

## TRANSPORT TRENDS IN AUCKLAND

### Government interests

1. The Government's top priority for transport is to maximise the sector's contribution to economic growth and productivity. The Government's planned outcomes for transport include a high quality transport system for Auckland, the nation's largest economic hub.
2. The Government is investing over \$1 billion a year in the Auckland transport system with the aim of enabling efficient and effective use of the transport network. Investment in major transport capital infrastructure improvements is focussed on completing the core motorway network, improving connections with Waikato and Northland, and upgrading and electrifying the passenger rail network (see Figure Seven).
3. The Auckland spatial plan provides a unique opportunity to reach a common position on future land use and transport demand and thereby improve alignment between regional and national transport objectives and funding priorities.

### Current situation and trends

4. The focus of land use strategy by Auckland councils over the last 10 years has been on intensification at centres and along public transport corridors.<sup>1</sup>
5. This approach relied heavily on the assumption that the benefits of locating close to public transport corridors, particularly rail, would encourage demand for intensive developments around these corridors. These intensive developments were expected to significantly reduce the demand for greenfields development and private car use.
6. The 2010 30-year Auckland Regional Land Transport Strategy (RLTS) is the region's statutory transport strategy. The RLTS has a strong public transport focus and includes construction of the CBD Rail Loop, the Airport Rail Loop and the Avondale-Southdown rail link as major capital projects, along with higher frequency public transport services throughout the region. Some expansion of the roading network is also provided for, including completion of the Western Ring Route, the Auckland Manukau Eastern Transport Initiative, improving airport road access and improving the operation of the regional arterial road network. Appendix One provides a map of these projects.
7. Over the next 30 years, the RLTS recommends national and regional transport funds be allocated as set out in Figure One below. The levels of funding proposed do not align well with existing use and would involve a major shift in current policy (refer paragraph 28).

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<sup>1</sup> Auckland Regional Council. (1999). *Auckland Regional Growth Strategy: 2050*.

**Figure One: RLTS proposed funding allocations**

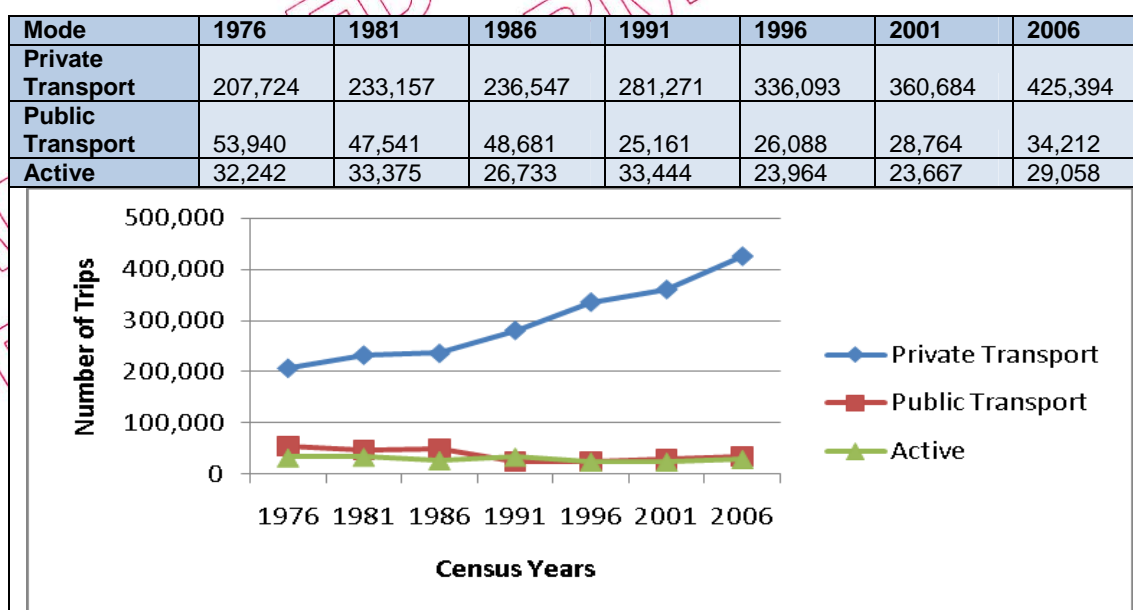
Category	Proportion of funding		Current peak use (2006)
Public transport infrastructure and services	42%		5%
Road maintenance and renewals (roading)	25%	53%	83%
Local road improvements (roading)	15%		
Highway improvements (roading)	13%		
Demand management (travel plans/active modes)	5%		12%

