

IPENZ TRANSPORTATION GROUP CONFERENCE 2016 PRACTICE PAPER

SUSTAINING AUCKLAND CITY CENTRE THROUGH THE CONSTRUCTION OF THE CENTRAL RAIL LINK

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ABSTRACT

When significant construction takes out key corridors through the Auckland City Centre, there is a drastic need to reconfigure how the city centre operates to ensure that accessibility is retained, travel demand is not impeded and that impacts are well confined to affected areas. This has been a challenge that has been well met by Auckland Transport.

Auckland Transport set up the City Centre Network Operations (CCNO) team with several key functions in place, drawing on internal expertise to navigate the city centre through the extensive impact of the Central Rail Link (CRL) and downtown shopping centre construction.

Establishment and implementation of an interim Network Operating Plan, a specific ATOC Central operations centre, well managed temporary traffic management planning and effective working groups have been key to the incredible success thus far achieved.

INTRODUCTION

The Central Rail Link (CRL) is Auckland's largest construction project since the Auckland Harbour bridge construction at a cost of \$100b. First signs of construction commenced in December 2015, with enabling works in the form of pipe-jacking along Albert Street in preparation for the main works that followed in June 2016. The works are planned to continue for 7 years, with extensive construction taking place from downtown at Britomart near the waterfront, and working its way south along Albert Street towards Victoria and Wellesley Street.

With the significant construction consuming capacity on several key corridors through the city centre, a drastic response is required to ensure the city centre at least copes with the impact, and remains accessibility, economically buoyant and vibrant. This includes accommodating all other redevelopment and construction activity, and network changes taking place within the city centre.

What has been business as usual was now required to be 'upsized', with bold intervention to steer a city centre through a difficult and prolonged construction period.

Auckland Transport set up the City Centre Network Operations (CCNO) team with several key functions in place, drawing on internal expertise to navigate the city centre through the extensive impact of the CRL and downtown shopping centre construction. These were and continue to be:

1. Reconfiguring the city network and application of an interim network operating plan
2. Traffic modelling of impacts
3. Setting up of the City Centre Network Operations unit
 - a. CCNO Planning and Working Group
 - b. CCNO Operations and Tactical Response team (ATOC Central)
 - c. CCNO Temporary Traffic Management Planning (TTMP) team
 - d. Close monitoring and reporting of network performance

RECONFIGURING THE CITY CENTRE

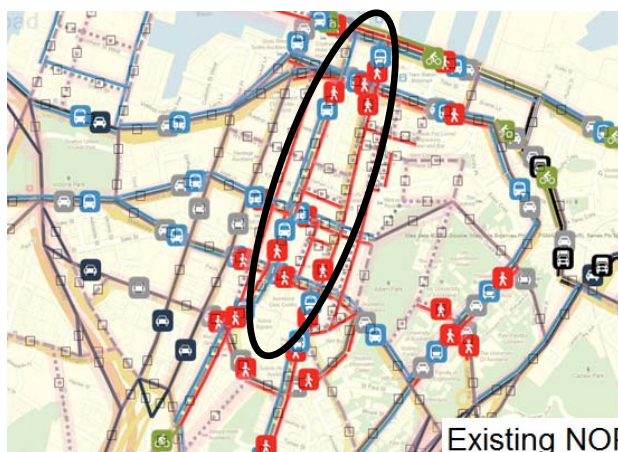
As with any major project, impacts thereof are well assessed and planned for in advance. In terms of the CRL project this was and continues to be well executed by the CRL Project. Approximately 18 months prior to construction, planning meetings and workshops involving the various groups across AT were involved in piecing together how best to position the city centre to address the changing city scape.

The city centre network operating plan (NOP) for one needed an extensive overhaul, for at least one good reason, namely that a key bus corridor Albert Street was no longer going to be available for buses, and effectively reduced to merely a local access street.

