

Appendix C

RELATIONSHIP BETWEEN OUTCOMES, OBJECTIVES, EVALUATION CRITERIA AND MEASURES, POLICIES, EXPECTED OUTCOMES AND MONITORING PROPOSALS

Specific Outcome Sought in Chapter 4	Relationship to Criteria for Evaluation in Chapter 6	Measure	Relationship to Policies in Chapter 7	Relationship to Expected Outcomes by 2016 in Chapter 9	Relationship to Monitoring Indicators in Chapter 10
Assisting Economic Development					
<ul style="list-style-type: none"> Effective, efficient and integrated transport links to key business, recreational and education locations in the region to allow all people in the region to participate fully in the community and economy. Effective and efficient transport links between the key business areas of the region for the movements of goods and services without unnecessary delay. Effective links to key import and export points, including effective road and rail links with the Ports of Auckland, and both road and public transport links with Auckland International Airport. A transport system that will help promote business and tourism. Predictable travel times that enable effective travel planning. A transport system resilient enough to deal with foreseen and unforeseen events that could affect it. 	Criteria 1.1: Access to employment	Number of households within 30 min of employment – AM+IP	Policy 1.1 Policy 1.2 Policy 1.6 Policy 1.7.10	Despite traffic volumes increasing by 22% over current levels, on average, 65,000 more households are expected to be within 30 minutes travel by car from employment opportunities and 37,000 more households within 30 minutes travel of employment opportunities by public transport.	Congestion Indicator. Collected twice a year. Results variable due to methodology. PT access to key employment areas. Collected every 2 years by ARC.
	Criteria 1.2: Accessibility to, between and within key economic and knowledge centres	Average vehicle speeds from all zones to the key centres and between the centres kph AM+IP	Policy 2.1 Policy 2.2 Policy 2.3	Despite traffic volumes between key business centres increasing by 45%, interpeak travel speeds are expected to decrease by only 5.6%.	Commercial vehicle travel times. Survey by ARC on selected operators. Collected annually by ARC.
	Criteria 1.3: Population per average transport costs	Population over average transport user costs by mode AM+IP	Policy 2.4 Policy 3.4 Policy 3.5	Average travel speeds for travel to the port in the morning peak are expected to decrease by 9% between 2001 and 2016; and 8% for the airport. Travel times by public transport between the CBD and the airport are expected to decrease by 33%.	
	Criteria 1.4: Reliability	Ratio of average network free flow speed to modelled speed Percentage of uncongested VKT in the network.	Policy 4.1 Policy 4.2 Policy 4.3 Policy 5.1	Visitors to the Auckland region are expected to have excellent information on the availability of different modes of transport that can be used to access all major tourist destinations and will be able to get to their preferred destination in reasonable time.	

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	Criteria 1.5: Travel when required	Retimed vehicle trips		<p>The variation in travel speeds on motorways and major arterial roads will be less than current levels.</p> <p>The reliability of public transport services will be higher than current levels.</p> <p>People will be able to more easily change their travel plans during times of unforeseen disruption to the transport network due to significantly increased:</p> <ul style="list-style-type: none"> - Choice of travel options, particularly public transport and active modes - Real time information about travel conditions 	
<p>Assist Safety & Personal Security</p> <ul style="list-style-type: none"> • An established road safety culture among all transport users, with transport rules obeyed, among all transport users. • Significantly reduced crash deaths and injuries. • A safe and secure environment for vulnerable users of the transport system. • Public transport that is safe to use at all times on the vehicle and in the surrounds of the stop or terminal. 	<p>Criteria 2.1: Crashes, injuries and deaths</p> <p>Criteria 2.2: Actual and perceived levels of security</p> <p>Criteria 2.3: Effect on vulnerable users</p>	<p>Number of injury crashes by road type using accident rates per kilometres of vehicle travel</p> <p>Subjective assessment of actual & perceived security based on facilities provided</p> <p>Subjective assessment of level of pedestrian and cyclist exposure to unsafe conditions</p>	<p>Policy 1.1</p> <p>Policy 1.2.4</p> <p>Policy 1.3</p> <p>Policy 4.1.3</p> <p>Policy 4.3</p> <p>Policy 4.4.2</p> <p>Policy 4.4.3</p>	<p>Auckland driver attitudes towards drink driving, speed and traffic enforcement are expected to improve over current levels.</p> <p>Crashes, deaths and injuries involving pedestrians and cyclists are expected to decrease.</p> <p>User perceptions of the safety of getting to, from and using public transport are expected to improve over current levels.</p>	<p>Crash statistics. Road deaths and injury crashes in Auckland region. Collected annually by Land Transport NZ.</p> <p>Perceptions of safety in the transport system. Bi-annual surveys collected by ARC.</p>