Source: Auckland Regional Land Transport Strategy, 2010

*Traffic growth*

- Auckland’s transport system currently accommodates 4.2 million passenger trips by private transport (80 per cent, mainly car), 820,000 active trips (16 per cent, mainly walking) and 170,000 public transport trips (4 per cent, mainly bus) each day.<sup>2</sup> Sustained growth in private vehicle trips, combined with previous underinvestment in infrastructure improvements has put significant pressure on the transport system.
- Journey to work census data for the period between 1976 and 2006 demonstrates the dominant role of private vehicles in Auckland’s transport system along with the modest role of public transport over this period (Figure Two).

**Figure Two: Census journey to work – 1976 to 2006 (30 years)**



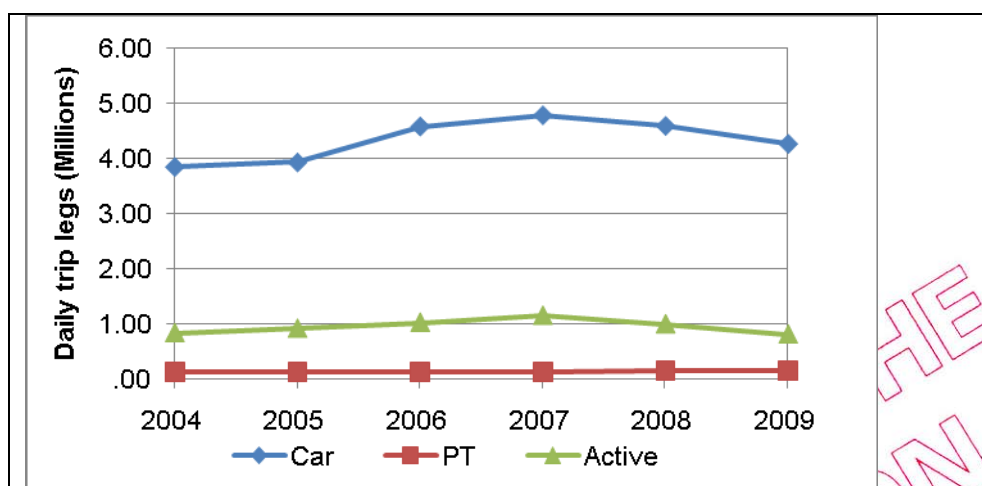
Source: Census of Population and Dwellings, Statistic New Zealand, 2011.

- More recent data in Figure Three below indicates that car trips grew rapidly until 2007, although they have subsequently declined somewhat during a period of recession and higher fuel costs, leaving a net growth in trips of 2.2 per cent a year over the last five years, an increase of 250 passenger trips a day. In the same period, the decline in public transport trips has reversed to some degree, with an additional 20 new passenger trips a day. This is mainly associated with the opening of the Northern Busway and improvements to the metro-rail network. Active trips

<sup>2</sup> Ministry of Transport. (2010). *Household Travel Survey* and New Zealand Transport Agency patronage returns.

were largely unchanged. Census data confirms that the average length of commute to work remained unchanged between 1996 and 2006 at six kilometres.

**Figure Three: Auckland daily person trip legs<sup>3</sup> - 2004 to 2009**



Source: Ministry of Transport Household Travel Survey and New Zealand Transport Agency patronage returns, 2010.

