

SH1 Paremata Roundabout



NZ TRANSPORT AGENCY
WAKA KOTAHĪ

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Good morning/afternoon ladies and gentlemen.....

My name is Steen, I am the Technical Services Manager at NZTA, based at Wellington Transport Operations Centre.

I'm here to discuss the challenges we faced with providing a safe and efficient solution for road users at SH1 and SH58 intersection shown on screen.

Problem

- Safety concerns for vehicles attempting to exit Paremata Railway Station.
- Lengthy delays for southbound traffic.
- Constant flow of northbound traffic turning right from SH1 to SH58.
- Customer complaints about stationary traffic on Mana Esplanade for long periods during peak times.
- A need to encourage use of other modes of transport

Paremata roundabout dangerous, says Whitby resident

DANIEL WHITFIELD - 17:02, Jul 15 2015



DANIEL WHITFIELD/STUFF
Caroline Collins has been appealing to NZ Transport Agency for two years, hoping to make the Paremata roundabout safer for commuters and road users.

<https://www.stuff.co.nz/dominion-post/news/70172922/paremata-roundabout-dangerous-says-whitby-resident>

Read slide

The Paremata roundabout has been an issue in the Wellington region for many years, possible solutions have been battered around from simple line marking changes, closing the train station carpark to a full-blown grade separated interchange.

In 2018 lane marking changes were made to the roundabout along with minor civil works, but these changes were met with disappointment from the public along with anger that we were not doing enough to fix the issue. The changes made to the roundabout in 2018 had no effect despite what the consultant's models predicted.

There were then those internally that were firmly of the view of don't worry about it and don't spend any more money on it, Transmission Gully will fix it and it won't be an issue.

The issue is although Transmission Gully will remove a significant amount of traffic from this highway in the short term the pain remains and so do the safety risks.

Solution – Roundabout Metering

- A simple idea to create gaps in the northbound flow to allow the traffic exiting the train station car park a free flowing exit during peak times.
- Side benefit of reduced congestion southbound on SH1 Mana Esplanade.
- A cost effective solution - move away from the old view of build an interchange.

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The idea of the signalised roundabout came from WTOC staff visiting CTOC and one of their local sites.

Staff saw the effect it was having in Christchurch and saw that the same principal could be applied in our region.

The main challenge though was to sell the idea to those internal parties that in the past only wanted to look at the traditional high cost build solution. Keeping our vision simple was the key *create gaps and give the other approaches a turn.*

Background



- Operational since mid-June 2019.
- The lights will only show amber and red – no green signal, 2 aspect display trial.
- Road users to prepare to stop on amber, stop on the red, and proceed to the roundabout when both lights are off.
- Give-way rules still apply at the roundabout at all times, even when the lights are operating.

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We worked with other key partners for the first week of operation, this included:

- NZ Police who had a visible presence on site to ensure compliance for the first week as road users became familiar with the new arrangement.
- WTOC operators and Traffic Signal Operators monitored using the CCTV cameras and the SCATS system.
- We also collected footage for 6 weeks for Stantec to review.

Operation



- Monitored at WTOC and operates between 04:00pm to 06:00pm Mondays-Fridays.
- Inductive Loops located at the Paremata Railway Station and the Southbound approach that triggers the signals to operate.
- Amber and Red runs for 40 seconds.

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The system is automated to turn on between 4pm-6pm.

When queues reach the presence detectors and the presence timer setting expires this places a demand for B phase which holds north bound state highway 1 traffic on red for 40s.

This creates gaps in the flows and provides opportunity for the car park and south bound flows to proceed.

Once the queues have cleared and are no longer occupying the detector loops the traffic signals will remain in a blank state until the next queue is formed.

Railway Station = Queue loop w/ 2s presence detector.

Mana Esplanade s/bound = Queue radar detector.

Amber/Red = 40s.

Variable-Message Signs

- VMS were installed to support traffic signals and inform the road users that the signals are active.
- These turn on when the signals are activated with fixed messages.



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Worth noting that as a part of the safety review of this site if any of the VMS are non-operational during peak time the system is shut off until the VMS is fixed.

Customer feedback

- Mixed, but mostly positive.
- A bit of confusion around if they are working or not due to the green lamp not being present.
- Key stakeholders are positive that a big step forward was taken, and a clear sign that cars are only part of the solution.

Robynna Wharaka It worked!!!! I was a bit skeptical, but the new-improved Paremata roundabout is vastly improved for ALL users-kai pai!

Margaret Turner I travel north every evening at around 5:15-5:30 and have only been stopped by the lights a handful of times. Have barely noticed the difference. Needs to be extended into the weekends now to cope with trying to get south on a Saturday morning. Great and easy "fix" for the meantime.

Wynne Smith Huh without significantly impacting northbound? The queue now goes to opposite traffic lights at Aotea!

Chris Murray It's been that bad for ages. That wasn't a result of these lights

Simon Wharaka Could they not afford green lights...let's see how this works 🙄🙄

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Read the comments if they can't be seen.

When we talk about positive feedback from key stakeholders what we mean by this was, it was the first time in the Wellington region where we put a clear priority on people using public transport.

If you had tried this 5 years ago in Wellington, telling people you were going to hold the state highway out of the city to let people out of the train station car park it would not have happened. It was a clear signal to our partners that our priorities have changed.

The Challenges

- Not trying to reinvent the wheel, learning from other regions, taking what worked well for them and applying it in our region.
- Changing the mindset of both internal and external stakeholders, that the idea was simple and could work (Didn't need to be over engineered).
- Most importantly keeping it simple!



Their wheel



Our wheel

Read slide

This was the biggest challenge - trying to shift people from a mind set of build big & build better, don't build anything and wait a few years and the new road will fix it, to build simple & build smart.

The key was we found when things became too complex for some internal and external partners, we took it back to the simple vision – “create gaps” that's all we are trying to do.

It's important as well that each region does not try and reinvent the wheel as this becomes expensive, why not learn from others mistakes and triumphs. We were told multiple times that this idea might work in other places, but it won't work in Wellington or Wellington drivers just won't get it.

Results



- Travel times have significantly improved for southbound traffic throughout the roundabout during PM peak.
- Road users from other directions have not been significantly affected.
- The smoother operation of the roundabout has improved safety for all users especially people exiting the train station carpark.
- There has been no noticeable increase in rat-running along local roads to avoid the SH1 lights now that the system has bedded in.

Any questions.....