

IN THE MATTER of the Resource Management Act 1991 (**RMA**)

AND

IN THE MATTER of a Board of Inquiry appointed under s149J of the Resource Management Act 1991 to consider Notice of Requirements and applications for Resource Consent made by the New Zealand Transport Agency in relation to the Northern Corridor Improvements roading proposal in Auckland.

**STATEMENT OF EVIDENCE OF ANTHONY CROSS ON BEHALF OF AUCKLAND
TRANSPORT
PUBLIC TRANSPORT – STRATEGIC**

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1. INTRODUCTION AND EXPERIENCE

1.1 My full name is Anthony David Cross. I currently hold the position of Network Development Manager in the AT Metro (public transport) division of Auckland Transport (**AT**).

1.2 I hold a Bachelor of Regional Planning degree from Massey University.

1.3 I have 31 years' experience in public transport planning. I worked at Wellington Regional Council between 1986 and 2006, and the Auckland Regional Transport Authority between 2006 and 2010. I have held my current role since AT was established in 2010.

1.4 In this role, I am responsible for specifying the routes and service levels (timetables) for all of Auckland's bus services. Since 2012, I have led the AT project known as the New Network, which by the end of 2018 will result in a completely restructured network of simple, connected and more frequent bus routes across all of Auckland. I discuss this in greater detail in my evidence.

2. CODE OF CONDUCT

2.1 While I am an employee of AT, I confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2014. I have complied with the Code of Conduct in preparing this evidence. Except where I state that I am relying on the evidence of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

3. EXECUTIVE SUMMARY

3.1 My evidence is given in support of AT's submission on the applications by the New Zealand Transport Agency (**NZTA**) relating to the proposed Northern Corridor Improvements proposal (**the Proposal**), specifically the Notice of Requirements to designate land and the resource consent applications to construct, operate and maintain the Proposal.

3.2 My evidence sets out the strategic context in which the public transport system operates, explains the system in that context and outlines the importance of the northern busway extension to the system.

3.3 The key conclusions of my evidence are:

- (a) The public transport elements of the Proposal are aligned with the strategic direction of AT under documents such as the Auckland Plan, Regional Land Transport Plan and Regional Public Transport Plan. The extension of the busway in particular will help in achieving the patronage and mode share targets set in these documents and support the new bus network on the North Shore.
- (b) AT is in the process of introducing this 'New Network' across the region. Through a focus on, amongst other things, simpler and more direct routes and a greater use of transfers between services the New Network will deliver greater frequency for a similar cost. An important element of the New Network is 'Rapid' bus services, such as those on the Northern Busway.
- (c) The Northern Busway has been highly popular since its opening and in recent years has seen patronage growth of over 14.5% per year. However between Constellation and Albany stations, where services are not completely separated from general traffic, these services can suffer from considerable delays. The extension of the busway will allow services to avoid these delays and help AT provide a better and more cost effective service.

4. SCOPE OF MY EVIDENCE

4.1 My evidence explains the strategic public transport context of the Proposal and the importance of the northern busway extension within that context. In particular it addresses the following aspects:

- (a) Strategic documents and context in respect of public transport;

- (b) Auckland's public transport system and the New Network;
- (c) The Northern Busway;
- (d) Effects of the constructed Proposal; and
- (e) Other matters in particular Park and Ride.

4.2 This evidence should be read in conjunction with the evidence of:

- (a) Daniel Newcombe;
- (b) Andrew Maule;
- (c) Martin Peake;
- (d) Kathryn King;
- (e) Alastair Lovell; and
- (f) Duncan Tindall (for Auckland Council).

5. STRATEGIC DOCUMENTS AND CONTEXT

5.1 The strategic framework has already been summarised in AT's submission¹, the Assessment of Environmental Effects² and the evidence of Mr Newcombe³. My evidence will however highlight a few points of specific relevance to the strategic public transport direction for Auckland and the North Shore.

Auckland Plan

5.2 The Auckland Plan identifies six transformational shifts which are needed to be made to achieve the Auckland Plan vision. Of these shifts, the one most

¹ Paragraphs 1.7-1.9

² Section 2.3, pages 13-18

³ Section 7

focused on transport is the move to outstanding public transport⁴. This can be seen as an enabler of all the other transformational shifts.