#### Traffic forecasts

11. Transport models are used to develop transport strategies and to inform infrastructure investment decisions. Assumptions used in RLTS modelling and draft guidelines recently developed by the New Zealand Transport Agency (NZTA) for testing State highway projects are set out in Appendix Two. There are differences in assumptions about: current base numbers; the degree of land use intensification; increase in vehicle operating costs and public transport fares; and the impact of travel planning.

12. The collective effect of these different assumptions results in different transport forecasts, are summarised in Figure Four below. The differences in underlying assumptions need to be resolved and agreement reached on a realistic set of forecasts. We understand NZTA have initiated this reconciliation process.<sup>4</sup>

**Figure Four: Regional effect of alternative input assumptions (2-Hour AM Peak)**

Growth 2006 to 2026	Number of extra trips in 2026		Percentage growth	
	RLTS	NZTA	RLTS	NZTA
<b>Total PT Trips</b>	107,947	73,678	129%	56%
<b>Total Private trips</b>	540,978	603,816	18%	32%
<b>Total PT Travel (pax-km)</b>	1,289,156	821,191	138%	52%
<b>Total private Travel (veh-km)</b>	6,085,814	6,815,621	19%	34%

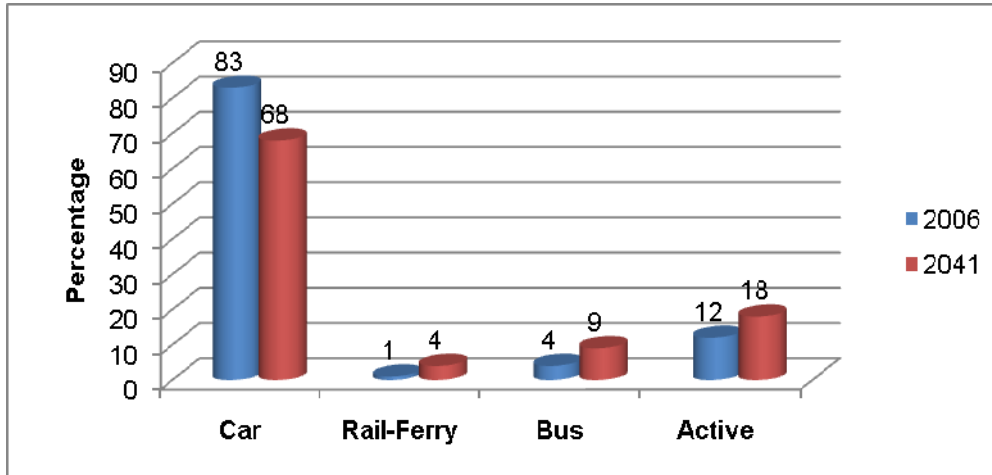
Source: Guidelines for Regional Transport Forecasting in Auckland, NZTA, 2010.

<sup>3</sup> Trip legs recognise that many journeys involve more than one type of trip (e.g. a walking component as well as a car or public transport component).

<sup>4</sup> These NZTA guidelines were put together for State highway projects but the intention is that they would be used as a basis for developing common guidelines between Auckland Council, Auckland Transport and the NZTA.

13. Both sets of assumptions forecast a substantial growth in private trips and that private transport will continue to dominate traffic patterns in 2041, albeit at a lower percentage share than at present. The RLTS forecast mode share outputs are summarised in Figure Five.

**Figure Five: RLTS trip projections for peak periods**



*Land use assumptions*

14. The land-use assumptions adopted in transport modelling need to be realistic and achievable. The *Urban Form and Land Use* position paper shows that the 1999 Auckland Regional Growth Strategy targets have not been met, which has significant implications for transport and infrastructure investment decisions based on those assumptions.
15. Auckland's current land-use and transport strategies rely heavily on the assumption that investment in public transport will be city shaping. Public transport is forecast by RLTS modelling to account for 13 per cent of peak period travel by 2041 (Figure Five above: Rail-Ferry and Bus). Background modelling for the RLTS also shows that rail to the North Shore and an Airport rail loop combined could be expected to provide an additional 11,280 public transport passengers per day in 2041. This is only 0.2 per cent of the 6.4 million daily trips forecast for the Auckland transport system in 2041. This will need to be taken into account when making assumptions about the extent to which public transport will be city shaping.
16. Developing the CBD seems likely to be a key focus of the spatial plan. While it is important to ensure there is sufficient investment in the CBD as Auckland's commercial and cultural centre, as the CBD currently provides just 14 per cent of Auckland's employment and a small proportion of its population, it will also be important to make sure there is appropriate focus on other parts of Auckland.

