths
- Cycle length is time for all movements /phases to run at an intersection
- Two fixed cycle lengths:
- 45s for low demand conditions
- 78s for higher demand conditions (i.e. daytime hours)



Central City traffic signal timings and coordination

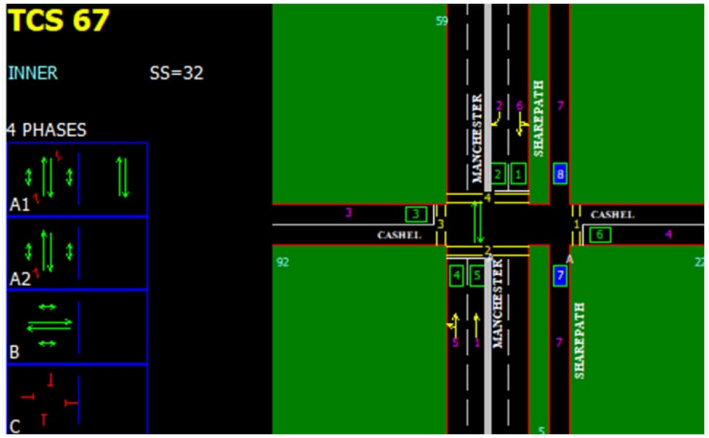
- Cycle time within four aves determined by data collected at key CBD sites.
- Higher cycle times result in
  - To a point, more throughput of traffic (less red/yellow time per hour)
  - Longer waits between phases
  - Less frequent pedestrian crossing opportunities.
  - Longer delay for low volume side roads





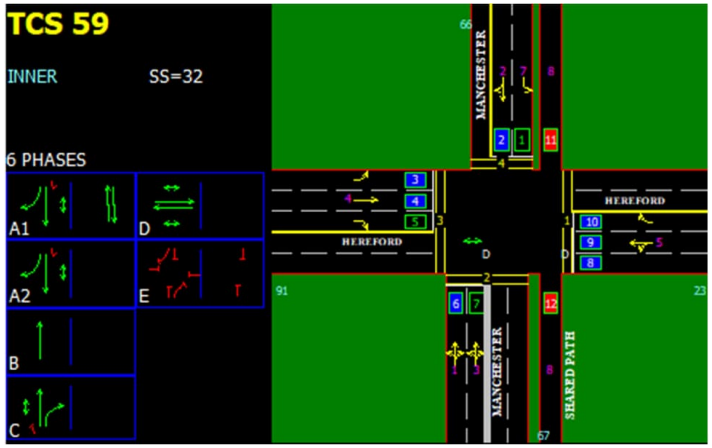
Central City traffic signal timings and coordination

- At a two-phase intersection such as Manchester / Cashel, the limitations imposed by cycle length work well.



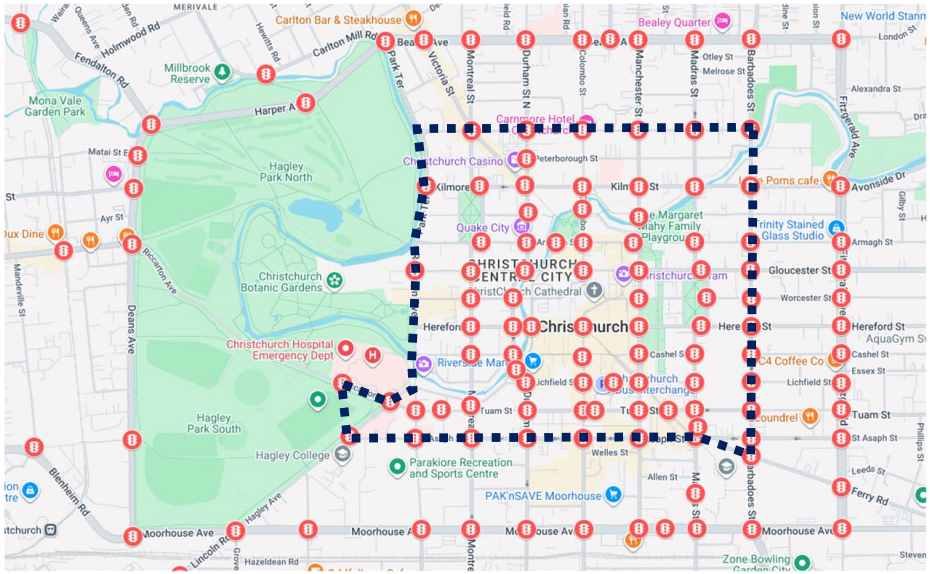
Central City traffic signal timings and coordination

- At a four-phase intersection such as Hereford / Manchester, working within a fixed cycle length creates some issues.



