



Auckland  
Regional Council  
TE RAUHITANGA TAIAO

# Monitoring Regional Targets

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This document supports the development of the Auckland Regional Land Transport Strategy 2010. It is the culmination of work developed by the Technical Advisory Committee (TAC) to support the Auckland Regional Transport Committee. The TAC includes representatives from all local territorial authorities, Auckland Regional Transport Authority, Auckland District Public Health Board and other technical experts.

Reviewed by:

A handwritten signature in black ink, appearing to read 'Don Houghton', written in a cursive style.

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Date: November 2009

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# Monitoring Regional Targets

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**Prepared for**

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# 1 Introduction

This technical publication describes the detailed analysis undertaken to develop a monitoring framework for assessing progress on delivery of the Regional Land Transport Strategy (the RLTS). The monitoring framework looks to enable assessment of how well the RLTS is being implemented, and also whether the implementation is achieving the objectives and outcomes defined in the RLTS.

This publication includes the following sections:

- A description of the approach taken to developing the monitoring framework for the RLTS 2010
- A description of the requirements for monitoring and the proposed overall monitoring approach
- A description of how the indicators relate to the objectives and outcomes described in the RLTS
- A description of each of the indicators, including baseline and historical trend data for each and suggested targets for 2026 and 2041.
- A description of further work required on developing the monitoring framework and who has been tasked with that work

## 2 The approach to developing the RLTS 2010 monitoring programme

The work on developing the RLTS 2010 monitoring programme looked to achieve the following: develop an implementable programme; reduce the number of targets and measures used in the RLTS 2005; and incorporate best practice approaches to monitoring of transport strategies. This involved a number of steps.

Initially, a review was undertaken of the approach taken in the 2005 RLTS, approach taken by other regional councils, as well as suggested best practices from internationally recognised experts and examples of good practice in New Zealand. The review highlighted legislative changes to the required frequency of reporting (requiring 3-yearly rather than annual reports on progress). The review identified that a number of new programmes to measure indicators proposed for the RLTS 2005 were never implemented.

The review also identified that the approach for monitoring in the RLTS 2005 did not explicitly try to link objectives with outcomes and with indicators and targets - outcomes were ignored for the purposes of monitoring. The RLTS 2005 outcomes were written in a way that did not enable them to be readily measured, and there was some duplication of outcomes across different objectives.

The review identified that better practice in monitoring progress on delivering strategies involves a clear link between objectives, outcomes and indicators, with agreed targets for indicators. Indicators needed to be specific, measureable, accurate, realistic and time-bound (ie SMART).

A new approach was proposed for the reporting of RLTS progress to take into account the requirement to report only every 3 years rather than annually. A new monitoring framework was also proposed, to ensure that there is a link between objectives, outcomes and indicators, and that indicators are SMART.

Drafts of working material and chapters were developed by ARC officers, and presented to the Technical Advisory Committee (TAC) for their input in May 2009. Drafts of the chapters were provided to the TAC for comment, and also presented to the Regional Transport Committee (RTC) for their review in June 2009. Further refinement of the measures occurred subsequent to the June RTC meeting, resulting in revisions to both Chapters 2 (Vision) and 6 (Monitoring) of the RLTS.

### 3 The proposed RLTS 2010 monitoring programme

#### 3.1 Legislative requirements and purpose for monitoring

Schedule 7 clause 1[1] of the LTMA states that the regional land transport strategy must be renewed at least once every six financial years, and cover a period of at least 30 years.

Schedule 7 also requires that the Auckland regional transport committee must prepare a progress report on the implementation of the Auckland regional land transport strategy in place during the previous 3 financial years.

The purpose for monitoring is two-fold:

- Assess the impact of the policies defined in the strategy, to enable improvements in the effectiveness of the strategy and its implementation over time. As many of the policies take a number of years to have an impact, the assessment needs to take into account the timing of implementation programmes and the lag between implementation and observable changes in the indicators.
- Identify any changes in needs and trends that might have an impact on policy direction, so that assessments of needs can be undertaken to identify whether policies require amended / addition.

The following diagram (Figure 1) illustrates how the evaluation and monitoring process assists in identifying the transport challenges and needs in relation to the region's transport network and how these feed into review of the strategy and follow through to the various implementation plans.

