

AUCKLAND INNOVATION – THE CITY EAST WEST TRANSPORT STUDY

Author/Presenter: Daniel Newcombe, MEngSt (Transportation), BPlan, MNZPI

Corridor & Centre Plans leader, Auckland Transport

daniel.newcombe@aucklandtransport.govt.nz

17th November 2013

ABSTRACT

Auckland city centre faces challenges unlike any other NZ location and it is clear that an innovative approach is required in order to accommodate a huge growth in travel, as well as increased urban amenity and major place-making projects.

Using an innovative collaborative approach, the City East West Transport (CEWT) Study has developed a new functional network for the city centre, focussing different modes on different corridors, in a way that not been considered before. This will enable significant increases in public transport and active modes, whilst enabling key city centre projects such as the City Rail Link, NZ International Convention Centre, Victoria St linear park and the Quay St boulevard.

The innovative, collaborative and all-encompassing approach provides many lessons for other complex transport situations. The process shows how diverse and competing interests can have their interdependencies assessed and optimised, to create an outcome that maximises the benefits for each stakeholder. This paper will outline the process taken, the outcomes achieved and the lessons for other projects.

INTRODUCTION

The City East West Transport (CEWT) Study was produced by Auckland Transport (AT) to guide future transport and associated land use planning decisions along key east-west corridors through Auckland city centre. The study was developed through considerable consultation and collaboration with a wide range of technical stakeholders from across AT, Auckland Council, Waterfront Auckland and the NZ Transport Agency (NZTA).

The CEWT Study is a non-statutory supporting document that sits beneath the Auckland Plan (2012) and Auckland Transport’s Integrated Transport Programme (ITP, 2012) and feeds through to the Regional Land Transport Programme and associated investigation, design and implementation work streams. Figure 1 below shows the planning context of the CEWT Study.

