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Sustainability trends for land transport

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An evidence based approach

This presentation looks at

1. an evidence based approach to influence and drive sustainable land transport outcomes

2. sustainability trends for land transport

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Context

- The government's vision for the future of transport is the

  New Zealand Transport Strategy (2002)

  - it describes how transport can contribute to returning per capita income to the top half of the OECD and providing community and environmental benefits
  - 5 objectives:
    1. Assisting economic development
    2. Assisting safety and personal security
    3. Improving access and mobility
    4. Protecting and promoting public health
    5. Ensuring environmental sustainability

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Sustainability trends for land transport

- It has been over 4 years since the NZTS policy was produced – clear measures on how NZ is going towards the NZTS objectives are not yet available

- This is because measuring the NZTS objectives in their current form is a problem

- This has led Land Transport NZ to develop a set of sustainability trend statements for land transport

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Trend statements

13 trend statements have been derived – and aligned with the NZTS objectives

Sustainability trend statements	NZTS objectives
reduce need for people to travel (in cities and towns)	2,3,4 & 5
safer and more convenient environment (in cities and towns)	2,3,4 & 5
active modes increase	3,4 & 5
people drive in a way that uses less energy , is safe in conditions	1,2,4 & 5
fatal and serious injury crashes reduce	2
use private vehicles less in congested times	1,3,4 & 5
flows more efficiently with greater reliability	1 & 3
use of shared and passenger transport	4 & 5
reduced land transport related emissions	4 & 5
vehicle fleets more energy efficient	1,4 & 5
commercial transport improved management practices	1,2,4 & 5
more freight on rail & coastal shipping	1,4 & 5
freight industry productivity improves	1

1= Assisting economic development, 2=Assisting Safety and personal security, 3=Improving access and mobility, 4=Protecting and promoting public health, 5=Ensuring environmental sustainability

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Trend Statement No 1

1. Development patterns of towns and cities reduce the need for people to travel

- The compact urban form – population density
- The liveable community – land use
  - minimal need for non-active transport modes
  - close to or around public transport nodes
  - live, work and play
- Reduced urban sprawl

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Trend Statement No. 1 – observed trend

1989–2006

- 5% decline in km travelled using active modes and public transport
- 50% increase in km travelled using motor vehicles
- 2007 survey – attitudes to using public transport significantly different in Wellington when compared to Auckland and Christchurch where private motor vehicles are preferred

1. **<u>No evidence</u> of a relationship between urban density and the need to travel**

   (as opposed to overseas evidence)

2. **<u>Some evidence</u> that the availability of public transport influences its use**

   (build the infrastructure and people will use it)

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Trend Statement No 2

2. **Development of towns and cities, design of networks, and operating rules provide a safe and convenient environment for walking and cycling and other personal travel options**

- **Improved environments for walking and cycling**
- **Improved safety for pedestrians and cyclists**
- **Factors that influence individual choices to walk or cycle**
  - **convenience**
  - **personal security**
  - **connectivity**

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Trend Statement No 2 – observed trend

'Occurrence' of walking and cycling

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Trend Statement No 2 – an aspiration

