

SNUG Regional Update 2022



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21/22 Overview

- Challenges
- Operations
- Asset Management
- Optimisation
- Wellington Transport Alliance
- Projects
 - Transmission Gully
 - Revocation Project
 - NZUP - Queenstown
 - Motueka - Safety Upgrade Project



The headings on the screen are some key points that WTOC have been focusing on over the past 12 months in respect to traffic signals. I'll be touching on most of these points as well as a few others throughout my update.

So since SNUG 2021 WTOC have been focused on introducing key systems and processes to support the planning and delivery of traffic signal maintenance/renewals and optimisation to better inform future planning and management of traffic signal assets and operations in our area.

Throughout the year we have been involved in a number of large and small projects that has seen a number of new traffic signals introduced to both the state highway and local road networks that we operationally manage and support and being the SME's for signals in our area of operation we have inherited a good amount experience from these engagements often needing to wear 2 hats to ensure state highway and local road requirements are captured and delivered for each region.

We have experienced an increase in new intersections since the above projects

Challenges

- Resourcing
- Budgets
- Renewals
- Transmission Gully



So the challenges, and we have encountered a few.

Resourcing has been an on-going challenge for WTOC over the past 12 months and that's across the board in all areas, not only in the traffic signals space. We've had some people leave or move on to other opportunities and as a result in the 6 months we've hired 3 new traffic signal operators that bring with them really great enthusiasm and skills to the team.

Feedback from people leaving is that a combination of shift work, career progression and providing a competitive remuneration package is often the reasoning for them moving on to other roles so this is something we are reviewing to determine if we are able to provide a more attractive package to hopefully retain staff.

With recruitment we are finding it increasingly difficult to get good quality people through the door and when they do present we've found we need to act immediately to secure them otherwise we end up losing them to other offers.

Recruitment is something we have spent a lot of time on over the last year. We don't expect that this will slow down due to the nature of the role and the drive for

personal growth and development within WTOC. The best thing we can do is plan ahead for how we can provide an attractive career pathway to hopefully retain staff for longer than 12 months.

I think we can all agree that budgets have always been a challenge and I really don't see this changing. The impacts of Covid has caused budgets to take a further hit with freight and inflation on the rise, but that's just something we can't control. For the year 21/22 we found it increasingly difficult to make our budgets work especially when needing to cover damage to an asset caused by drivers. More often than not the repair bill sits with WTOC, but on the odd occasion we have managed to claim that money back to relieve a bit of pressure.

We are doing some work in the background to ensure that projects incorporate the end to end requirement for future maintenance such as ensuring that when new assets are being installed on the network there is a plan in place for increased budgets. At the moment there are numerous intersections being built and on boarded without any additional funding being provided to manage the asset. This is already a challenging situation for us and I believe it will only get worse with time.

Completing renewals work has been increasingly difficult and we are hearing this same theme across a number of regions we are involved with. We are finding that often work is not tendered for, securing TTM and civils crews to perform the work can often be very uncertain or unreliable which all results in delays. We do acknowledge that covid plays a significant part in this with crews isolating and out of action which is just something we are needing to adapt too. We have identified that we need to be better at delivering renewals work and in Wellington I believe that the Wellington Transport Alliance will be able to assist in this space. I will be touching on the WTA later in my presentation.

The opening of Transmission Gully in March 2022 was a significant piece of work that affected all WTOC operations team. Even though this piece of road is a state highway the operational responsibilities sit with the builder – Ventia.

Ventia have their own TGTOC with the operations managed by operators (some from WTOC) that use similar systems to manage the 27km stretch of road.

A number of new processes were developed to ensure management of the surrounding roads and communication between WTOC and Ventia were managed in a way that clearly outlined boundaries and areas of responsibilities, especially because TG has its own Incident Response crew so it was particularly important that

