

BOARD PAPER

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Meeting date:	2 March 2017
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Recommended by:	Fergus Gammie, Chief Executive
Board function:	Significant planning, investment and operational matters
Subject:	Auckland Advanced Bus Study

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It is recommended that the NZ Transport Agency Board ...

- **Agrees:**
 - In principle, that there will be a staged, integrated transition from bus to light rail transit along the preferred 'Airport to City' route
 - That a business case for route protection for the 'Airport to City' route, including a plan identifying the triggers for transition steps, will be progressed with urgency to future-proof options for both advanced bus and light rail
 - That a business case for route protection will also be progressed for the eastern connection from the Airport to Manukau City Centre.
- **Supports** the general strategic direction of a package of short term improvements being developed to address urgent Auckland Airport access issues.

The Auckland Advanced Bus Study builds on previous work on options for a mass transit system on the isthmus and to the airport

- Bus congestion and terminal space in the Auckland city centre are becoming major constraints
- The proposed Central Access Plan Programme Business Case identified mass transit (via Dominion Rd) as part of a package of improvements for addressing access problems from the isthmus to the city centre [*Board paper 2016/05/1016 refers*]
- In May 2016, the NZ Transport Agency Board agreed with the approach taken in the programme business case to addressing the need for increased capacity in public transport into the Auckland central city but before making a final decision, agreed further work needed to be done on the proposed rapid transit corridors as an input to the Auckland Transport Alignment Project process to determine the overall transport priorities for Auckland

Continued ...

The Auckland Advanced Bus Study builds on previous work on options for a mass transit system on the Isthmus and to the Airport continued

- The SMART Indicative Business Case (June 2016) identified that heavy rail should not be progressed further as an option to provide public transport access to the Auckland Airport
- In June 2016, the Transport Agency and Auckland Transport boards agreed that further investigations should be limited to light rail transit or bus rapid transit options [*Board paper 2016/06/1029 refers*]
- The Auckland Transport Alignment Project (September 2016) identified implementation of a mass transit system from the airport to the city as a medium term (decade two) priority
- Route protection was identified as a first decade priority [*Board paper 2016/10/1066 refers*]

The proposals align with key transport priorities

Strategic Document	Relevance
Government Policy Statement 2015-2018	<p>The projects would help facilitate economic growth and productivity in two of Auckland's largest and fastest growing employment areas</p> <p>They align with the need for public transport to help unlock the potential of urban areas by providing additional capacity on key corridors</p>
Auckland Transport Alignment Project	<p>One of the four critical transport challenges identified by the Auckland Transport Alignment Project was improving public transport mode share on congested corridors</p> <p>Strengthening central area access and improving airport access were also key focus areas of the Auckland Transport Alignment Project</p> <p style="text-align: right;">Continued ...</p>

The proposals also align with the Transport Agency's new strategy

Strategic response/focus area	Alignment
One transport system – integrate digital technology with physical infrastructure	An important aspect of the Auckland Advanced Bus Study was investigating the role of new technology in providing a credible bus-based mass transit option
Partnerships for prosperity – unlock social and economic opportunities through targeted partnerships	Mass transit along the preferred routes would help leverage urban development opportunities in station catchments
Target rapid growth	The project will improve access to two of Auckland's key growing employment areas being the Auckland city centre and Auckland Airport

The Auckland Advance Bus Study provides more information on advanced bus-based options

- The aims of the Auckland Advanced Bus Study were to:
 - Ensure that there is a comparable level of information for an advanced bus option/s as there is for light rail ('advanced' refers to a high capacity option, which takes into account emerging and future technology, particularly using overseas examples)
 - Investigate bus-based options with consideration of the current and emerging technologies that can practically be applied in an Auckland context
 - Inform business cases for Auckland Central Access and CBD to the Airport
- The study provides a comparable level of information for advanced bus options as has already been developed for light rail
- The contract for the study was awarded in October 2016 to a team led by LEK consultants
- LEK's final report was delivered on 27 January 2017

Its key finding is that a bus-based mass transit option is credible and merits further investigation

- The study demonstrates that an advanced bus option has the potential to deliver on forecast demand to the mid 2040s, depending on the rate of growth and further detailed assessment of operational elements, including how the option could work with other bus corridors and services in the Auckland city centre as well as with commercial and other transport demands along Dominion Road
- 'Fit for future' bus-based propulsion systems, with good amenity, layout, aesthetics and technology, are viable and need to be fully specified and costed
- A depot and layover terminal could be provided within or close to the Auckland Airport zone and there are potential options to resolve limited terminal space in the city centre which need to be developed

