

A stylized landscape with rolling hills in shades of green and brown. White footprints are scattered across the hills, suggesting a path or journey. The overall aesthetic is clean and modern.

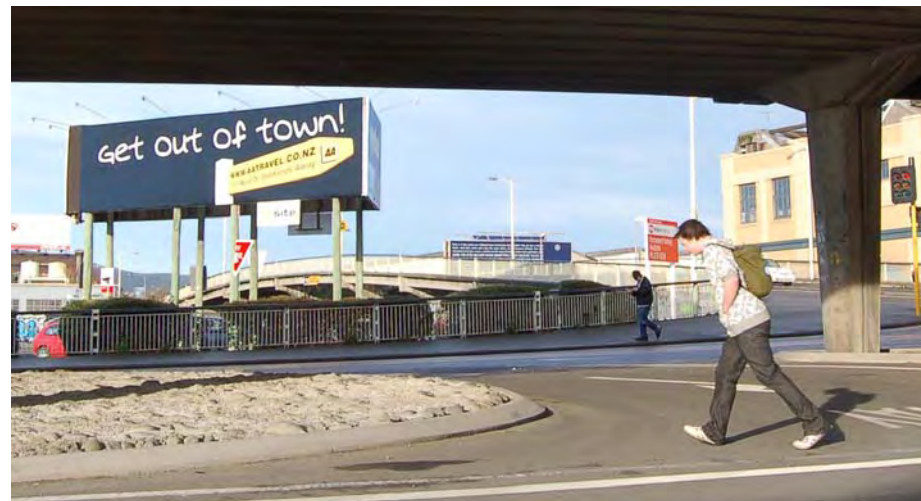
# Rhys Taylor

Learning from research and  
education experience

Living Streets Aotearoa



# Could sustainability get us onto our feet?



NZ Walking Conference contribution.

Rhys Taylor, 03 960 2656

Landcare Research (contractor)

5 August 2008



Manaaki Whenua  
Landcare Research

# We're Kiwis – so, we drive!

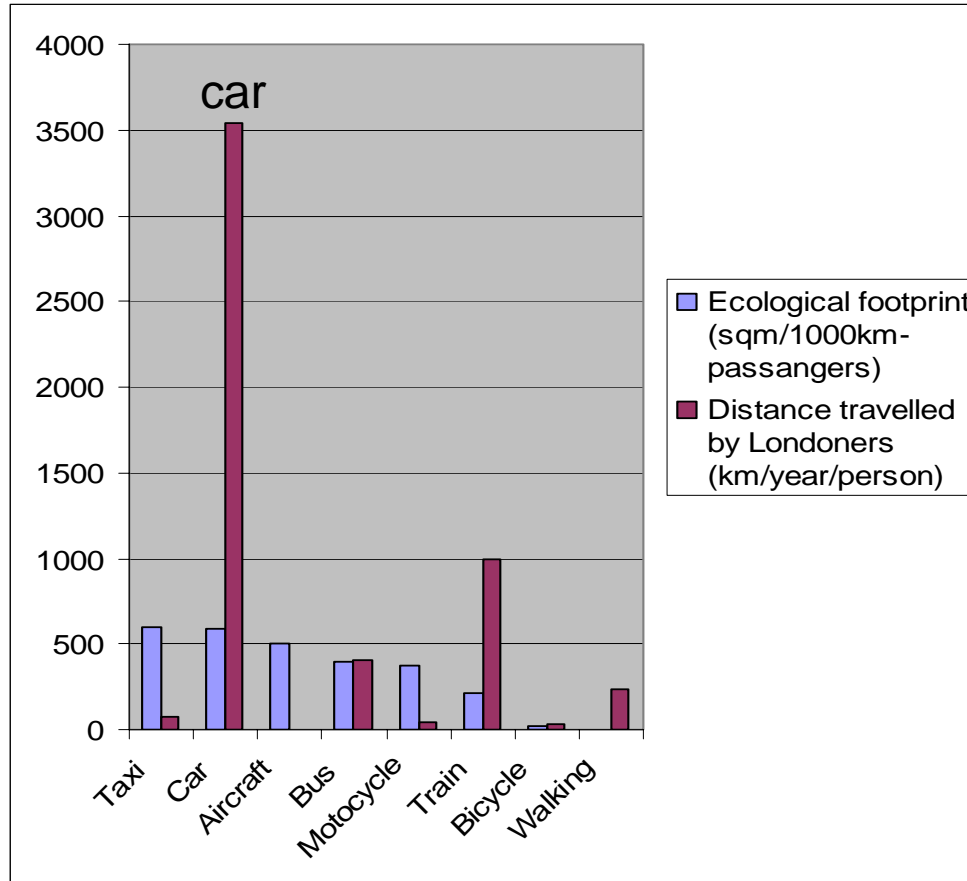


We need our car... to bring home the portable gas heater, so that indoor air quality can be as toxic as urban road corridors...



