Ministry of Transport
TE MANATŪ WAKA

Cyclists

CRASH STATISTICS FOR THE YEAR ENDED 31 DEC 2008

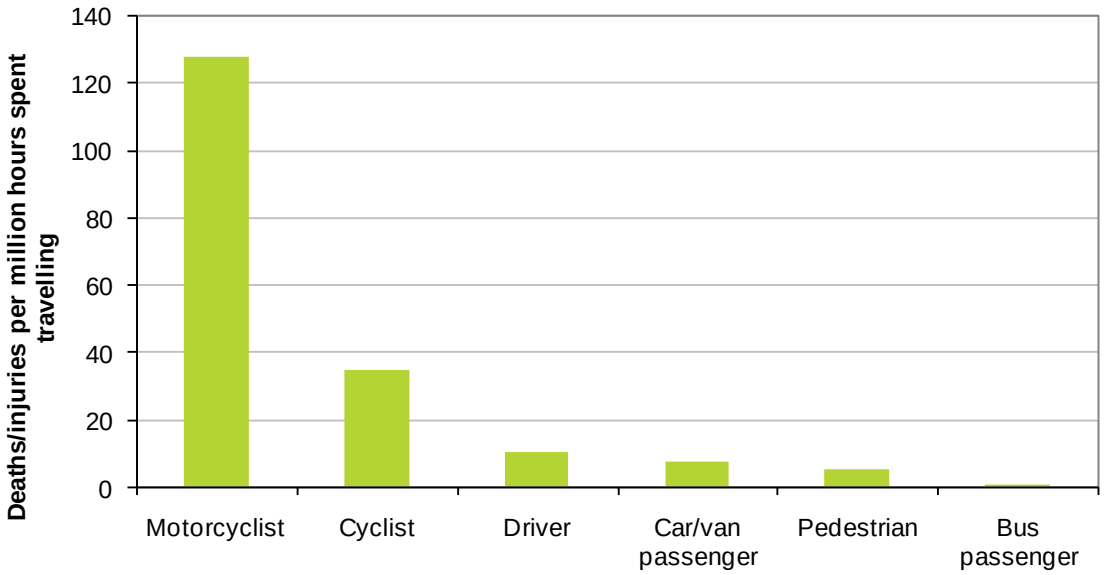
Prepared by Transport Monitoring, Ministry of Transport

CRASH FACTSHEET

2009

Cyclists have a number of risk factors that do not affect car drivers. The main risk factors are decreased stability and a much lower level of protection than is given by a car. In addition, a cyclist is less visible to other road users than a car or truck. These factors, combined with the condition of the road environment, give cyclists a high level of risk per time unit travelled, although this risk is significantly lower than the risk carried by motorcyclists.

People killed or injured in motor vehicle crashes per million hours spent travelling, Jul 2003 - Jun 2008 (all ages)



Research from New Zealand[1] suggests that there may be a volume effect that operates with cyclists, in that the current risk profile of cyclists could be related to the fact that there are relatively low numbers of cyclists on New Zealand roads. If the number of individuals in New Zealand who cycle increases, the risk profile of cyclists may improve due to a "safety in numbers" effect. It is also likely that, if cycling numbers increase, this will increase demand for cycle-friendly road infrastructure.

In 2008, ten cyclists were killed, 186 were seriously injured and 709 suffered minor injuries in police-reported crashes on New Zealand roads. The total social cost of police-reported crashes involving cyclists was approximately $224 million. This is about six percent of the social cost associated with all injury crashes in 2008.

Cycle helmets

- About three-quarters of all cycling deaths are caused by head injuries
- Cycle helmets reduce the risk of brain injury by up to 88 percent and the risk of facial injury by up to 65 percent for cyclists of all ages[2]
- According to the results of the national cycle helmet survey, in 2009 the national cycle helmet wearing rate across all age groups in New Zealand was 92 percent[3].