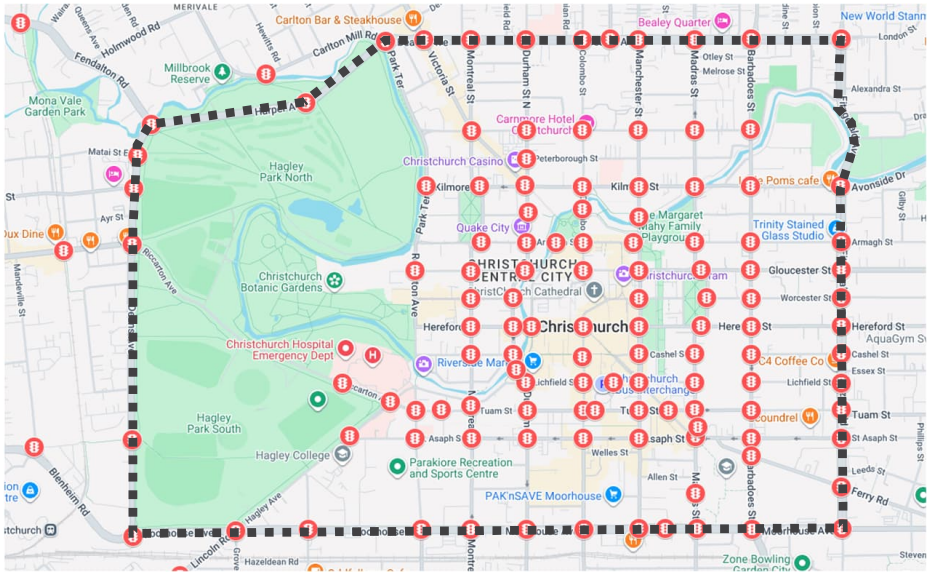
Co-ordination - Inner City (within the Four Aves)

- Coordination on the one-way system operates only within the Four Avenues.
- “Green wave”
- Issues at intersections where two one-way systems meet.
- Additional allowance to clear any queued vehicles