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Trend Statement No 3

3. More people choose active modes of transport

- How much walking and cycling is actually occurring

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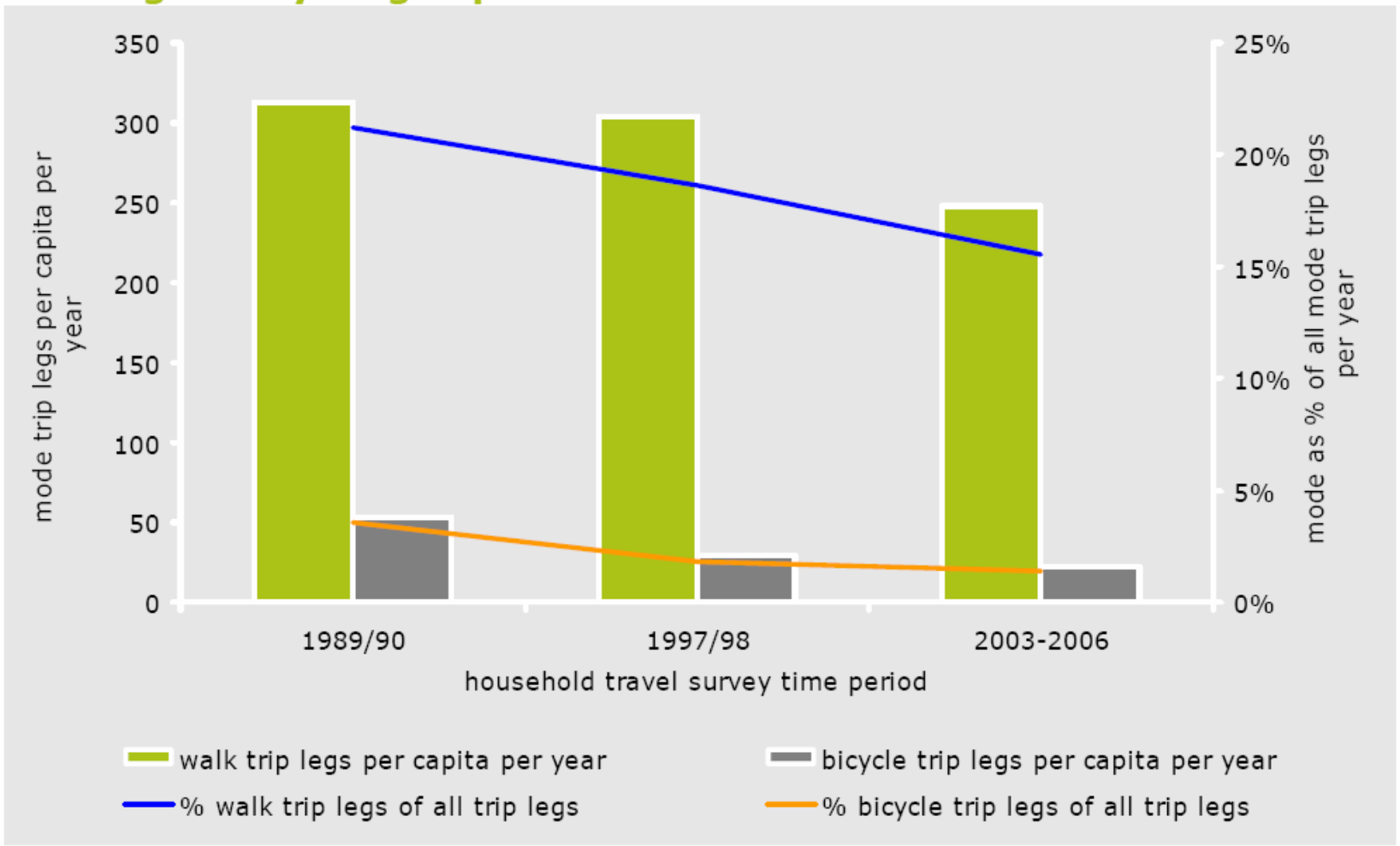
Trend Statement No 3 – observed trend

Walking and cycling trips[1] and mode share[2]



Source: Ministry of Transport, New Zealand Household Travel Survey

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Trend Statement No 3

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Trend Statement No 4

4. People drive in a way the uses less energy and is safe in the conditions

- **Factors affecting safety – four principal behaviours**
  - **Speed compliance**
  - **Alcohol compliance**
  - **Safety Belt compliance**
  - **Failure to give way**

- **Energy use by motor vehicles (petrol & diesel)**

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Trend Statement No 4 – observed trend

1996–2006

- Average unimpeded traffic speed **decreased by about 6%** dropping below 100km/h speed limit in 2002
- **30% reduction** in alcohol crashes, **10% increase** in the use of front safety belts

2001–2004

- Energy demand (PJ) **rose by 13%**, vehicle kilometres travelled (VKT) **rose by 11%**

1. **<u>No evidence</u> to suggest that people are driving in a way that uses less energy**
2. **People <u>are increasingly</u> driving in a way that is safer in the conditions**

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Trend Statement No 5

5. Fatal and serious injury crashes reduce

- **Actual number of fatalities and serious injury crashes recorded within the national road Crash Analysis System (CAS)**
  - **Influenced by '3E' initiatives**
    1. **education (advertising & promotion)**
    2. **enforcement (road policing)**
    3. **engineering (vehicles & infrastructure)**

