

Development of Transit Network in Auckland

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The Big Picture - WHY?



54. Without limiting the legal interpretation of the terms, for the purpose of GPS 2015, a system is:

- effective where it moves people where they need to go in a timely manner
- efficient where it delivers the infrastructure and services to transport at the best cost
- safe where it reduces the harm from transport
- in the public interest where it promotes economic, social, cultural and wellbeing.

STRATEGIC DIRECTION 13

CREATE BETTER CONNECTIONS AND ACCESSIBILITY WITHIN AUCKLAND, ACROSS NEW ZEALAND

TARGETS			
Double public transport from 70 million trips in 2012 to 140 million trips by 2022 (subject to additional funding)	Increase the proportion of trips made by public transport into the city centre during the morning peak, from 47% of all vehicular trips in 2011 to 70% by 2040	Reduce road crash fatalities and serious injuries from 506 (2010) to no more than 410 in 2020	Reduce congestion levels for vehicles


Manage Transport as One System

The One System approach provides for the management and planning of transport networks with land use development as outlined in the Auckland Plan. The One System approach will result in:

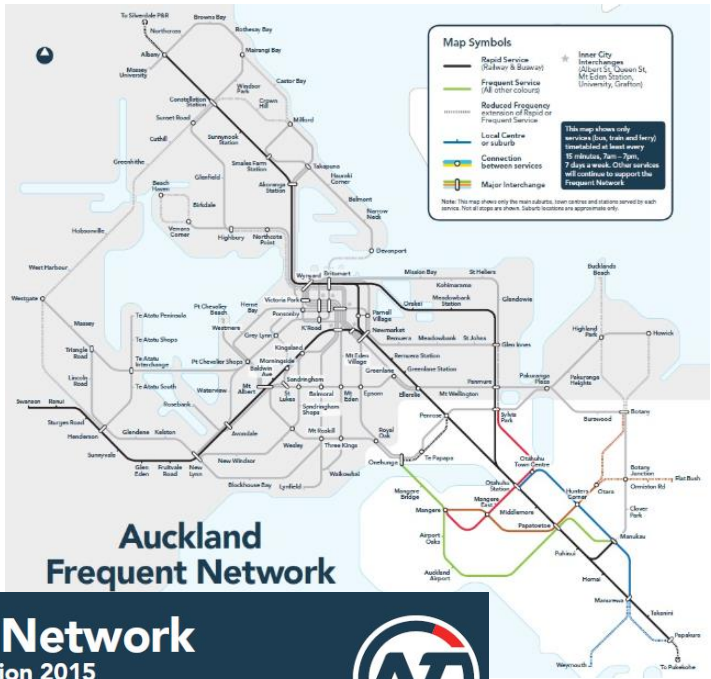
- x Better use of existing transport networks
- x Better alignment of transport provision with changing patterns of land use and demand
- x A safer, more resilient national and regional network, where a greater range of resources and options is available to deal with unexpected events or future changes
- x Better alignment of effort between network providers and elimination of overlap and duplication

AT Metro

APPEAR A LITTLE KEENER THAN YOUR BOSS THINKS YOU ARE.



NEW BUS LANES
DOMINION ROAD
SOUTH



Southern New Network Final Routes for Implementation 2015




New Network consultation ran 19 June to 2 August 2013. Final routes endorsed by AT Board on 21 November 2013. These new routes are expected to be implemented mid-2015. Please go to www.aucklandtransport.govt.nz/newnetwork for more information.




40

KILOMETRES OF NEW BUS LANES COMING BY JUNE 2017.

Wave to the traffic!



great you're on the bus



Where do we start

- Strategically aligned
- Operationally feasible

Agenda Item 9(i)

Auckland Transport
An Auckland Council Organisation

Bus and Transit Lanes Review - Planning and Implementation Model for Auckland - July 2011

Purpose

The purpose of this study is two-fold:

- To put forward a policy that aligns with strategic planning objectives and provides an analytical basis for the implementation of bus and transit lanes for the Auckland region;
- To arrive at standard templates for bus and transit lanes, generic to all locations, to be used for bus and transit lanes: BUS ONLY, BUS LANE, T2 and T3 transit lanes, across the region.