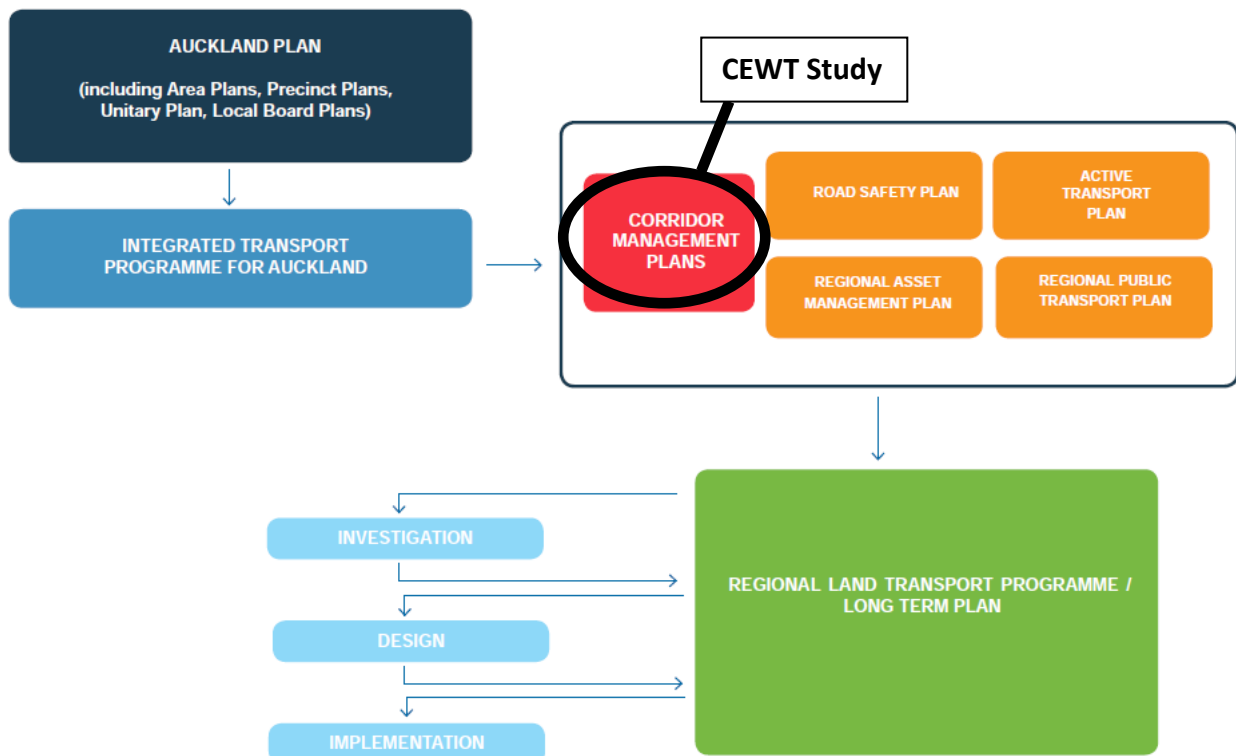


Figure 1 - Planning context for CEWT Study (Source: ITP, 2012)

While the study has primarily focussed on key east-west corridors, it has also given consideration to how the preferred direction for these corridors would relate to the wider road corridor network. This consideration particularly related to the state highway network that frames the city centre and key north-south corridors such as Queen St and Hobson St.

THE CHALLENGE

Auckland city centre faces growth challenges unlike any other NZ location. Over the next 30 years, it is expected that there will be twice as many city centre and city fringe residents (140,000) and employment will have doubled to over 200,000. City centre student numbers are expected to grow by 30% to 72,000 and the city centre’s proportion of Auckland’s GDP is expected to increase from 17% to 25%. The scale of the region’s population growth is clearly demonstrated in Figure 1 below, which shows that Auckland’s growth to 2041 will be more than the size of any other NZ city.

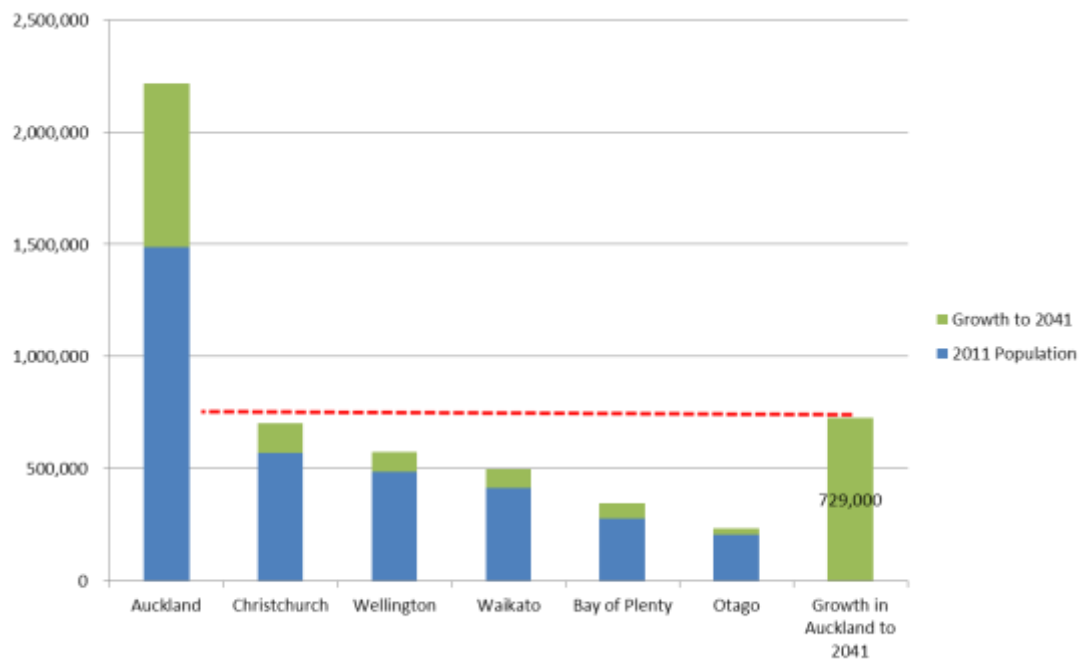


Figure 2 - Auckland region's population growth to 2041 (Source: ITP, 2012)

This growth in population and employment, particularly in the city centre, will bring a significant growth in travel, and the expected volume and mode share for regional AM peak trips is shown below in Figure 2. The city centre stands out not just for the significant growth, but also the large proportion of travel by public transport and active modes.