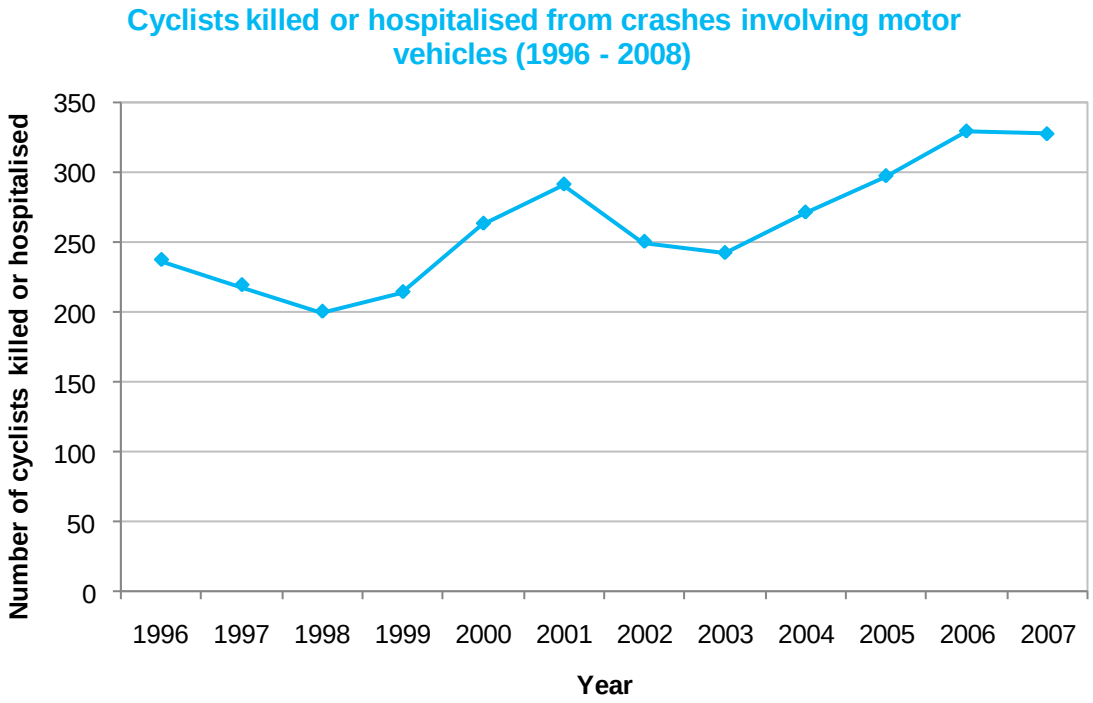
[1] http://www.ltsa.govt.nz/research/reports/289.pdf

[2] Macpherson, A. and Spinks, A. (2007) *Bicycle helmet legislation for the uptake of helmet use and prevention of head injuries (Review),* The Cochrane Collaboration. http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD005401/pdf_fs.html

[3] http://www.transport.govt.nz/research/cyclehelmets2009/

Hospitalisations

Not all cyclist injuries are reported to the police. Therefore hospitalisation data from the Ministry of Health can provide a more complete picture of the number of cyclists injured in crashes involving motor vehicles.



During 2004-2008, nearly 2,000 cyclists required hospitalisation due to injuries received from crashes involving motor vehicles on public roads in New Zealand. An average of nearly 300 cyclists per year required hospitalisation. In the same 2004-2008 period, 50 cyclists were killed in crashes involving motor vehicles on public roads. On average, ten cyclists are killed each year. An additional 1,818 cyclists were hospitalised in 2008 for incidents not involving a motor vehicle. Many of these incidents, although not all, would have occurred on public roads.

Time series

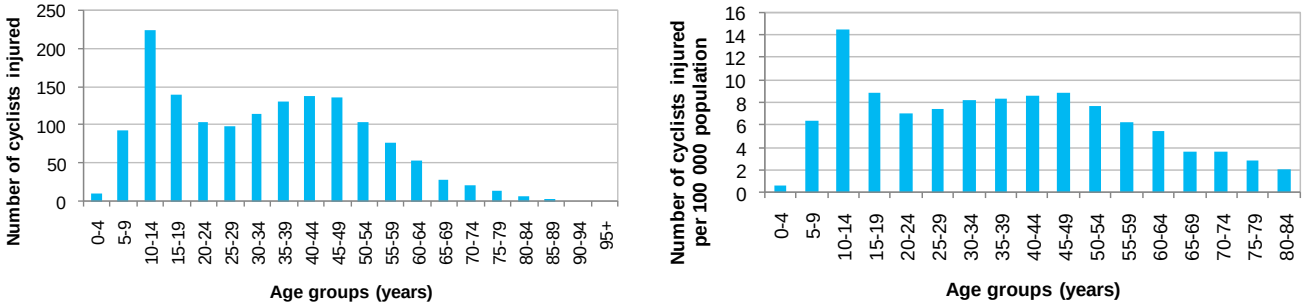
Cyclists killed and injured 1989-2008 (Police-reported crashes)