Manaaki Whenua  
Landcare Research

# Why reduce car use?

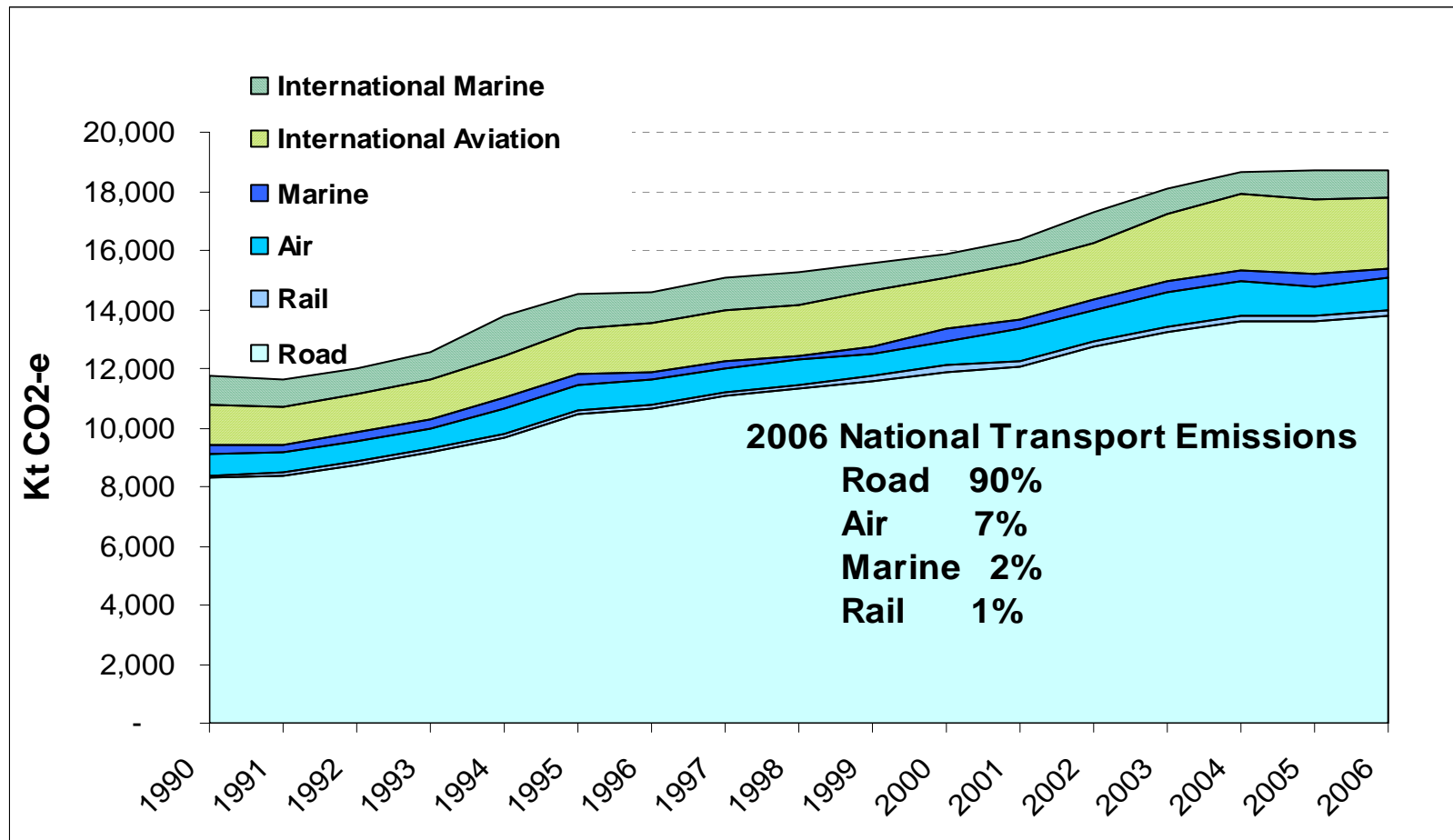


**London distances traveled, by mode and ecological footprint of mode.**

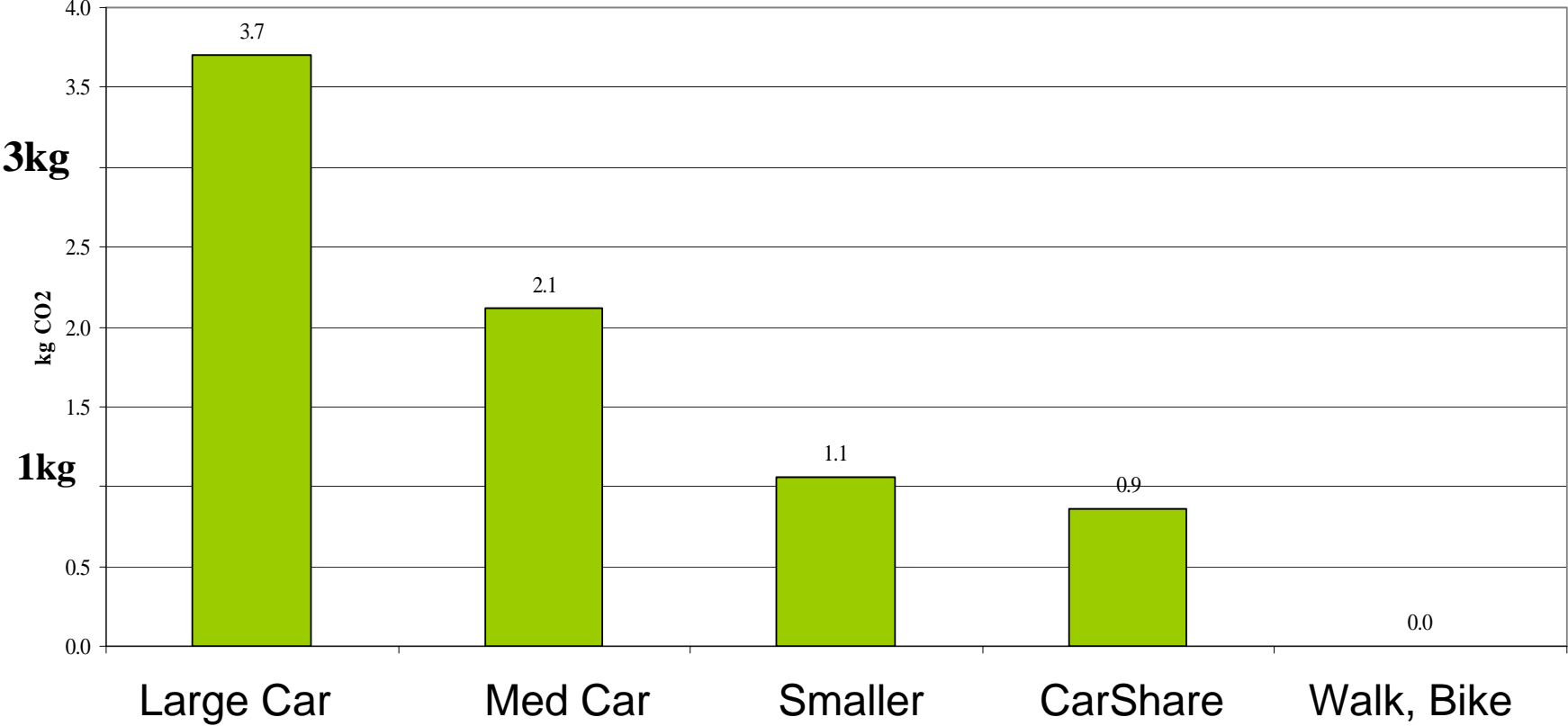
**Cars have a large eco-footprint & if you think London looks bad... NZ cities have higher per capita car ownership than London; less-dense settlement; and fewer public transport alternatives.**



# NZ Transport CO<sub>2</sub> emissions



# CO<sub>2</sub> emissions, 10km journey, per person



# 'Climate Change' messages

- A per capita 'share' of emissions would be much lower than now.
- Disturbed weather driven by temp rise & it will probably get worse. We must both adapt & reduce CO<sub>2</sub> emissions.
- 'One planet living' is required, for sustainability.



Manaaki Whenua  
Landcare Research

# How aware are we, really?



- Choosing to walk in place of driving, on short trips, results from a moral conversation on carbon (greenhouse gas) emissions, as well as a rational choice relating to rising fuel costs & road congestion.