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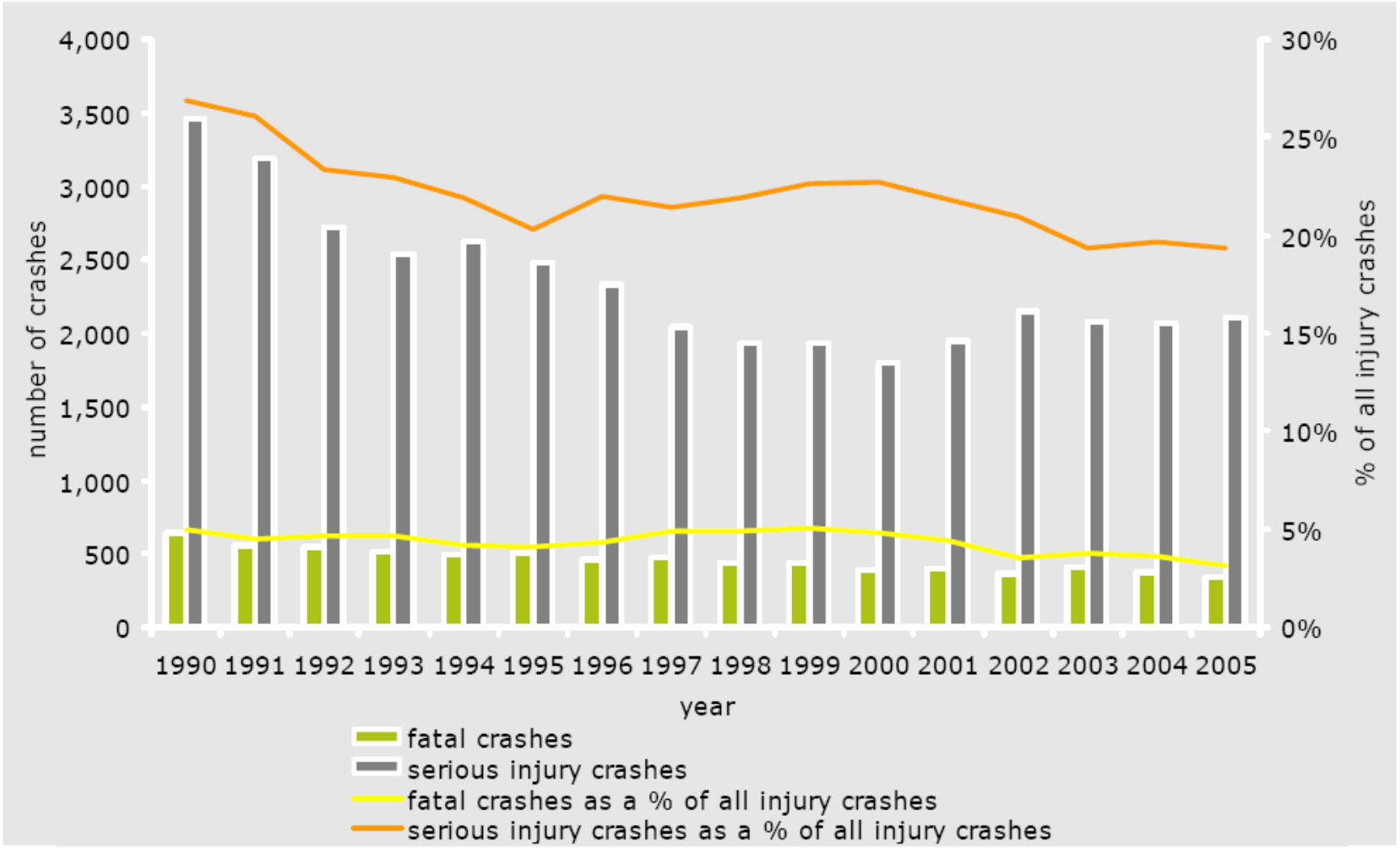
Trend Statement No 5 – observed trend