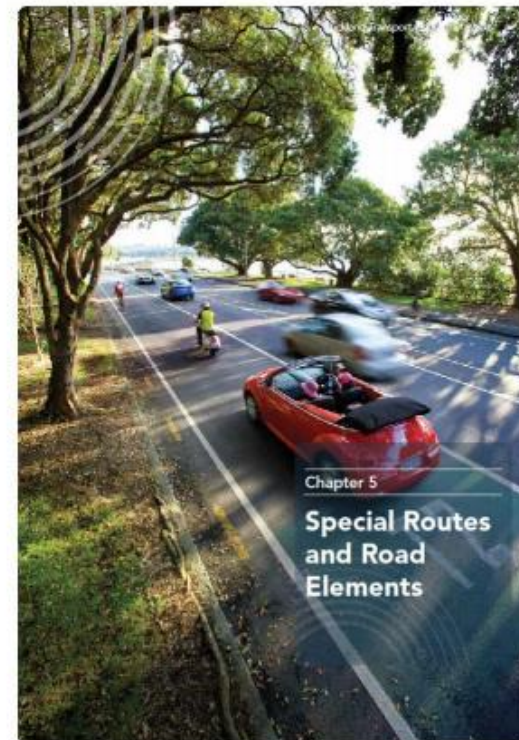
Executive Summary

With increasing demand for travel and limited opportunities for increasing capacity within urban areas, there is a need to make more effective use of the available road space. An effective approach is to introduce bus and transit lanes on key routes.

Bus and transit lanes have been introduced in Auckland in recent years, following the example of many cities across the world. In Auckland, the introduction of these lanes have been largely initiated at a strategic level and related to regional planning strategies. In each instance, designs were implemented from a local perspective, resulting in bus and



Auckland Transport Code of Practice 2013



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The Implementation Model

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The Model Assessment Criteria

- Alignment with Strategic Transport Plans and the Network Operating Plan
 - Frequent Service Network
- Characteristics of the Route
- Analytical Assessment
 - Travel Speed or Level of Service
 - Corridor Productivity or Efficiency per lane
- Road Safety

Analytical Assessment

- Travel Time or LOS
 - Segment LOS based on HCM definition (speed)
 - LOS B/C desired for FSN
 - If not, possible bus/transit lane intervention
 - If yes, possible space share with other special vehicles (Bus to T3 or T3 to T2)
 - Need to understand the impact for the adjacent general vehicle lane

