



Ministry of **Transport**  
TE MANATŪ WAKA

# TRANSPORT MONITORING INDICATOR FRAMEWORK

2009 | VERSION 2



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## → TRANSPORT MONITORING INDICATOR FRAMEWORK

### ABOUT THE FRAMEWORK

The *Transport Monitoring Indicator Framework* (TMIF) provides a national, and where possible regional, framework for the monitoring of the New Zealand transport system. Led by the Ministry of Transport in collaboration with the wider transport sector, the framework is also a tool for informing and evaluating transport-related policies and other work.

The TMIF contains a large set of transport sector-related head-line indicators. The Ministry updates indicator data on an on-going basis and publishes annual reports based on the information provided within the framework.

Another annual document, the *New Zealand Transport Statistics*, reports against the data collected in the TMIF.

This is the second version of the TMIF. TMIF 2 contains a number of changes from its predecessor, the biggest being that it is a theme-based framework, not an outcome-based framework as was version 1.

An interactive web-based version of the framework complements this publication by providing access to the data underpinning the indicators.

The interactive version of the framework can be found on the Ministry of Transport website: [www.transport.govt.nz](http://www.transport.govt.nz).

## → STRUCTURE OF THE FRAMEWORK

### INDICATOR SETS

The framework includes ten indicator 'sets'. Each indicator set includes groups of individual indicators. Below are the ten indicator sets and their reference codes.

INDICATOR SETS	REFERENCE CODES
Transport volume	TV
Network reliability	NR
Freight and the transport industry	FT
Access to the transport system	AM
Travel patterns	TP
Transport safety and security	SS
Public health effects of transport	PH
Infrastructure and investment	II
Environmental impact of transport	EI
Transport related price indices	TI

Each indicator in the framework has a unique reference number, which are shown as 'Ind. Ref.' in the tables on the following pages.

## → INDICATOR SET: TRANSPORT VOLUME (TV)

The **transport volume (TV)** indicator set tracks the use of the transport system, including motorised and non-motorised modes. It also shows the age and composition of the fleet.

VEHICLE TRAVEL	IND. REF.
Road vehicle kilometres travelled (VKT)	TV001
Road vehicle kilometres travelled (VKT) by vehicle type	TV002
Road vehicle kilometres travelled (VKT) per capita	TV003
Road vehicle kilometres travelled (VKT) in major urban areas	TV028
Road vehicle kilometres travelled (VKT) by road type	TV032
Light fleet road vehicle kilometres travelled (VKT) by engine size	TV033
Road vehicle kilometres travelled (VKT) by fuel type	TV034
Aircraft movements	TV036
Annual seat hours offered by air	TV037
Annual flight hours	TV038

PERSON TRAVEL	IND. REF.
Total person kilometres travelled (PKT)	TV009
Mean light 4-wheeled vehicle occupancy (people/km)	TV010
Number of international arrivals and departures by air (NZ residents and overseas visitors)	TV011
Number of international flights per week	TV012
Distance travelled in single occupancy vehicles in major urban areas on weekdays	TV013

WALKING AND CYCLING	IND. REF.
Distance cycled (people aged five and over)	TV014
Distance cycled per person aged five and over	TV015
Time spent walking (people aged five and over)	TV016
Time spent walking per person aged five and over	TV017
Distance travelled by walking and cycling by residents of main and secondary urban areas	TV018
Number of walking and cycling trip legs	TV019

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FLEET INFORMATION	IND. REF.
Road vehicle fleet numbers	TV004
Total number of first registrations of road vehicles	TV005
Average age of fleet (road, rail, maritime, aviation)	TV006
Average engine size of the light passenger and commercial road fleet	TV007
Light vehicle fleet by engine size	TV030
Road fleet by fuel type	TV008
Vehicle ownership per capita	TV035

PUBLIC TRANSPORT VOLUMES	IND. REF.
Total public transport boardings	TV020
Total public transport boardings per capita	TV021

## → INDICATOR SET: NETWORK RELIABILITY (NR)

The **network reliability (NR)** indicator set describes the reliability of the transport network, congestion and travel time reliability.

CONGESTION AND TRAVEL TIME RELIABILITY	IND. REF.
Network congestion (road, rail, port)	NR001
Reliability of travel time (road, rail, maritime, aviation)	NR002
Percentage variability of travel time (road, rail, maritime, aviation)	NR003
Average journey times for key corridors (road, rail, maritime, aviation)	NR004
Average reliability of journey times for key corridors (road, rail, maritime, aviation)	NR005

## → INDICATOR SET: FREIGHT AND THE TRANSPORT INDUSTRY (FT)

The **freight and the transport industry (FT)** indicator set includes information on freight movements (domestic and international). It also includes the share of the transport and storage industry of the Gross Domestic Product (GDP) of New Zealand and transport workforce information.