Fatal and serious injury crashes



Source: Land Transport New Zealand, CAS database

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Trend Statement No 6

6. People use private vehicles less in congested times

- Extent of the congestion problem
- Congestion as measured by the congestion index
- The extent of travel occurring by private vehicle at congested times
- Focus only on Auckland, Wellington, Christchurch and Tauranga

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Trend Statement No 6 – observed trend

- 1996–2001 congestion **has remained about the same** in Auckland and Wellington but increased in Christchurch (congestion index)
- 1989–2006 private vehicle use as a percentage of all trips **increased by 9%**

1. **There was no evidence to suggest that people use private vehicles less in congested times**

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Trend Statement No 7

7. Traffic flows more efficiently with greater reliability on the road network

- Congestion indicator
- Traffic speed indicator
- Trip time reliability – travel time variability
- Auckland, Wellington, Christchurch and Tauranga

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Trend Statement No 7 – observed trend

2003–2006

- **Little or no change in peak time congestion** in Auckland, Wellington or Tauranga
- **Increase in** congestion in Christchurch
- Travel time variability **reduced for all four cities** in the morning and inter-peak periods but **substantially increased** in the evening peak Auckland, Wellington and Christchurch

1. **Little or no evidence that traffic flowed more efficiently or with greater reliability in all four cities**

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Trend Statement No 8

8. **The availability and use of shared transport, passenger transport and services for the transport disadvantaged increases**

- **Shared travel and access to motor vehicles**
- **Public transport**
- **Access for the transport disadvantaged**

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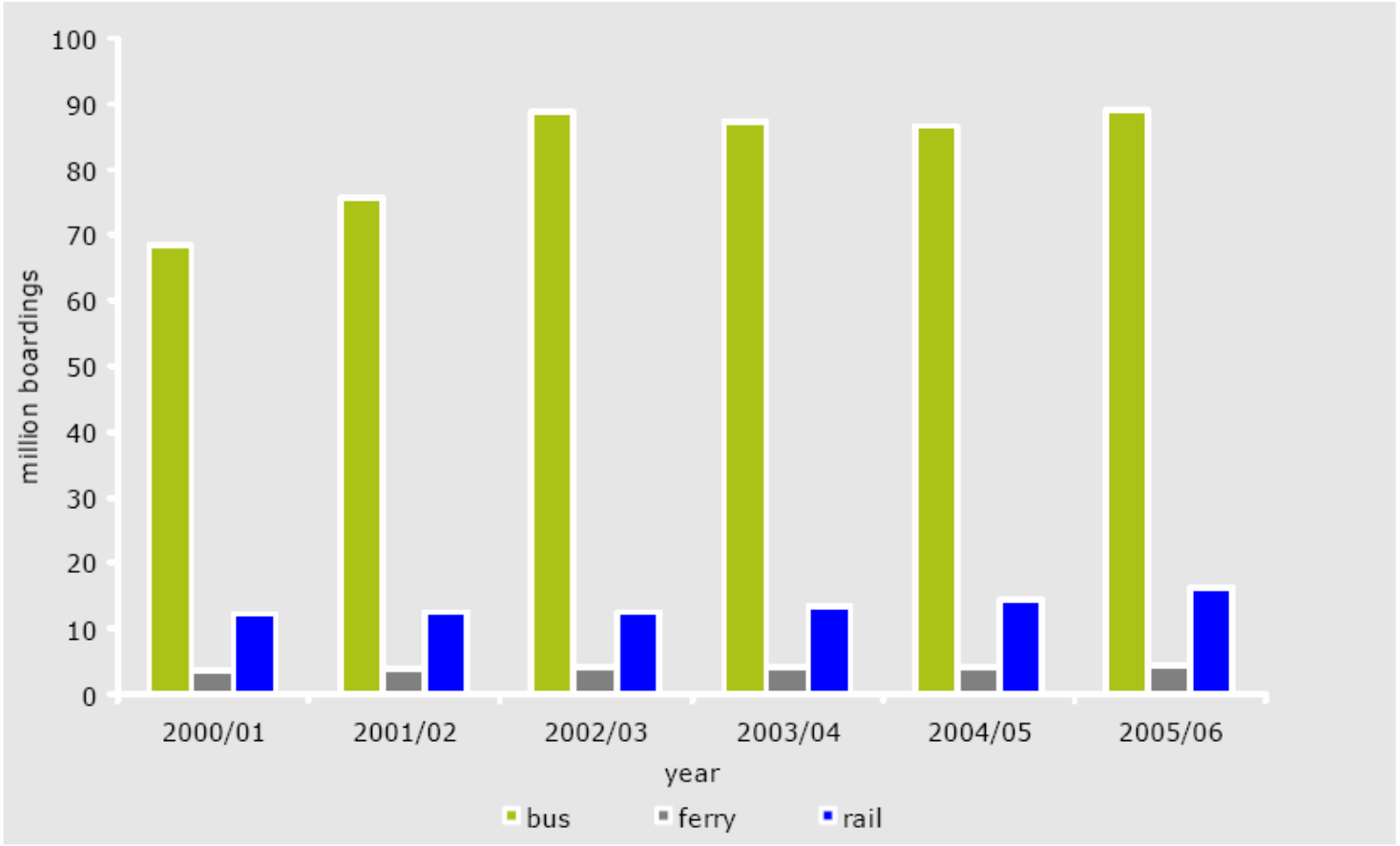
Trend Statement No 8 - observed trend