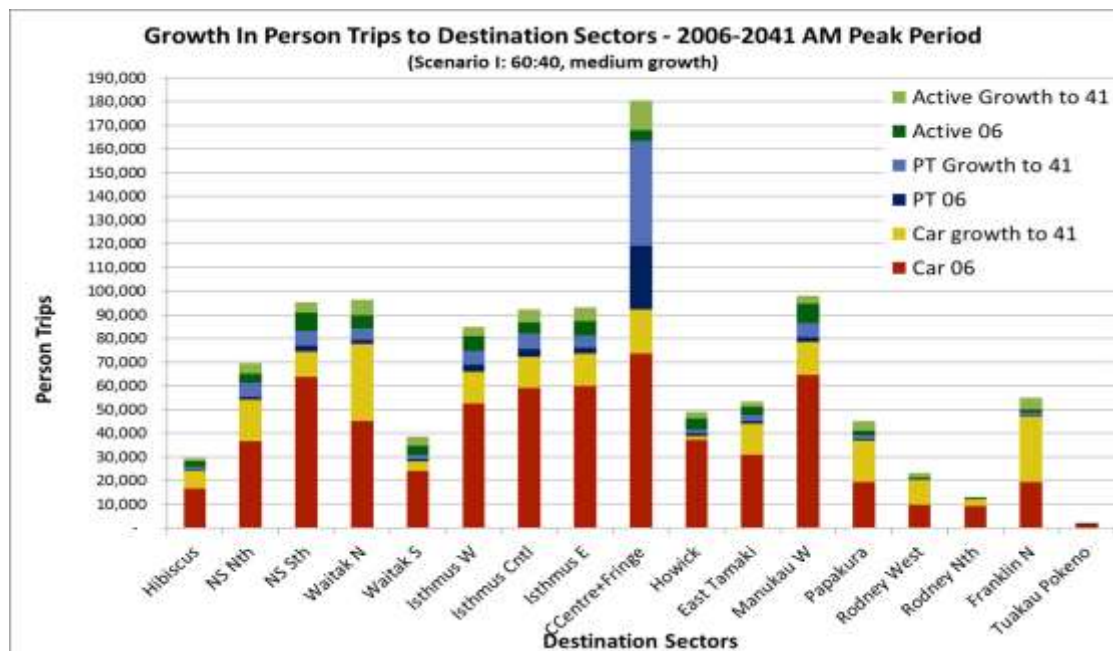


Figure 3 - Growth in person trips to destination sectors (2006-2041 AM peak period)

The challenge of this travel demand growth spurred the production of the City Centre Future Access Study (CCFAS, 2012) which found (using medium growth forecasts and assuming all other major transport projects are in place) that by 2021 most bus networks are at capacity, with some physically unable to cope with bus volumes, and that average private vehicle speeds halve in the morning peak to 7 km/h. By 2041, the bus network is predicted to be significantly overcapacity, private vehicle journey times from the west and south will increase by a third to a half, and private vehicle speeds in morning peak drop to 5km/h (average walking speed).

Over the next 30 years it is expected that the number of morning peak period trips into the city centre is expected to approximately double, from 70,000 to 130,000 trips during the 7-9am period. However, it is expected that private vehicle use will remain relatively static, primarily due to the already saturated road network and consequent inability to accommodate significantly more vehicles (although average vehicle occupancy is expected to rise, and there will be an element of 'peak spreading'). Consequently the uplift in trips will need to be accommodated by public transport, cycling and walking.