5.3 There are a number of challenging targets in the Auckland Plan which include:

- Doubling public transport from 70 million to 140 million trips by 2022 (subject to additional funding)⁵;
- Increasing the proportion of all vehicular trips made by public transport into the city centre during the morning peak from 47% to 70% by 2040⁶;
- Increasing non-car (walking, cycling and public transport) mode share in the morning peak from 23% to 45% of all trips by 2040⁷; and
- Increasing the annual number of public transport trips per person from 44 to 100 by 2040⁸.

5.4 The Auckland Plan and its vision to become the world's most liveable city is supported by strategic direction 13, which seeks "to create better connections and accessibility within Auckland...". The key priorities underpinning this strategic direction of relevance to public transport and the Proposal are:

- (a) Priority 1 - manage Auckland's transport as a single system;
- (b) Priority 2 - integrate transport planning and investment with land use development;
- (c) Priority 3 - prioritise and optimise investment across transport modes.

5.5 In my view the Proposal will help implement the Auckland Plan and the move to providing outstanding public transport. It is expected to increase public transport trips, support the residential and commercial growth of the upper North Shore and Hibiscus Coast areas and assist the operation of the more efficient and optimised new bus network.

⁴ Auckland Council (2012) *Auckland Plan*, Section C, page 33, para 72

⁵ Auckland Council (2012) *Auckland Plan*, Chapter 13, page 312

⁶ *ibid*

⁷ Auckland Council (2012) *Auckland Plan*, Chapter 13, page 314, para 742

⁸ Auckland Council (2012) *Auckland Plan*, Chapter 13, page 314, para 740

Regional Land Transport Plan

- 5.6** The Regional Land Transport Plan 2015-2025 (**RLTP**) is a requirement of the Land Transport Management Act (**LTMA**) and lists all the planned transport activities for the next three years in detail and in outline for the following seven. Alignment with the Auckland Plan's strategic direction is a central part of this prioritisation process.
- 5.7** In relation to public transport four key outcomes are identified⁹, of which two are highly relevant to the Proposal:
- (a) Increased public transport boardings and substantial travel time savings; and
 - (b) Successful rollout of the integrated public transport network New Network - reducing duplication and increasing frequency across the network.
- 5.8** The RLTP describes the New Network as “a simpler, better-connected bus network which offers more frequent and reliable access to more destinations”¹⁰ and identifies it as the next step forward for public transport. It also allocates funding for projects to support and complement the network.

Regional Public Transport Plan

- 5.9** The Regional Public Transport Plan 2015 (**RPTP**) is also a requirement under the LTMA and describes the public transport network that AT proposes for the region, identifies the services that are integral to that network over the next 10 years and sets out the objectives, policies and procedures that apply to those services.
- 5.10** The RPTP expands on the plans and budget identified for public transport in the RLTP, such as the roll out of the New Network, taking the relatively high level overview from this document and breaking it out into further objectives,

⁹ Auckland Transport (2015) *Auckland Regional Land Transport Plan*, section 8, page 61

¹⁰ Auckland Transport (2015) *Auckland Regional Land Transport Plan*, section 8.1, page 62

policies and actions. For instance to achieve the objective “A permanent network of connected frequent services that supports Auckland’s future growth¹¹” the RPTP identifies a policy of “provide a core network of frequent and reliable services¹²” and actions such as “Plan and procure services on the Rapid and Frequent service network to provide frequent connections between key growth centres, and to and from the Auckland City Centre.¹³”

6. AUCKLAND’S PUBLIC TRANSPORT SYSTEM

PT progress in Auckland

- 6.1** The public transport network in Auckland was previously focused on providing a one seat ride network to the City Centre with no higher order layer of services to make connections with and no integration between services. The result of this was a complex proliferation of lengthy, indirect and infrequent routes that were confusing and inconvenient to the consumer, and inefficient and ineffective for AT.
- 6.2** In the last few years there has been significant investment in the infrastructure to enable buses to avoid being impacted by general traffic. On the North Shore there is the Northern Busway (**the Busway**) which has a number of busway stations for connections to and from local services as well dedicated services on the Busway to the City Centre and Newmarket (Northern Express, 881 and 962). South of the Harbour Bridge there has been investment in improving the rail network and the train services with the opening of Britomart Station (2003) and the full electrification of the rail network (2014).
- 6.3** These improvements along with legislative changes which have enhanced ATs statutory responsibility to plan and fund Auckland’s public transport system, presented the opportunity to undertake a comprehensive review of the whole public transport network.