	Fatal		Injury	
Year	Number	% of all fatalities	Number	% of all injuries
1989	20	2.7%	1051	6.3%
1990	27	3.7%	1054	6.0%
1991	22	3.4%	1000	6.0%
1992	17	2.6%	941	5.8%
1993	17	2.8%	910	6.0%
1994	15	2.6%	882	5.3%
1995	15	2.6%	813	4.8%
1996	13	2.5%	754	5.1%
1997	12	2.2%	724	5.4%
1998	16	3.2%	626	5.0%
1999	8	1.6%	619	5.2%
2000	19	4.1%	559	5.1%
2001	10	2.2%	696	5.6%
2002	14	3.5%	771	5.5%
2003	6	1.3%	722	5.0%
2004	7	1.7%	716	5.2%
2005	12	3.0%	751	5.2%
2006	9	2.3%	833	5.5%
2007	12	2.8%	880	5.4%
2008	10	2.7%	895	5.9%

Who gets injured?

Cyclist injuries occur amongst all age groups but children aged between 10 and 14 years old account for the highest number of cyclist hospitalisations.

Hospitalisations of cyclists involved in motor vehicle crashes by age (2004 – 2008)

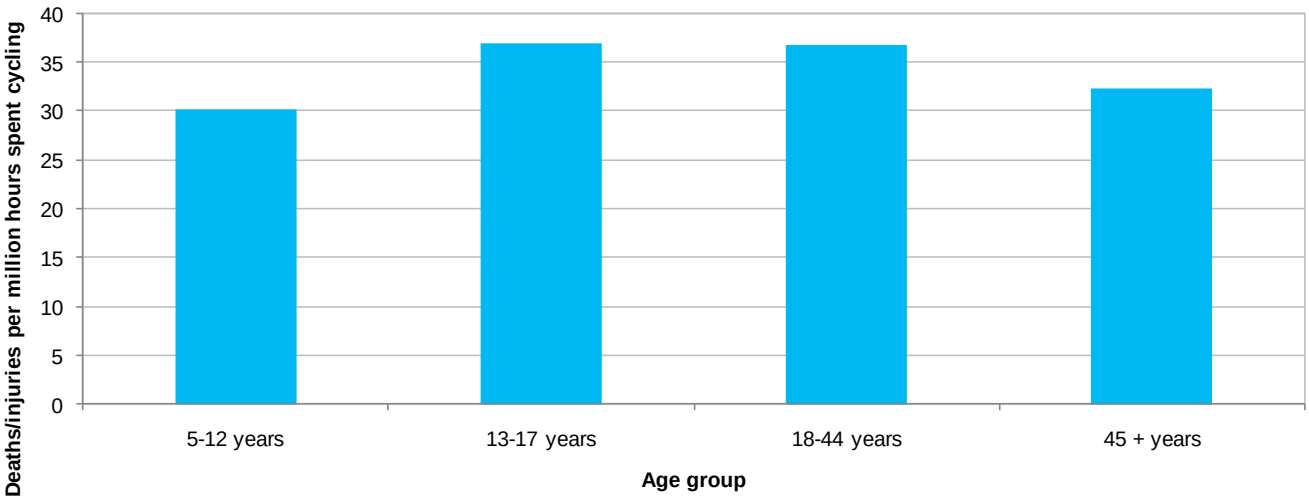


When the relative populations of these age groups are considered, cyclists aged 10-14 are the group with the most risk of hospitalisation, with a rate of 14.5 per 100,000 population each year (population data from Statistics New Zealand). Other age groups between five and 55 have rates in the region of 6-9 per 100,000 each year. Above the age of 55 the rate of hospitalisation per 100,000 gradually decreases.

Police-reported casualties

If the number of hours spent riding for different age groups is taken into account (based on the Ongoing Household Travel Survey), adult cyclists in the 13-17 and 18-44 year old age groups appear to be more at risk of being in a collision with a motor vehicle than younger or older cyclists. These cyclists tend to ride further in a given time than younger cyclists, and may also ride in more dangerous traffic conditions (e.g. on major commuting routes in cities and on the open road).