TRANSPORT AND GROSS DOMESTIC PRODUCT (GDP)		FREIGHT VOLUME		ROAD FREIGHT EFFICIENCY	
	IND. REF.		IND. REF.		IND. REF.
Gross Domestic Product (GDP) by industry - transport and storage (1995/96\$)	FT001	Freight tonne-km growth (road, rail, maritime, aviation)	FT004	Average load (tonnes) of heavy vehicles	FT012
Percentage contribution of transport and storage industry to national Gross Domestic Product (GDP)	FT002	Total freight tonne-km by mode	FT007	Average load factor of heavy vehicles	FT013
Annual change in the percentage contribution of transport and storage industry to national Gross Domestic Product (GDP)	FT003	Freight tonne-km by mode share	FT008	Percentage of heavy vehicle empty running	FT014
Freight tonne-km growth compared to Gross Domestic Product (GDP) growth (road, rail, maritime, aviation)	FT005	Freight tonne-km by inter-regional mode share	FT009		
		Overseas cargo loaded/unloaded (tonnes) by port/airport	FT010		
		Overseas cargo value loaded/unloaded (tonnes) by port/airport	FT011		

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VALUE OF FREIGHT AND OVERSEAS MERCHANDISE TRADE	IND. REF.
Value of domestic freight per tonne-km (road, maritime, rail, aviation)	FT006
Overseas Merchandise Trade - actual values of exports (including re-exports) (FOB \$m)	FT015
Overseas Merchandise Trade - actual values of exports (including re-exports) as a percentage of Gross Domestic Product (GDP) (actual current prices)	FT016
Overseas Merchandise Trade - actual values of imports (VFD \$m)	FT017
Overseas Merchandise Trade - actual values of imports as a percentage of Gross Domestic Product (GDP) (actual current prices)	FT018
Overseas Merchandise Trade - actual values of imports and exports as a percentage of Gross Domestic Product (GDP) (actual current prices)	FT019

TRANSPORT WORKFORCE	IND. REF.
Employment in the transport sector by group	FT020

## → INDICATOR SET: ACCESS TO THE TRANSPORT SYSTEM (AM)

The **access to the transport system (AM)** indicator set shows how accessible the transport system is to a range of transport users. It includes indicators relating to the affordability of transport, social connectivity, access to vehicles, travel perceptions and accessibility of public transport.

AFFORDABILITY OF TRANSPORT		SOCIAL CONNECTIVITY		ACCESS TO A VEHICLE	
	IND. REF.		IND. REF.		IND. REF.
Percentage of household consumption expenditure on transport	AM001	Access to essential services	AM004	Percentage of households with access to a motor vehicle	AM006
Consumers Price Index - domestic air transport compared to salary and ordinary time wage rates index	AM002	Percentage of the population who can get to key locations door-to-door by public transport, walking and cycling	AM005	Number of households with access to nil, one, two or three motor vehicles	AM007
Consumers Price Index - international air transport compared to salary and ordinary time wage rates index	AM003	Percentage of the population living within 500 metres of a bus route	AM015	Percentage of households with a bicycle in working order	AM009

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TRAVEL PERCEPTIONS	IND. REF.
Travel perceptions for walking	AM010
Travel perceptions for cycling	AM011
Travel perceptions for bus	AM012
Travel perceptions for train	AM013
Travel perceptions for ferry	AM014
Travel perceptions for public transport (general)	AM021
Travel perceptions for car	AM022

ACCESSIBILITY OF PUBLIC TRANSPORT	IND. REF.
Total mobility boardings per year	AM016
Fully accessible buses and trains, as a percentage of the total fleet	AM017
Percentage of fully accessible bus stops and train stations	AM018
Number of wheelchair-accessible taxis	AM019
Availability of accessible information about public transport services	AM020
Farebox recovery rates	AM023

## → INDICATOR SET: TRAVEL PATTERNS (TP)

The **travel patterns (TP)** indicator set shows the use of various transport modes, including walking and cycling, for every day journeys such as to work and school.