In terms of public transport, following the completion of the City Rail Link, there is expected to be a fivefold increase in the use of rail for access to the city centre. Despite this, bus services will continue to provide the greatest contribution to public transport, and at around 41,000 trips per peak period, represents the single greatest form of vehicular travel to the city centre.

Cycling trips are also expected to increase significantly, along with walking trips. Further to this is the paramount importance of pedestrians within the city centre. All public transport users and private vehicle users become pedestrians as they undertake connections between bus stops/car parks and their final destinations. In addition to access, the increased residential activity within the city centre will generate further demands on pedestrian access and amenity within the city centre.

Given these pressures, the overarching purpose of the CEWT Study was to develop a strategy for the effective management and direction of the city centre's key east-west corridors over the short to long term horizons, in a manner that supports the Council's City Centre Masterplan (CCMP) and other key strategic initiatives.

The CEWT Study is informed and directed by AT's ITP, which in itself supports the Auckland Plan. The Auckland Plan identifies the transformation of the city centre as essential to provide an economic and cultural heart for all of Auckland that is more vibrant and internationally competitive. Providing greater space on streets for pedestrian activity and public life to unfold – emphasising place as well as movement – is one important strategy in achieving this vision. The need to put a much greater emphasis on place-making opportunities on the currently traffic-dominated major east-west streets, has been a key objective and strategic driver for the study.

THE CEWT STUDY PROCESS

The CEWT Study followed the approach outlined in AT's Corridor Management Plan Guidelines Version 2 (2012). As this approach is typically applied to single arterial corridors, some variations from the typical CMP approach were required to properly account for the multi-corridor situation of the city centre. The study process included identification of issues and ideal outcomes, points of tension, option development and evaluation. The study has been progressed through an extensive workshop and consultation based approach.

In total, the study involved six separate workshops spread between December 2012 and May 2013, all of which were well attended by a wide range of key stakeholders covering various roles and disciplines across AT, Auckland Council, NZTA and Waterfront Auckland. In addition to the workshops, numerous meetings were also held with relevant technical stakeholders as well as external bodies such as the Waitemata Local Board, CBD Advisory Board and Heart of the City business association.

The process included a review of city centre land use and transport characteristics in both the historical and existing context, as well as interrogating the planned and expected future changes in land use and transport infrastructure. A workshop-based process with stakeholders was used to obtain an understanding of functional requirements and issues across the study area, and ideal outcomes for land use and each travel mode.

Points of tension were determined through identifying instances where achieving a particular ideal outcome may be in tension with achieving other outcomes. A range of network options were developed and then refined through a stakeholder workshop process, and then analysed at a technical and strategic level.

Each option was evaluated against desired outcomes. These included that the output:

- Provides an efficient and supportive environment for economic activity
- Achieves city centre transformational moves
- Provides easy access to city centre and achieves mode share targets
- Facilitates a comprehensive, high-quality public transport system
- Provides a pedestrian-friendly and place based city centre
- Supports increased land use density within the city centre, and effectively integrates this growth with transport infrastructure
- Is safe, environmentally friendly and sustainable
- Provides value for money and is deliverable

Following the evaluation workshop process there was broad consensus on two preferred options. Most parts of the two options were identical (e.g. both sought same function/outcome for most corridors) and therefore a single combined preferred option was able to be created. Significantly this option was able to support or enable all the key city centre projects of interest to the stakeholders – both transport and non-transport projects.

PREFERRED DIRECTION

The overall preferred network strategy is summarised as follows:

Place making – The preferred direction will enable a considerable uplift in place-making opportunities within the city centre. These opportunities will be focussed around Quay St (Harbour Edge Boulevard), Victoria St (Linear Park) and Wellesley St Central (Pedestrian/ Amenity Improvements)

Pedestrians – The study envisages significant improved pedestrian improvements across the east-west corridors but with a focus on sections of the corridors near the Queen St valley and harbour edge. Locations with particularly significant improvements for pedestrians are to be Quay St and Victoria St, which are intended to play a major role in delivering the transformation moves envisaged by the CCMP.