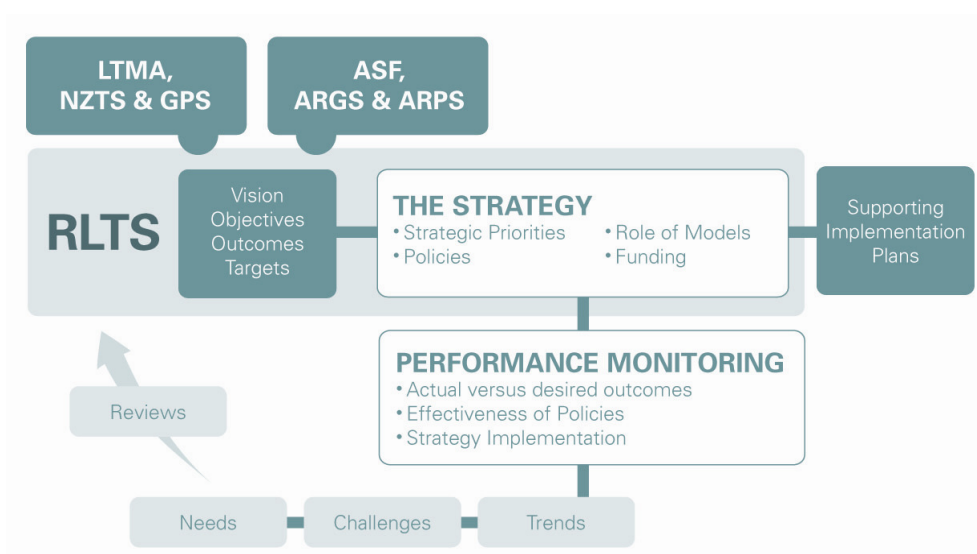


Figure 1: RLTS development and review flow chart

This RLTS will need to be renewed by 2016. There is currently no legislative or other guidance setting out the process that should be followed for this. It is therefore proposed that in 2014 the RTC commences review of the strategy.

Review of the RLTS will involve assessment of the legislative and policy context, feedback on progress from monitoring results and survey-based pressures and issues, technical and stakeholder consultation, and a submission process to the RTC. Stakeholder consultation includes consultation with and through the RTC's community and interest group representatives.

Variations or a review of the RLTS can be triggered for a number of reasons, as outlined in the Significance policy for this RLTS. The results of the monitoring process may identify the need for a variation or review, and the steps to be followed are described in that appendix.

## 3.2 Reporting Approach

Embedded in the RLTS are the principal evaluation tools of measurable outcomes, indicators and targets (Chapter 2). Main targets were set for each objective. Fundamentally, the monitoring programme looked to answer two questions - how well is the RLTS being implemented, and are the RLTS objectives and outcomes being achieved?

**How well is the RLTS being implemented?** To be assessed via a report describing the progress by implementation agencies on the projects that they are delivering to deliver the Regional Land Transport Strategy. The data for this report will be made available by the agencies responsible for managing the region's transport network - those agencies and the programmes they run are detailed in Chapter 6 of the RLTS.

**Are the RLTS objectives and outcomes being achieved?** To be assessed via an assessment of the results of monitoring the RLTS indicators. This report will be reported to the RTC and prepared as a publication for public release.

These reports will provide a picture of how well the strategy is being implemented and how well the policies defined in the RLTS are achieving the objectives and outcomes sought. Insights from the monitoring programme will be used to help identify pressures and issues, thereby informing reviews of the strategy and its components, and helping to inform the next review of the RLTS. 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.

## 4 The relationship of Objectives, Outcomes and Indicators

As described in Section 2 above, a new approach was taken for monitoring progress in the RLTS 2010. In this new approach, each indicator was linked to one outcome, and each outcome was linked to one objective in a linear fashion. Each objective had one or more outcomes. Outcomes were rewritten to be measurable and discrete. Each indicator was linked to only one outcome. In this way, a linear relationship was established between objectives, outcomes and indicators.

The aim for monitoring was to identify at least one indicator for each outcome. However, for some outcomes, there was no existing monitoring method and it was agreed that it was going to be too costly to establish something new, so those outcomes have no indicators. These are described in the following section.

A small number of indicators have been identified as “main targets” for an objective (typically one main target per objective). These had a 2040 target identified (eg “Reduce road deaths to 40 and serious injury from crashes to 288”). These will be the main measures of performance of the RLTS.

A second set of “secondary” indicators have been included that do not have a target set, but rather defined an expected direction of change as a result of implementation of the RLTS (e.g., “the proportion of PT vehicles with low floors and wheelchair provisions increases”). These secondary indicators will provide a measure of whether the outcomes within each objective are being met.

A third set of “contextual” indicators have been identified as being required to help interpret the results of the main and secondary indicators. These included population figures, car numbers, fuel prices, fleet composition, the CPI, and measures of fleet fuel efficiency.

## 5 Indicators and targets

This section includes a description of each of the indicators and proposed 2040 targets. This section also identifies the potential indicators that were investigated but not included in the monitoring programme, and the rationale for that decision for each. These are presented by objective (as this was the primary way of categorizing the indicators initially).

Appendix A contains a more detailed explanation of the specific method and source of data to be used to measure the performance indicators.