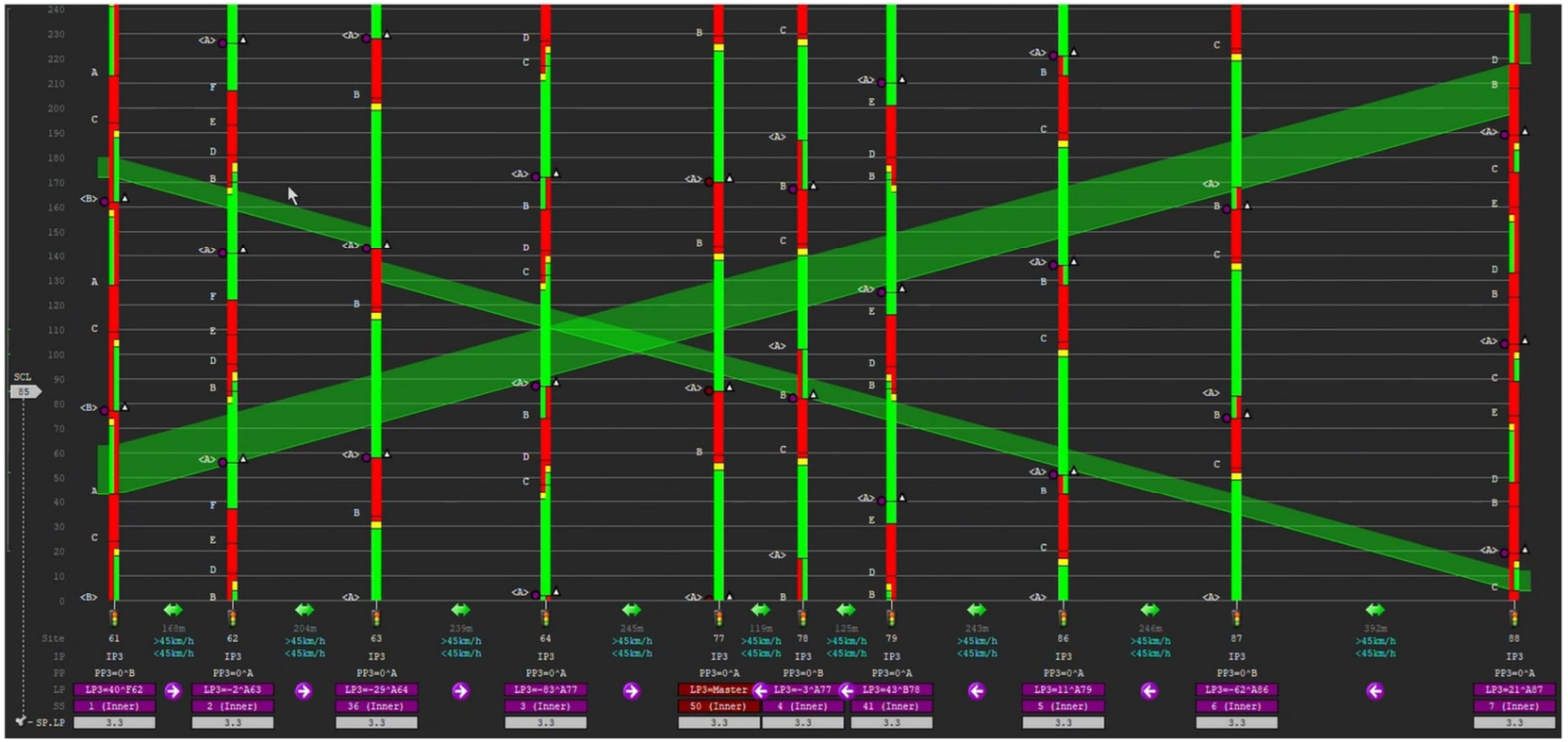


Co-ordination - Four Aves

- Easier to coordinate for one direction of travel.
- Good two-way coordination, relies on factors such as:
  - Spacing between intersections
  - Number of phases at each site.
- In peak periods, tidal flow prioritised.



Co-ordination - Four Aves



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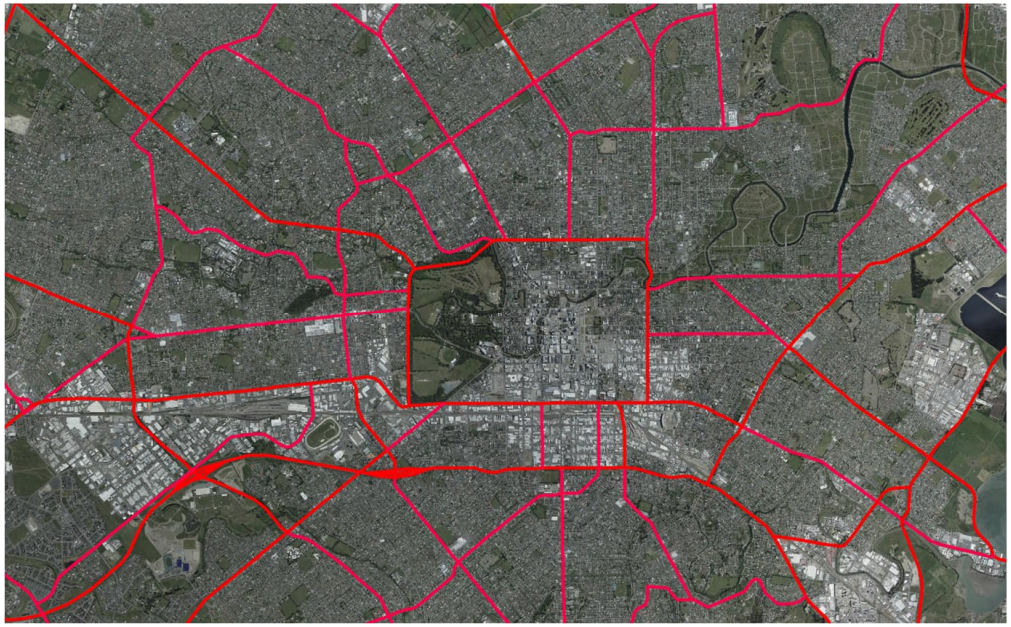
Co-ordination – Arterials

- More difficult to achieve effective two-way coordination
- Generally coordinated to tidal flows during the morning and evening peaks.