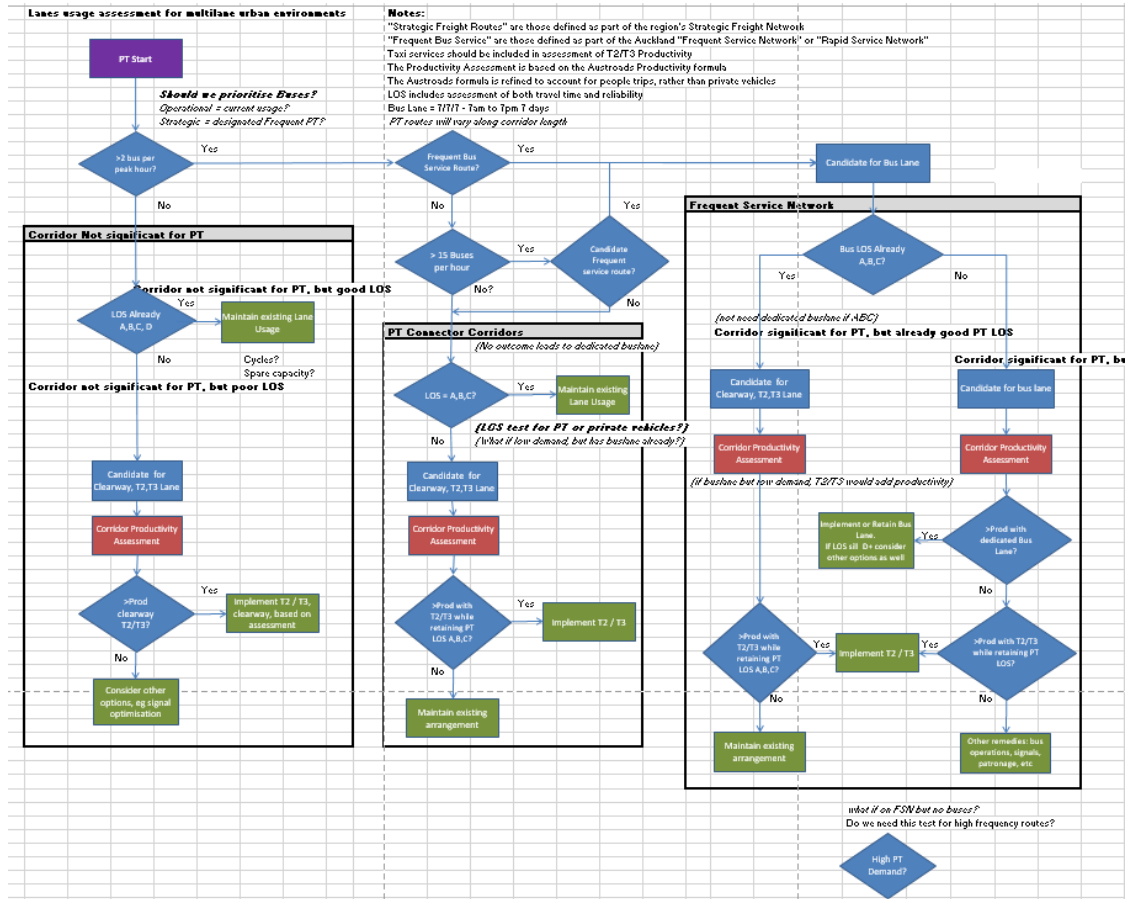
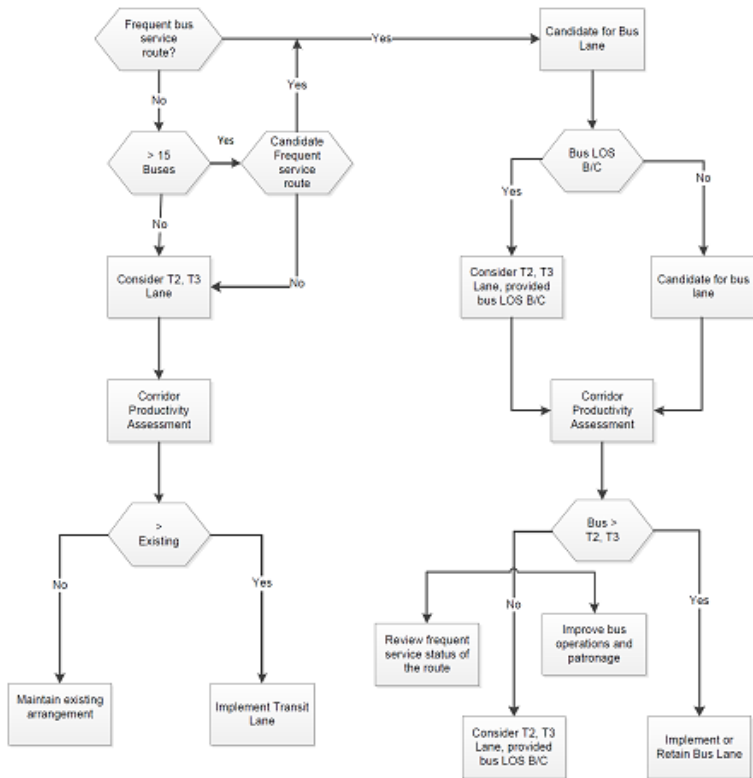
Analytical Assessment (cont.)

- Corridor Productivity or Efficiency per lane
 - AUSTROADS definition: Speed x volume
 - Auckland Transport: include occupancy rate
- Therefore:
 - AUSTROADS benchmark: $900\text{veh} \times 35\text{km/hr} = 31,500 \text{ veh-km/hr}$
 - AT: $31,500 \times 1.2 = \mathbf{37,800 \text{ people-km/hr}}$
 - New people movement benchmark!

Analytical Assessment (cont.)

- Typically, most general lane productivity is somewhat less than the 100% benchmark:
 - Geometric constraints
 - Traffic Signal
- On the other hand, 20+ full occupied buses achieves 100% people productivity
 - In principle, this easily warrants for bus priority measures