### 5.1 Objective: Assist Economic Development

Outcome	Classification	Indicator	2040 Target
Improved regional and interregional freight efficiency	Main	Level of congestion on selected regional strategic freight routes - NR001	Keep the level of congestion for freight vehicles on selected regional strategic freight routes to at or below the average of 2006-2009 levels.
	Secondary	Variability of journey times on the regional strategic freight network - NR005	Reduce the variability of journey times on the regional strategic freight network.
Improved ability of the transport system to recover from adverse events.	Secondary	Resilience of the transport system - SS012	Key routes are very rarely affected by closure.
	Secondary	Security of the transport system - SS013	MOT study (to be confirmed)
Improved contribution of the transport system to Auckland's competitiveness	Secondary	Improved results in international benchmarking studies for transport infrastructure	An improvement in the rating of the region's transport infrastructure, compared to other cities. <sup>1</sup>

#### Indicators considered but excluded for this objective

Indicator	Rationale for not including
Business expenditure on transport relative to total business expenditure	This will not be measured, as a target of reducing this needs to account for potential changes in businesses (e.g., if they export more their costs on transport will rise)
Average journey times on regional strategic freight network - NR004	This will not be measured, as it is covered by the measure of congestion on the regional strategic freight network
Commercial vehicle travel times	This will not be measured, as it is covered by the measure of congestion on the regional strategic freight network
Travel time between Auckland and the northern and southern regional boundaries	Too costly to measure this

### 5.2 Objective: Assist safety and personal security

Outcome	Classification	Indicator	2040 Target
Improved transport system	Main	Number of road deaths and serious injuries - SS005	Reduce road deaths to 40 and serious injury from crashes to 288

<sup>1</sup> This indicator is not able to be measured currently. NZTA have indicated that they will be developing a benchmarking study that might be useful.

Outcome	Classification	Indicator	2040 Target
safety	Secondary	Perceptions of safety of different modes of transport (with targets set for cycling and walking)	An improvement in residents of the region's perception of safety of the transport network
	Contextual	Number of serious and fatal road casualties by mode of travel	
Improved road safety culture	Secondary	Improved public attitudes to road safety	The proportion of car users with 'good' attitudes to other modes and to road rules improves
	Secondary	Average speed at different survey points is below speed limit	A reduction in the number of exceedences of the road speed limit in the region per annum.
Improved personal security	Secondary	Number of personal security incidents - SS011	An reduction in the number of personal security incidents related to the transport system - SS011 <sup>2</sup>

### Indicators considered but excluded for this objective

Indicator	Rationale for not including
Vehicle crash statistics	Less direct measure than the deaths and serious injury measures proposed above. Will not add much in terms of understanding the casualty figures except that if crash statistics remain high but casualty figures drop, then vehicles are getting safer. This is not something that the RLTS has the ability to influence.
Pedestrian and cyclist accidents	This data is not yet available. Investigation in the future could involve discussing with the Regional Public Health Service to identify what data they have
Improved perceptions of personal security - SS010	The ARC survey asks questions regarding to safety that likely cover security also, so it will be difficult to measure this in isolation from safety

## 5.3 Objective: Improve access and mobility

Outcome	Classification	Indicator	2040 Target
Improved public transport accessibility for all	Main	Mode share for PT	PT mode share increases to 12 per cent of all trips
	Secondary	# people living close to QTN and RTN stops	Increase the % of population living within 200m of QTN, RTN stops
	Secondary	Perceptions of affordability	Improve perceptions of affordability of PT versus private vehicle use
	Secondary	Accessibility for deprived areas	Increase in % of people who live in areas with deprivation index of 9 or 10 that live within 200m of QTN or RTN stop from 40% to XX
	Secondary	Accessibility for transport disadvantaged - AM017 & AM018	Increase proportion of PT Vehicles with Low Floors & Wheelchair Provision
	Contextual	Level of PT subsidy per passenger	
	Contextual	PT Access to Key Employment Areas and essential services (The level of access that workers have to key employment centres by PT)	
Improved community connectedness	Main	Mode share for walking and cycling and other active modes	Walking and cycling and other active modes increase to 35 per cent of total trip legs in urban areas.
	Secondary	Perceptions of access to WORK or STUDY - AM004	Improve perceptions of transport options for access to WORK or STUDY across priority modes (PT, walking, cycling). Perceptions of private vehicles do not drop below current levels.

<sup>2</sup> This indicator is not able to be measured yet. MOT have indicated that they will be developing a measure for this.

Outcome	Classification	Indicator	2040 Target
	Secondary	Accessibility models for region	Results from accessibility models for region improve
Improved quality of public transport service	Secondary	Journey times on QTN and RTN versus equivalent trips by car	Improved journey times on selected QTN and RTN routes versus equivalent trips by car
	Secondary	Level of service on planned QTN and RTN network compared to plan	Roll-out of QTN and RTN continues according to plan (or faster)