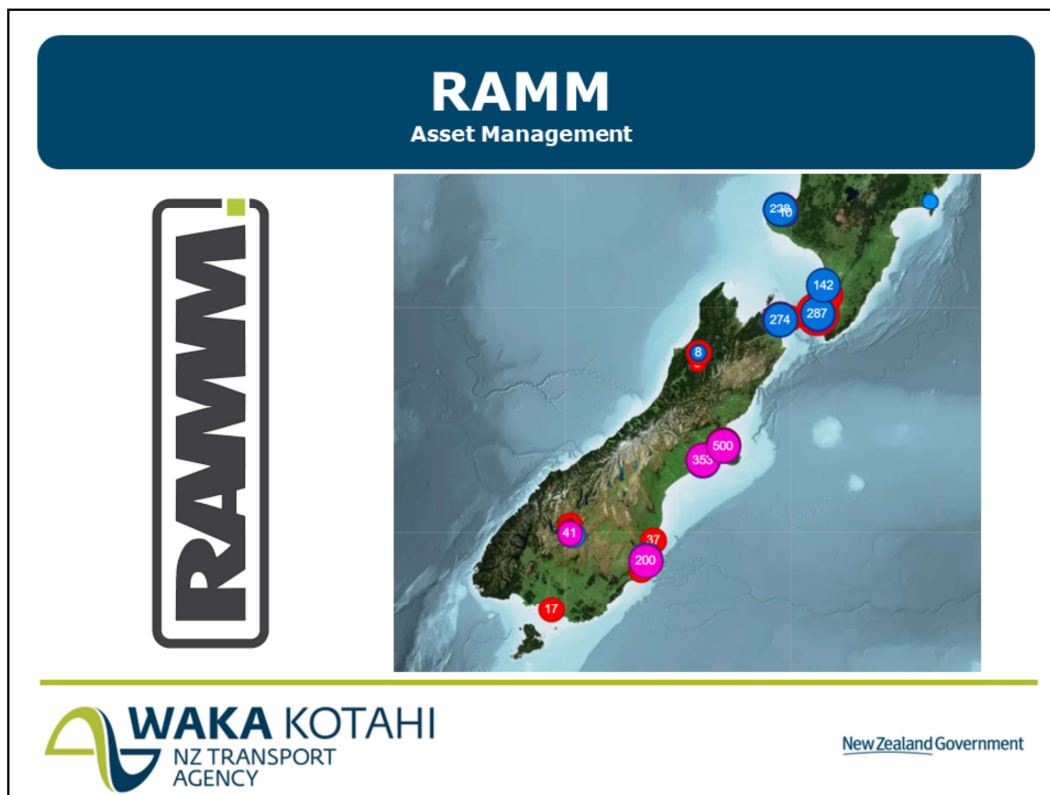
our staff understood how we would respond in certain circumstances that would likely occur around these boundaries. This meant a lot of new operator training and ways of working and we expect more challenges to come in the future.

Signal Operations

- Team of 5 operators
- 2 Christchurch based engineers
- Timaru / Ashburton and Invercargill
- 300+ SCATS Intersections
- State Highway and Local roads



- Optimisation and modelling
- Traffic Signal design review
- CIS writing
- CAD design for asbuilts



So a quick update on our asset management database - RAMM.

You may recall last year I mentioned this was a focus point for WTOC as we did not have a single database that held all records of our traffic signal asset information.

We have undertaken a huge amount of work on top of BAU over the past 12 months to gather asset data for every WTOC State Highway intersection and input this information into RAMM to ensure to we have a record of our asset.

Having a reliable asset management system is something we have not had at our disposal in the past and whilst we are yet to utilise RAMM for everything it offers, it's something that we intend on utilising in the near future to further improve management of traffic signals.

This has been a combined effort between the WTOC signals team and the WTOC Christchurch based traffic engineers and we are glad to say that we aren't too far off completing the data input. I would also like to mention that due to the efforts of our partners at WCC, we managed to save a lot of time at the start as they were slightly ahead of us in the process and had set out a really good user defined tables and a logical hierarchy so it made sense to align our setup with theirs.

Optimisation



- Expertise
- Training
- Optimisation program
- Review / implementation
- New Plymouth – 1 way systems
- SH59 revocation – TG opening



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Optimisation

WTOC have made some really good progress developing our optimisation programme and our methods for assessing and implementing physical and operational improvements to intersections and corridors for networks that we manage.

In the past we had limited knowledge and experience in optimisation, but more recently with the help of our extended WTOC team located in Christchurch, who bring with them a vast depth of expertise in this space, we've had the ability to provide training along with on-going mentoring and coaching for our traffic signals team to enable such tasks to be performed in house – a service that is also available to

our Council partners.

We are already seeing the benefits of being able to manage this in house as it enables us to better utilise our optimisation budgets to improve customer experience out on the roads, but also it provides growth, variety and career development opportunities for our operators to ensure career progression which we hope that by providing opportunities in all aspects of traffic signals will result in an attractive career pathway and retention of staff.