¹¹ Auckland Transport (2015) *Auckland Regional Public Transport Plan*, section 6.1, page 35

¹² Auckland Transport (2015) *Auckland Regional Public Transport Plan*, section 6.1, page 36

¹³ *ibid*

The New Network

- 6.4** The New Network is AT's name for this comprehensive review of the whole public transport network. Whilst the principles underpinning the New Network will endure, the public transport network itself will evolve and change over time due to new infrastructure (such as the City Rail Link or Rosedale Station on the Busway), new urban development in the greenfield areas, land use changes and demand.
- 6.5** The New Network is based on creating an integrated public transport network of services built around the core Rapid Transit services – the Western, Eastern and Southern train lines and the Northern Busway. The New Network has a number of service layers with fewer routes that operate more consistently and more often. Figure 1 below, from the RPTP, illustrates the service layers.

Service Layers	Rapid	Frequent	Connector	Local
Defining features	All-day network			
Minimum Frequency	15 minutes	30 minutes	60 minutes	
Operating hours	7am-7pm, frequency may be less outside these hours			
Achieving speed and reliability	Dedicated Right of Way	Priority measures	Some priority measures	Generally no priority measures

In addition, there will be some targeted services such as peak-only, school, rural and other single-destination services with frequency and service span determined by demand.

Figure 1

- 6.6** The New Network changes the focus away from a network providing a one seat ride network, at low frequency, to a network that creates the opportunity to travel more often but may involve the need to change services / modes to complete your journey. This could also involve a slightly longer walk to get to a better service. To help with this the New Network is supported by an integrated fares system, which removes the transfer penalty for customers, and new infrastructure such as Otahuhu Station with its new bus facilities to enable bus to train transfers.
- 6.7** The aim of the New Network is to increase patronage and operating efficiency by concentrating primarily on a connected network of Rapid and Frequent

services; utilising connections to widen coverage whilst maintaining frequency and operating fewer lengthy and duplicative direct services. Figure 2 below illustrates this change in approach – model 2 enables the same resources to be deployed three times as frequently as in model 1 by utilising a connection. These principles are already in place and work in many North American and European cities.