Manaaki Whenua  
Landcare Research



# Sustainability Values

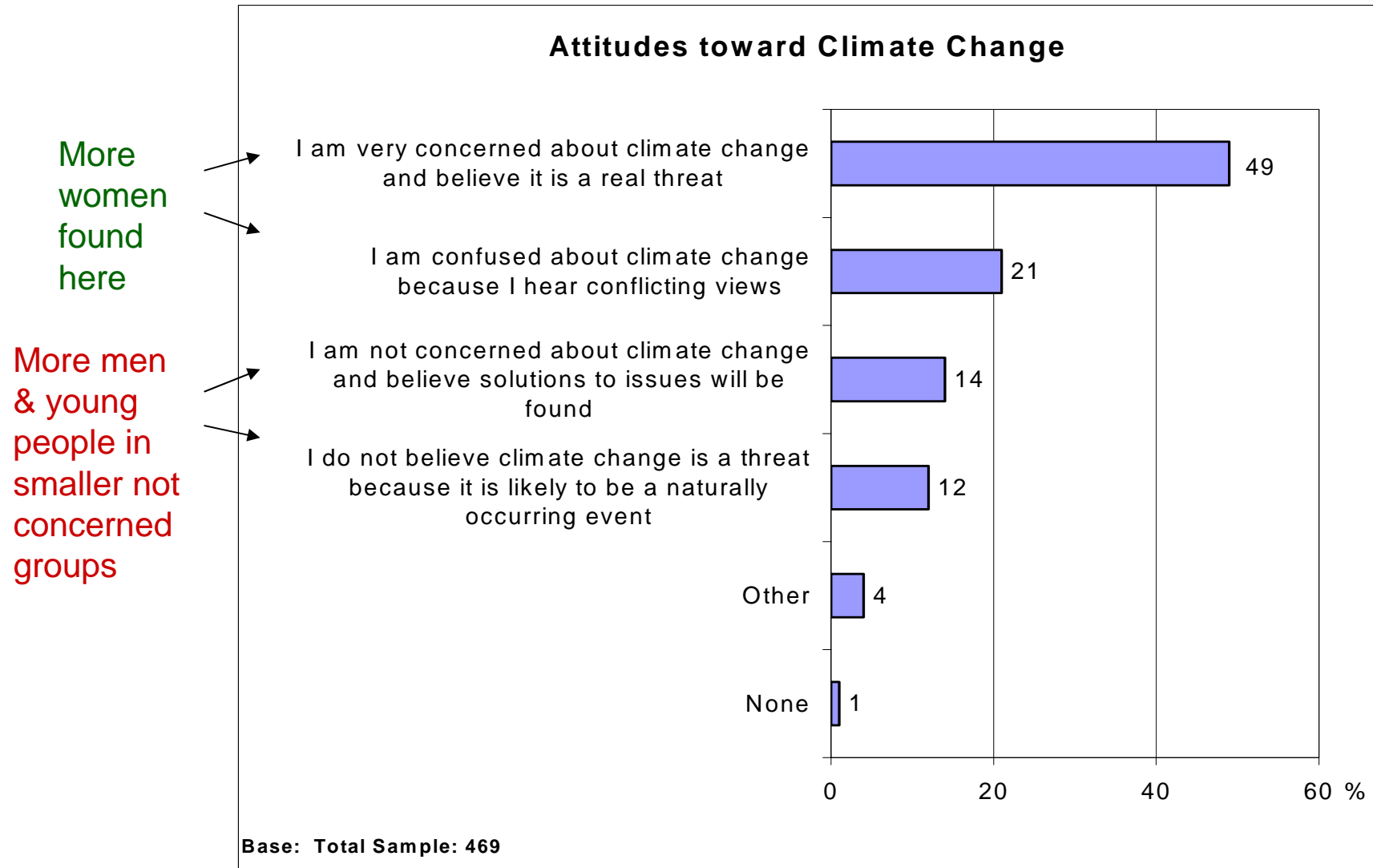
- At least a quarter of New Zealanders say they understand 'sustainability' and 83% of these say an urgent issue for central and local Govt – majority of these people are educated males in mid and older ages. Of same group, 43% said individuals should act, too. (Research NZ survey 2007)
- CCC survey 2007 revealed another aspect, on Climate issues:



Manaaki Whenua  
Landcare Research

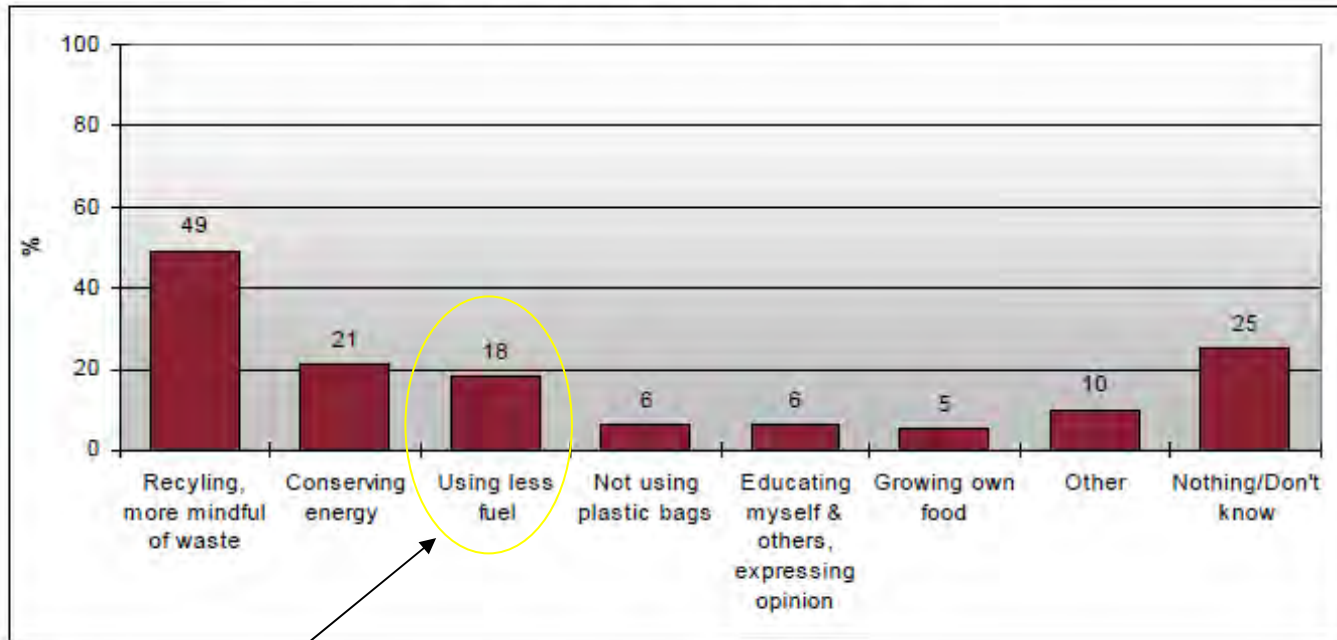
# Survey of Christchurch Residents by CCC, 2007