SCHOOL TRAVEL PLANS		HOUSEHOLD TRAVEL		BUSINESS/WORKPLACE TRAVEL PLANS	
	IND. REF.		IND. REF.		IND. REF.
Modal shift in schools with travel plans	TP001	Mode shifts in total trip legs	TP002	Change in mode share of workplace travel	TP010
		Public transport mode share of all trip legs	TP003	Kilometres travelled for workplace travel (all modes)	TP011
		Ratio of public transport trip legs to driver trip legs	TP004	Trip duration for workplace travel	TP012
		Walking and cycling and other active modes' share of total trips by residents of urban areas	TP005		
		Mode share for journey to work	TP006		
		Mode share for journey to school	TP007		
		Percentage of road-based short trips of less than 5 kilometres by bicycle	TP008		
		Percentage of short trips of less than 2 kilometres on foot	TP009		

## → INDICATOR SET: TRANSPORT SAFETY AND SECURITY (SS)

The **transport safety and security (SS)** indicator set shows how transport is performing in terms of transport-related deaths, injuries, accidents, and the social cost of accidents. It also includes personal security, resilience and security of the transport system.

ACCIDENT OCCURRENCES	IND. REF.
Number of accidents (road, rail, maritime, aviation)	SS001
Number of reported road injury accidents per 100 million vehicle kilometres travelled (VKT)	SS014
Number of accidents per capita (road, rail, maritime, aviation)	SS002
Number of fatal accidents (road, rail, maritime, aviation)	SS003

DEATHS AND INJURIES	IND. REF.
Number of deaths (road, rail, maritime, aviation)	SS004
Number of deaths on roads per 100,000 population	SS015
Number of deaths on roads per 100 million vehicle kilometres travelled (VKT)	SS016
Number of reported road injuries per 100,000 population	SS017
Number of reported road injuries per 100 million vehicle kilometres travelled (VKT)	SS018
Number of injuries (road, rail, maritime, aviation)	SS005
Number of deaths with alcohol as a contributing factor	SS006
Number of deaths with speed as a contributing factor	SS019

ROAD USER BEHAVIOUR	IND. REF.
Front and rear seatbelt and child restraint wearing rates	SS007
Unimpeded speeds on urban and open roads	SS008
Cycle helmet use	SS020

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SOCIAL COST OF ACCIDENTS		IND. REF.	SECURITY		IND. REF.	OCCUPATIONAL HEALTH		IND. REF.
Social cost of accidents (road, rail, maritime, aviation)		SS009	Perceptions of personal security while using the transport system (road, rail, maritime, aviation)		SS010	Total number of transport-related occupational health incidents (long term and short term)		SS021
Aviation social cost per seat hour		SS022	Personal security incidents while using the transport system (road, rail, maritime, aviation)		SS011			
			Resilience of the transport system		SS012			
			Security of the transport system		SS013			

## → INDICATOR SET: PUBLIC HEALTH EFFECTS OF TRANSPORT (PH)

The **public health effects of transport (PH)** indicator set shows how transport contributes to the noise levels and air quality that impact on public health.

NOISE	IND. REF.
Percentage of residential population that is exposed to road traffic noise in excess of the following noise levels: 55, 60, 65, 70 and 75 dB(A) Leq, 24hrs	PH001
Number of residential buildings that are exposed to airport noise in excess of the following noise levels: 55, 60, 65, 70 and 75 dB(A) Ldn	PH002
Number of residential buildings that are exposed to seaport noise in excess of the following noise levels: 55 and 65 dB(A) Ldn	PH003
Rail noise	PH011
Road traffic noise measurements that are in excess of the following noise levels: 55, 60, 65, 70 and 75 dB(A) Leq, 24hrs	PH010
Social cost of transport-related noise	PH004

AIR QUALITY	IND. REF.
Emissions of particulates (PM10 and PM2.5), nitrogen oxides (NO <sub>x</sub> , NO and NO <sub>2</sub> ), carbon monoxide (CO), sulphur dioxide (SO <sub>2</sub> ), benzene (C <sub>6</sub> H <sub>6</sub> ) and 1, 3 butadiene (C <sub>4</sub> H <sub>6</sub> ) by mode (road, rail, maritime, aviation)	PH005
Social cost of transport-related air pollution to human health	PH006
The number of occasions that ambient concentrations of particulates (PM10 and PM2.5), nitrogen dioxide (NO <sub>2</sub> ), carbon monoxide (CO) and sulphur dioxide (SO <sub>2</sub> ), measured in areas where the impact of transport emissions is significant, are in excess of the relevant standards and guidelines specified: in the National Environment Standard for Air Quality, in the Ministry for Environment Ambient Air Quality Guidelines, by the World Health Organization	PH007
Percentage of the total population residing in areas where the impact of transport emissions is significant, and the exposure to ambient concentrations of particulates (PM10 and PM 2.5) nitrogen dioxide (NO <sub>2</sub> ) carbon monoxide (CO) and sulphur dioxide (SO <sub>2</sub> ) is in excess of the relevant standards and guidelines specified: in the National Environment Standard for Air Quality, in the Ministry for Environment Ambient Air Quality Guidelines, by the World Health Organisation	PH008

## → INDICATOR SET: INFRASTRUCTURE AND INVESTMENT (II)

The **infrastructure and investment (II)** indicator set shows infrastructure investment and the size and quality of transport infrastructure.