*Ports*

17. The New Zealand economy relies heavily on the flow of goods to and from international markets. Auckland's air and sea ports play a leading role in the export and import trade and are critical in connecting New Zealand to our international markets. In addition, the airport is progressively becoming a centre of broader economic activity in its own right, with businesses locating near or in its vicinity.
18. Auckland's seaport handles 37 per cent of New Zealand's total commercial trade, which represents 13 per cent of GDP. Ports of Auckland Limited is wholly owned by Auckland Council.

19. Auckland's airport caters for 13.5 million travellers in the 2010 year, including 72.0 per cent of international visitors to New Zealand.<sup>5</sup> Auckland Council owns 22.8 per cent of Auckland International Airport Limited (AIAL), a listed company that owns and operates the Auckland Airport. A study recently commissioned by AIAL estimated that the Airport and associated business development accounted for 21 per cent of regional GDP (13 per cent nationally) in 2006 and 174,000 jobs (319,000 nationally).<sup>6</sup>
20. More intensive urban environments place competing demands on port land and on the transport corridors that serve them. For example, waterfront land is seen as supporting amenity as well as export functions and transport corridors can be a focus for housing development and public transport services as well as freight movement.
21. The footprints of the sea-port and air-port need to be recognised and activities in adjacent 'buffer-zones' and along key access corridors managed in a way that supports successful port operation. The spatial planning process provides an opportunity for Auckland to build a consensus on the role of the ports and the corridors that serve them to secure their continuing effectiveness in the supply chain.

#### *Government investment*

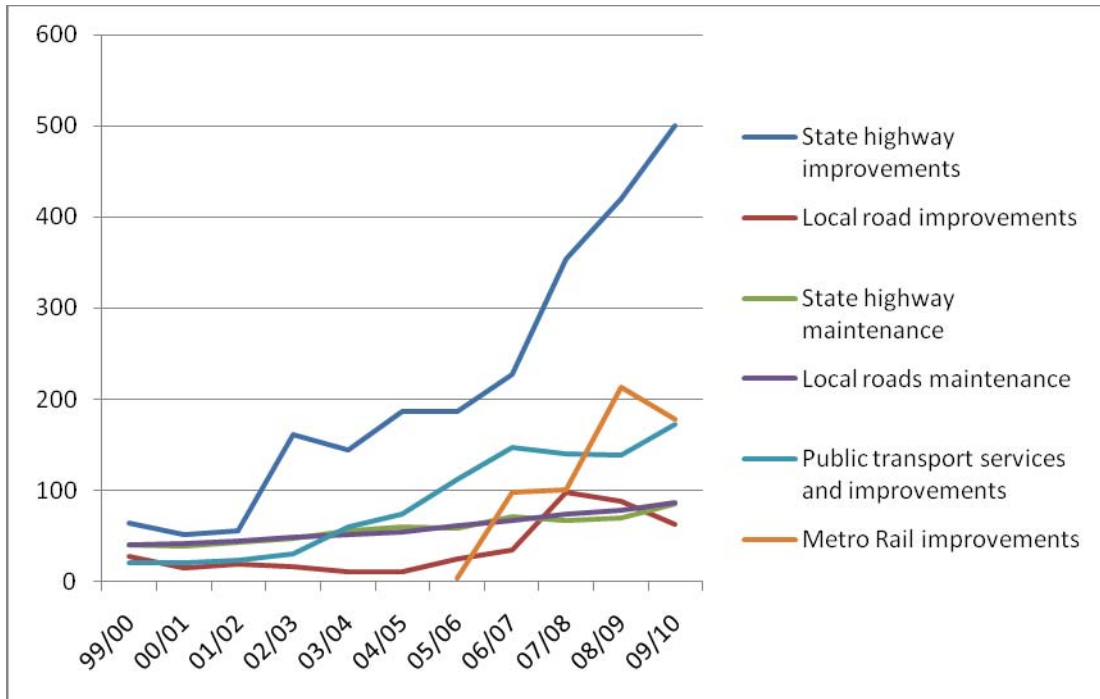
22. The majority of Government transport investment is dedicated to the National Land Transport Fund (revenue from Fuel Excise Duty, Road User Charges and Vehicle Registration paid by motorists). High level allocations between output classes are made through the Government Policy Statement on Land Transport Funding (GPS). The Government is also directly investing in upgrading and electrifying Auckland's passenger rail network through separate Crown appropriations.
23. The Government's current investment in Auckland's transport system, as summarised in Figure Six.