Cycling – General direction is to depart from the existing situation of negligible specific cycle provisions and instead provide a number of quality cycle routes through the city centre. These key routes are to include Beach Rd/ Quay St and Wellesley St East/ Lorne St/ Victoria St.

Public transport – The preferred direction reflects the Regional Public Transport Plan (RPTP) approach of providing a simplified bus network using fewer bus corridors. In terms of east-west corridors, the preferred direction will see significant bus infrastructure and lane capacity provided along Fanshawe St/ Customs St/ Beach Rd and Wellesley St. Use of public transport will also be supported by provision of a linear park on Victoria Street, the main entrance to the future Aotea Station.

Traffic – The preferred directions for traffic include maximising the use of the state highway network as an alternative to through travel through the city centre. In addition, the Fanshawe St/ Customs St/ Beach Rd and Mayoral Dr/ Cook St corridors have been identified as preferred locations for movement, although the focus is to be on providing access into the city rather than across the city. Other east-west corridors are to primarily cater for local access functions.

To deliver the preferred strategy, a vision and direction have been developed for each of the east-west corridors. Critically, the preferred direction will see a different emphasis placed on each of the east-west corridors in terms of their key functions and mode requirements.

This strategy of having variation in mode emphasis across the corridors is a marked departure from the existing situation, where each of the corridors is providing a generally consistent function. The proposed network strategy will in some instances require changes to the form of these corridors. The directions for these corridors are summarised in the below in Figure 4 (an enlarged version is attached as an appendix).