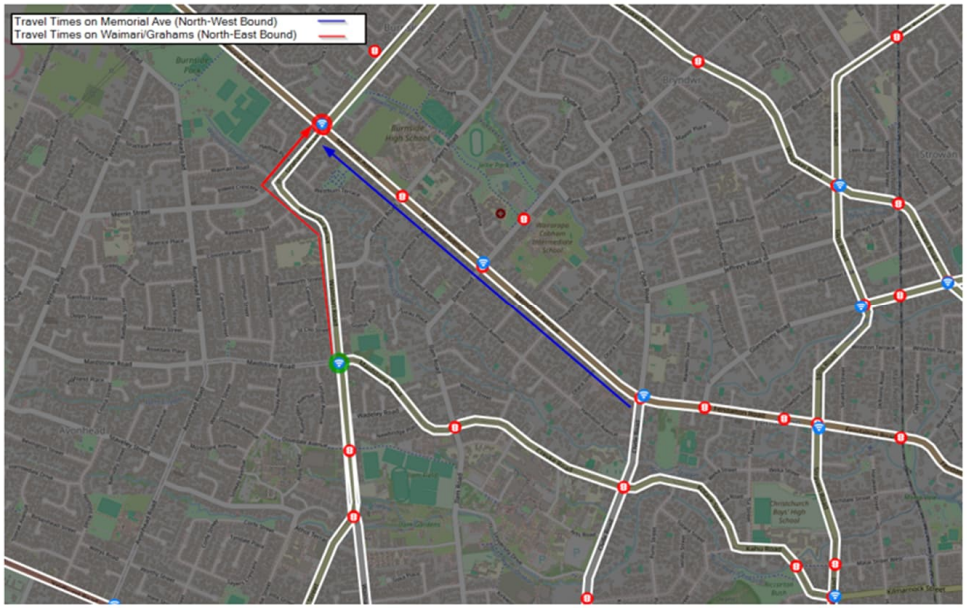
Common requests and complaints – right turn arrows

Right Turn Phases

- One of the most common requests from the public.
- A range of factors are considered, including:
  - Traffic volume
  - Crash history
  - Intersection geometry
  - Speed environment
- Trade-offs, May improve travel time and/or safety for some users but increase delays for others.

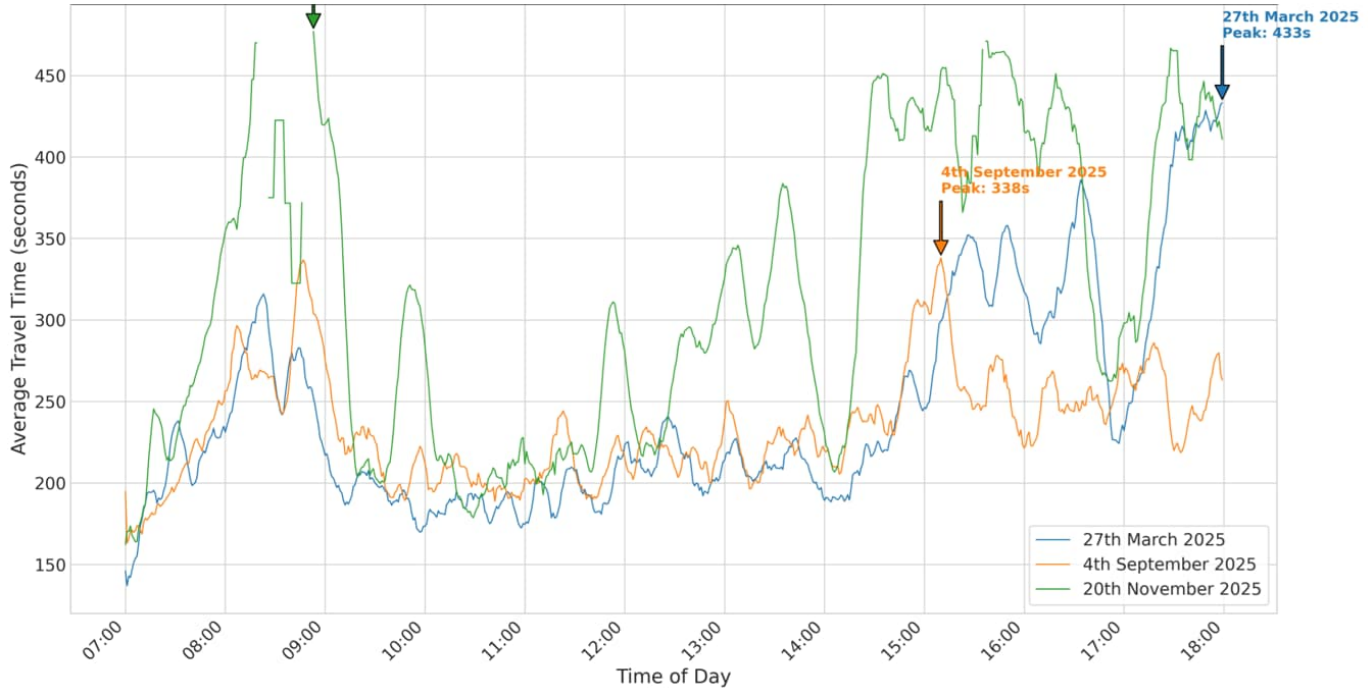
Case Study: Memorial Ave/Grahams Rd Intersection

