

Chapter 10 Monitoring

This chapter describes how the effectiveness of the Regional Land Transport Strategy will be measured. The indicators will be reported as part of the Auckland Regional Land Transport Strategy annual report and used to help guide the planning and implementation of a transport network that meets the strategy's goals. The annual report is required by section 182(1) of the Land Transport Act 1998.

Chapter 9 identifies the expected results by 2016 from implementing this strategy. They will be monitored to assess the effectiveness of the strategy in achieving its vision and objectives.

Appendix C shows the relationship between the strategy's outcomes, objectives, evaluation criteria, policies, expected results and monitoring.

As well as expected results, three sets of indicators have been adopted. These include:

- **Headline indicators** – made up of a number of indicators that attempt to characterise the performance of the transport system and, by implication, the progress of the strategy
- **Strategic indicators** – measuring each objective against appropriate and relevant indicators on an on-going basis
- **Contextual indicators** – including measures that are outside the influence of the strategy, but have an impact of transport in the region.

10.1 HEADLINE INDICATORS

Headline indicators will describe the health of the Auckland transport system. While not complete, they will give an impression of progress for the casual observer. The strategic indicators, which will report against the objectives, will provide more detail for those requiring it.

Headline indicators include measures for traffic congestion, road safety, environmental and public health, and public transport use.

- **Congestion indicator** – based on surveys twice a year by the ARC and Transit to measure the level of delay caused by congestion
- **Deaths plus hospitalisations of more than one day** – based on Land Transport NZ data and updated annually

- **Number of times the PM 10 air quality measure is exceeded** – relies on ARC monitoring of key sites and reported annually
- **Public transport patronage** – reported annually and collected from the operators by the ARC.

10.2 STRATEGIC INDICATORS

Objective 1 Economic development

The transport system's key role in economic development is the movement of goods, services and labour. Therefore, any monitoring should measure the ability of the transport system to provide this. Congestion, under-capacity and a lack of transport services all contribute to a transport system that fails to support economic development. The indicators



chosen for the economic development outcomes aim to measure this. They are:

- Congestion indicator – based on surveys twice a year by the ARC and Transit to measure the level of delay caused by congestion, and can be measured on key routes to commercial centres
- Public transport access to key employment areas – using a measure of accessibility to assess how well public transport serves key employment areas, and updated every two years
- Commercial vehicle travel times – using travel time data between key destinations, sourced from commercial transport operators, and reported annually.

Objective 2: Safety and security

Actual safety and security, and perceptions of it, drive people's attitudes and decisions regarding transport safety. Crash statistics will provide a variety of transport related accident data. The indicator for perceptions of safety will measure people's perceptions of the safety of different modes, including public transport, cars, walking, cycling and motorcycling.

The indicators for safety and security are:

- Crash statistics – reporting annually on road safety, including the number of deaths, injury crashes, and the five priority action areas of alcohol, speed, intersection, pedestrian and cycle related casualties and deaths, sourced from Land Transport NZ
- Perceptions of safety in the transport system – sourced from the bi-annual transport perceptions survey carried out by the ARC, and reporting on people's perceptions of safety across a variety of modes.

Objective 3: Improving access and mobility

Access and mobility are primarily about ensuring that the transport system provides people with opportunities and choices to move around. Key aspects of monitoring access and mobility include the costs involved in transport choices and the level and quality of alternative modes.

The indicators for improving access and mobility are:

- Cost of transport – reporting on the cost of using a private car, public transport, and the average cost of petrol, and collected annually
- Public transport patronage and mode splits – reporting on the level of public transport patronage as measured by the annual CBD patronage survey, operators' returns and the overall mode split as measured by five yearly citywide patronage surveys
- Implementation of the QTN – a measure to be developed to determine the effectiveness of the QTN approach
- Total level of service – measuring the level of public transport available to Aucklanders, and reported every two years
- Overall mode split – sourced from the New Zealand Census every five years and, in intervening years, from the annual Land Transport NZ household travel survey
- Percentage of public transport facilities and vehicles with low floors and wheelchair provision – reporting on the percentages of all public transport facilities and vehicles with high quality wheelchair or disabled services
- Level of service to deprivation index – measuring the percentage of people in areas with deprivation index scores of 9 or 10 with high levels of public transport service, and updated every five years to coincide with the census



- Percentage of public transport services on time – using the public transport real-time information system, and reported annually
- Perceptions of transport costs – reporting on people’s perceptions of the costs of various modes, and sourced from the bi-annual transport perceptions survey carried out by the ARC
- Perceptions of level of access – reporting on people’s perceptions of the level of accessibility across a variety of modes, and sourced from the bi-annual transport perceptions survey carried out by the ARC
- Perceptions of walking and cycling accessibility – reporting on people’s perceptions of walking and cycling accessibility, and sourced from the bi-annual transport perceptions survey carried out by the ARC.
- Implementation of a cycle network – infrastructure provision and length of cycleway.
- Noise and vibration monitoring – developing and implementing a transport noise or vibration monitoring programme
- Access to key health providers by public transport – reporting the level of access to key health providers by public transport, and reported annually
- Mode share of walking and cycling - measuring the modal share of walking and cycling as measured in the census and the Land Transport NZ travel patterns survey, with census data collected every five years and the Land Transport NZ data collected annually
- Cycle counts – recording the number of people cycling as measured in surveys around the region, and collected annually from the region’s local councils.

Objective 4: Protecting and promoting public health

Public health has two key aspects which can be monitored - the advantages that certain transport choices and opportunities bring, and the negative impacts of transport on people’s health and well-being. Air quality monitoring and noise monitoring will measure the negative impacts, while the positive aspects will be measured by cycle counts, walking and cycling mode shares, and access by public transport to health providers’ access.