– shows age and gender differences in attitudes



# “How I help NZ be more sustainable”

Figure 4 Behaviours undertaken to help New Zealand become more sustainable General population survey



18% indicated ‘using less fuel’ as example of a contribution they’d make to help NZ become more sustainable, compared to larger 49% suggesting ‘recycling waste’. (Research NZ survey 2007 for MfE)



Manaaki Whenua  
Landcare Research

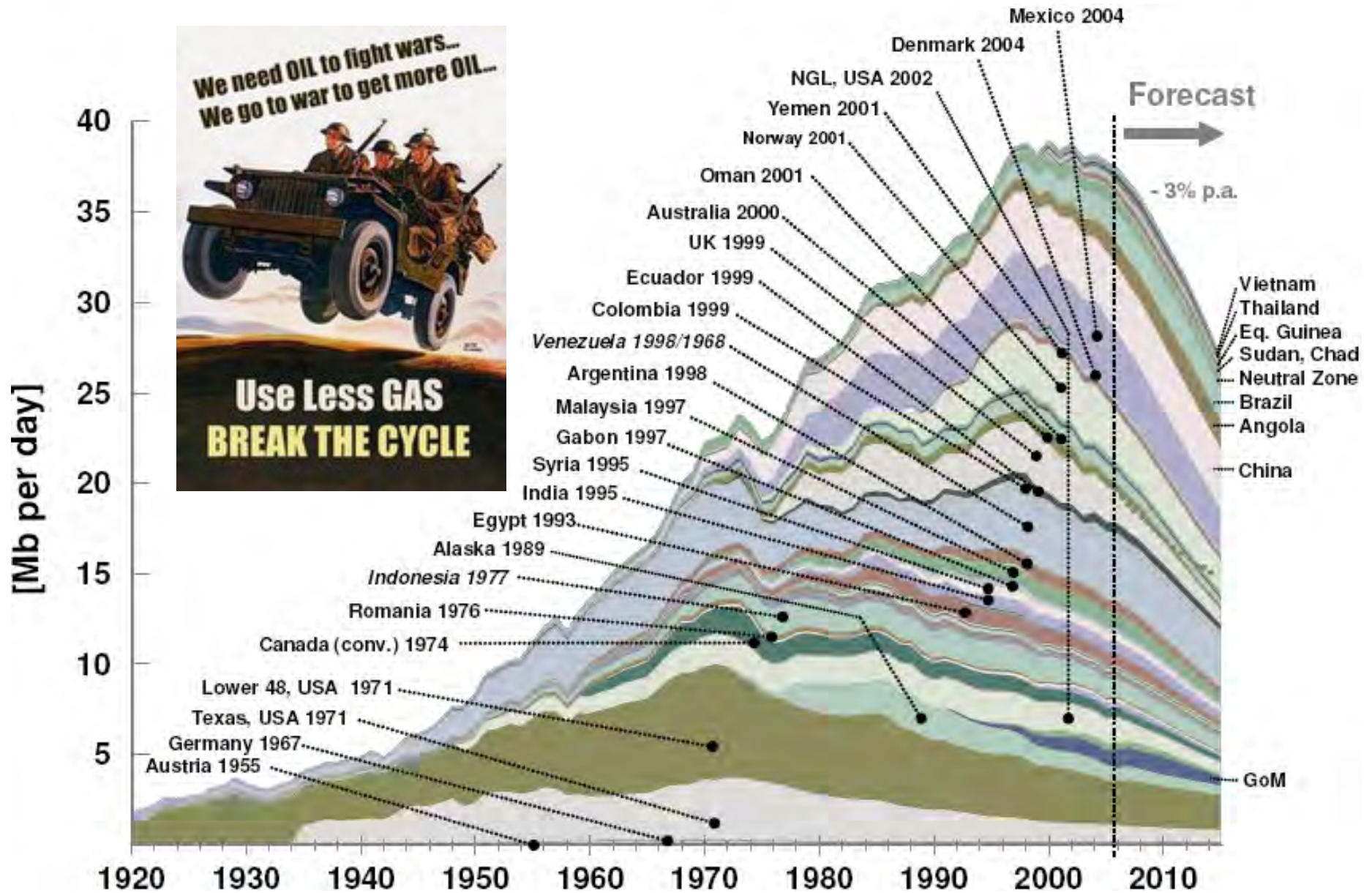
# Sustainability...Climate... too abstract and long term?