**Figure Six: Government Auckland transport investment – 2000 to 2010**

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<sup>5</sup> Auckland International Airport Limited 2010 Annual Report.

<sup>6</sup> Market Economics study of Auckland Airport for AIAL, January 2011.



Sources: National Land Transport Programme Regional Summaries (Vote Transport for rail expenditure).

24. NZTA modelling suggests that current major capital investment in completing the core Auckland motorway network will reduce congestion on this network until at least 2021 and improve accessibility within Auckland and between Auckland, Waikato and Northland. Modelling also suggests investment in upgrading and electrifying the passenger rail network will also enable rail patronage growth to continue.

25. Currently planned projects are summarised in Figure Seven.

**Figure Seven: Current and proposed major Auckland transport projects over the next 10 Years**

Project	Construction Cost (\$M, Approximate)
<b>State Highway</b>	
Victoria Park Tunnel	360
Newmarket Viaduct (including Greenland Auxiliary Lane)	225
SH18 Hobsonville Deviation (including Brighams Creek Extension)	230
Western Ring Route including Waterview Connection and SH16 widening	2,030
<b>Public Transport and Local Road<sup>7</sup></b>	
Northern Busway Extension	300
Auckland Manukau Eastern Transport Initiative (AMETI) <sup>8</sup>	430
Auckland Integrated Fare Solution (AIFS) Programme	70
Dominion Road Public Transport Improvements	115
Penlink	205

<sup>7</sup> Total cost of local projects includes National Land Transport Fund and Auckland Council share.

<sup>8</sup> Proportion of cost in the next 10 years (total cost is approximately \$1,500 million).

Rail Station Upgrades	58
Tiverton Rd / Wolverton St Route Upgrade	25
<b>Metro Rail</b>	
Auckland Metro Rail Network Upgrade and electrification <sup>9</sup>	1,600
<b>Inter-regional</b>	
Puhoi to Wellsford Road of National Significance	2,150
Waikato Expressway	2.400

Source: Based on National Land Transport Programme 2009-12 – with updates where additional information is available (Vote Transport for metro rail)

26. The scale of this investment, combined with the Government's current fiscal position and other demands for capital investment, means that little discretionary transport funding will be available for any other major new Auckland capital infrastructure projects over the next 10 years.

#### *Auckland Council investment*

27. The *Financial Instruments and Funding* position paper notes that the Auckland Council faces similar fiscal constraints to the Government. The paper suggests that the Council should consider new and innovative approaches to funding and financing infrastructure and services to achieve the objectives of the spatial plan.
28. Some form of congestion charging could be seen as an option given its potential to raise significant revenue, manage demand and encourage modal shift to public transport. Current legislation permits tolling of new roads to provide revenue for their construction. In the long term, changes could be made to enable road pricing or tolling of existing as well as new roads.
29. Any legislative changes to apply taxes to existing roads would amount to a major change in policy direction and raise issues of national scope and significance. Factors that would need to be addressed include equity issues in any transfer between motorists and public transport users; accountability issues given the level of government interest arising from its ownership of State highways and joint funding of local roads; differences in impact on residents and businesses inside and outside any charging zones; the costs of collection systems; trip diversion and privacy considerations.