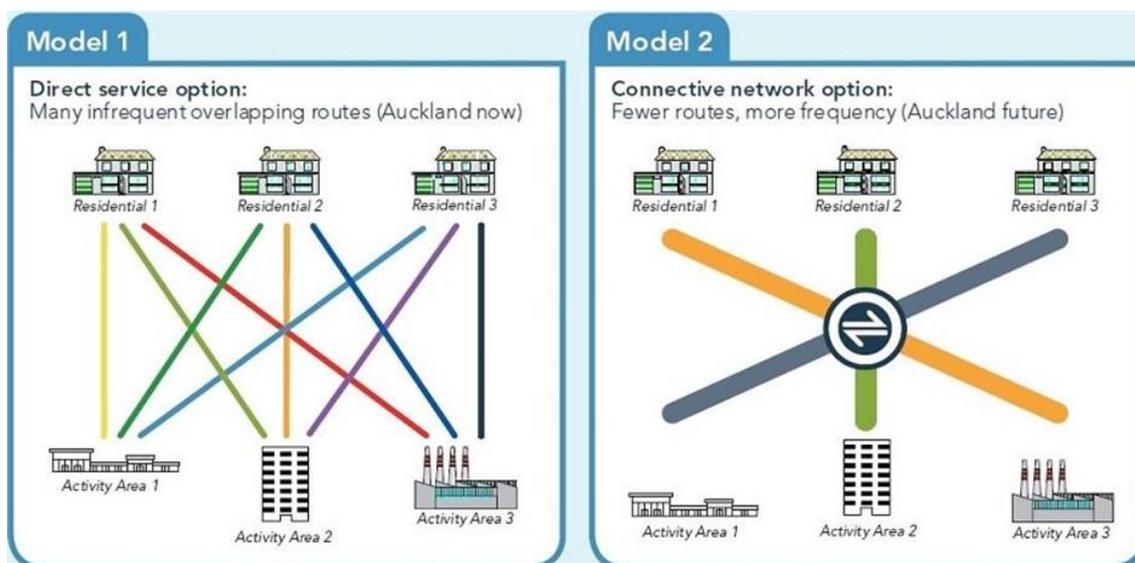


Figure 2

- 6.8** In the New Network, the Rapid and Frequent Network delivers a minimum 15-minute service frequency from 7am-7pm, seven days a week with reduced frequency outside those hours. Complementing and feeding the Rapid and Frequent Network are connector routes which operate on at least half-hour frequencies. In addition, a supporting network of local services, peak-only services and targeted services cater for specific market needs.
- 6.9** Through the reorganisation of inefficient or overlapping routes and the reallocation of these resources to the core routes of the network AT is able to provide a city-wide connected and interlinked network of frequent and reliable services. This will improve levels of service through better utilisation of resources, delivering integrated and frequent services and more travel choices in a cost-effective manner.

Results to date

6.10 The New Network has thus far been implemented in Green Bay and Titirangi (since August 2014), the Hibiscus Coast (since October 2015), and the whole of South Auckland, Pukekohe and Waiuku (since October 2016). The New Network changes are occurring on the 11th June in West Auckland and East Auckland in late 2017. The changes on the Isthmus and North Shore are planned to occur in 2018.

6.11 The patronage response to the New Network rollout has thus far been promising. For instance, the year-on-year results¹⁴ in December 2016 for South Auckland show:

- (a) Bus patronage has increased by +25,000 (+7% year on year);
- (b) Rail patronage has increased by +47,000 trips (+25% year on year);
- (c) Bus and rail combined have increased by +71,000 (+14%); and
- (d) Bus-bus transfers have increased by +24,000 (+136%), bus-rail transfers have increased by +44,000 (+218%), and all transfers have increased by +68,000 (+216%).

6.12 The above results demonstrate, in my view, that patronage growth is comfortably outstripping population growth. Particularly notable are the significant increases in transferring between services, which demonstrate that the principles underpinning the New Network explained above are fundamentally sound.

7. NORTHERN BUSWAY

7.1 In the New Network the Northern Busway lies at the heart of all North Shore bus routes. Every route in the upper North Shore, and nearly every other bus route on the North Shore, begins, ends or travels through a busway station at least once¹⁵.

¹⁴ Auckland Transport Board Business Report, Feb 2017 – <https://at.govt.nz/media/1972586/item-10-open-business-report-february-2017.pdf>

¹⁵ Those routes in the lower North Shore area not connecting to a busway station either access the motorway directly at Onewa Road or are local routes serving the Devonport Peninsula or Chatswood.

7.2 Accordingly, the Northern Busway lies at the centre, both geographically and figuratively, of the North Shore public transport network and forms a core component of the regional rapid transit network. It provides an important spine for north-south trips within the North Shore and, as part of the North Shore rapid public transport route along the motorway and over the Harbour Bridge, provides the main high patronage PT access to the city centre¹⁶.

7.3 The Northern Busway also forms an important part of the entire transport network, not just the public transport network. Running buses on their own dedicated right of way allows the busway to move more people in less space than a traditional mixed traffic route such as a road or motorway lane. While each system has a slightly different capacity depending on a range of design and operational factors, as can be seen from figure 3, a bus rapid transit lane can move as many people as ten lanes of traffic.