- Phase for RT movement from Grahams to Memorial citybound added 5th September 2025
- Eased congestion on Grahams Rd but what were the affects on Memorial Ave?
- Used average travel time data to provide a comparison of before and after.



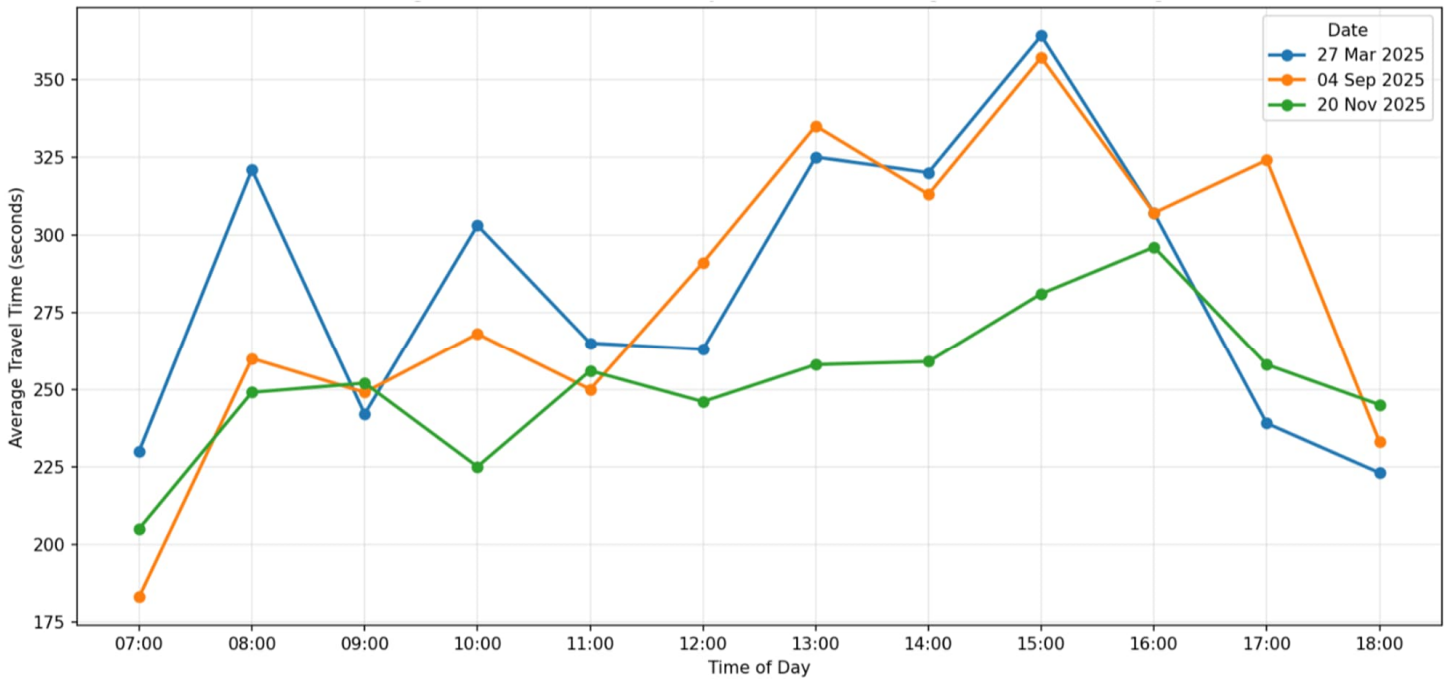
Case Study: Memorial Ave/Grahams Rd Intersection