Public transport boardings[6]



Source: Land Transport NZ,
Includes commercial (including concessionary), contracted (including concessionary, but not school service), and contracted school service boardings.

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Trend Statement No 9

9. Land transport related vehicle emissions reduce

- CO_2 emissions as measured by Ministry of Economic Development

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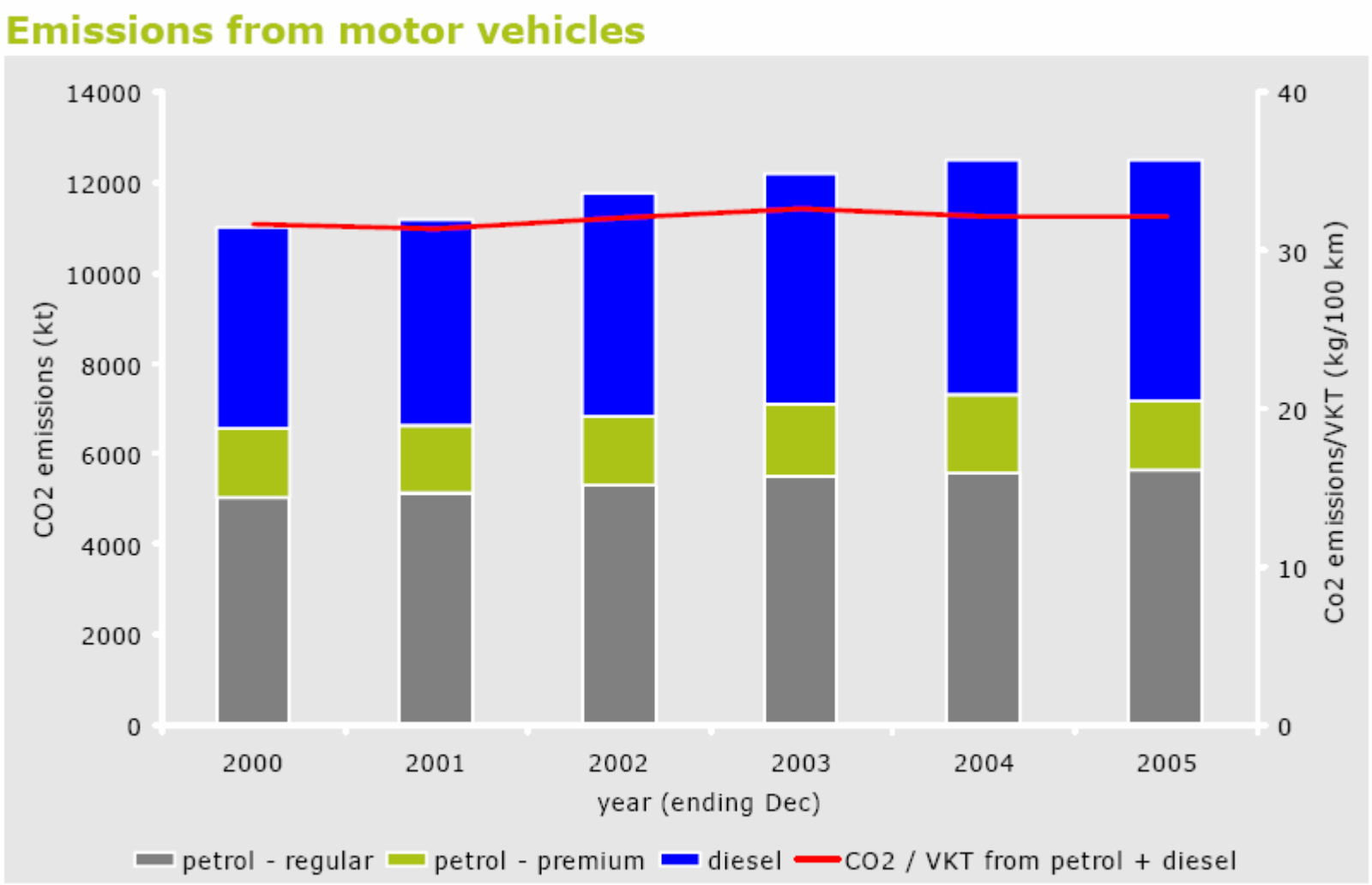
Trend Statement No 9 – observed trend