#### Indicators considered but excluded for this objective

Indicator	Rationale for not including
User perception of the suitability of various modes for their journeys	Already measure residents' perceptions of access to work or study
Access to PT - number of people living within X metres of a PT stop	Duplicate of measuring # people within 400m of LTN, QNT and RTN stops
Extent of implementation of integrated ticketing	Is an implementation progress measure - will be reported in reports by implementation agencies
PT capacity on QTN and RTN versus demand	duplicate of PASSENGER KM VERSUS SEAT KM
Measure levels of service and % delivery of network for the RTN and QTN	measured better by population within Xm of QTN or RTN stop
Increase % of PT services providing services for sight- or sound-impaired users	Suggest that a programme of monitoring of the measures outlined in the report from the Human Rights Commission on improving access for transport disadvantaged be established for the Auckland region. See <a href="http://www.hrc.co.nz/hrc_new/hrc/cms/files/documents/30-Jan-2007_13-00-08_RECOMMENDATIONS.doc">http://www.hrc.co.nz/hrc_new/hrc/cms/files/documents/30-Jan-2007_13-00-08_RECOMMENDATIONS.doc</a> (page 12)
Increase % of PT stops and stations with wheelchair provisions increases	Suggest that a programme of monitoring of the measures outlined in the report from the Human Rights Commission on improving access for transport disadvantaged be established for the Auckland region. See <a href="http://www.hrc.co.nz/hrc_new/hrc/cms/files/documents/30-Jan-2007_13-00-08_RECOMMENDATIONS.doc">http://www.hrc.co.nz/hrc_new/hrc/cms/files/documents/30-Jan-2007_13-00-08_RECOMMENDATIONS.doc</a> (page 12)

#### 5.4 Objective: Protect and promote public and community health

Outcome	Classification	Indicator	2040 Target
Reduced negative impacts of transport on human health	Main	Number of exceedences per annum at monitoring sites where transport emissions are significant of the following air quality measures associated with health: PM10, NOx	The number of exceedences per annum of health standards for the following air quality measures is no more than: NO2 (9 exceedences per annum), PM10 (1), PM2.5 (0), CO (1).
	Secondary	Noise exposure related measure to be developed	Reduce the number of people exposed to health-endangering noise levels from transport
Increased walking and cycling	Secondary	People walk and/or cycle further - TV015	Increased distance travelled by walking per person over 5 years of age from 650m to 1.3km per day
	Secondary	Perceptions of walking and cycling accessibility	Improved perceptions of walking and cycling accessibility
	Secondary	Proportion of people walking	The proportion of people walking increases as a percent of the population
	Secondary	There are more cyclists - cyclist counts at defined points	The number of cyclist movements at defined survey points increases
	Contextual	Extent of cycle network - LM004	
Improved design of streets for people	Key	Perceptions of walkability of local neighbourhood	Improved perceptions of walkability of residents' local neighbourhoods

### Indicators considered but excluded for this objective

Indicator	Rationale for not including
Perceptions of walkability of identified centres	Outcome (Improved social cohesion) was removed, and measure difficult (expensive) to implement
Number of public seats provided in pedestrian realm	Outcome (Improved social cohesion) was removed and measure only indirect measure of social cohesion
Walkability of identified centres	Outcome (Improved social cohesion) was removed, as measure subjective
# Neighbourhood walkability plans developed	indirect and implementation focused ARTA to report on this in its reporting on ATP and RLTP
Number of cycling and walking trip legs - TV019	Does not add further value over the distance walked or cycled
Amount of public shared space reclaimed from vehicle space	too hard to measure
Pedestrian permeability of streets in urban centres	too hard to measure
Number of street trees in urban areas	the indicator is too abstract in terms of the objective being measured
Mortality and morbidity associated with air pollution and noise	Epidemiological studies are not able to be monitored cost effectively
Number of complaints about transport noise	Include only if cannot agree methodology for measuring noise

### 5.5 Objective: Ensure Environmental Sustainability

Outcome	Classification	Indicator	2040 Target
Reduced greenhouse gas emissions from the transport network	Main	Greenhouse gas emissions	Halve per capita greenhouse gas emissions from domestic transport relative to 2007
Increased use of sustainable modes of transport for moving people	Secondary	Mode share (PT)	Increase PT mode share to 12 percent of all trips by 2040
	Secondary	Mode share (active modes)	Increase walking and cycling and other active modes to 35 percent of total trip legs in urban areas by 2040
	Contextual	Perceptions of affordability of PT versus private vehicles	
Improved storm-water quality	Secondary	Stormwater treatment devices per km - EI010 or modelled results	An increase in the number of stormwater treatment devices per km - EI010
	Secondary	Modelled results of stormwater quality	Reduce the transport contribution of pollutants to the stormwater system
Increased protection of valued sites	n/a		Not practical to measure this outcome
Increased use of sustainable modes of transport for freight movement	Secondary	Mode share freight: coastal shipping - TV024	Increase coastal shipping's share of inter-regional freight
	Secondary	Mode share freight: rail - TV023	Increase rail's share of of inter-regional freight
	Secondary	Rail freight volumes	Increase rail freight volumes
Increased use of recycled and renewable material and reduced waste from transport projects	Secondary	Volume of recycled materials used in transport projects - LM014	Increase volume of recycled materials used on roads - LM014

### Indicators considered but excluded for this objective

Indicator	Rationale for not including
An improvement in stormwater quality	Monitoring of this will cost \$100k per annum and is not currently a priority
Mode share	Covered by measure of number of occupants of vehicles
Mode share (travel to work)	Duplicates other mode share information used
Mode share (travel to CBD)	Duplicates other mode share information used
Affordability of PT versus private vehicles	Covered under access and mobility (% h/h budget spent on PT)
Fuel sales per capita	Fuel sales per capita will be measured and used as a key input to GHG