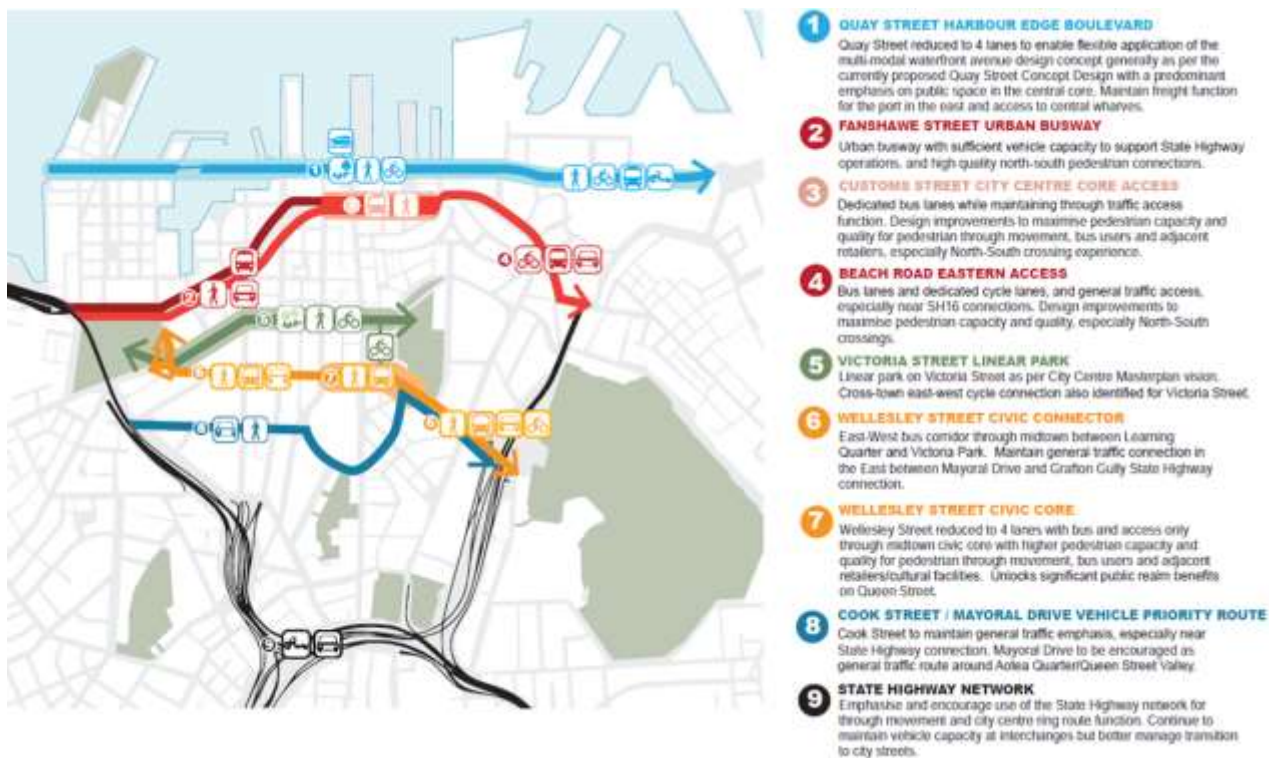


Figure 4 - CEWT Study proposed functional network

As described in Figure 4, the CEWT Study proposes a suggested typology and range of characteristics for each corridor to achieve a certain role in the new functional network, and the Wellesley St corridor is discussed below as an example.

The vision for Wellesley St is to become the primary east-west public transport spine across the midtown area of the city centre, providing a high capacity and quality bus route while enhancing the capacity and quality of footpaths for pedestrians and to support adjacent land uses, especially in the core to either side of Queen St.

Due to the volume of buses, it is expected that dedicated bus lanes will be required along the full length of Wellesley St, which will enable separate allocations for bus movement and stopping. Within the central core full implementation of this vision suggests the removal of general traffic between Albert and Kitchener Sts / Mayoral Dr and a reduction in carriageway width to facilitate increased provisions for pedestrians and place making. Indicative 'before' and 'after' images are shown in Figures 5 and 6 below.



Figure 5 - Wellesley St corridor 'before'



Figure 6 - Wellesley St corridor 'after'

In order to realise the vision for Wellesley St, a substantial change in corridor space allocation will be required, in particular the reallocation of space from traffic to buses, and also to pedestrian space within the core.

Key aspects of the proposed direction for Wellesley St include:

- Four lanes for buses in places, split equally between lanes for bus movement and stopping
- Two traffic lanes outside the Queen St core area
- No access for general traffic in this Queen St core area
- Increased footpath widths within the Queen St core area, achieved through the total reduction from 6 to 4 lanes
- Design improvements to provide higher quality footpaths on both sides of the street, in particular improved bus stop waiting environments and interface with adjacent retail uses, including de-cluttering of street furniture, signage and use of new high quality pavement surfaces
- Dedicated cycle lanes on Wellesley St East between Grafton Gully Cycleway and Lorne St

Although this high level approach has gained considerable support, several key future investigations will specifically inform and influence the direction and form of Wellesley St. These include:

Wellesley Street Civic Core

The central section of Wellesley St near the Queen St core contains a number of key cultural facilities including the Civic and St James Theatres, Auckland Art Gallery, Auckland Central City Library and also intersects with the Elliot St shared space and connections through to Aotea Square. To support these facilities an improvement to the environment provided for pedestrians and amenity is required for this area. To achieve these improvements the study findings include a recommendation to investigate opportunities to close the central section of Wellesley St to traffic.

This would enable a reduction in corridor space provided to pedestrians and reallocation to pedestrian realm. The effects of this traffic removal do however require further investigation and understanding of implications, including those on Wellesley St generally, as well as at those specific intersections where traffic is rerouted, (i.e. the Wellesley St/ Mayoral Dr intersections).