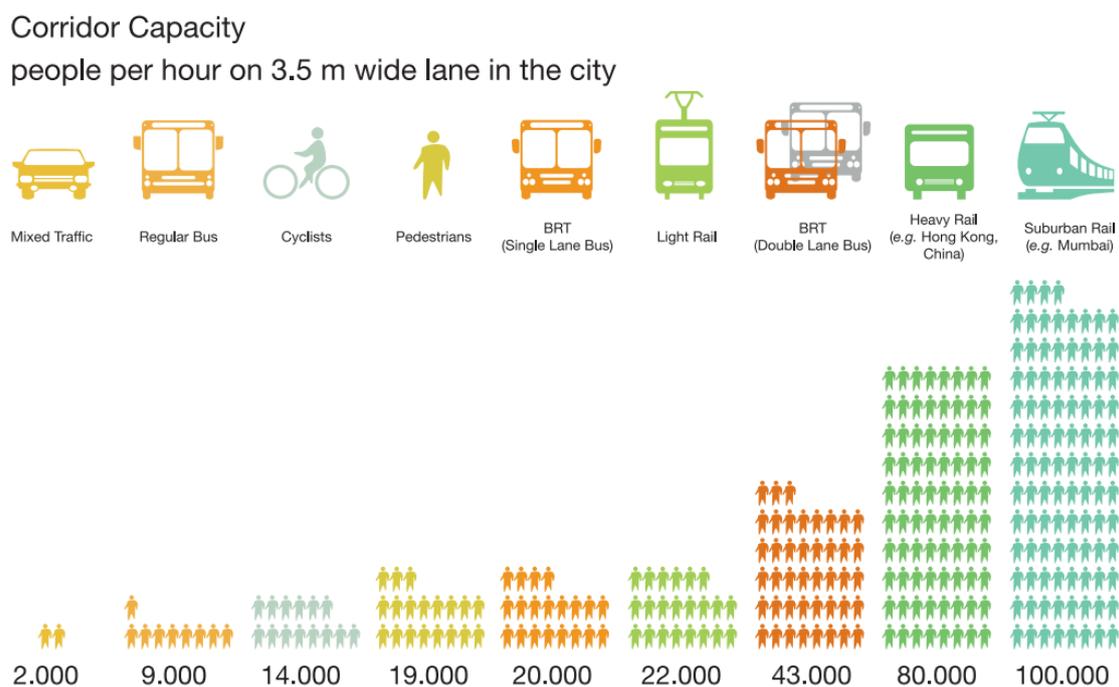


Figure 3¹⁷

¹⁶ The other important spine for buses to access the city is the Onewa Road corridor which connects the Glenfield, and Birkenhead communities to the city. There are also ferries which provide an important service connecting some coastal areas of the North Shore but have limited catchments.

¹⁷ Asian Development Bank, Deutsche Gesellschaft für Internationale Zusammenarbeit (2011) *Changing Course in Urban Transport: An Illustrated Guide*. In relation to the classifications used in Figure 3 the Northern Busway, including extension, would be best classified as 'Double Lane Bus BRT', but has elements of 'Single Lane Bus BRT' and 'Regular Bus'.

- 7.4** The Northern Busway was opened in February 2008. Since then patronage levels on the Busway have been consistently higher than the pre-implementation modelled forecasts. Recent years in particular have seen significant growth with patronage over the past three years growing at a rate of over 14.5% per year¹⁸.
- 7.5** At present, around one third of peak trips on the Harbour Bridge are public transport trips. During the morning peak period, the North Shore RTN (on the Harbour Bridge) carries around 10,000 people, comparable to Britomart train alightings during the same morning peak period. This is expected to at least double over the next 30 years, while the number of private vehicle trips forecast remains relatively static, meaning that by the mid-2040s public transport is forecast to be the dominant mode crossing the Waitematā Harbour¹⁹.
- 7.6** While sitting higher/earlier in the catchment and therefore not carrying as many people as the stretch across the Harbour Bridge, bus services running between Albany and Constellation stations have carried around 2.7 million people over the last 12 months, or around 9,000-10,000 people per weekday.
- 7.7** The performance and reliability of bus services along the Northern Busway is a strong driver of the success described above. As shown in the Assessment of Environmental Effects²⁰, along sections where the busway proper is in place, and fully separated from general traffic, buses benefit with little variability in trip length. However along the stretch between Constellation and Albany stations journey time can vary significantly with some trips taking up to 85% longer than average²¹.
- 7.8** In order to cater for variability in journeys time, more time is added to the timetable which is either used in the journey or results in longer layover between trips (being the time between a bus service reaching its terminus and then starting a new trip). This increases the number of vehicles and drivers

¹⁸ Auckland Transport Board Monthly Indicators Reports, March 2017 (21.7% increase), March 2016 (14.6% increase) and March 2015 (16.8% increase)

¹⁹ Auckland Transport (2016) *North Shore Rapid Transit Network Strategic Case*, page 16

²⁰ Assessment of Environmental Effects, Section 2.2.2 pgs 9-10

²¹ Assessment of Transport Effects, Section 3.16, pgs 36-38

required to serve the route, thereby increasing the operating costs of the service²².