Indicator	Rationale for not including
	emissions, so covered elsewhere
Fuel Sales /Vehicle Kilometers Travelled - RU002	To be measured and reported as a contextual measure
Rail freight volumes as a proportion of total estimated road and rail freight volumes	This data is not able to be collected for road and for rail freight due to commercial sensitivity
Volume of pavement waste to landfill - LM015	This data will be difficult to collect

## 5.6 Objective: Integrate transport and land use supportive of Regional Growth Strategy and Regional Policy Statement policies

Outcome	Classification	Indicator	2040 Target
Improved Public Transport linkages to and between identified higher density growth centres	Main	Levels of PT service to defined growth centres	Increase the number of identified growth centres with RTN services from 14 (36 per cent) to 25 (60 per cent) of the identified growth centres
	Secondary	Average distance people travel to work	The average distance that people travel to work decreases
	Secondary	Land values around RTN stations	Land values within 800m of RTN stations increase
	Contextual	Number of employees and businesses within defined growth centres	Increase number of employees and businesses within defined growth centres
	Contextual	Number of residents and number of dwellings within defined growth centres	
	Contextual	The number of developments occurring outside the MUL	
	Contextual	Number of building consents in different land categories (e.g., General Rural, Countryside Living, MUL, Infill, Growth Centres, Corridors)	

### Indicators considered but excluded for this objective

Indicator	Rationale for not including
Measure levels of service and % delivery of network for the RTN and QTN	Duplicate of various measures under access and mobility
% of Group 1 business zoning within X km to motorway access, port or airport, and or railway siding	Related to a specific outcome that was removed (Increased support for businesses in defined areas)
% of Group 2 business/mixed use zoning within Y metres of QTN stop or RTN station	Related to a specific outcome that was removed (Increased support for businesses in defined areas)

## 5.7 Objective: Achieve economic efficiency

Outcome	Classification	Indicator	2040 Target
Improved use of existing transport network	Main	Number of PT trips as recorded by ARTA from operator figures (and trips per capita)	The average number of PT trips per person per annum increases from 42 to 143
	Main	Average private vehicle occupancy	Average occupancy rate increases
	Contextual	Volumes of vehicles at locations on network over day	Traffic volumes on a selection of links on the roading network.
	Contextual	PT passenger km/seat km	Annual passenger transport kilometres

Outcome	Classification	Indicator	2040 Target
			and seat kilometres travelled.
Improved value for money from transport investments	Secondary	Reported results of projects - delivery of benefits versus costs	Projects deliver no less than the projected benefit/cost ratio.
	Contextual	Maintenance costs of road by VKT	Monitor the maintenance cost by VKT
Increased energy efficiency from the transport network	Secondary	Energy use in petajoules (PJ) per person kilometres travelled (PKT) by domestic transport (MoT Indicator E1017)	Reduce energy use in petajoules (PJ) per person kilometres travelled (PKT) by domestic transport (MoT Indicator E1017)
	Contextual	Monitor petrol, diesel, liquefied petroleum gas (LPG) compressed natural gas (CNG) and electricity	Proportion of energy use by source of energy (petrol, diesel, liquefied petroleum gas (LPG) compressed natural gas (CNG) and electricity)
	Secondary	Transport fuel spend as a percentage of GDP.	Transport fuel spend as a percentage of GDP reduces.

#### Indicators considered but excluded for this objective

Indicator	Rationale for not including
% projects delivered to cost	Covered by a measure of benefit realisation
Energy use per passenger km	Data is not reliable, and will be potentially difficult to gather to ensure consistent results over time
Level of PT subsidy per passenger	Moved to access and mobility
total roading expenditure as % of GDP	Will not be measured as there are too many influences on the data (GDP as well as roading expenditure)
transport energy use per capita	Measured under Environmental Sustainability
Asset condition of road and rail networks	Stephen to investigate source of data and how to create a combined index of maintenance costs and asset condition. Flag the issue to the TAC, RTEG and RTC that neither ARTA nor ARC have the mandate to request this information from implementation agencies, nor is there funding available to do monitoring
Number of PT trip legs by different class (rail, bus, ferry) (and trip legs per capita)	Covered by number of trips from ARTA (more accurate info and this adds no value)
Number of private vehicle trip legs (and trip legs per capita)	- covered by average private vehicle occupancy

## 5.8 General contextual measures

A number of measures have been identified as being important to understand demands on the transport system. These include broader environmental indicators such as population growth, fuel prices, as well as broad transport measures that the RLTS is not attempting to address, but have a bearing on RLTS objectives (such as vehicle emissions). The general contextual indicators include:

- Regional population growth, as well as growth by census area unit
- Fuel prices
- Consumer price index
- Number of vehicle registrations
- Fleet composition
- Total transport budget and spend

- Transport plus storage GDP as % of total regional GDP
- Emissions of the transport fleet
- Light vehicle kilometers travelled
- Fuel sales / vehicle kilometers travelled.