Learning Quarter Bus Operations

The preferred direction for bus operations within the city centre includes providing a high frequency and quality bus corridor along Wellesley St. A number of operational issues relating to the use of Wellesley St as a bus corridor are still to be resolved, including how buses will connect through to Symonds St and how bus stops and turnarounds will be managed in this area (the Learning Quarter). Achieving acceptable solutions to these issues will be critical in enabling the preferred direction to be implemented as proposed, both within Wellesley St and for adjacent east-west corridors.

Cycle provisions on Wellesley Street East

Wellesley St East will provide the connection between the proposed Grafton Gully Cycleway and the city centre. At present, the environment for cyclists along the eastern section of Wellesley St is poor and further investigation will be required to improve this situation

NEXT STEPS

While the preferred direction for the east-west corridors has largely been confirmed, there are still many areas that will require further investigation to fully clarify the network strategy. There will need to be rigorous traffic network and public transport network modelling to ensure that the concepts are workable and any consequences are known and able to be dealt with.

Auckland Transport operates a SATURN model for the city centre and will primarily use this to determine traffic impacts. Auckland Transport has also developed a SmartRoads tool for network analysis and this is helping determine the consequences and scale of impacts upon levels of service across each mode, including by time of day.

The assessed benefits, costs and implications will be investigated for each standalone project, in order for it to go through a standard approvals process. The existence of the CEWT Study as a supporting strategic document will help in the assessment of priority and strategic fit. Whilst many of the first projects will be focused on enabling the future public transport network, other projects will heavily involve Auckland Transport's network operations, active modes or streetscape teams.

All projects potentially affecting the State Highway network will be progressed in partnership with NZTA, who also play a funding role for each project.

The CEWT Study is also being used to assist Auckland Council and other city centre stakeholders in their own planning processes, such as the updating of the CCMP ten year programme.

Work is also being scoped for some north-south corridors, although these are recognised as having fewer opportunities for change and alternations to their strategic function may be primarily affected by reconstruction required as part of major developments such as the NZ International Convention Centre or the City Rail Link.

CONCLUSIONS

By using an innovative collaborative approach, the CEWT Study has developed a new functional network for the city centre, focussing different modes on different corridors, in a way that has not been considered before. This will enable significant increases in public transport and active modes, whilst enabling key city centre projects such as the City Rail Link and the Quay St boulevard.

The innovative, collaborative and all-encompassing approach provides many lessons for other

complex transport situations. The process shows how diverse and competing interests can have their interdependencies assessed and optimised, to create an outcome that maximises the benefits for each stakeholder.

LEARNINGS

It is recognised that it is rare for an organisation to have the opportunity (or need) to reassess a strategic transport network of this scale, however the creation of the Auckland Plan, CCMP and ITP allowed Auckland Transport created this city-shaping opportunity. The process could easily be applied to smaller and less complex networks.

The main learnings from the development of the CEWT Study were the importance of a gradual build-up of agreed objectives, assessment criteria and options. The slow and workshop-intensive process was criticised at times but in hindsight ensured that all parties accepted that their issues had been adequately considered. This also allowed the CEWT Study team to prove that it was an inclusive process without a predetermined outcome. As such, there has been near-unanimous and wide-ranging support from a diverse range of stakeholders.

A core element of the workshopping process was the realisation that many of the projects were interdependent and unrelated departments within the Council 'family' needed to support certain parts of other projects in order to achieve their own. This was particularly useful when it came to issues of sequencing and prioritisation, whereby high profile 'key' projects may be delivered later than originally intended due to a recognition that other enabling project need to be in place first.

In a similar vein, many non-transport staff gained a greater appreciation of the complexity and difficulties of a city centre transport network. This allowed the team to rationally and openly discuss, for instance, changes to traffic flows without the non-engineering staff resorting to statements such as 'well the traffic will just go somewhere else' or 'everyone will just get on a train'.