- 7.9** The provision of the proposed busway will not only increase the forecast patronage growth, but will also reduce bus operating costs, thereby improving efficiency and contributing to the overall benefits of the Proposal.

8. RELEVANT EFFECTS OF THE PROPOSAL

- 8.1** In my view the long-term, post-construction, effects of the Proposal on public transport will be positive and significant.

- 8.2** The extension of the busway north of Constellation station strongly supports AT's strategic direction, as outlined in section 5, and will form an indispensable part of the New Network outlined in section 6. The Proposal will improve public transport travel time and significantly enhance reliability along this stretch.

- 8.3** These travel time and reliability improvements will directly benefit:

- (a) Passengers who will see a reduction in the length of time of their journey and be provided with a better and more attractive service; and
- (b) Bus operating companies and AT, by reducing operating costs, which means that this efficiency benefit can then be reinvested in further improving public transport services thereby further benefitting current and prospective passengers.

- 8.4** Both of these improvements will help achieve the public transport growth targets in the Auckland Plan, RLTP and RPTP. The construction of the busway extension will also support the operation of the New Network described in the RLTP and RPTP by improving one of the network's primary Rapid transit routes.

²² The costs of unreliable journey times is also addressed in Mr Tindall's evidence for Auckland Council (para 7.15).

8.5 As seen from the results to date in the implementation of the New Network (covered in section 6) patronage is likely to grow after the planned changes to the bus network resulting from this Proposal. In my view, the separation of buses from general traffic is likely to increase this growth even further. This can be seen in the popularity of existing Rapid, and to a lesser degree Frequent, services such as the existing busway and the train services (as covered in section 7). The improved travel times and reliability as a result of the Proposal will, in my view, help cater for this increased patronage growth, while the growth itself will enhance the positive effects arising from busway proposal.

8.6 While the effects of the constructed Proposal and operational busway will be positive, there may be other temporary or short-term effects on public transport during construction. These are addressed in the evidence of Mr Maule.

9. OTHER MATTERS

Park and ride

9.1 As noted in the Assessment of Transport Effects²³ AT's parking strategy proposes over 500 additional park and ride spaces at both Albany and Constellation stations by 2046²⁴. However these extensions do not form part of the Proposal and no permanent expansion is currently budgeted or planned to coincide with the construction of the Proposal.

9.2 In fact, while Park and Ride facilities located in the right places can effectively extend the market catchments for the public transport network they are not essential for the operation and success of the busway. I expect that growth in patronage on bus services in the area will primarily come through:

- (a) already introduced integrated zone based fares (August 2016) which removes the cost of transferring in a zone for Hop card users²⁵;

²³ Assessment of Transport Effects, Section 6.2.3, pg 54

²⁴ Auckland Transport (2015), *Auckland Transport Parking Strategy*, page 37

²⁵ <https://at.govt.nz/projects-roadworks/simpler-fares/>

- (b) on-going land use development of surrounding areas such as Albany which mean that more people are living or working within walking distance of a station;
- (c) future improvements to the cycling network which will over time make it more convenient and safer for people to cycle to the stations;²⁶
- (d) the implemented New Network which focuses on:
 - (i) providing improved feeder services to the busway stations; and
 - (ii) creating a network of Rapid and Frequent services which enable people to get to where they want to go when they want to go;
- (e) new infrastructure such as the future proposed station at Rosedale, North West Busway and City Rail Link; and
- (f) continued general population and employment growth in the Hibiscus Coast, Upper Harbour, North Shore and the City Centre.

10. CONCLUSION

10.1 In conclusion the Proposal, and in particular the extension of the busway, will support AT in achieving the goals and outcomes set out in the Auckland Plan, RLTP and RPTP. It will support the operation of the New Network and will help AT provide a more attractive and cost effective service.

Anthony Cross

Anthony David Cross

25 May 2017

²⁶ As explained in the evidence of Ms King, while there may be limited improvements in the short term it is the aspiration of AT and a target of the Auckland Plan to achieve this in the medium to long term.