Average Travel Time - Memorial/Clyde to Memorial/Grahams



Case Study: Memorial Ave/Grahams Rd Intersection

Average Travel Time - Maidstone/Waimairi to Memorial/Grahams



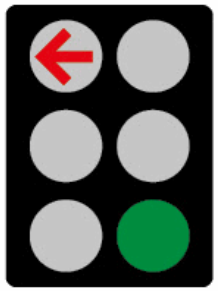
Case Study: Memorial Ave/Grahams Rd Intersection

- Improved travel times on Grahams Road for north-eastbound traffic.
- Increase in travel time on Memorial Avenue was greater than the time gain on the Grahams Road.

	8am		12pm		3pm	
	27/03/2025	20/11/2025	27/03/2025	20/11/2025	27/03/2025	20/11/2025
Memorial Ave	240 sec	350 sec (45.8%)	220 sec	290 sec (31.82%)	245 sec	410 sec (67.35%)
Grahams Rd	320 sec	250 sec (21.88%)	260 sec	245 sec (5.77%)	360 sec	290 sec (19.44%)

Pedestrian Protection

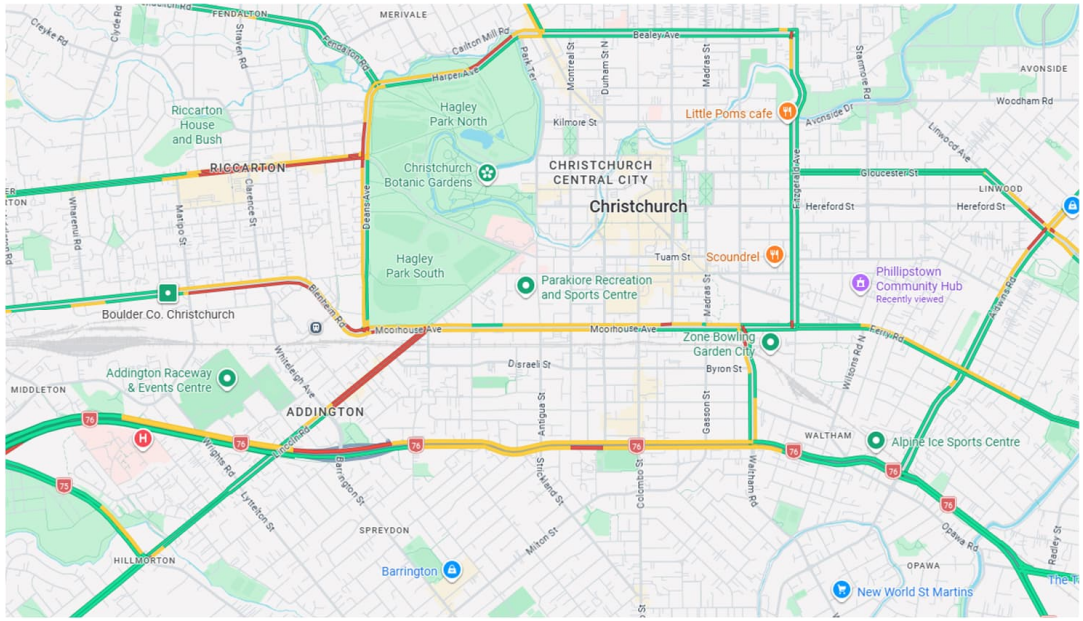
- Most commonly a directional red arrow.
- Can also be a Late Start, pedestrian crossing starts before full green signal for traffic.
- Impact on traffic?