Source: MED, June 2005, *NZ Energy Greenhouse Gas Emissions 1990-2004*

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Trend Statement No 10

10. The commercial and private vehicle fleets become more energy efficient, safer and have improved environmental performance

- Vehicle age as surrogate for energy efficiency, safety and environmental performance
- Energy consumption for the whole fleet
- Emissions of CO_2 from the whole fleet

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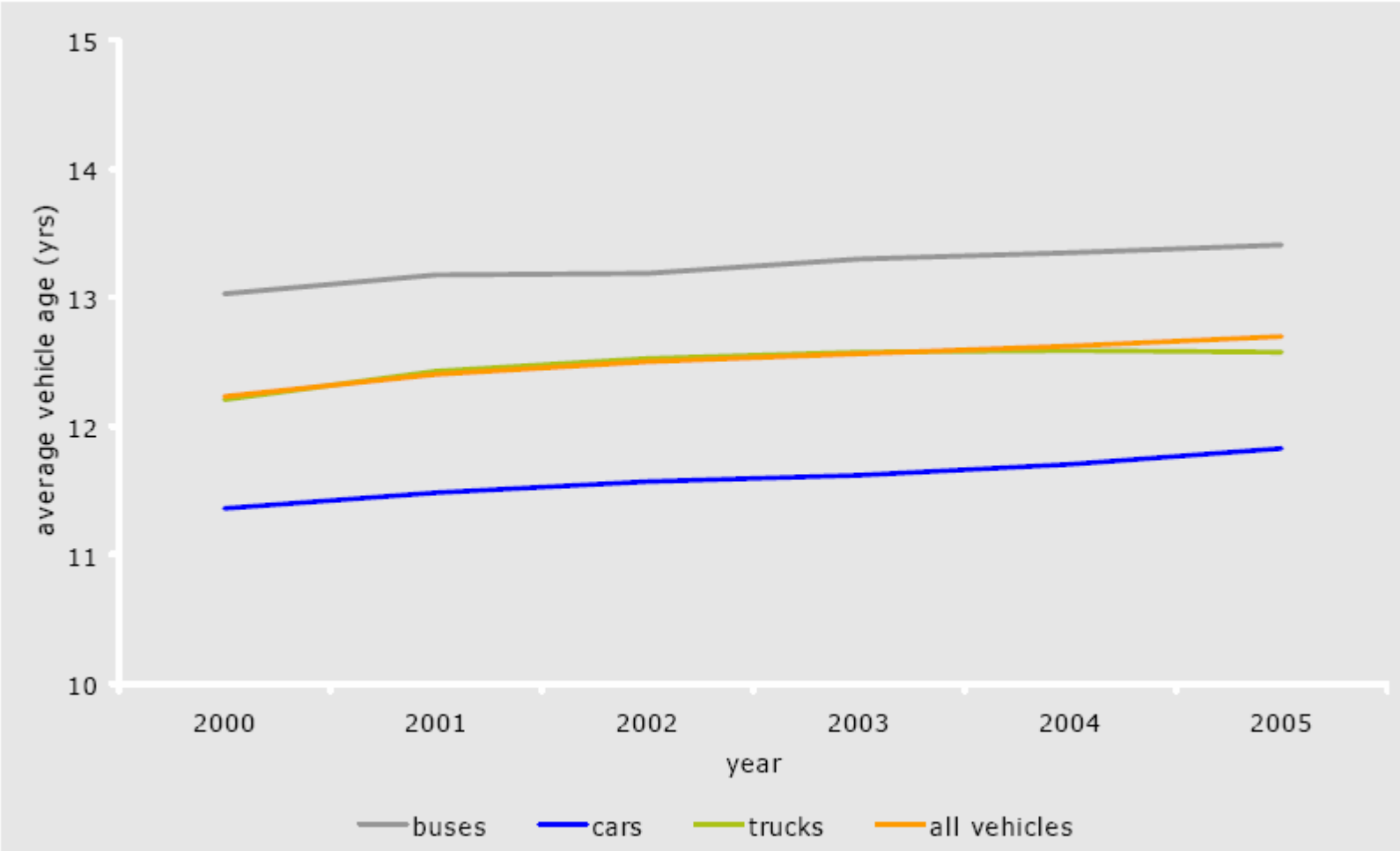
Trend Statement No 10 – observed trend