## 6 Further work

This section identifies further work required. A number of measures are proposed that require the Auckland Regional Council or other agencies to modify or develop monitoring programmes to monitor the proposed measure. These are listed below:

- Resilience of the transport system. This is a measure **to be developed by MOT**, and potentially able to be used at a regional level (reference SS012 from MOT Transport Monitoring Framework reference).
- Security of the transport system. This is a measure **to be developed by MOT**, and potentially able to be used at a regional level (reference SS013 from MOT Transport Monitoring Framework reference).
- Improved results in international benchmarking studies for transport infrastructure. This is a measure that the **NZTA is proposing to develop** a monitoring programme for, and if so can be used for Auckland.
- Average speed at different survey points is below speed limit. This is a measure **to be monitored by ARC** using data from the NZ Police.
- Number of personal security incidents. This is a measure **to be developed by MOT**, and potentially able to be used at a regional level (reference SS011 from MOT Transport Monitoring Framework).
- Perceptions of walkability of local neighbourhood – this will be a new question in the **ARC transport perceptions survey**.
- Stormwater treatment devices per km. This or a measure of modeled stormwater quality (see below) is **to be developed by the ARC**.
- Modelled results of stormwater quality. This or a measure of treatment devices per km (see above) is **to be developed by the ARC**.
- Mode share freight: coastal shipping. This is a measure **to be developed by MOT**, and if possible will be used at a regional level (reference TV024 from MOT Transport Monitoring Framework).
- Mode share freight: rail. This is a measure **to be developed by MOT**, and potentially able to be used at a regional level (reference TV023 from MOT Transport Monitoring Framework).
- Rail freight volumes. This is information that the **ARC will monitor if available from Kiwirail**.
- Volume of recycled materials used in transport projects. This is a measure that will require a change in reporting by implementation agencies. The mechanism for reporting and monitoring this will need to be **developed between ARC and**

**the implementation agencies** (reference LM014 from MOT Transport Monitoring Framework).

- The percentage of people who live in areas with deprivation index of 9 or 10 that live within 200m of QTN or RTN stop. This is a measure **to be developed by the ARC**.
- Reported results of projects - delivery of benefits versus costs. This requires **implementation agencies to provide reports** of projects' benefit realisation to the ARC for reporting.
- Average distance people travel to work. This is a measure to be included if the data can be extracted from Census (which is difficult due to confidentiality issues) or the MOT Travel Behaviour Survey. This is to be investigated **by the ARC**.
- Land values around RTN stations. This is a measure **to be developed by the ARC**.