#### **Government's current position**

30. Auckland's traffic growth is ongoing and interventions are needed that have an immediate positive impact on service levels. Analysis suggests that priority should be given to interventions that make effective use of the entire network through sound network management and targeted new capacity. An almost exclusive focus on centres and public transport corridors under the region's previous approach to growth risked under used new transport infrastructure while other parts of the network experience rising congestion.
31. Development of the spatial plan provides a major opportunity to settle on a realistic and enduring approach to land use change that can reliably inform transport investment. Given current and forecast mode shares, future trip patterns and growth, in most cases this is likely to involve infrastructure that maintains accessibility across the entire transport system, at a higher intensity of use, while also accommodating business and household preferences for travel.

<sup>9</sup> Includes \$500 million loan to acquire new trains.

32. To achieve the improvements in transport sought by the Government and the Auckland Council, a range of transport and land-use related interventions will need to be pursued.

*Make full use of available and planned transport network capacity*

33. Consideration should be given to spreading development more widely across the urban area to make full use of the available and planning capacity within the transport network.

*Recognise and provide for the effective use of the existing network through sound network management and selective development*

34. Improved transport network management and development is needed to lift the performance and capacity of the existing network and minimise the need for further extensions to the network. For example, this may involve:

- a particular focus on a fully differentiated roading hierarchy that distinguishes between: arterial routes where mobility has priority; suburban corridors where property access has priority; and dual-use roads where more intensive roadside development can occur;
- capital and operational investment in improving existing network performance such as traffic signal optimisation, variable lane markings, grade separation, median barriers, pedestrian and cyclist facilities and high occupancy vehicle lanes;
- investment in bus services to reach all parts of the urban area and more effective use of dedicated public transport corridor capacity; and
- effective demand management measures that may ultimately need to go beyond current travel planning to include more enduring pricing measures that provide a solid link between network use, revenue and expenditure.

*Recognise and provide for the nature of ongoing travel growth, including growth in private transport*

35. Investment is needed to address problems arising from existing network use (e.g. congestion and trip reliability), ongoing travel growth that is compounding those existing problems and to cater for future growth. A sensible and enduring mix of measures to address both existing pressures on the network and those designed to shape future development and demand will be needed.

36. While good progress is being made in addressing historical deficits on parts of the network (e.g. State highways and metro rail), pressure is building elsewhere. This issue is particularly acute on the arterial road network where investment levels have been modest. A greater emphasis on improving the carrying capacity of the network is needed (e.g. high occupancy vehicle lanes) to get the maximum benefit rather than simply reallocating road space between modes (e.g. bus lanes).

*Give priority to business activity at the most accessible locations and on key freight corridors*

37. The performance of the motorway and arterial network is critical to effective freight distribution. Freight movements should have priority on key freight corridors. These measures are warranted to maximise business' access to labour, freight and markets within the region, between regions and internationally.

38. If Auckland is to realise its economic potential, businesses need to have priority at locations within the transport network that offer the best access to markets. Consideration should be given to ways of giving priority to business use over residential use in these locations.