Monitoring and optimisation opportunities

Congestion monitoring

- Multiple tools used, high awareness of network performance and issues
- SCATS Unusual Congestion monitor
- NZTA Traffic Watcher
- AddInsight
- CCTV



Opportunities for Optimisation

- Cant create time
- Optimisation is about minimising wasted time – difficult in co-ordinated network
- BAU RTO optimisation
- Asset upgrades (cant always add newer equipment without a whole renewal)
- New technologies
- Review of CBD signal timings
- Will collate feedback from existing sources and potentially through Life in Christchurch Survey to pain points


Questions?
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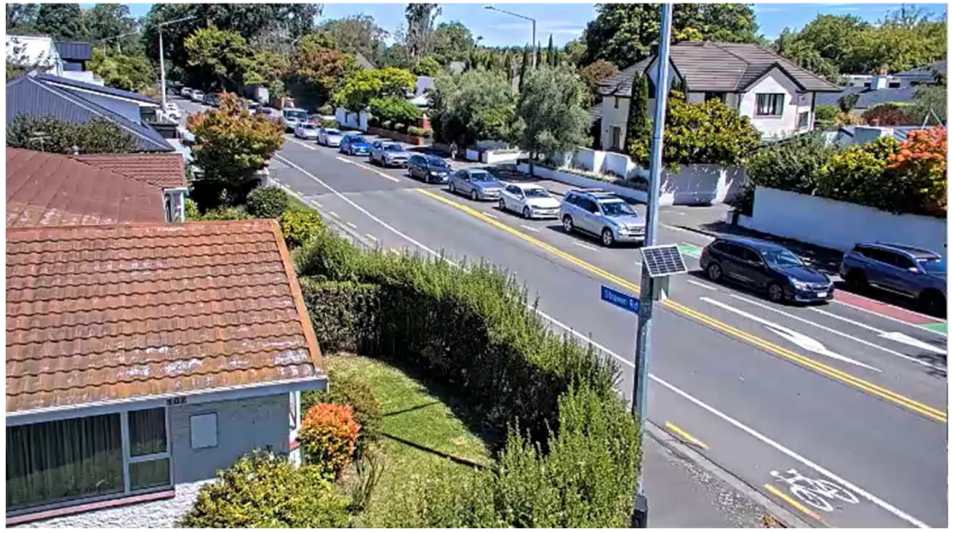
Gapping out

- An important aspect of traffic flow is the concept of gapping out. Gapping out occurs when the time between arriving vehicles becomes too large. In the first 10 seconds of a green phase, after the initial start-up delay, queued vehicles discharge quickly with small gaps between them. Later in the phase, as vehicles increase speed past the stop line and the gaps naturally widen, the movement becomes less efficient because fewer vehicles will enter the intersection. Typically, between 35 and 45 seconds into a phase, fewer vehicles pass through the intersection than in the first 10 seconds.
- In many cases, it is more efficient to run shorter phases so that more vehicles are queued at the stop line at the start of green, rather than extending the phase to clear all remaining traffic when gaps have increased. Although this can create some friction for individual drivers, it often provides an overall benefit to the average road user.
- This effect is highly dependent on intersection layout and approach configuration, but it is commonly seen where single-lane approaches meet multi-lane approaches. Certain road layouts, particularly where a corner is close to the stop line, can also exaggerate this effect by limiting the speed at which vehicles can accelerate into the intersection.



3. Items Closed to the Public

The information session/workshop items noted from the next page will not be open to the public under the sections of the Local Government Official Information and Meetings Act 1987 (LGOIMA) outlined in the table on the following page. The full wording of the noted LGOIMA sections is found in section 6 or section 7 of the Act.

In the Council's view, these reasons for exclusion are not outweighed by public interest considerations in section 7(1) favouring their release.

The public can ask the Ombudsman to review this decision. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

ITEM NO.	GENERAL SUBJECT OF EACH MATTER TO BE CONSIDERED	SECTION	SUBCLAUSE AND REASON UNDER THE ACT	PUBLIC INTEREST CONSIDERATION	POTENTIAL RELEASE REVIEW DATE AND CONDITIONS
4.	CATHEDRAL SQUARE UPDATE	S7(2)(B)(II), S7(2)(H)	PREJUDICE COMMERCIAL POSITION, COMMERCIAL ACTIVITIES	THIS WORKSHOP ITEM DISCUSSES POTENTIAL PROCUREMENT PROCESSES AND INFORMATION ABOUT PRIVATE DEVELOPMENTS WHICH ISN'T YET PUBLICLY AVAILABLE. THE RISK TO THE COUNCIL'S COMMERCIAL POSITION OUTWEIGHS THE PUBLIC INTEREST.	30 SEPTEMBER 2026 UPON THE REVIEW OF THE GENERAL MANAGER STRATEGY, PLANNING AND REGULATORY SERVICES.