Average age of the national motor vehicle fleet



Source: Ministry of Transport, Motor Vehicle Register
"All vehicles" includes cars, buses, trucks, motorcycles, and mopeds. Non-motorised vehicles such as trailers and caravans have been excluded.

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Trend Statement No 11

11. Commercial transport operators adopt management practices that promote safety, use less energy and reduce emissions, noise and vibration

- Vehicle age as surrogate for energy efficiency, safety and environmental performance
- Energy intensity – for the Transport and Storage industry
- Emission intensity – environmental efficiency for the Transport and Storage industry

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Trend Statement No 11 – observed trend

- 1997–2003: vehicle ages (trucks & buses) **increased marginally**
- 1997–2003: energy intensity for Transport and Storage industry **decreased by 10 %**
- 1997–2003: CO_2 emissions intensity for Transport and Storage industry **decreased by 9 %**
- Not known at this point – safety, noise or vibration

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Trend Statement No 12

12. Higher proportion of freight is carried on rail and coastal shipping

- Freight diverted
- Rail freight increase
- Coastal shipping freight increase

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Trend Statement No 12 – observed trend

At this point in time, we do not have sufficient data to make any assessment of this trend – work in progress

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Trend Statement No 13

13. Freight industry productivity improves

- Contribution that the Transport and Storage industry makes to the economy

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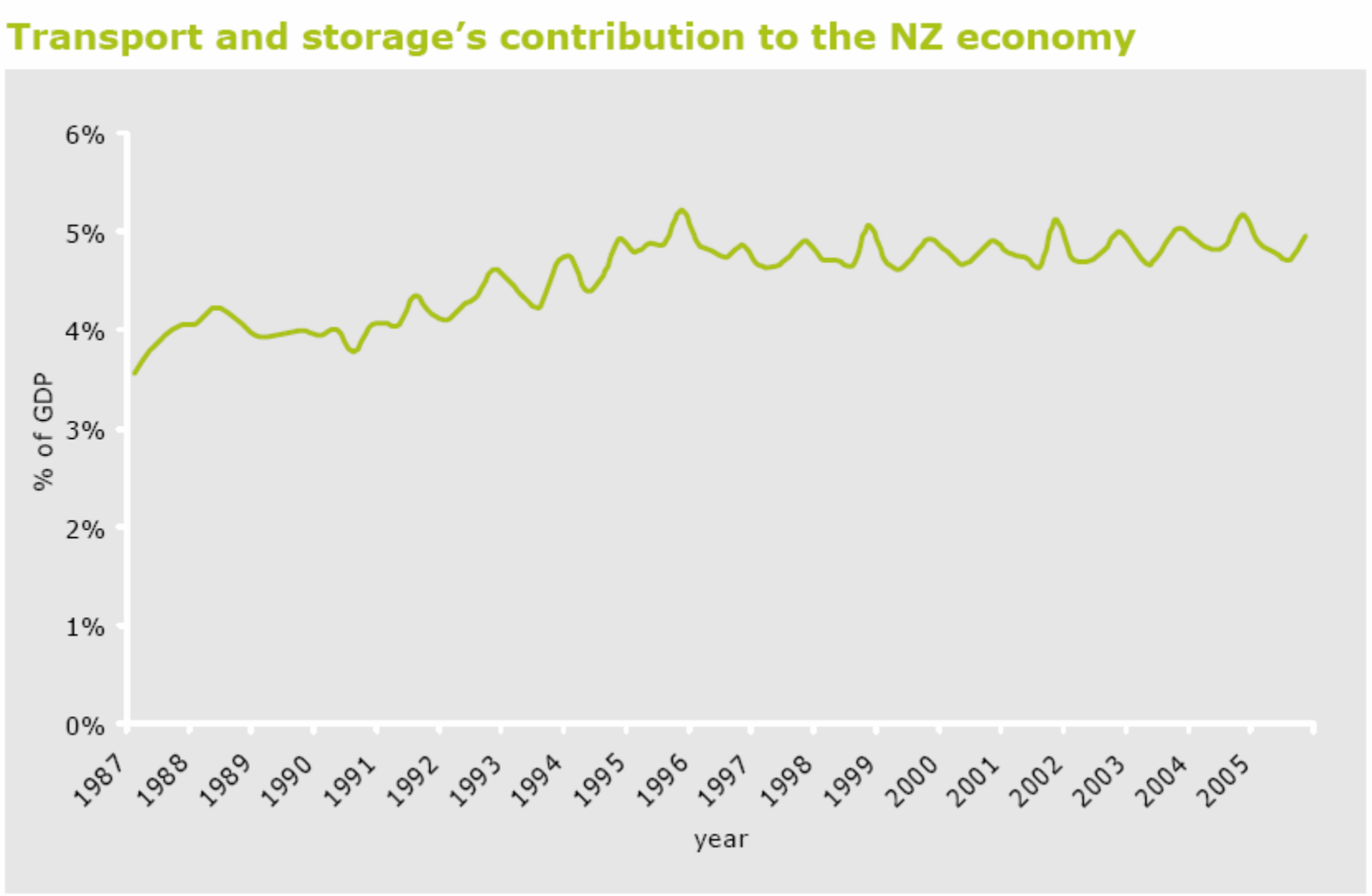
Trend Statement No 13 - observed trend



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Trend scorecard