*Investment priorities*

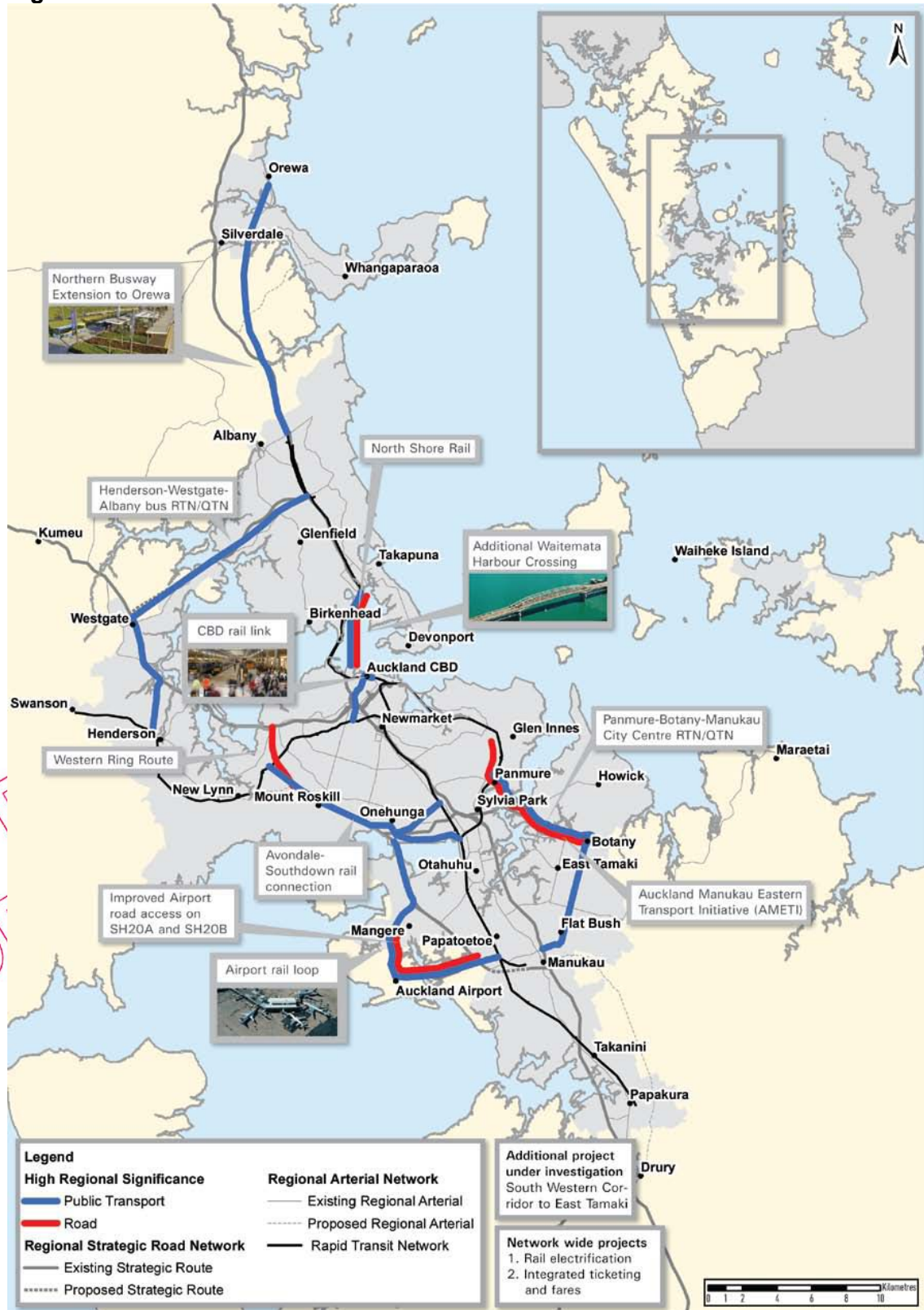
39. Choices will need to be made on the mix of major infrastructure projects and more dispersed network wide improvements. It is likely that the major infrastructure project choices will include the timing and priority of the CBD rail loop, and additional Waitemata Harbour Crossing, together with a range of transport network improvements.
40. Network wide improvements seem likely to centre on ongoing, but more modest, improvements to the capacity of State highways and increased investment in the arterial network in partnership with the Council. This investment in the arterial network would need to be undertaken to: decrease congestion; provide for improved bus transport as Auckland's dominant public transport mode; and to maintain access to the most accessible business locations on the network. Measures to improve patronage levels on public transport services would also need to be ongoing.
41. At a project level, there will be a role for the Government to contribute to the funding of transport projects required to deliver the spatial plan. However, before investing in any form of project, the Government and the NZTA will need evidence that a project will effectively and efficiently deliver on national transport objectives. Projects that depend on land use change would need to demonstrate that the necessary zoning changes have been secured and development is set to proceed.