- There's a new imperative, closely connected, and an economic driver:
- Perhaps arrival of Peak Oil will make the difference?



Manaaki Whenua  
Landcare Research

# Oilfields' production peaking



# Oil has few alternatives

- Global Peak Production in 2008?
- Liquid fuel price steeply up.
- No easy alternatives (before say, 2020?) Limited bio fuel quantities as it competes for food; battery cars or hydrogen cells need 'spare' renewable electricity to charge them, or require extra generation from fossil fuel burning (with CO<sub>2</sub> consequences).



Manaaki Whenua  
Landcare Research

# UK survey – cutting car use

- DEFRA survey 2002, A third of respondents had reduced car use for short journeys, in order to: **walk more** (59% of these), save money (17%) and help the environment/reduce pollution (17%)
- Of those who continued car use on short trips, 22% lacked public transport alternatives, 26% 'did not want or have time to change'.
- Only fuel cost was being considered in mode choices, not cost of car ownership.



Manaaki Whenua  
Landcare Research

# NZ car use (*pro* and *anti*)

- Participants on NZ Sustainable Living evening courses can find equal number of reasons to debate *anti* and *pro* car.
- New knowledge not enough to change their car use. Limited car use change after attending courses, although much new action is being taken in other aspects of life, post-course.



SL evening class about travel, for drivers, held on a bus in Christchurch.



Manaaki Whenua  
Landcare Research



# Barriers to quitting car use

- Door to door 'convenience', especially if free parking available.
- Dry, comfortable, private & have preferred company or music.
- Load carrying - for shopping, work & play.
- Have children or relatives to transport.
- Perceived speed c.f. other modes
- Perceived safety (may be false!).



Manaaki Whenua  
Landcare Research

# Why so little change?

- People are not quitting cars for more-sustainable travel behaviour, because:
  - A few may be **unaware** of international concern on ‘sustainability’ issues.
  - Or aware but **uncertain**, e.g. doubt or underestimate the scale & consequences of the problem (Peak Oil, Climate Change, pollution?)
  - A few might be **incapable** of changing from car use due to a lack of physical abilities (e.g. users of adapted mobility vehicles).
  - And/or...