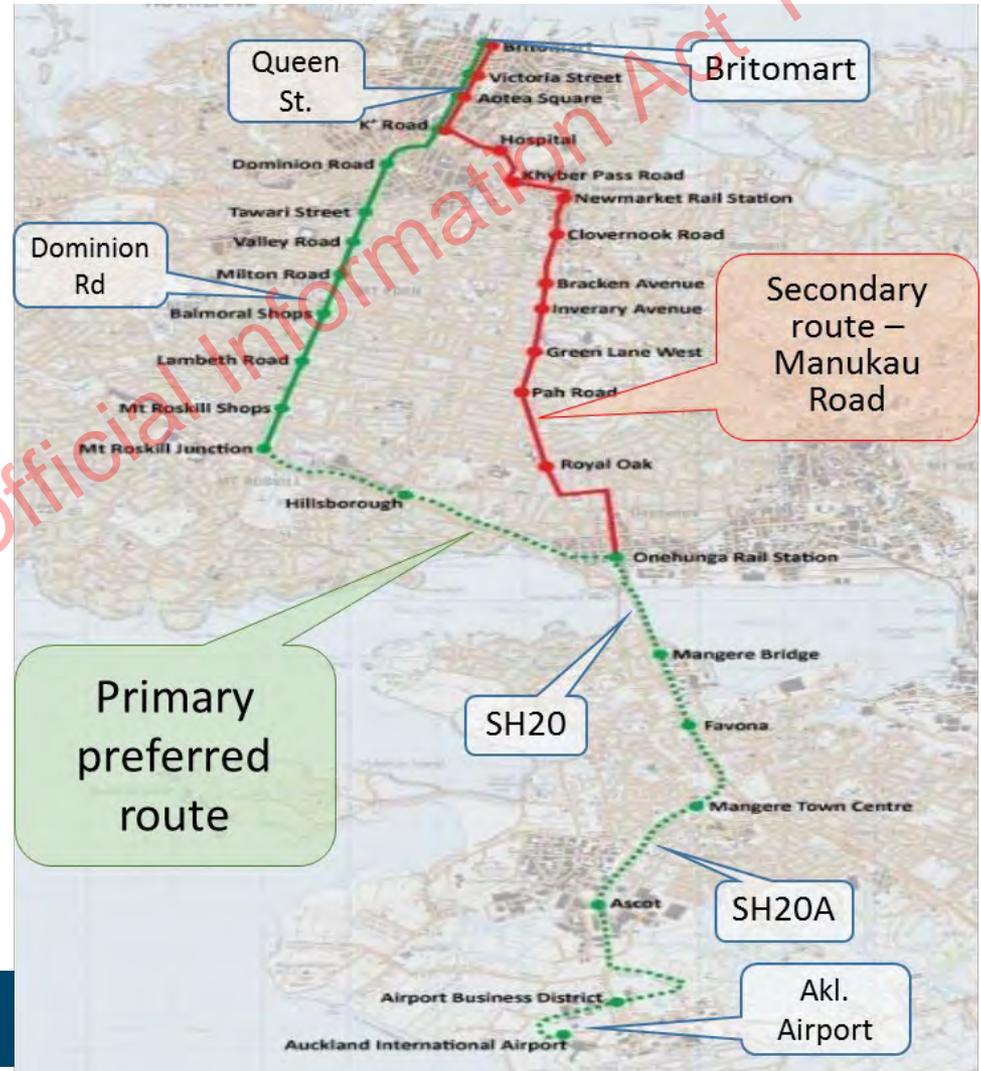
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Its key finding is that a bus-based mass transit option is credible and merits further investigation continued

- A bus-based system can be flexible, has the potential for incremental benefits, and there are opportunities for staging and phasing across the isthmus and to the airport
- There are opportunities for good urban form outcomes, and the potential to address wider mobility needs and serve communities that are not currently well served
- The capital cost of the advanced bus option (Airport to City) is estimated to be in the vicinity of \$1.2 billion
- That estimated capital cost may increase when additional costs for accommodating the impact on other bus services in the city centre have been established
- Operating costs would also be significant and in the vicinity of \$1.5 billion for 20 years