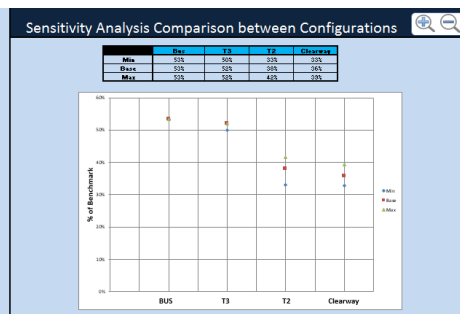
Decision Flow Diagram



ATAP Applications

MAXIMUM CASE

Mode	Volume	%	Passen-trip	%	Speed	LOS	Productivity	% Benchmark
Bus Lane	10	1%	400	25%	15	E	4000	15%
Special Lane	120	12%	480	30%	24	C	28800	36%
General Lane	1240	124%	4960	100%	100%	D	248000	100%
Bus Lane	1240	124%	4960	100%	100%	D	248000	100%



CORRIDOR PRODUCTIVITY ANALYSIS

Trial Corridor Example

Re-enter Information

CURRENT CONFIGURATION				
Mode	Volume	%	Passen-trip	%
Bus	10	1%	400	25%
T2 Vehicle	1000	100%	1000	100%
T3 Vehicle	200	20%	800	20%
T2 Vehicle	30	3%	120	3%
T3 Vehicle	20	2%	80	2%
Total	1240	100%	1000	100%

BEST CHOICE

Base Case

LANE

Base Case Ranking				
Configuration	Productivity	% Benchmark	Ranking	Current
Clearway	15668	56%	1	Current
T2 Lane	14450	50%	2	
T3 Lane	13169	45%	3	
Bus Lane	20280	55%	4	

Minimum Case Ranking				
Configuration	Productivity	% Benchmark	Ranking	Current
Clearway	10430	35%	1	Current
T2 Lane	10521	35%	2	
T3 Lane	10005	30%	3	
Bus Lane	20280	55%	4	

Custom Case Ranking				
Configuration	Productivity	% Benchmark	Ranking	Current
Clearway	14312	53%	3	
T2 Lane	10417	44%	2	Current
T3 Lane	14068	47%	4	
Bus Lane	18555	53%	1	

PRODUCTIVITY OF DIFFERENT CONFIGURATIONS

BASE CASE

Mode	Volume	%	Passen-trip	%	Speed	LOS	Productivity	% Benchmark
Bus Lane	10	1%	400	25%	15	E	4000	15%
Special Lane	120	12%	480	30%	24	C	28800	36%
General Lane	1240	100%	4960	100%	100%	D	248000	100%

MINIMUM CASE

Mode	Volume	%	Passen-trip	%	Speed	LOS	Productivity	% Benchmark
Bus Lane	10	1%	400	25%	15	E	4000	15%
Special Lane	120	12%	480	30%	24	C	28800	36%
General Lane	1240	100%	4960	100%	100%	D	248000	100%

CUSTOM CASE

Mode	Volume	%	Passen-trip	%	Speed	LOS	Productivity	% Benchmark
Bus Lane	10	1%	400	25%	15	E	4000	15%
Special Lane	120	12%	480	30%	24	C	28800	36%
General Lane	1240	100%	4960	100%	100%	D	248000	100%



Also note..

- Model could not 100% accurately predict what would happen
 - Modal shift
 - Induced trips
 - Behaviour change
- Traffic model may help
- Sensitivity test – (lots of) if scenarios
- Monitoring is as important as Planning!

Where do we apply this?

- Justification of all the **new proposed** bus and transit lanes
- Annual monitoring of all the **existing** bus and transit lanes
 - Confirm the existing arrangement is still appropriate
 - Highlight which corridors have opportunity to improvement, and are closely monitored
- Applied consistently across the Auckland network

The Implementation Model

- Aligns with strategic direction and yet best suit current operational patterns and demands
- Captured in ATCOP 5.1
- Basic step stone for establishing special vehicles
- Applied consistently across the wider Auckland network

Examples

Regional Productivity Assessment

RESULTS

- 44 deemed APPROPRIATE (96%)
- 1 route in 2 directions - FURTHER INVESTIGATION ?:
- Several routes identified for potential improvement
- **MOST productive lanes:**



Route	Current	Period	Corridor Productivity	No. of buses
Fanshawe Street	Bus	AM	318%	112
Anzac Avenue	Bus	PM	253%	97
Khyber Pass	Bus	PM	235%	57
Onewa Road (new)	T3	AM	158%	37
Symonds Street	Bus	PM	142%	105

Fanshawe Street

- The most productive (bus) lane in Auckland
- Approximately five times more productive than our average lane productivity in Auckland



AND...

- Carries more people than the whole Nelson Street in the morning peak!



Increased productivity of critical infrastructure

THANK YOU