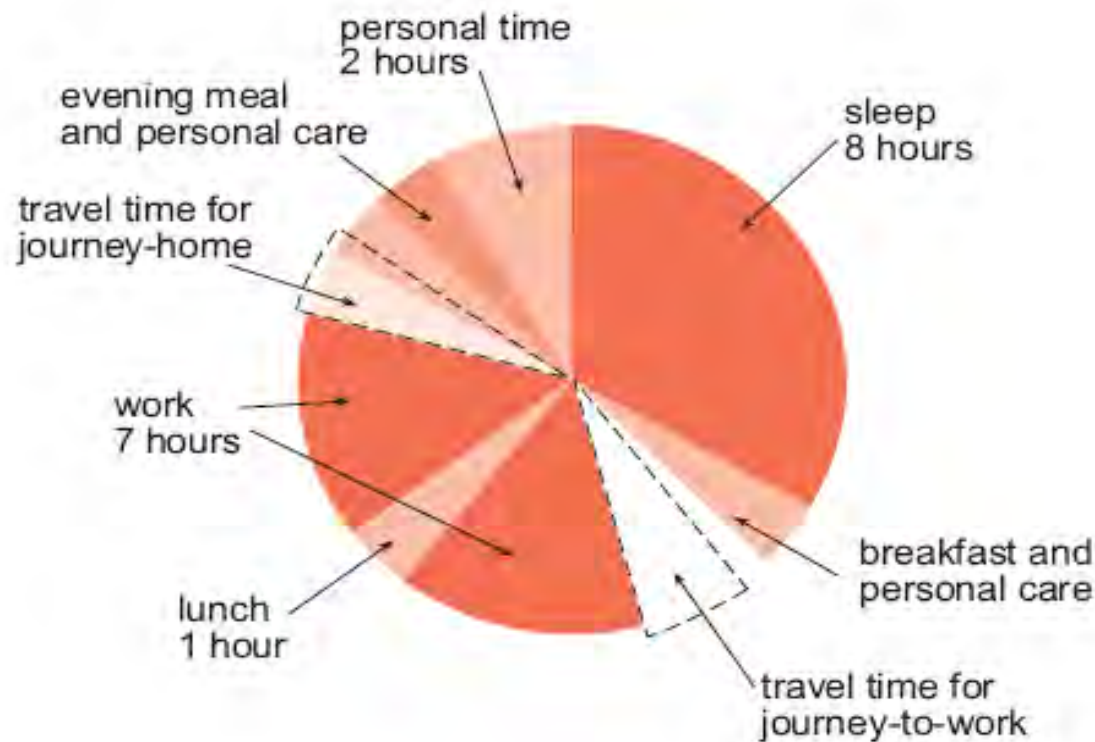
Manaaki Whenua  
Landcare Research

# Further reasons to stay in cars

- Changing from cars may **impair their work or quality of life** (e.g. loss of access to workplace or school; longer commuting time).
- They perceive their individual behaviour change as **marginal**: “hardly have an effect on the collective environmental problem”, (or note that others changing is OK, gives them more road-space to drive on.)
- Values are unchanged, no wish to lead, so they **wait** until other people change their behaviour first, and might follow or imitate.



# Time & costs for commuting



## DRIVE TO WORK / WORK TO DRIVE



Manaaki Whenua  
Landcare Research

Typical daily tasks that make-up a daily routine  
(Zeibots M.E. 2003)

# Forming new 'auto' habits

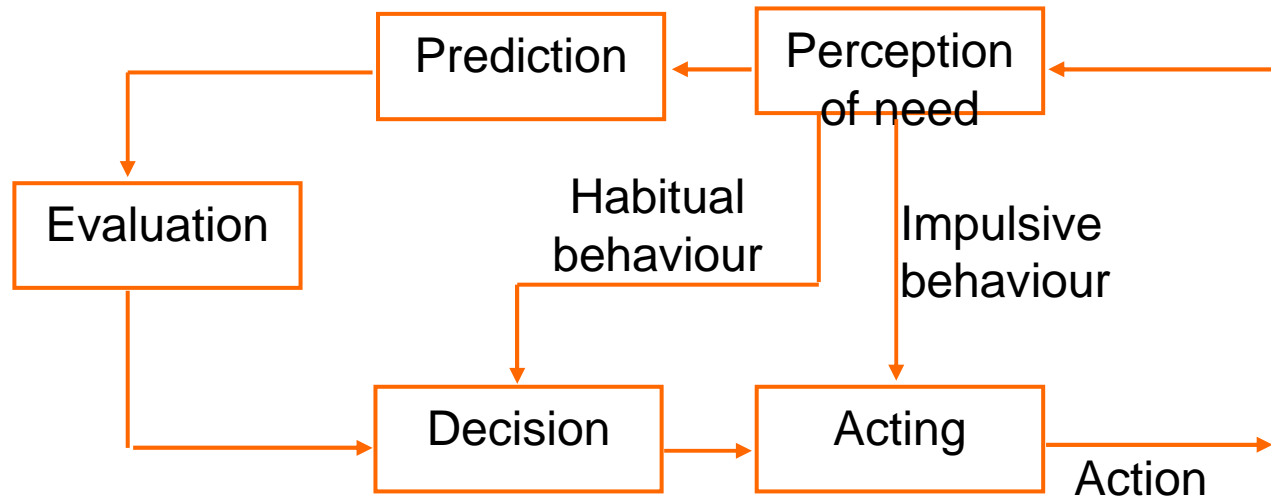
- Much of the time we run on 'automatic', only addressing habits when we are disturbed from that course, such as a need not being met.
- So, if a large & thirsty car becomes both unfashionable and unaffordable, we might change car model, but not the habit of driving.

drivers re-fill  
on a wet  
Friday night,  
as fuel  
reaches \$2/L



Manaaki Whenua  
Landcare Research

# Decision-making responses



- Habitual behaviour (e.g. commuting, shopping) follows a perception of need straight into a pre-decided action, with no prediction or evaluation steps involved in the decision.