A preferred mass transit route from the Airport to City has been identified

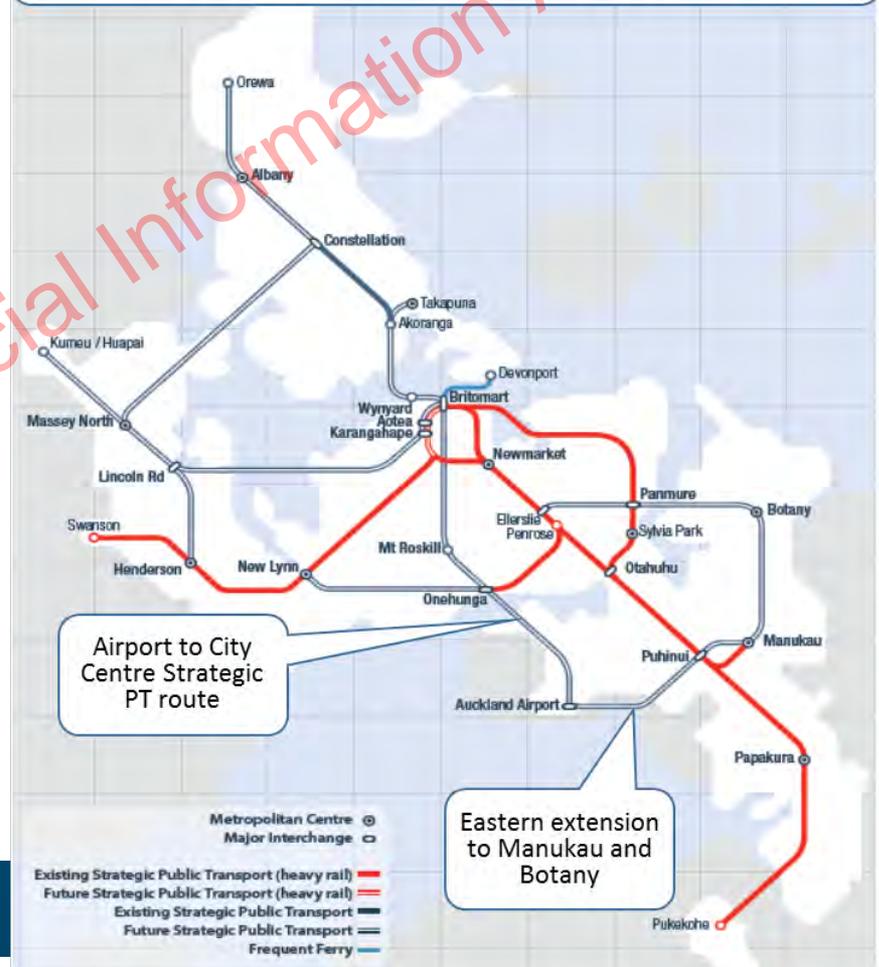
- The study, and previous work on light rail, both identify the same preferred Airport to City route: SH20/20A-Dominion Road-Queen Street, with Manukau Road as a secondary and later corridor
- This provides confidence and a degree of investment certainty for protecting this route for mass transit



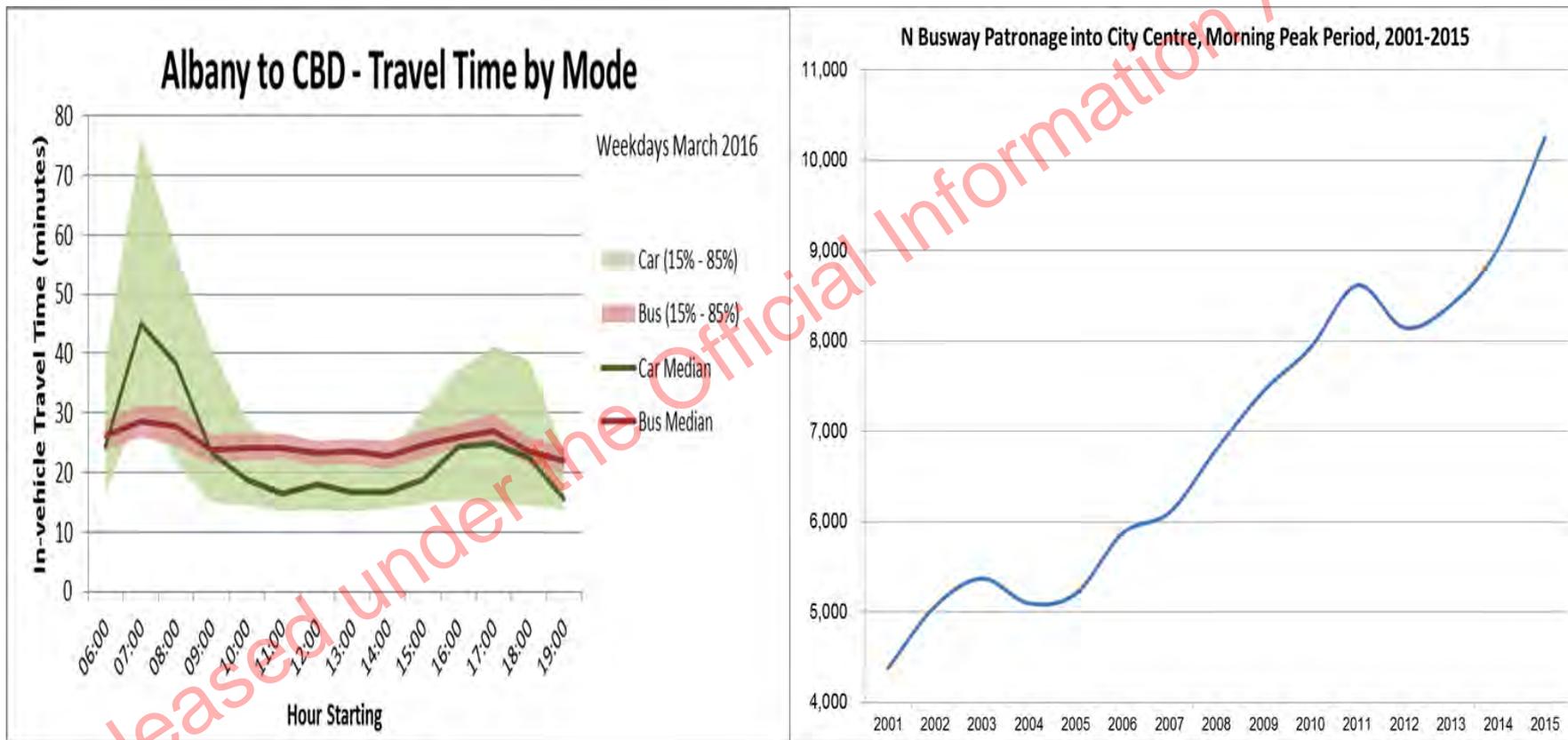
The preferred route would implement key strategic public transport corridors identified by the Auckland Transport Alignment Project ...