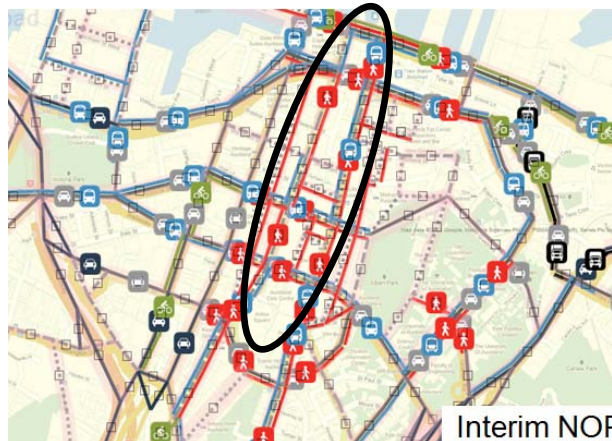
An interim network operating plan was established after some traffic modelling and testing, having the following key outcomes in mind:

- Public transport needed to be prioritised to retain and further enable people movement capacity into the city centre.
- As an international city centre, pedestrian priority and amenity was critical to maintain as best as possible
- Motorway interaction should remain unaffected by any city centre construction
- Within the city centre, general traffic accessibility is important, not necessarily how well. Key freight movements are to remain unaffected.
- The cycling network (what there is of it) is to remain unaffected.

The NOP therefore changed as below. Whilst greater changes can be seen in the detail, a more noticeable operational change is the switch between Albert Street and Queen Street.



Existing NOP



Interim NOP

Translation of the NOP with the context of constrained network resulted in significant changes onto the network. Key bus routes for example now required 24 hour bus lanes. This included on the heavily pedestrianised Queen Street. Previous double pedestrian phasing at traffic signals on Queen Street were reverted to conventional phasing, however on the proviso that traffic signal cycle times be significantly reduced to provide similar pedestrian amenity and service, whilst now better accommodating bus movements.

The NOP and related principles were now more actively applied to city centre operations, and provided to backbone to how the city centre network is to be managed and operated.

TRAFFIC MODELLING

As would be expected, traffic modelling formed a significant part of impact assessment and option testing from early on. The CRL Project team initiated much of this work testing various scenarios in an effort to minimise adverse impacts of construction. Updated traffic model for the city centre (initially Saturn model) was at times also distributed to prospective project developers to report on their respective impacts on the backdrop of the CRL works.

A key outcome of the modelling was the evidence of more than minor impacts of the construction, and the requirement to enable public transport (bus movement) through the designated bus routes. This together with the NOP direction provided the support for bus routes requiring bus lanes. The consequent impacts on general traffic needed to be understood and again mitigated as best as possible.

Of particular interest was the understanding that should there be a modal shift away from the private vehicle of some 15-20%, traffic movements on the network would have a similar driving experience as per the pre-CRL experience.

The traffic modelling also provided some comfort that any adverse impacts would not extend onto the strategic motorway network, which was an important outcome to ensure.

Modelling outputs were embedded into consenting requirements resulting in network performance targets being able to be set. In broad terms, travel times on each of key routes across the network could not be 10 minutes longer than the pre-CRL conditions.

CITY CENTRE NETWORK OPERATIONS UNIT

Approaching the onset of construction and the emerging realisation of the imminent extensive CRL works, Auckland Transport set up a small unit to actively manage and operate the city centre network operations, not surprisingly called the City Centre Network Operations (CCNO) unit.

The unit were centrally located and pulled in existing AT and ATOC staff to fulfil the following roles:

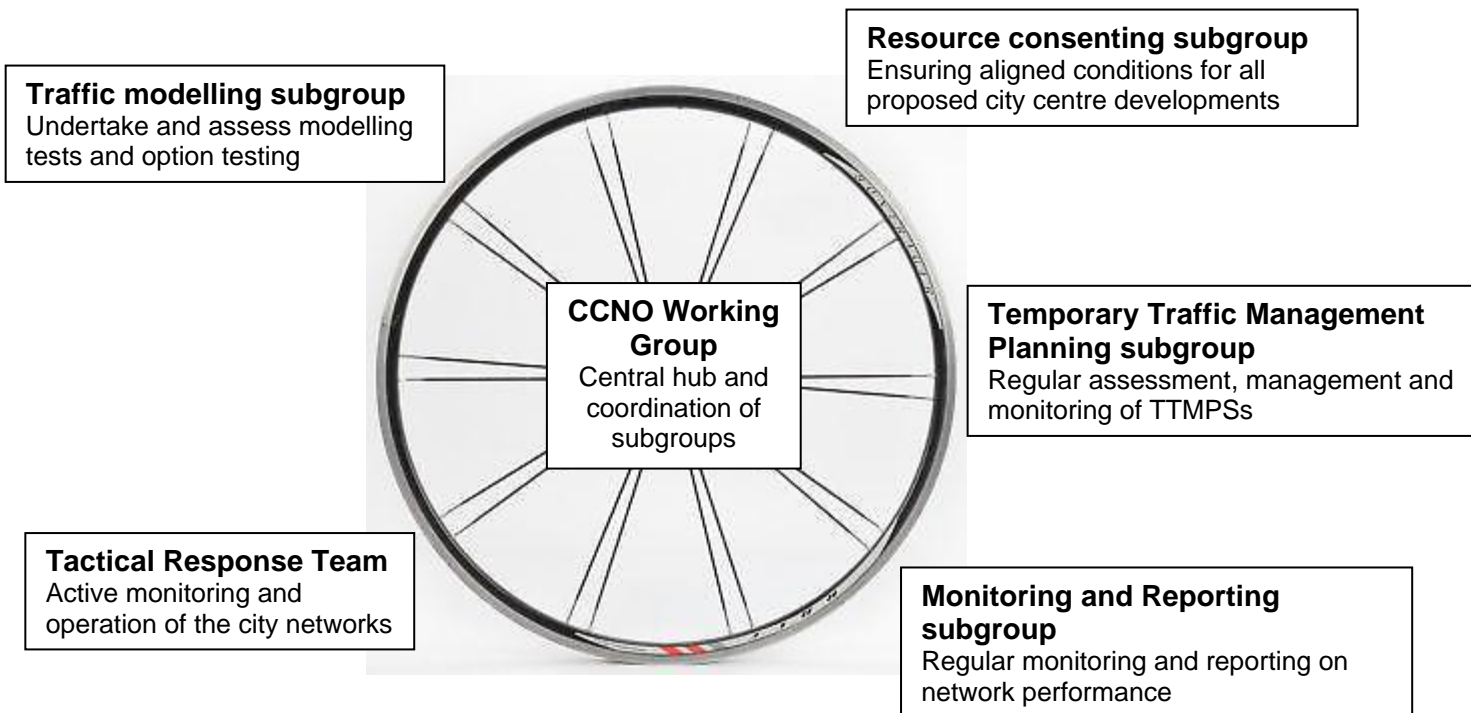
- CCNO manager – provides oversight and is key contact person for the unit
- Planning Lead – provides planning oversight and enables the city centre to operate to plan
- Operations Lead – ensures the city centre is operated to the plan provided as best as possible

PLANNING AND WORKING GROUPS

Planning took the form of actively applying the NOP to the city centre, and ensuring that all aspects activities are viewed through the NOP, retaining strategic connection and minimising adverse impacts accordingly.

Various specialists across the AT organisation, as well as NZTA members, were included as

necessary to form specialised subgroups, with additional details outlined for key subgroups provided below.



OPERATIONS AND TACTICAL RESPONSE TEAM (ATOC Central)

Under the Operations Lead, this team operated out of ATOC Central, a smaller traffic operations centre associated with ATOC Smales Farm but primarily focussed on city centre event management operation, and AT parking and bus facility operation. The ATOC Central is equipped with CCTV monitors and SCATS access capability, and for the purposes of CCNO, was expanded to enable active monitoring and intervention of the city centre network.

Real-time monitoring was put in place with a SCATS operator in attendance throughout the day, actively addressing and manipulating traffic signal changes as required to mitigate any incidents that may arise. Intervention ensure timely mitigation of any incident on a constrained network susceptible to any short-term break down traffic poperations.

Key focus areas were identified, for vigil surveillance, primarily focused around delivering the NOP outcomes being sought.

Baseline travel experience information provided through the consenting conditions provided an additional focus, so that adverse impacts were retained to below allowable impacts, and even better minimised as far as possible to remain similar to pre-CRL conditions if at all possible. Active monitoring and intervention resulted in the city centre network effectively being optimised, and being retained as such on a day to day basis.

This team had established connections with traffic signal contractors to provide efficient service and response to any traffic signal faults that may arise, to minimise response lag. Removal of illegally parked vehicles on the carriageway and in bus lanes were quickly picked up for action by Parking Services, to ensure an optimised network.

TEMPORARY TRAFFIC MANAGEMENT PLANNING

There are on average 15 to 20 road corridor access requests and temporary traffic management plans submitted to AT on a weekly basis for the city centre. The interconnection of these with CRL construction and related TTMPs, necessitated this group to be extremely active, holding weekly meetings and undertaking weekly formal site walks.