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<ul style="list-style-type: none"> A rail environment engineered to reduce the conflict between rail and other transport modes. 			Policy 4.5.3 Policy 4.5.4 Policy 5.1	Regional road injury crashes per 10,000 people are expected to decline by 6 percent.	
Improving Access and Mobility					
<ul style="list-style-type: none"> A high level of travel choice to all key destinations including employment areas, retail centres, tertiary institutions, major health facilities and other key community facilities. 	Criteria 3.1: Connectivity – walk and cycle	Subjective assessment based on the extent to which connecting elements for walk and cycle modes are present in the package	Policy 1.1 Policy 1.2.3 Policy 1.5 Policy 1.6.1 Policy 2.1.4 Policy 2.3 Policy 3.1 Policy 3.2	The number of opportunities within 30 minutes travel time of households in the peak period is expected to increase by: Vehicle: Employment – 31% Retail – 30% Education – 29% Health – 34% Public Transport: Employment – 131% Retail – 130% Education- 76% Health – 154% People will have a far greater choice of travel modes than now and it will be easier to change between different modes when making a journey through the introduction of integrated ticketing and other measures.	Cost of transport. Collected annually by Stats NZ and ARC. PT patronage and mode splits CBD patronage survey (annual) and overall mode splits (5 yearly). Implementation of the QTN. Total Level of Service, represents how easy it is to get around the region on public transport. Collected every two years by the ARC. Census Journey to Work mode split. Collected every 5 years.
<ul style="list-style-type: none"> A high level of integration between all transport modes within the transport system. 					
<ul style="list-style-type: none"> Aucklanders and visitors are able to access all significant destinations within the urban area by public transport. 	Criteria 3.2: Availability of travel choices to key destinations	Number of opportunities within 30 min of households AM+IP			
<ul style="list-style-type: none"> Pedestrian and cyclists are able to access all local destinations easily and safely. 					
<ul style="list-style-type: none"> A transport system which provides people with disabilities the ability to participate more fully in society. 					

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<ul style="list-style-type: none"> A transport system which provides affordable and reliable access and mobility. 	<p>Criteria 3.3: General accessibility</p> <p>Criteria 3.4: Impact on those without access to a car</p> <p>Criteria 3.5: Transport affordability</p>	<p>Generalised costs weighted by trips – vehicle+PT AM+IP</p> <p>Number of opportunities by PT, walk, cycle within 30 minutes of households AM+IP</p> <p>Percentage of population living within areas with a Deprivation Index between 5 and 8, and between 9 and 10 who have access to a good level of PT (defined in terms of generalised costs)</p>	<p>Policy 4.2</p> <p>Policy 4.4</p> <p>Policy 4.5</p> <p>Policy 5.1</p>	<p>11% of trips are expected to be made by public transport in peak periods.</p> <p>The proportions of people travelling by public transport relative to car travellers in the morning peak period are expected to be: Into the central city – 49% Southwards across the Harbour Bridge – 32% Into the Isthmus – 18%</p> <p>More children are expected to choose to walk and cycle to school each day.</p> <p>More adults are expected to choose to walk and cycle to get to their daily activities.</p> <p>The transport system is expected to significantly improve access opportunities for people with disabilities, through improvements to the frequency and quality of services.</p>	<p>% of PT facilities and vehicle with low floor and wheelchair provision. Data collected annually.</p> <p>Level of PT service to and from areas with deprivation index score of 8 and 9. Collected every 2 years.</p> <p>% PT services on time measured by real time information system. Data Collected annually.</p> <p>Perceptions of transport costs. Collected every 2 years by ARC.</p> <p>User perception of levels of access to work and study activities by different modes. Data collected every 2 years.</p> <p>User perception of walking and cycling accessibility. Data collected every 2 years.</p>