- It would form the 'backbone' of the public transport network, providing for high volumes of travel to major employment centres, especially into the central area
- It would enable frequent, high capacity services operating along corridors separated from private vehicles and unaffected by road congestion
- The Auckland Transport Alignment Project forecast the cost of route protection for second decade priorities (such as the City to Airport route) as \$500m

Auckland Transport Alignment Project
Strategic Public Transport Network



... and would build on the success of significant Crown and Auckland Council investment in mass transit – for example the Northern Busway



A staged transition from bus to light rail is proposed in the medium to long term, based on demand and capacity

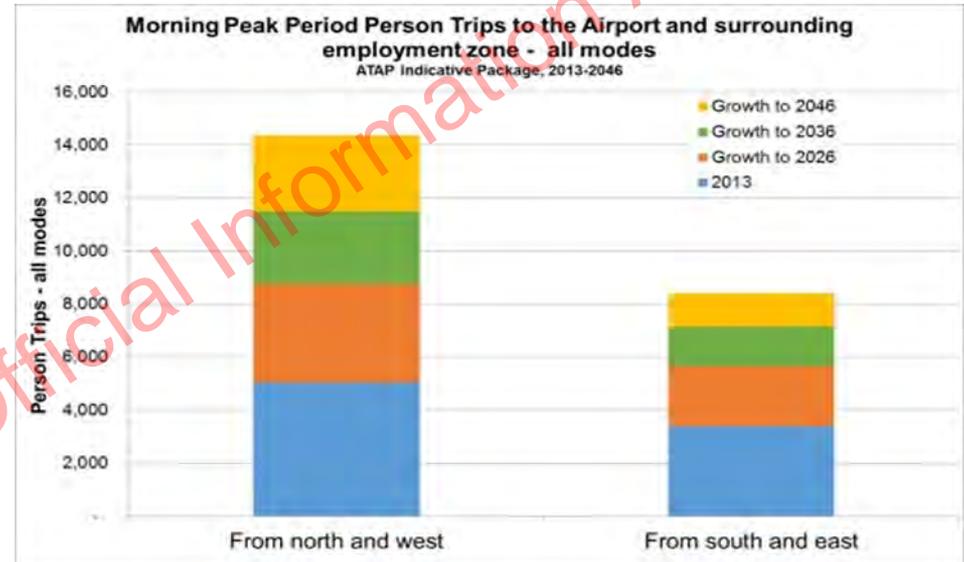
- A bus-based solution would be cheaper and faster to implement in the short-medium term, but would require some trade offs
- A bus solution is likely to have a shorter lifespan than the 2040's before the higher capacity offered by light rail transit is required
- The lifespan of a bus solution will be influenced by the rate of demand growth, space constraints and pressures in the city centre
- There is a practical need to balance the city centre space that must be dedicated for public transport operations with competing demands for that space – further work on this issue would inform the timing of the transition from bus to light rail
- Further work is needed to identify how, over time, a transition from the current bus services and bus lanes to higher capacity buses, a dedicated mass transit right of way, and light rail transit could occur
- Triggers/monitoring would need to incorporate required lead time for transition steps
- Appropriate timing of the proposed transition and any physical conversion works would require careful consideration to ensure that there was a viable network solution during transition

The proposed staged transition from bus to light rail presents some risks

- More detailed operational analysis (particularly in the city centre) is needed to fully confirm the feasibility and practical limits of an advanced bus option
- An advanced bus option is heavily dependant on innovative technology and requires elements to be brought together from a range of examples worldwide
- The 'staged transition' approach has inherent risks including potentially avoidable costs and disruption from implementing solutions that do not have sufficiently long term capacity – timing becomes crucial and practical implications need to be understood