The success of this group was critical to ensure that overall network operations remains in sync with desired outcomes being sought by the NOP and that adverse impacts are appropriately contained.

This subgroup would review submitted TTMPs making recommendations as necessary and coordinating TTMPs provided by various contractors.

PERFORMANCE MONITORING AND REPORTING

Prior to the onset of construction, Bluetooth detection was set up along key corridors, particular covering routes required to be monitored under the consenting requirements. This system provided the monitoring capability for which reporting was provide.

Weekly reporting is undertaken, ensuring appropriate 'finger on the pulse' by the CCNO team and AT management. Monthly reports were in turn compiled and provide the AT Executive Leadership Team and AT Board informed of progress. These reports are in turn shared with Auckland Council as well as an abridged version distributed to Heart of the City (Business Association) and the Automobile Association (AA) for information purposes.

For the monthly report, information on people movements entering the city centre as well as vehicular flow data by time of day are also represented to further inform current state of health of the city centre. NOP key outcome indicators are also scored to highlight which critical elements are intact, and which ones are cause for concern for immediate action.

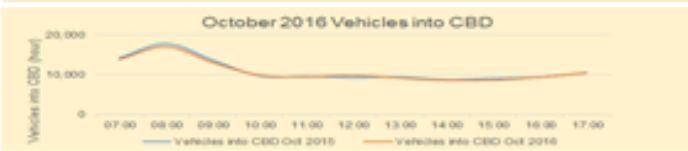
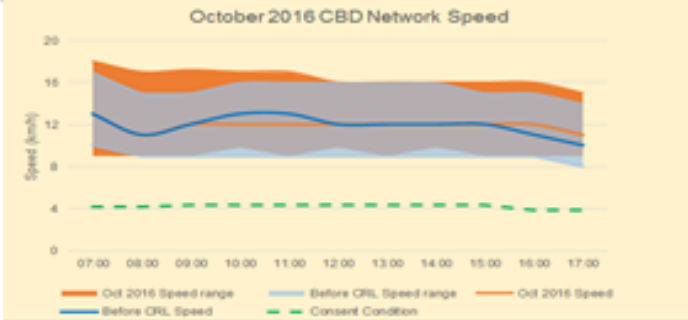
The reporting in turn provides focus for the Tactical Response Team operating the city centre SCATS system, and who then look to optimise deficient elements. The synergies generated has resulted in phenomenal results whereby travel time experience has remained similar today to pre-CRL conditions! Also, bus movement corridor, such as the Northern Express that operates at 10 minute intervals, has been able to run largely unhindered, despite the fact that the route passes by and terminates adjacent to the downtown shopping centre being demolished and on Albert Street where the CRL is being progressed.

Weekly reports provide detailed information on general traffic performance, but also capture current highlight upcoming activities in the city centre. Example of the monthly report is provided below.

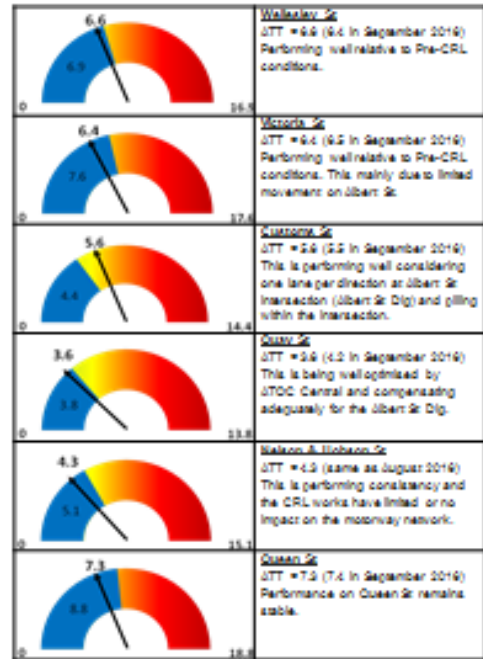
Measures of Success - Performance Dashboard

Overall CBD Network Speed

- The city centre network continues to absorb the construction activity despite the increased intensity in construction on Albert St and across Customs St.
- Average travel speed of key routes are within acceptable levels and have similar if not marginally speeds to Pre-CRL conditions (see graph below).
- Current speeds (orange line) remain similar to Pre-CRL average speeds (blue line), and continues to be well above the CRL consent conditions (green line).
- The average speed across the six routes ranges between 8 kmph and 15 kmph with only Customs Street operating at slightly lower speeds compared to Pre-CRL.
- Vehicle volumes leading into the City Centre has remained similar and followed similar trends to last year (see graph below)



Average Travel Time (ATT) Relative to the Base Time Prior to CRL Works for July 2016



* Base Travel times have been calculated against the average travel time per route prior to the CRL works commencing. These are identified on the dials by the shaded blue sectors. Conditions of the resource consents allow no more than a +10 minute delay against this original base time (dial maximum value). The dials represent visually how each route is performing with in these parameters.