Another learning relates to two key risks that emerged. The first risk was in failing to achieve the balance of adequate stakeholder engagement. As much of the work involved the evaluation of wide-ranging strategic concepts and options, it was difficult to engage with external stakeholders without focusing unnecessarily on details of interest to them and/or releasing sensitive information into the public domain. Equally, failing to engage with those stakeholders risked their ire once the Study became known.

A second risk was around the inability to fully model the traffic (or patronage) effects of the proposed network, due to the high level nature of the Study. Hence, whilst there was widespread internal support for the strategic direction, there remained clear reluctance to commit to specific projects until detailed modelling was completed.

Given that many of the proposals involve restricting traffic movements, it is likely that future traffic modelling will produce negative travel time results – and these will have to be put up against the expected benefits of the public transport or urban realm outcomes. The inability to have the quantification of these impacts (due to the high level nature of the Study) is a clear risk, but should be overcome over time.

REFERENCES

- Auckland Council (2012). *Auckland Plan*, Auckland, NZ
- Auckland Council (2012). *City Centre Masterplan*, Auckland, NZ
- Auckland Transport (2012). *Auckland Cycle Network*, Auckland, NZ
- Auckland Transport (2012). *City Centre Future Access Study*, Auckland, NZ
- Auckland Transport (2012). *Corridor Management Plan Guidelines Version 2*, Auckland, NZ
- Auckland Transport (2012). *Integrated Transport Programme*, Auckland, NZ
- Auckland Transport (2013). *Regional Public Transport Plan*, Auckland, NZ

Auckland Transport (2013). *City East West Transport Study*, Auckland, NZ
Waterfront Auckland (2012). *Waterfront Plan*, Auckland, NZ

ACKNOWLEDGMENTS

CEWT Study consultants: Aurecon and Boffa Miskell

APPENDIX – ENLARGEMENT OF FIGURE 4

- 1 QUAY STREET HARBOUR EDGE BOULEVARD**
Quay Street reduced to 4 lanes to enable flexible application of the multi-modal waterfront avenue design concept generally as per the currently proposed Quay Street Concept Design with a predominant emphasis on public space in the central core. Maintain freight function for the port in the east and access to central wharves.
- 2 FANSHAWE STREET URBAN BUSWAY**
Urban busway with sufficient vehicle capacity to support State Highway operations, and high quality north-south pedestrian connections.
- 3 CUSTOMS STREET CITY CENTRE CORE ACCESS**
Dedicated bus lanes while maintaining through traffic access function. Design improvements to maximise pedestrian capacity and quality for pedestrian through movement, bus users and adjacent retailers, especially North-South crossing experience.
- 4 BEACH ROAD EASTERN ACCESS**
Bus lanes and dedicated cycle lanes, and general traffic access, especially near SH16 connections. Design improvements to maximise pedestrian capacity and quality, especially North-South crossings.
- 5 VICTORIA STREET LINEAR PARK**
Linear park on Victoria Street as per City Centre Masterplan vision. Cross-town east-west cycle connection also identified for Victoria Street.
- 6 WELLESLEY STREET CIVIC CONNECTOR**
East-West bus corridor through midtown between Learning Quarter and Victoria Park. Maintain general traffic connection in the East between Mayoral Drive and Craibton Gully State Highway connection.
- 7 WELLESLEY STREET CIVIC CORE**
Wellesley Street reduced to 4 lanes with bus and access only through midtown civic core with higher pedestrian capacity and quality for pedestrian through movement, bus users and adjacent retailers/cultural facilities. Unlocks significant public realm benefits on Queen Street.
- 8 COOK STREET / MAYORAL DRIVE VEHICLE PRIORITY ROUTE**
Cook Street to maintain general traffic emphasis, especially near State Highway connection. Mayoral Drive to be encouraged as general traffic route around Aotea Quarter/Queen Street Valley.
- 9 STATE HIGHWAY NETWORK**
Emphasise and encourage use of the State Highway network for through movement and city centre ring route function. Continue to maintain vehicle capacity at interchanges but better manage transition to city streets.