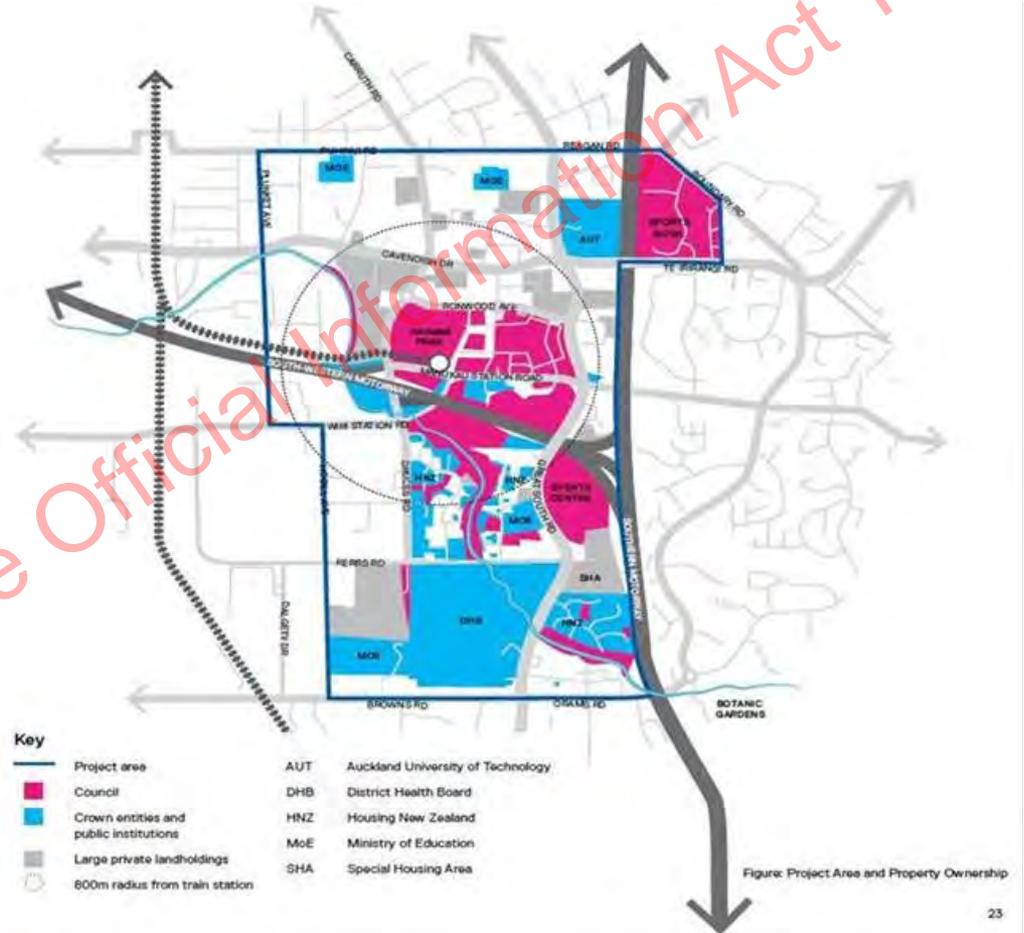
It is projected that travel demand to the Auckland Airport area will significantly increase, both from the north/west and from the south/east

- Central government agencies and Auckland Council are jointly developing their combined land holdings in and around the Manukau City Centre to provide significant affordable housing with good connections to the airport and its surrounding employment zones
- Significant growth in travel demand is anticipated from the East and South to the airport and surrounding employment zone



The proposed eastern connection to Auckland Airport would support current initiatives to help meet that anticipated growing demand for housing and transport

- With growing travel demand, multiple options/routes become more important
- It is proposed to consider public transport network connectivity between the Airport and Puhinui/Manukau as part of a resilient network
- In addition to the Airport to City route, the eastern route would connect the Airport with Manukau City Centre (and eventually east to Botany)