Optimisation

New Plymouth

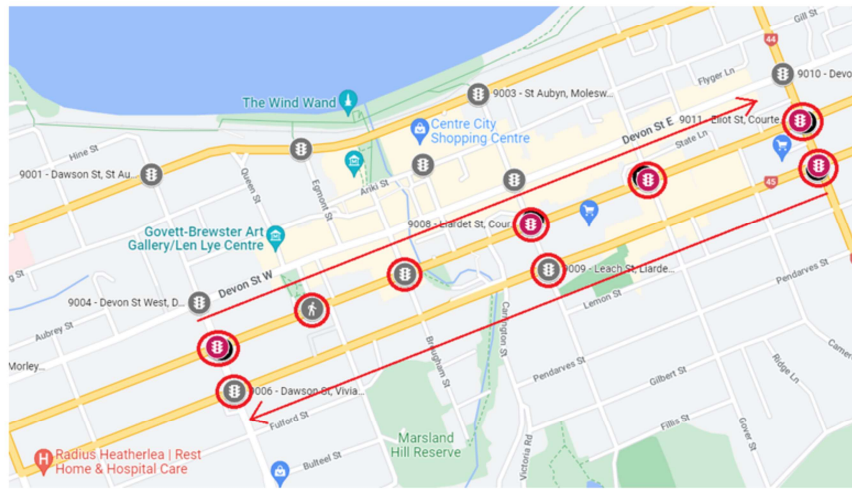


Optimising the one way state highway corridors in New Plymouth has been on our radar for a while.

We were aware that road users were experiencing unnecessary delays on both one way corridors on a daily basis. This was largely attributed to the full 3 aspect lanterns controlling both turning and through movements along with partial pedestrian protection when the crossings operated.

Recently we reviewed these corridors incorporating both state highway and local road changes in our assessment and came up with some options for improvement.

Scope



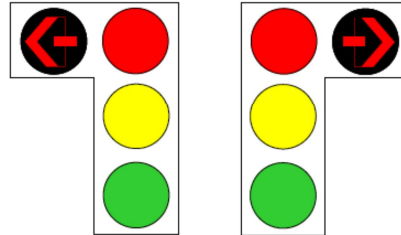
The scope of this work included 2 1 way state highways that run directly through the middle of New Plymouth.

There a 8 signalised intersections that intersect with local roads that also serve east to west traffic into the New Plymouth CBD and 1 signalised pedestrian crossing.

These 2 state highways a key corridors through New Plymouth and cater to 25,000vpd so removing the unnecessary delays are going to benefit a lot of journeys.

Scope

- SH45 – Powderham/Courtenay (N)
- SH45 – Vivian/Leach (S)
- 9 sets of State Highway traffic signals
- Introduce 4 aspect lanterns
- Reduce unnecessary delays and improve coordination and efficiency
- CIS and Software preparation



Our aim was to better manage state highway turning movements to ensure through traffic was not being unnecessarily held on red due to the partial pedestrian protection.

We decided the most sensible solution to this issue was to introduce 4 aspect lanterns at the 8 intersections to control the left and right turns separately from the through movement. This would enable us to remove those unnecessary delays for through traffic and enable greater coordination and efficiency along the corridor. The existing lane layout at the limit line at most of these intersections consisted of 2 through lanes with separated turn lanes so this supported what we were trying to achieve.

During our assessment we also identified similar delays and signal arrangements at the same intersections, but with the issue being on the local road. We discussed these issues with NPDC and agreed that where needed the same solution be applied for the intersecting local roads.

The CIS's were amended and reviewed in house and then forwarded on to be written and tested by an external consultant.

Still to come.....

- Hardware installation
- SFT testing & installation
- SCATS coordination review
- Optimisation report documented



Implementation

This work is still underway and nearing the implementation stage which is programmed to start in September so at the moment I cant provide you with the outcomes of this work, but we look forward to seeing the improvements along these busy corridors and feedback from intersection users

SH2 / Totara Park

Advanced Warning Signals



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SH2 between Lower Hutt and Upper Hutt in Wellington is known for its mixture of traffic signal intersections within a 100km/h environment.

CAS data identified the Totara Park intersection as having a high number of incidents that included a common theme – red light running.

We set out to identify whether or not we could improve safety and reduce poor behaviours demonstrated at this intersection by implementing a simple solution.

The intention of the trial was to address safety concerns associated with red light running, by providing approaching motorists, particularly heavy vehicles, with warning that the signals were going to change to amber/red so they can make informed decisions to slow down and stop safely at the intersection.

The route along SH2 is a key strategic transport link between Wellington, the Wairarapa and further north to Hawkes Bay. In addition, this is a key national freight route and as such, serves a high proportion of heavy commercial vehicles.

CAS Data 2016 - 2021

- 26 crashes
- 1 fatality
- 1 serious injury



So at this intersection within a 30m boundary, CAS showed that there were.....

The picture shown is a result of a south bound truck colliding with a logging truck that turned out of the side road. The truck that turned out of the side road had its cab ripped from the chassis as shown on the back of the tow truck.