Cyclist deaths/injuries in motor vehicle crashes per million hours spent cycling, by age group (not fragility adjusted)



Source: Crash Analysis System, Ongoing Household Travel Survey, Jul 2003 - Jun 2008

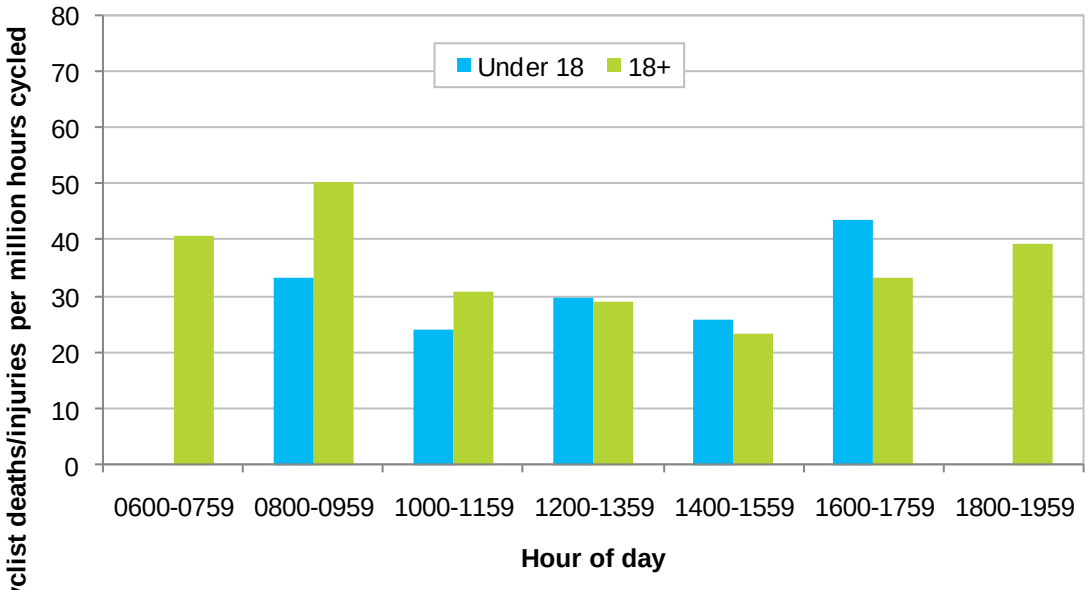
Most casualties are male

- 77 percent of all hospitalised cyclists, and 73 percent of cyclists involved in police-reported crashes, are male

When and where do injuries occur?

If the number of reported cyclist injuries (2003-2008) is adjusted by the time spent riding for time of day (based on the ongoing travel survey), both children and adults are found to be at high risk of injury at around 4-6 pm. This probably reflects the fact that it is generally getting dark at this time, which makes it harder to see cyclists during these hours. Cyclists also have a high risk of injury at around 8-10 am, especially adult cyclists. This probably reflects the heavy traffic conditions of the morning commute.

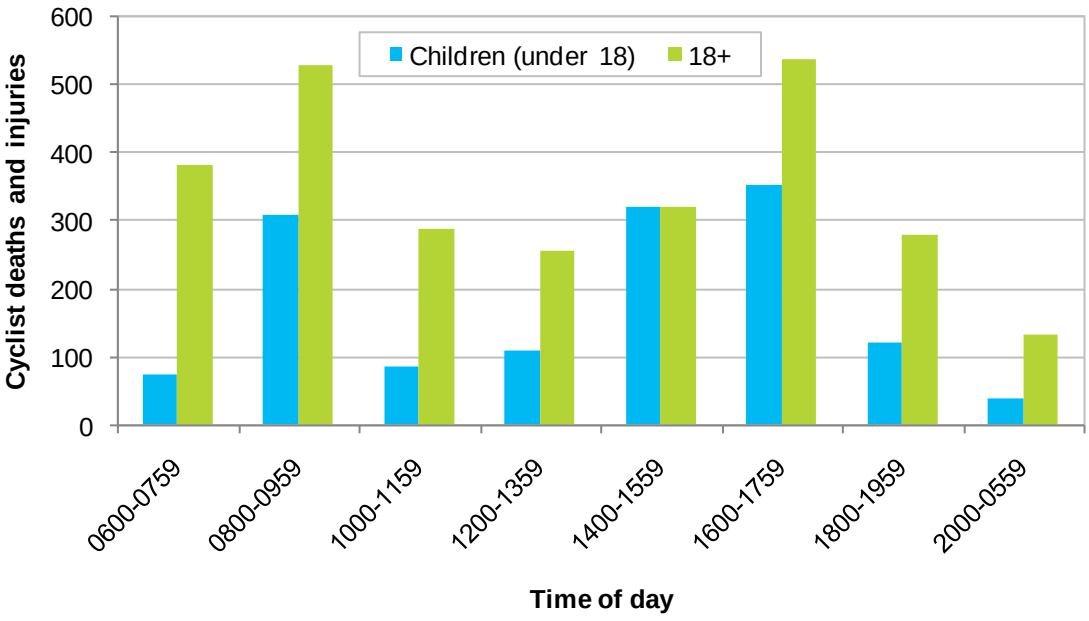
Cyclist deaths/injuries in motor vehicle crashes per million hours cycled, by age and time of day (July 2003 - June 2008)