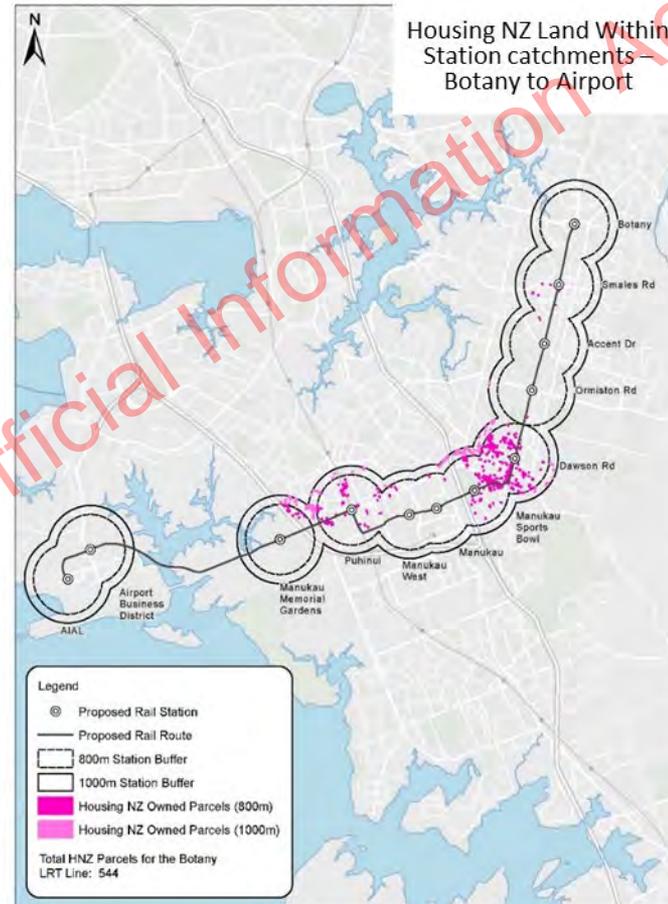
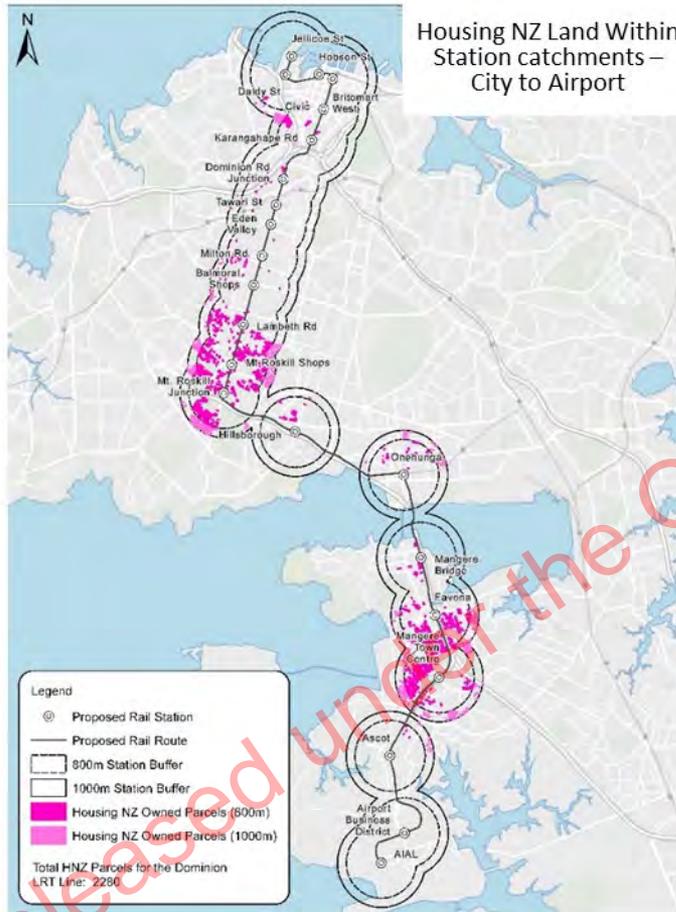


Mass transit along the Airport to City and Airport to Manukau routes would help leverage urban development opportunities in station catchments