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## Conclusion

42. Moving Auckland towards a more diverse urban form has some potential advantages provided that accessibility can be maintained and enhanced. However, any land-use and transport strategy needs to be realistic about what can be achieved by regulatory and investment tools. In particular, the strategy needs to address the major risk presented by the current gap between aspirational targets and likely land-use patterns.
43. An Auckland spatial plan that advances the following outcomes has the greatest potential to align with national transport funding criteria and effectively and efficiently address Auckland's future transport needs:
  - enable an achievable urban form that makes full use of available transport capacity;
  - recognise and provide for the nature of ongoing traffic growth, including growth in car travel on roads and the key role of buses in public transport;
  - recognise and provide for the effective use of the existing network through sound network management and well targeted new capacity; and
  - accord priority to business activity at the most accessible locations and on key freight corridors.
44. Agreement on a robust and achievable spatial plan that addresses these points will assist in achieving alignment between regional and national transport priorities and mean that the spatial plan can be given appropriate consideration when making national transport funding prioritisation and allocation decisions.

# Appendix One: Auckland Regional Transport Strategy Projects of High Regional Significance



## Appendix Two – Transport Modelling Assumptions

Variable	RLTS Assumptions	NZTA Assumptions
<b>Land Use Inputs</b>		
Zonal land use inputs	Forecasts derived from RGS work but manually adjusted, circa September 2009	Use same as RLTS unless later forecasts are available and agreed with NZTA
Future 'RGS' zones (where different travel behaviour is expected)	New RGS zones are assumed as used in RLTS, with no new zones in 2016 but 16 new zones in 2026	A modified set of RGS zones based on shorter-term assessment of land use forecasts, with 1 new zone in 2016 and 7 new zones in 2026
<b>Policy/Economic Inputs</b>		
Private vehicle operating costs	Significant increases based on predicted fuel price (77% increase in real terms between 2006 and 2026)	Lower growth based on forecast fuel price and estimate of improved fuel efficiency (28% increase in real terms between 2006 and 2026)
Public transport fares	No increase over 2006 base model	Increased in line with private vehicle operating costs (28% increase in real terms between 2006 and 2026)
Integrated ticketing	Assumed faster bus boarding times than 2006 base	No change from 2006 bus boarding times on the basis of integrated ticketing off-setting the effect of increased number of boarders
Integrated fares	Assumed removal of second boarding fare for transferring passengers	Assumed removal of second boarding fare for transferring passengers but with 2c/km increase in all fares to retain same overall revenue and average fare
CBD parking costs	Increase of \$1 and an increase of the proportion of people paying full parking cost	Increase of \$1 but without any increase in the proportion of people paying full parking cost
Toll and road pricing	None in Base Case but as agreed for each scenario	None in Base Case but as agreed for each scenario
<b>Transport Infrastructure and services</b>		
Rail, bus and ferry services	As per PTNP, except with an extra 20% for ferry	As per PTNP
Road network	As agreed for each study	As agreed for each study
Quality of rail stations	Assumed all upgraded to 'medium' quality by 2026	Assumed all upgraded to 'medium' quality by 2026
<b>TDM Assumptions</b>		
Working from home	Assumptions for behaviour change asserted in ART3 from increased 'working from home'	No change to ART3
Assumptions for behaviour change from Work Place TDM initiatives	Additional mode change assumptions asserted in ART3	No change to ART3
Assumptions for behaviour change from Education TDM initiatives	Additional mode change assumptions asserted in ART3	50% of the change assumed in RLTS
Assumptions for behaviour change from Community TDM initiatives	Additional mode change assumptions asserted in ART3	50% of the change assumed in RLTS