## 7 Attachment A: RLTS Monitoring Indicators



Row #	Outcomes	Priority of indicator (Key, secondary, contextual)	Indicator	DRAFT Proposed 2040 Targets (NZTS targets underlined)	Description of measure	Data Source / Method	Frequency of data	Notes
23	Improved storm-water quality	Secondary	Stormwater treatment devices per km - EI010	An increase in the number of stormwater treatment devices per km - EI010	No reliable cost effective and consistent way of measuring this indicator	No data available	N/A	No good or reliable way of measuring this
24	Increased protection of valued sites	n/a		Not PRACTICAL to measure this outcome			N/A	not possible to measure
25	Increased use of sustainable modes of transport for moving people	Secondary	Mode share (PT)	Increase PT mode share to 12 percent of all trip legs by 2040	Share of all trip legs throughout the region between modes and share of trip legs by corridor - pt walking & cycling (for screenline 70 only)	annual MOT household travel behaviour survey	Annual	
26		Secondary	Mode share (active modes)	Increase walking and cycling and other active modes to 35 percent of total trip legs in urban areas by 2040	Walking and cycling trip legs	annual MOT household travel behaviour survey	Annual	
27		Contextual	Perceptions of affordability of PT versus private vehicles		Response to "How affordable is use of X mode"	ARC Survey of Community Perceptions of Personal Transport Choices	2 years	
28	Increased use of sustainable modes of transport for freight movement	Secondary	Mode share freight: coastal shipping - TV024	Increase coastal shipping's share of inter-regional freight to 30 percent of tonne-kilometres by 2040.	No way of measuring this indicator	No data available	N/A	INCLUDE ONLY IF MOT CAN PROVIDE THIS INFO AS PART OF TRANSPORT MONITORING FRAMEWORK
29		Secondary	Mode share freight: rail - TV023	Increase rail's share of freight to 29 percent of tonne-kilometres by 2040.	No way of measuring this indicator	No data available	N/A	INCLUDE ONLY IF MOT CAN PROVIDE THIS INFO AS PART OF TRANSPORT MONITORING FRAMEWORK
30		Secondary	Rail freight volumes	Increase rail freight volumes	No way of measuring this indicator	No data available	N/A	INCLUDE IF DATA AVAILABLE and if the mode share information is not available ACTION - Data should be available from KiwRail - Stephen to confirm, source
31	Increased use of recycled and renewable material and reduced waste from transport projects	Secondary	Volume of recycled materials used in transport projects	Increase volume of recycled materials used on roads - LM014	No reliable and consistent way of measuring this indicator	No data available	N/A	INCLUDE ONLY IF available Would need to come from an audit of implementation agency contracts with suppliers ACTION: JIM - no mandate exists to request this information from other agencies (TA's, NZTA etc) Raise this as an issue at TAC etc - new policy required?
32	<b>Objective: Improve access and mobility</b>							
33	Improved community connectedness	Main	Mode share (active modes)	Increase walking and cycling and other active modes to 35 percent of total trip legs in urban areas by 2040	Mode Share as measured by MOT travel survey	annual MOT household travel behaviour survey	Annual	
34		Secondary	Perceptions of access to WORK or STUDY - AM004	Improve perceptions of transport options for access to WORK or STUDY across priority modes (PT, walking, cycling). Perceptions of private vehicles do not drop below current levels.	Perceptions of modes for trips to work or study	ARC APT Model	2 Years	
35		Secondary	Accessibility models for region	Results from accessibility models for region improve	Indexed generalised cost for PT increases over time	ARC modelling	?	Problems with consistency between runs due to model changes
36	Improved public transport accessibility for all	Main	Mode share (PT)	Increase PT mode share to 12 percent of all trip legs by 2040	Share of all trips throughout the region between modes and share of trips by corridor - pt walking & cycling (for screenline 70 only)	annual MOT household travel behaviour survey	Annual	
37		Secondary	# people living close to QTN and RTN stops	Increase the % of population living within 400m of QTN and 800m of RTN stops	The RTN and QTN networks should serve the majority of Auckland - this can be done through intensifying around stations and along corridors, or by increasing the transport network. This indicator records the number of dwellings within XXXX	From NZ census	5-yearly	
38		Contextual	PT Access to Key Employment Areas and essential services (The level of access that workers have to key employment centres by PT)		Accessibility measured in terms of the total cost of getting to or from, an employment area using public transport, where cost is made up of the financial cost -fares- and the time cost - time spent getting there interchanges walking to stops etc	ARC - APT model generated origin and destination accessibility measures graphed to show change through an index for key employment areas	?	Problems with consistency between runs due to model changes
39		Secondary	Perceptions of affordability	Improve perceptions of affordability of PT versus private vehicle use	The perception of transport users with regard to the costs of travelling in the region by public or private modes - "Is the cost of using PT/private transport hindering your use?"	ARC Survey of Community Perceptions of Personal Transport Choices	2 years	
40		Contextual	Level of PT subsidy per passenger		\$ spent on Opex per passenger	ARTA	Annual	
41		Secondary	Accessibility for deprived areas	Increase in % of people who live in areas with deprivation index of 9 or 10 that live within 200m of QTN line or RTN stop	The percentage of population living in areas with deprivation index scores between 9 and 10 with high levels of public transport service (defined in terms of generalised costs) (A subset of 'PT Level of Service' database with maps relating to specific 'poor areas')	Stats NZ and ARC	5-yearly	
42		Secondary	Accessibility for transport disadvantaged - AM017 & AM018	Increase proportion of PT Vehicles with Low Floors & Wheelchair Provision	Percentages of all public transport facilities and vehicles with high quality wheelchair or disabled services	ARTA	Annual	
43	Improved quality of public transport service	Secondary	Journey times on QTN and RTN versus equivalent trips by car	Improved journey times on selected QTN and RTN routes versus equivalent trips by car	This measure aims to compare the journey times on comparable public transport routes with private vehicle trips. The methodology to do this has not been developed yet.	No data available	N/A	No robust data available at moment
44		Secondary	Level of service on planned QTN and RTN network compared to plan	Roll-out of QTN and RTN continues according to plan (or faster)	This measure compares the actual roll out of RTN and QTN infrastructure with what has been planned	ARTA	Annual	
45	<b>Objective: Protect and promote public and community health</b>							
46	Increased walking and cycling	Secondary	People walk and/or cycle further - TV015	Increase distance travelled by walking per person over 5 years of age from 650m to 1.3km per day	Distance travelled by walking and cycling per person over 5 years of age	MOT Travel Behaviour survey	Annual	
47		Secondary	Perceptions of walking and cycling accessibility	Improved perceptions of walking and cycling accessibility	People's perceptions of walking and cycling accessibility	ARC Survey of Community Perceptions of Personal Transport Choices	2 years	
48		Contextual	Extent of cycle network - LM004		Infrastructure provision and length of cycleway (km of whole routes)/connected cycleways - mapping of progress of completion	ARTA - collecting and integrating data from TA's	Annual	
49		Secondary	Number of people walking as a percent of population??	Increase number of people walking (includes all trip legs) as a percent of population.	The number of people walking as measured by the MOT travel behaviour survey	MOT Travel Behaviour survey	Annual	