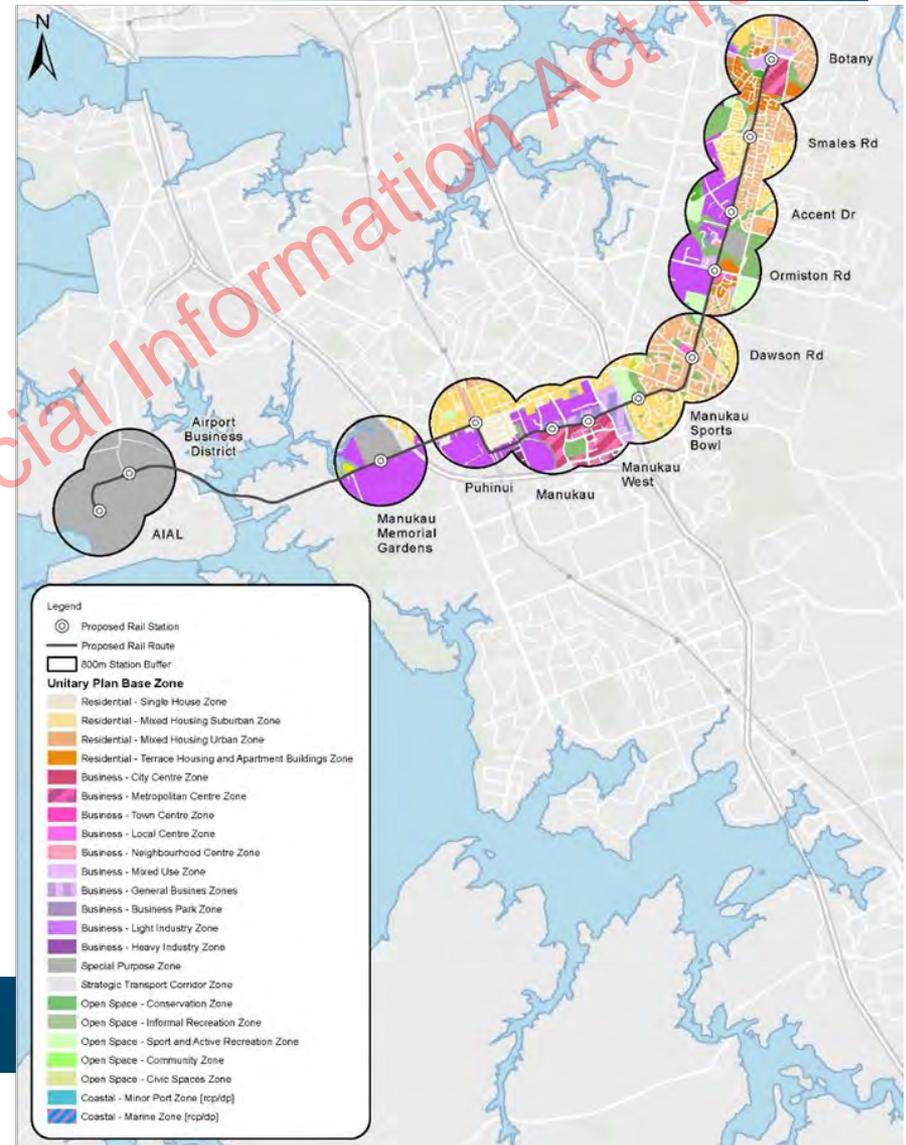
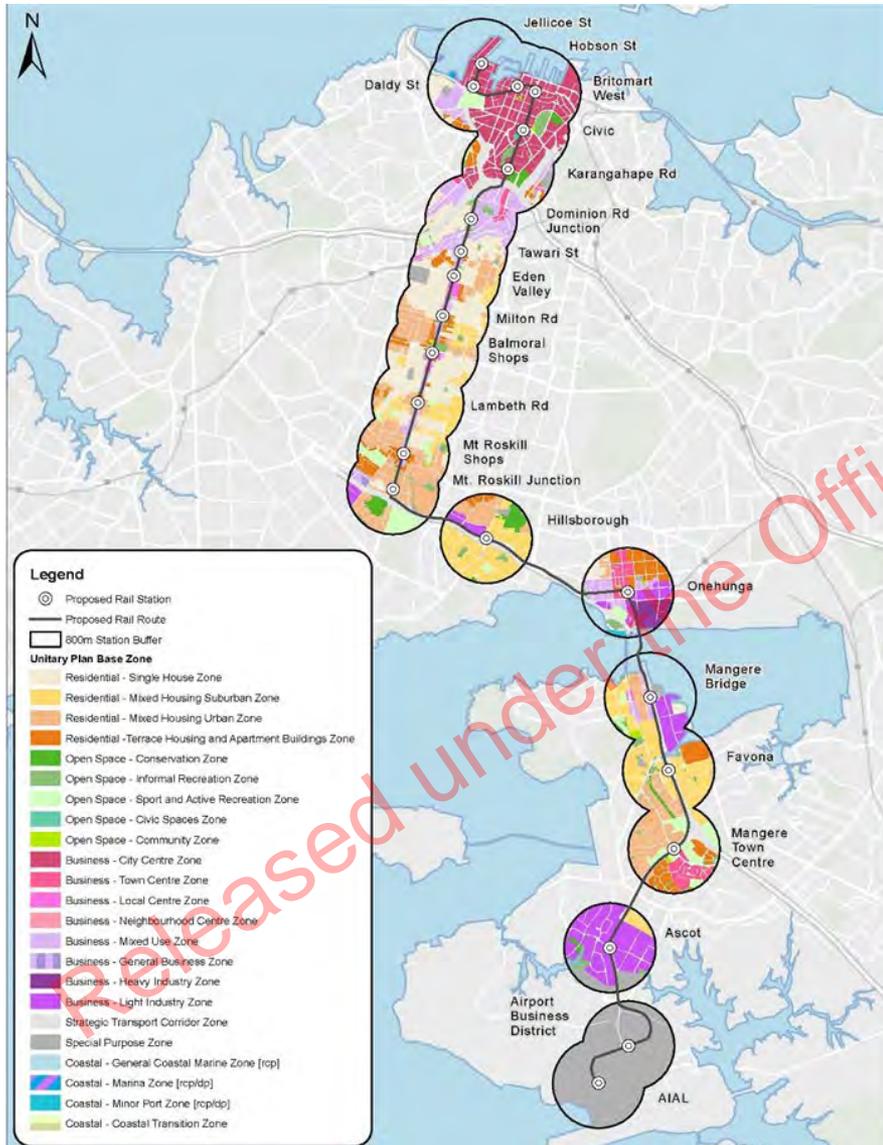
- Mass transit is always an integral part of urban development - this part of the story has been undeveloped given significant Crown- and Council-owned land along the preferred routes, and needs to be fully articulated in the next stage
- The proposed Airport to City route and Airport to Manukau routes (eventually to Botany) present opportunities to better match housing and employment locations to transport capacity and send more consistent signals to the market about the timing and location of development

Continued ...