Measure of Success – Performance Dashboard

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Key Performance Indicators

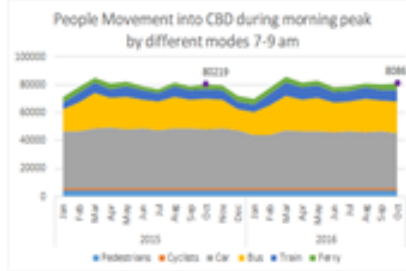
Overall the network is performing at acceptable levels for all modes despite the restrictive Albert St Intersection Dig.

- The motorway network, the bus network, pedestrian, cycling, freight and general traffic access have operated adequately for a city centre environment.
- Impact continues to be confined to the core of the city.

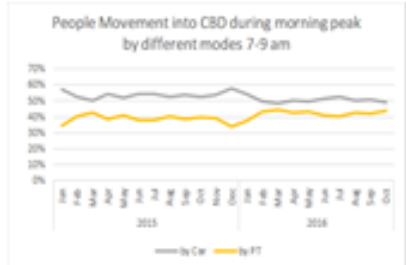
	Pedestrian accessibility within CBD maintained	
	Cycling accessibility within CBD maintained	
	Bus accessibility on PT network maintained	
	Freight/construction accessibility maintained	
	Motorway network operations maintained	
	General traffic movement maintained	

Green = good / acceptable, yellow = acceptable / not good in places, red = not good

People Movement into the City Centre



The number of people entering into the city centre continues to be on the up!



It is estimated that on average 80,585 people travelled into the City Centre during the morning peak period (7-9am) in October 2016.

These % splits by mode have remained similar over the past 4 years. Currently trending at (March 2016):

- 49% by Car
- 45% by Public Transport (PT)
- 7% by Active modes.

However in October 2016 this was 45% 45% and 7% respectively.



Monthly Overview for November 2016

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Albert Street/Customs Street 'Albert St Dig'

CRL/Prncpl service relocation works at the intersection intensifies.

Stage 4 has now started on 20th November 2016 and this layout will remain the same until mid January 2017.

Overall the Albert St Dig is working fine despite the significant works taking place within the intersection.

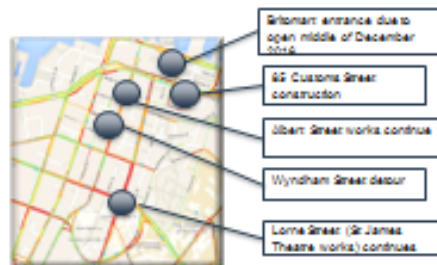


Monthly Update

- Construction impacts continue to be confined to the core of the City Centre.
- Regular site visits and active monitoring of Temporary Traffic Management Plans continue.
- The piling works intensifies piling up Albert Street near Swanson St and Wyndham St.

Downtown

Downtown Shopping Centre is now demolished



Wyndham Street

Wyndham Street closed between Queen and Albert St one way detour route in place from 9 November 2016.

This will then become a road closure from 16 November - 23 December for CRL works.

This is necessary to optimise piling rig activities along Albert St.



Cooper and Co/AT

Joint project between Cooper and Co and Auckland Transport at Galway Street between Britomart Place and Gore St is no complete.

This has resulted in new retail shops opening including Tiff's and Co and Chanel and footpath upgrades works on Custom Street soon to be completed.



Upcoming works

Changes in Lower Queen Street which will include:

- Change to the pedestrian crossing at the ferry building
- 2 tide containers will be installed
- Street scape activation involving paving of Slingrays and introducing of artificial lawn.

New construction projects to start at 55 Customs Street.

Britomart entrance on schedule to re-open middle of December 2016.

OUTCOMES AND CONCLUSION

The excellent upfront work undertaken by the CRL Project Team and subsequent establishment of the CCNO unit, has resulted in the effective management and operation of the city centre network, through the construction onslaught imposed on Auckland's city centre.