Row #	Outcomes	Priority of indicator (Key, secondary, contextual)	Indicator	DRAFT Proposed 2040 Targets (NZTS targets underlined)	Description of measure	Data Source / Method	Frequency of data	Notes
50		Secondary	There are more cyclists - cyclist counts at defined points	Increased number of cyclist movements	The number of people cycling along key routes	ARTA - regional survey - cyclist counts at defined points	Annual	
51	Improved design of streets for people	Secondary	Perceptions of walkability of local neighbourhood	Improved perceptions of walkability of residents' local neighbourhoods	As people's perception of the pedestrian environment improves people are more likely to walk	new questions in ARC transport perceptions survey (data not available yet)	2 years	INCLUDE ACTION - This would be a new set of questions in ARC perceptions survey
52	Reduced negative impacts of transport on human health	Main	# exceedences per annum at monitoring sites where transport emissions are significant of the following air quality measures associated with health: PM10 NOx	The number of exceedences per annum of health standards for the following air quality measures is no more than: NO2 (9 exceedences per annum) PM10 (1) PM2.5 (0) CO (1)	The number of times the PM10 air quality measure is exceeded as recorded by monitoring stations in the region. PM10 is toxic particulate that is emitted from vehicle exhausts	ARC environmental monitoring programme - Air Quality/Motor vehicle emissions to air of nitrogen oxides (NOx) PM10 PM2.5 and volatile organic compounds (VOC)	Annual	
53		Secondary	Transport system improves its impacts on human health regarding noise - PH001 PH002 PH003	Reduce the number of people exposed to health-endangering noise levels from transport	Transport noise or vibration monitoring programme - measurement of noise/vibration adjacent to arterial routes (noise level 24hr Leq1) for one-week average at several sites next to the following roads:.....(See WRC p40)	No data available	N/A	INCLUDE IF METHODOLOGY CAN BE DEVELOPED AND IS AFFORDABLE
54	<b>Objective: Integrate transport and land use supportive of Regional Growth Strategy and Regional Policy Statement policies</b>							
55	Improved Public Transport linkages to and between identified higher density growth centres	Main	Levels of PT service to defined growth centres	Increase the number of identified growth centres with RTN services from 14 (36 per cent) to 25 (60 per cent) of the identified	This measure shows the number of growth centres with RTN service. As the RTN network expands the number centres with RTN service should increase.	ARC	Annual	
56		Secondary	Average distance people travel to work	The average distance that people travel to work decreases	Intensification and the improvement in PT and Sustainable mode infrastructure will lead to people living and working closer together	No Data available	N/A	INCLUDE if available ACTION: Stephen to determine whether the travel behaviour survey can be used for this (as the Census data cannot because of confidentiality issues)
57		Secondary	Land values around RTN stations	Land values within 800m of RTN stations increase	As PT services improve the value of land around should improve	Confidentiality issues to be addressed	N/A	Its prob not worth using this indicator as there are a lot of opposing forces influencing the price of land including -availability land market bubbles, and affordability
58		Contextual	Number of employees and businesses within defined growth centres	Increase number of employees and businesses within defined growth centres	As PT services improve, centres become more attractive and more businesses and employees locate there. This indicator will also measure the success of the intensification policies contained in the RGS.	ARC and Stats NZ	5 yearly	
59		Contextual	Number of residents and number of dwellings within defined growth centres		As PT services improve centres become more attractive and more dwellings locate there. This indicator will also measure the success of the intensification policies contained in the RGS	ARC and Stats NZ	5 yearly	Reported every 5 years from Stats NZ Census results requires alignment of mesh blocks with growth nodes
60		Contextual	The number of developments occurring outside the MUL		The number of developments occurring outside the MUL as a percentage of those occurring inside decreases	ARC and Stats NZ	Quarterly	
61		Contextual	number of building consents in different land categories (e.g. General Rural, Countryside Living MUL, Infill Growth Centres Corridors)		n/a	ARC and Stats NZ	Quarterly	This could be done but needs more work
62	<b>Contextual indicators</b>							
63		Contextual	Regional population growth as well as growth by census area		Regional population growth as well as growth by census area	Stats NZ	5 yearly	
64		Contextual	Fuel prices		The price of fuel, as measured by the Consumer Price Index	Stats NZ	Quarterly	
65		Contextual	Consumer price index		Consumer price index	Stats NZ	Quarterly	
66		Contextual	Number of vehicle registrations		Number of vehicle registrations	New Zealand Transport Agency	Annual	
67		Contextual	Fleet composition		Fleet composition	New Zealand Transport Agency	Annual	
68		Contextual	Total transport budget and spend		Total transport budget and spend	ARTA, NZTA, TAs	Annual	
69		Contextual	transport plus storage GDP as % of total regional GDP - ET002		GDP	infometrics NZ Ltd	Quarterly	
70		Contextual	Emissions of the transport fleet - EI002		Derived from fuel sales	ARC/ACC	Annual	Will be measured as a contextual indicator
71		Contextual	Light Vehicle Kilometers Travelled		Estimated vehicle kilometres travelled per year	from MOT - Using the Motor Vehicle Register and the odometer readings from the vehicle inspections to estimate regional vkt. From this we can provide vkt by vehicle class (light, heavy, motorcycle etc).	Annual	Can source this from MOT via car registration data
72		Contextual	Fuel Sales /Vehicle Kilometers Travelled - RU002		This measure gives a measure of vehicle fleet efficiency	Fuel sales - Auckland City Council Vehicle Kilometers Travelled from MOT	Annual	