Mass transit along the Airport to City and Airport to Manukau routes would help leverage urban development opportunities in station catchments continued



The Auckland Unitary Plan (operative in part) enables higher density development in station catchments along both routes



There is an immediate need to implement short term airport access solutions

Airport chaos: Drive home 'longer than Sydney flight'

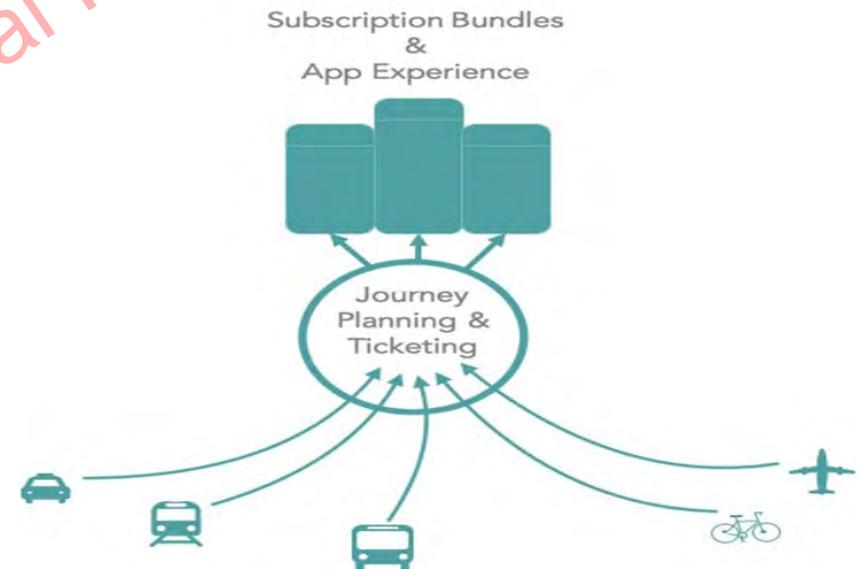
10:00 Saturday 10 December, 2016



Passengers have vented their frustration at the traffic chaos at Auckland Airport, which saw some missing their flights. Photo / Mark Mitchell

- It is proposed to provide better real time access information for passengers, crew and employees by developing a single app integrating real time traffic, public transport journey planning, airline scheduling and airport parking / customs information

- Rapid growth at the Auckland Airport and surrounding commercial area requires immediate access improvements for public transport and general traffic



A package of possible short term improvements is under development

- Possible solutions include initiatives around infrastructure, public transport and influencing demand
- Proposed improvements to public transport services (see the map on the following slide) carry an indicative gross cost of \$5m per annum
- The following infrastructure improvements are also being investigated:
 - **SH20 / Puhinui Road Interchange** - this interchange was a catalyst for the severe congestion pre-Christmas 2016, improvements to this interchange would have a construction cost in the order of \$10-15 million
 - **SH20 Bus Shoulder Lanes and an Additional Northbound Lane** - these improvements could cost in the order of \$5-15 million
 - **SH20B - Puhinui Road – Airport** - investigation of a special vehicle lane (bus, truck and/or high occupancy vehicle), which could cost in the order of \$20-40 million

Continued ...

A package of possible short term improvements is under development continued

Possible short term improvements to public transport services



Next steps will focus on business cases for route protection and implementing short term access improvements to the Auckland Airport

- A route protection business case for the preferred Airport to City route, including a transition plan from bus to light rail, is to be completed by 30 June 2017
- Auckland Transport will lead this work in partnership with the Transport Agency and with ongoing involvement from Auckland Council
- Further work on the proposed 'staged transition' from bus to light rail will be done to further assess key operational elements, required trade-offs, flow on effects, transition impacts, and resilience issues
- In parallel, work will be undertaken to progress a route protection business case for the eastern connection from the Airport to Manukau City Centre and Botany
- The Transport Agency and Auckland Transport will also work with Auckland Council and Auckland International Airport Limited to jointly develop and implement a package of short term access improvements to the Auckland Airport

The Transport Agency is closely engaged with key partners in developing these proposals and the next steps

- As noted above, the approach outlined in this paper is aligned with the Auckland Transport Alignment Project indicative package and proposed strategic public transport network
- Auckland Transport's Board considered recommendations aligned to those in this paper at a meeting on 16 February 2017
- Similar recommendations will be presented to Auckland Council in coming weeks
- Auckland International Airport has indicated it would support a 'staged transition' approach
- Once the outcome of the Transport Agency and Auckland Transport Board meetings is known, the outcomes of the Advanced Bus Study and next steps will be jointly communicated to key stakeholders
- A detailed engagement strategy for the next stages of work is under development - no significant engagement is envisaged during development of the route protection business case for the preferred Airport to City route (to be led by Auckland Transport)

There is one attachment

- **Attachment One** – the Executive Summary for the Auckland Advanced Bus Study report (a copy of the full report is available on request)

Attachment One – Executive Summary of the Auckland Advanced Bus Study report