It was one of the most significant incidents at this intersection and luckily the person actually lived to tell the story.

Considerations

- Address intersection safety/compliance
- 100km/h environment
- Heavy haulage route
- CAS data
- Advanced signal layout



To provide advanced warning, W10-5 signage stating 'prepare to stop' accompanied with 'wig-wag' signals was installed on both SH2 approaches in advance of the intersection. These were commissioned on 20 July 2021.

Upon investigating other set ups we determined that due to the clear visibility of the traffic signals at the intersection the advanced signals did not need to provide warning for queued vehicles which is something that has been implemented in the past where visibility is limited.

As previously mentioned our intention was to address safety at this intersection and hopefully have a positive impact to reducing red light running as this was a known site for frequent red light non-compliance and incidents. Just to note, this is only 1 of 8 intersections located along the SH2 alignment between Lower Hutt and Upper Hutt – all sharing the same speed environment.

We investigated other setups similar to this arrangement that could provide the outcome we were wanting to achieve, without over engineering things, and found this to be the most appropriate option to what we were trying to address.

Implementation/Operation

- Advanced signals located approx. 180m from site in either direction
- Signals power fed from street lights
- Comms managed through radio link to signals controller
- Wig Wags enabled using SCATS ECG
- Timing configuration / SCATS setup





We did send out comms to notify customers of the go live date.

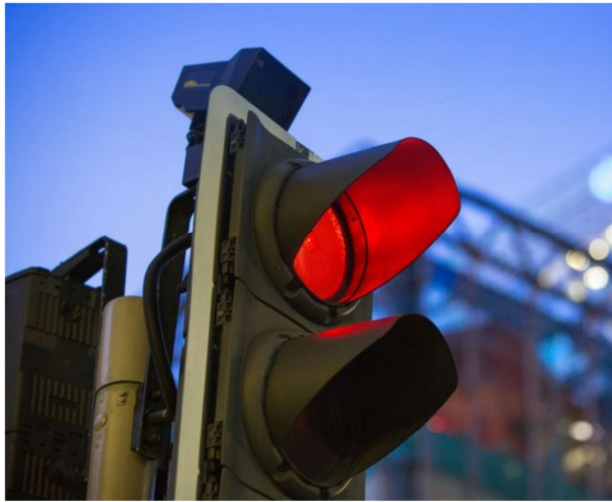
We received a lot of feedback regarding the installation of the advanced signals and the fact we communicated it through facebook attracted a variety of good, bad and sarcastic responses which did not come as a surprise.

For the most part the feedback was positive especially from heavy haulage operators who were the main audience we were targeting. We did however receive a feedback that people would likely misuse the signals for their intended purpose and try to beat the amber & red light once they began flashing.

To counter this we adjusted the time settings to ensure a balanced approach for the pre-warning setting, but as mentioned in the bottom comment the fact is that if someone really wants to run the red light there's no way of stopping them.....unless you had road spikes of course!

Results/Observations

- Northbound: 36% reduction in red light running
- Southbound: 15% reduction in red light running
- Instances of red light running still occur although this is predominantly light vehicles, with no trucks being observed during the monitoring period.
- Customers have responded well to this set up and appear to be using them as intended.



Future considerations

If successful the intention was to introduce this setup at other intersections along the corridor that presented similar safety issues.

There is a speed review being carried out between Lower Hutt and Upper Hutt to reduce the speed along the corridor that's being managed by our safety team and has already been out for public consultation which generated a lot of mixed feedback. If the speeds are reduced we will reassess the need for these signals.

If the speed limit remains at 100km/h we will more than likely assess other intersections along this corridor to determine if they can benefit from advanced warning.

Wellington Transport Alliance

Traffic Signal Maintenance

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Overview



- The Alliance went fully operational 1 July 2022.
- Three partners – **Waka Kotahi** (lead partner), **Fulton Hogan** (preferred contractor) and **WSP** (preferred consultant) + 30% sub-contractors.
- Follows the Auckland model (12+ years) which has seen improved customer focus and operational efficiencies/outcomes.
- 12 key high-level objectives, to deliver 'transport as a service'.
- Will include maintenance of Waka Kotahi and some Council owned traffic signals in Wellington Region.

How It Will Work...



- WTOC will remain the SME for traffic signals and manage real time operations for the Wellington Region.
- The Alliance will manage traffic signals maintenance.
- Renewals work will go to market for suppliers to tender for.
- Fulton Hogan will provide expertise when required to ensure successful delivery.
- Local Councils in the Wellington Region will have the opportunity to be part of the WTA.

Questions