The indicators for protecting and promoting public health are:

- Air quality monitoring – reporting on the ARC’s air quality monitoring programme using the indicators PM2.5, PM10, NO2 and CO, and collected annually

Objective 5: Ensuring environmental sustainability

Transport has many impacts on the environment, some of which will be monitored using indicators for Objective 4, “Protecting and promoting public health”.

Overall, impacts related to emissions are difficult to quantify. Therefore, it is assumed that the total impact can be measured by the amount of fuel sold, how much people drive, and how efficient the vehicle fleet is.

The environment is also impacted upon when construction work is carried out. This results in the loss of land and, in some cases, the destruction of important sites and resources.

Transport’s impact on waterways will be monitored by the percentage of roads with water quality treatment.

The indicators for monitoring the level of environmental effect from the transport system are:



- Fuel sales per capita – reporting petrol and diesel use per capita and sourced from fuel sales with data collected annually from Auckland City
- Vehicle kilometres travelled – reporting the estimated vehicle kilometres travelled per year and sourced annually from the Land Transport NZ Warrant of Fitness database
- Fuel sales/vehicle kilometers travelled – combining the two previous indicators to provide an estimate of the efficiency of the vehicle fleet based on how much fuel is used per kilometre traveled. Collected annually and sourced from Land Transport NZ and Auckland City
- Heritage/ cultural protection actions – reporting on what action was taken whenever a significant cultural and heritage site or area was encountered while building or maintaining transport infrastructure, and collected annually from the ARC
- Natural protection actions – reporting on what actions have been undertaken when an area of natural heritage is encountered while building or maintaining transport infrastructure, and collected annually from the ARC
- Proportion of water contaminants coming off the region's roads that is treated – reporting the proportion of contaminants into water from vehicles, using the region's roads, that is treated by road-fitted water treatment devices. To be developed and collected annually by the ARC.

Objective 6: Supporting the growth strategy

One of the Auckland Growth Strategy's aims is to concentrate rapid transit in key growth centres by increasing rapid transit services and improving the pedestrian environment. This will improve the connectivity for these modes and by private car. Monitoring should measure the extent to which these policies have been put in place, and the extent to which they are having an effect.

The indicators for supporting the growth strategy are:

- Growth trends in the nodes and corridors – monitoring the trends of key drivers of transport growth in the nodes and corridors identified in Regional Growth Strategy sector agreements including population, job population, building consents, density and household size (sourced from the growth strategy)
- Level of rapid transit service to key growth centres at peak hour - reporting the level of rapid transit public transport services along key growth strategy routes at peak times. Reported every five years and sourced from the ARC
- Average length of journey to work by mode – using the trip length profile, mean and median for journey-to-work data from the five-yearly census in conjunction with the ART model to determine the trip lengths. Reported every five years and sourced from the ARC and the census, with data sourced from the Land Transport NZ travel patterns survey in the intervening years
- Congestion indicator on key growth strategy routes – measuring the level of congestion on key growth strategy routes with all available routes plotted with regard to their congestion growth index (CGI) score and average speeds during peak periods. Information collected twice a year from Transit New Zealand and the ARC
- Pedestrian connectivity within an intensified area – measuring the ability for pedestrians to access as much of an intensified area as possible within a 10-minute walk. Information collected every five years, to coincide with the census, and sourced from the ARC.

Objective 7: Achieving economic efficiency

The Regional Land Transport Strategy outlines several ways to achieve economic efficiency, including ensuring that the chosen investments are those that deliver the most benefit, and requiring all agencies



responsible for transport investments to co-ordinate their efforts to maximise benefits.

However, the monitoring of economic efficiency is largely a public accountability measure, and therefore should report the extent to which projects are performing to expectations. To ensure this accountability, a random sample of projects will be audited annually to make sure that they delivered the forecast benefits at the forecast costs.

The indicator for achieving economic efficiency will include:

- Percentage of projects that deliver forecasted benefit and costs – reported from a sample of approved organisations projects (from a range of modes):
 - a) the percentage of projects that delivered (following project completion) at the forecast costs (prior to the project implementation)
 - b) the percentage of projects that delivered (following the project completion) at the forecast costs.

To be developed and collected annually by ARC, ARTA and LTNZ

10.3 CONTEXTUAL INDICATORS

The region's transport system is influenced by factors that are not within the scope of the Regional Land Transport Strategy. Indicators that provide a contextual understanding of the environment which the strategy operates within are:

- Household and population growth – the key drivers of the region's growth, whether it is in transport or the economy. Information collected every five years and sourced from the census
- Economic growth – increasing the demand for scarce transportation resources as the economy expands and becomes more productive.

Information collected annually and sourced from Statistics New Zealand

- Annual vehicle registrations – indicating vehicle numbers and the proportions of imported and new cars which are likely to be more fuel efficient. Information collected annually and sourced from the Land Transport NZ
- Fleet composition – indicating factors such as the age of vehicles and the proportion of diesel powered vehicles, which influence the region's air quality. Information collected annually and sourced from Land Transport NZ
- Money spent by public agencies on Auckland transport – reporting the total expenditure by public agencies in the region. Information collected annually and sourced from the appropriate agencies

10.4 MONITORING PROGRAMME

A comprehensive monitoring programme was developed for the 1999 and 2003 regional land transport strategies. The new monitoring programme includes indicators from those strategies as well as new ones and will be used over the life of the strategy to assess whether, and at what rate, the region is moving towards its transport objectives.

Some of the indicators include benchmarks and public perceptions that require specifically designed surveys of transport users. A more detailed description of the indicators can be found in RLTS05 TP23. While the ARC will take a lead role in the monitoring, the co-operation of all the agencies responsible for the transport system is essential.

The annual monitoring report will be reported to the Regional Land Transport Committee around August each year and will be publicly available.