INFRASTRUCTURE SIZE	IND. REF.
Length of State highway (total and sealed)	II001
Length of local roads (total and sealed)	II002
Length of rail track	II003
Length of cycle path	II004
Length of foot path	II005
Size of international airports	II006

INFRASTRUCTURE QUALITY	IND. REF.
Road quality (State highway and local roads/ sealed and unsealed)	II007
Rail track quality	II008
Cycle path quality	II009
Foot path quality	II010
Airport quality	II011
Port quality	II012
Bus stop quality	II013

INFRASTRUCTURE INVESTMENT	IND. REF.
Expenditure on infrastructure and services (road, rail, maritime and aviation)	II015

## → INDICATOR SET: ENVIRONMENTAL IMPACT OF TRANSPORT (EI)

The **environmental impact of transport (EI)** indicator set includes climate change emissions, and information on energy use, land use, water quality and waste management.

CLIMATE CHANGE	IND. REF.
Tonnes of CO <sub>2</sub> equivalent emissions from domestic transport (road, rail, maritime, aviation)	EI001
Grams of CO <sub>2</sub> per kilometre driven for new vehicles entering the light fleet	EI002
Tonnes of CO <sub>2</sub> and tonnes of CO <sub>2</sub> equivalent emitted from domestic transport per vehicle kilometre driven (road, rail, maritime, aviation)	EI003
Tonnes of CO <sub>2</sub> equivalent emitted from domestic transport per capita (road, rail, maritime, aviation)	EI004
Tonnes of CO <sub>2</sub> and tonnes CO <sub>2</sub> equivalent emitted from domestic transport per tonne-km (road, rail, maritime, aviation)	EI005
Tonnes of CO <sub>2</sub> and tonnes of CO <sub>2</sub> equivalent emitted from domestic transport per person-km (road, rail, maritime, aviation)	EI006
Total emissions of methane (CH <sub>4</sub> ) and nitrous oxide (N <sub>2</sub> O) (road, rail, maritime, aviation)	EI007

LAND USE	IND. REF.
Land devoted to transport facilities per capita	EI008
Area of Crown transport land covered with indigenous vegetation	EI009

WATER QUALITY	IND. REF.
Stormwater runoff quality	EI010
Marine oil spills (number of tonnes and number of events)	EI011
Harbour water quality	EI012

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ENERGY USE	IND. REF.
Energy use in petajoules (PJ) by domestic transport compared to remaining sectors	EI013
Energy use in petajoules (PJ) per vehicle kilometres travelled (VKT) by domestic transport (road, rail, maritime, aviation)	EI014
Energy use in petajoules (PJ) per capita by domestic transport (road, rail, maritime, aviation)	EI015
Energy use in petajoules (PJ) per tonne-km by domestic transport (road, rail, maritime, aviation)	EI016
Energy use in petajoules (PJ) per person kilometres travelled (PKT) by domestic transport (road, rail, maritime, aviation)	EI017

WASTE MANAGEMENT	IND. REF.
Percentage of deregistered/wrecked vehicles, aeroplanes, ships, trains recycled	EI018
Lane kilometres of pavement using recycled material (State highway)	EI019
Volume of pavement waste to landfill	EI020
Tonnes of waste product used for biofuel/biodiesel production	EI021

## → INDICATOR SET: TRANSPORT-RELATED PRICE INDICES (TI)

The **transport-related price indices (TI)** indicator set includes data on transport related prices, including fuel and construction prices.

PRICES	IND. REF.
Consumers Price Index - transport group	TI001
Consumers Price Index - road passenger transport	TI002
Consumers Price Index - rail passenger transport	TI003
Producers Price Index (Outputs) - road freight transport	TI004
Regular petrol pump prices	TI005
Diesel pump prices	TI006
International oil prices	TI007
Bunker fuel prices	TI008
Jet fuel prices	TI009
Road user charges prices	TI010
Producers Price Index (Inputs) - construction	TI011
Labour Cost Index - transport and storage	TI012
Producers Price Index (Inputs) - non-metallic mineral product manufacturing	TI013
Producers Price Index (Outputs) - international sea freight transport	TI014

For more information and updates on the *Transport Monitoring Indicator Framework* please consult the Ministry's website: [www.transport.govt.nz](http://www.transport.govt.nz)

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