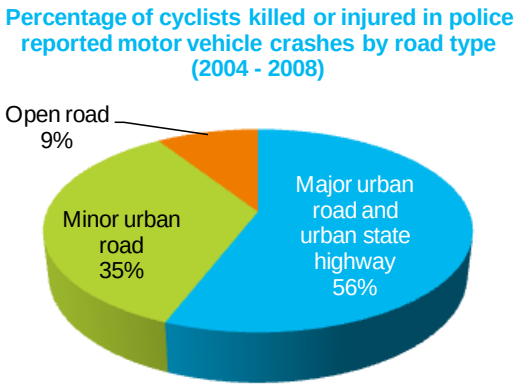


Note: Values have not been included for children under 18 years for 0600-0759 and 1800-1959 as the number of trips was too small to provide reliable estimates.

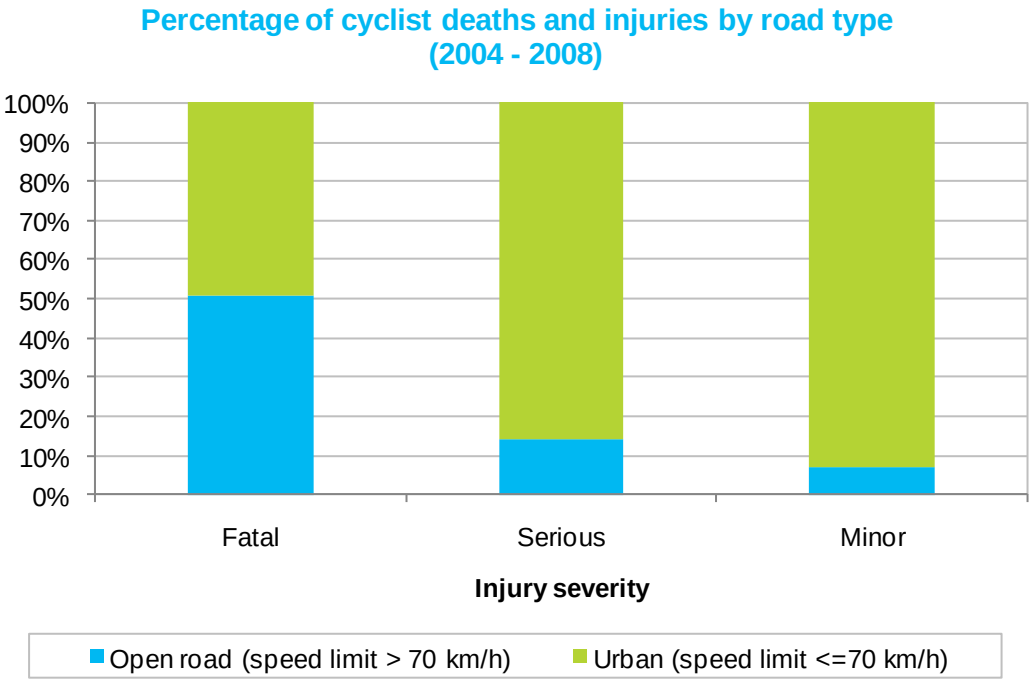
The graph below shows the absolute numbers of cyclists injured in motor vehicle crashes. This indicates that the morning (8-10 am) and the early evening (4-6 pm) are the times when the greatest numbers of cyclists are injured in crashes involving motor vehicles.