Trend	Brief description	Is sustainability trend occurring
1	reduce need for people to travel (in cities and towns)	No
2	safer and more convenient environment (in cities and towns)	No
3	active modes increase	No
4	people drive in a way that uses less energy, is safe in conditions	less energy No safer in conditions Yes
5	fatal and serious injury crashes reduce	Yes
6	use private vehicles less	No
7	flows more efficiently with greater reliability	No
8	use of shared and passenger transport increase	Yes
9	reduced land transport related emissions	No
10	vehicle fleets more energy efficient	No
11	commercial transport improved management practices	Yes (partial)
12	more freight on rail & coastal shipping	Not known
13	freight industry productivity improves	Yes

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Cycle Monitoring (counting) – what is going on

Who is measuring cycling

17. What type of authority do you represent? (If you are a consultant for an authority, please answer for that authority.)

City council	16	23%
District council	42	59%
Regional council/authority	8	11%
Transit NZ - Head Office	1	1%
Transit NZ - Regional Office	4	6%
Total	71	100%

Who plans to build more cycling infrastructure

15. Do you have any cycle infrastructure projects in your forward works programme (LTCCP or 10 year State Highway plan)?

Yes	45	66%
No	23	34%
Don't know	0	0%
Total	68	100%

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Whats next

- Government is developing sustainable transport targets (cycling targets are likely) - provide something to aim for and give cycling sense of urgency
- Land Transport NZ will be trialling new cycle counting technologies in early 2008 – roll out to councils (electronic & manual)
- Increase household travel survey sample size (Ministry of Transport) - assist regional/national decision making
- Councils to complete comprehensive cycling strategies – strategy focus