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<p>Protecting and Promoting Public Health</p> <ul style="list-style-type: none"> Fewer and cleaner vehicle emissions. Transport choices which contribute to making healthier choices easier and which promote a more active population. Reduced effects on communities from noise and vibration which originate from the transport system. The cumulative travel made by the region delivers the greatest amount of health benefit. 	<p>Criteria 3.6: Transport opportunities for the disabled</p> <p>Criteria 4.1: Share of trips by active modes: walking, cycling and PT</p> <p>Criteria 4.2: Emissions to air and water</p>	<p>Number of new PT vehicles (buses) in the fleet and the amount (\$) spent on TDM local walking improvements</p> <p>Number of trips and the mode shares of cycle, walk and PT modes AM+IP</p> <p>Air emissions of nitrogen oxides (NOx), particulates (PM10) and volatile organic compounds (VOC) "water quality index" AM+IP</p>	<p>Policy 1.1 Policy 1.2.3 Policy 1.3.3 Policy 1.3.4 Policy 1.7.1 Policy 1.7.4 Policy 1.8 Policy 2.1.4</p>	<p>The transport system is expected to significantly improve access opportunities for people with disabilities, through improvements to all aspects of PT journeys including getting to interchanges, the quality of the interchange environment and functionality as well as the frequency and quality of services.</p> <p>User perceptions of the transport system on affordable and reliable public transport are expected to improve over current levels.</p>	<p>Implementation of the Cycle Network – infrastructure provision and length of cycleway.</p> <p>Motor vehicle emissions (PM2.5, PM10, NO2, CO. Data collected annually.</p> <p>Noise and vibration monitoring Yet to be determined.</p> <p>Level of access to key health providers by PT. Data collected annually.</p> <p>Mode share by PT, walking and cycling (census and Land Transport NZ survey). Census collected annually. Land</p>

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	Criteria 4.3: Noise and vibration	Traffic volumes on a selection of around 100 arterial roads through residential areas and town centres AM+IP	Policy 3.1 Policy 3.2 Policy 3.3 Policy 4.4 Policy 4.5 Policy 5.1		Transport NZ survey proposed to be annual. Cycle counts. Sourced annually from TAs.
Ensuring Environmental Sustainability					
<ul style="list-style-type: none"> The protection of sites and areas of natural and cultural heritage value from the adverse effects of new transport infrastructure. 	Criteria 5.1: Emissions to air and water	See Criteria 4.2	Policy 1.1 Policy 1.2.3 Policy 1.3.4	As a result of the significant increase in population and economic activity, the energy used to travel as measured by fuel use are expected to increase by 26%.	Fuel sales per capita. Collected annually by ACC. Vehicle based VKT. Sourced annually from Land Transport NZ WOF database.
<ul style="list-style-type: none"> Reduced non-renewable energy use and consumption of resources in construction, by the transport system. 	Criteria 5.2: Use of non-renewable resources	Fossil fuel use in terms of annual fuel (petrol) use as estimated from the model	Policy 1.4.1	CO2 emissions generated by the transport system are expected to increase by 21%.	Fuel sales / VKT. Collected annually from Land Transport NZ and ACC.
<ul style="list-style-type: none"> Reduced carbon dioxide emissions from the transport system. 	Criteria 5.3: Greenhouse gas emissions	Estimates of carbon dioxide (CO ₂) emissions	Policy 1.7 Policy 1.8	Discharges to water from the transport system are expected to increase by 20%.	Cultural and natural heritage protection actions. Collected annually by ARC.
<ul style="list-style-type: none"> Improved water quality from stormwater discharges originating from transport infrastructure. 			Policy 3.1 Policy 3.2	The level of protection of valuable sites and areas of natural and cultural heritage are expected to improve.	% of water contaminants coming off the regions roads that is treated. Collected
<ul style="list-style-type: none"> Reduced community severance from the transport system. 			Policy 4.1		