Cyclist deaths and injuries in motor vehicle crashes by time of day (2004 - 2008)



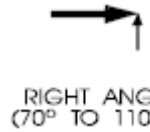


Approximately nine in every ten reported cyclist casualties (2004-2008) occurred on urban roads (roads with a speed limit of 70 km/h or less) in New Zealand. Furthermore, over half of all cyclist casualties occur on major urban roads (typically busy arterials), rather than on the minor urban roads that usually provide access to abutting properties. However, nearly half all cyclist fatalities occur on the open road, due to the high impact speeds associated with crashes on this type of road.



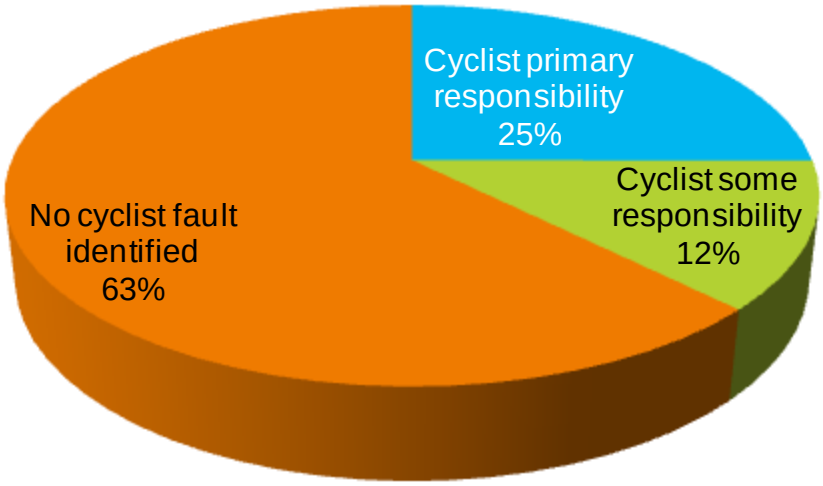
Types of crash

Three specific crash movements each account for more than 10 percent of all cyclists killed or injured in police-reported crashes involving motor vehicles.

	Crossing (No Turns)	14.5%	This crash type involves a collision at a right angle, typically when both parties involved are moving straight through an intersection.
	Right Turn Against	15.1%	Approximately 85 percent of this crash type involves another vehicle turning in front of the cyclist.
	Crossing (Vehicle Turning)	11.8%	Approximately 76 percent of this crash type involves another vehicle turning in front of the cyclist while crossing an intersection.

Who was at fault?

Percentage of fatal or injury crashes involving injured cyclists by fault (2004 - 2008)



Cyclists are found to have primary responsibility in only 25 percent of all cyclist-vehicle crashes in which they are injured or killed. As the severity of the crash increases, there is a slight increase in the proportion of cyclists found to have the primary responsibility.

Of the cases where the cyclists are found to have primary responsibility, 29% of the at-fault cyclists failed to give way and 20% of the at-fault cyclists did not see the other party.

Speed

The faster drivers are going, the more difficult it is for them to avoid hitting a cyclist in their path. An alert driver travelling at 50 km/h will travel 37 metres after reaction/braking before coming to a complete stop. The same driver travelling at 100 km/h will move five metres further than this before even reacting and, once braking has started, will travel a further 69 metres before coming to a complete stop.

The speed at which cyclists are struck is vitally important in determining how seriously they will be injured. Cyclists struck at 32 km/h have a 95 percent chance of survival. If they are struck at 48 km/h their survival chance decreases to 55 percent. Finally, once the impact speed reaches 70 km/h, the survival chance is virtually zero. The risk which speed poses to more vulnerable cyclists, such as the elderly and children, are likely to be even higher due to their natural fragility.

For further information on crash statistics see *Motor Vehicle Crashes in New Zealand*, the annual statistical statement produced by the Ministry of Transport. This publication is available in secondary school libraries and many public libraries.
Enquiries relating to crash statistics may be directed to the Ministry of Transport, PO Box 3175, Wellington, or by email on info@transport.govt.nz. For more information about road safety, visit the Ministry of Transport website at www.transport.govt.nz.
"Cyclists" was prepared by Transport Monitoring, Ministry of Transport, November 2009.