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<ul style="list-style-type: none"> Reduced amenity impacts from the transport system. 			Policy 4.4 Policy 4.5 Policy 5.1		annually from ARC.
Supporting the RGS					
<ul style="list-style-type: none"> A transport system which supports and assists in instigating growth within the higher density growth centres and corridors that are identified in the Regional Growth Strategy and region's sector agreements of the region (Plan Change 6 Chapter 2 and 4 of the RPS) 	Criteria 6.1: Relative accessibility to and between RGS growth centres	Average vehicle and PT generalised costs to an area and compared with those to all other areas	Policy 1.1 Policy 1.2.2 Policy 1.2.3 Policy 1.3.4 Policy 1.6.1	It will be easier to get to and between growth centres than in 2001 enabling growth centres to contain a higher proportion of the region's population and employment than in 2001. 13% of the urban population should be living within the regional growth nodes.	Growth trends of population, employment, building consents, density and household size in growth nodes and corridors. Data available annually from ARC? Level of rapid transit service to growth nodes and corridors. Data collected every 5 years.
<ul style="list-style-type: none"> Walking and cycling opportunities which improve the cohesion of, and movement within, higher density centres that are identified in the Growth Strategy and region's sector agreements. A rapid transit system which provides better linkages to and between those 	Criteria 6.2: Community coherence Criteria 6.3: Level of fixed PT as a catalyst for centre growth	Subjective assessment of the walkability within RGS growth centres Frequency of fixed rapid transit services in key growth centres	Policy 1.6.2 Policy 1.7.14 Policy 2.3.6 Policy 3.1	The number of walk and cycle trips within centres is expected to increase by 63% from 2001 to 2016. Rapid transit services linking regional growth centres on the rapid transit network will not be more than 10 minutes apart in the morning peak.	Average length of journey- to-work by mode. Data collected from census every 5 years. Congestion indicator on key growth strategy routes.

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<p>higher density centres that are identified in the Growth Strategy and region's sector agreements.</p> <ul style="list-style-type: none"> • A transport system and land use policies which together manage urban growth pressures in areas where urban growth is not planned. • A high level of integration between land use and transport decision-making. 			<p>Policy 3.4 Policy 4.1 Policy 4.2.6 Policy 4.4.2 Policy 4.5.5 Policy 5.1</p>	<p>Although traffic volumes on key arterial roads are expected to increase, improvements to the pedestrian environment will reduce the severance impact.</p>	<p>Collected twice annually.</p> <p>Pedestrian connectivity within intensified areas. Collected every 5 years.</p>
Cost Effectiveness					
<ul style="list-style-type: none"> • The cumulative transport investment decisions that the region makes will deliver the greatest cumulative amount of benefit. • All agencies responsible for transport investments have coordinated and synergised their efforts and decision making to deliver maximum benefit to the region while avoiding unnecessary costs. 			<p>Policy 1.1 Policy 1.6.2 Policy 2.1 Policy 3.5 Policy 5.1 Policy 5.2 Policy 5.3</p>	<p>Projects giving effect to this strategy are chosen to ensure the maximum benefit in relation to the objectives while avoiding unnecessary costs.</p>	<p>Percentage of projects that deliver forecasted benefit and costs. To be developed and collected annually.</p>