Source: Types of decision making (Weggemans, 2004, as cited by Karlik-Neale, 2007)



Manaaki Whenua  
Landcare Research

# Behaviour change theories

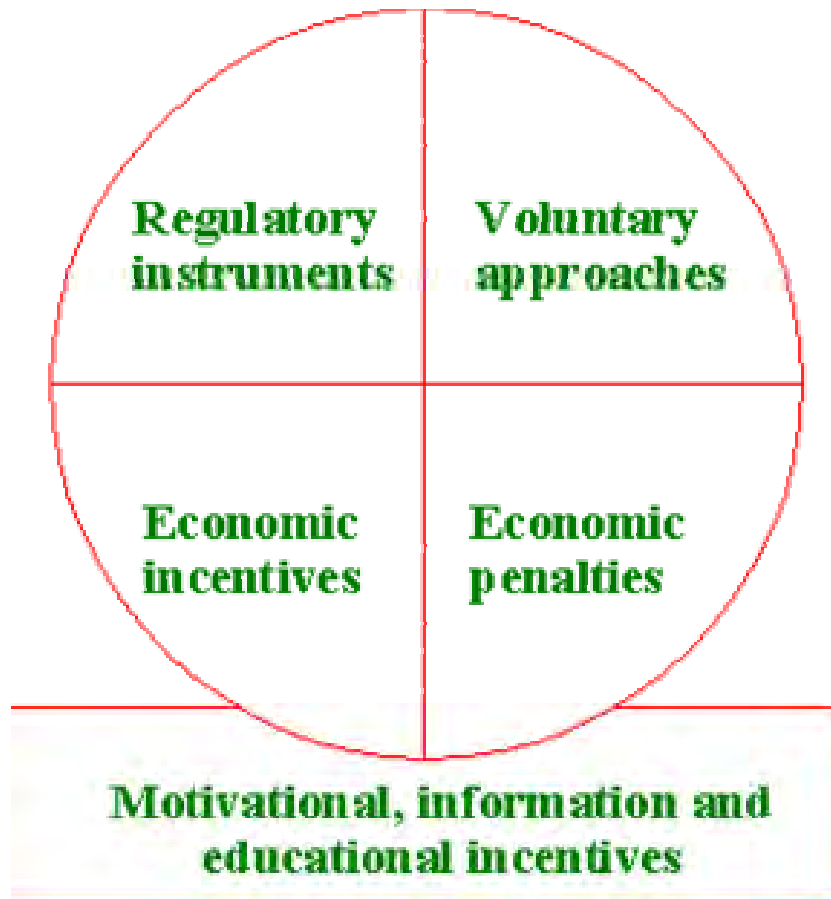
If no choice, when external forces prevail: e.g. fuel cost precludes much car use

Informed earlier adopters, making change voluntarily

	<b>Automated</b> <i>(high LNS, high BC)</i>		<b>Reasoned</b> <i>(low LNS, low BC)</i>	
<b>Individually determined</b> <i>(certainty, private, individualist CP, personal needs)</i>	<b>Repetition</b> - Classical conditioning theory - Operant conditioning theory  <b>'I GOT USED TO IT'</b>	(1)	<b>Deliberation</b> - Decision and choice theory - Theory of reasoned/planned behaviour (attitude and perceived control) <b>LEARN SOLO</b>	(2)
<b>Social determined</b> <i>(uncertainty, public visibility, egalitarian CP, social needs)</i>	<b>Imitation</b> - Social learning theory - Theory of normative conduct  <b>'I FIT IN WITH OTHERS'</b>	(3)	<b>Social comparison</b> - Social comparison theory - Relative deprivation theory - Theory of reasoned/planned behaviour (social norm) <b>GROUPS</b>	(4)

Table 5.4: A classification of eight major theories on human behaviour. LNS = level of need satisfaction, BC = Behavioural Control and CP = Cultural Perspective (based on Jager et al., 1997)

# Interventions to promote change



- Use a **mix** of the 4.
- Underpinned by motivation, education and social incentives



Manaaki Whenua  
Landcare Research



# Where could one intervene?

Government and interest groups could applied behavioural models to influence travel habits and choices:

Changing **satisfaction of needs by other travel modes** - by service improvement (e.g. comfortable, quick buses or trains), & new products or services (e.g. technology providing bus arrival information on demand to walkers' phones; rideshare systems).

Changing **the relative resource demands of modes** - e.g. limit car road space (bus lanes, cycle lanes, shared-car-only lanes); rising fuel prices.

Changing **the abilities of travellers** - less depreciation allowance on cars within business taxation, education on alternative modes; a safe 'lift home from work' for car sharers if stranded.

Changing **the perspective people have on need satisfaction**

- social influences on motivation to walk, cycle, bus/rail.



# Walking meets valid 'needs'

- **Participation** – it is potentially a social, interactive mode (main attraction of The Walking School Bus, for school children)
- **Freedom and Creativity** - see into houses and enjoy gardens, can change your pace and route spontaneously, call into shops, use mobile phone (handheld may soon be illegal in cars?)
- **Effective leisure** – contributes to fitness whilst you travel, and its free.



Manaaki Whenua  
Landcare Research

# Walking - Healthy exercise

- Humans need daily exercise such as walking, for heart fitness, bone strength, to resist diabetes and obesity.
- Car driving is also stress-generating (adrenaline, without 'flight or fight')
- Fewer cars = less fumes, less noise



Manaaki Whenua  
Landcare Research

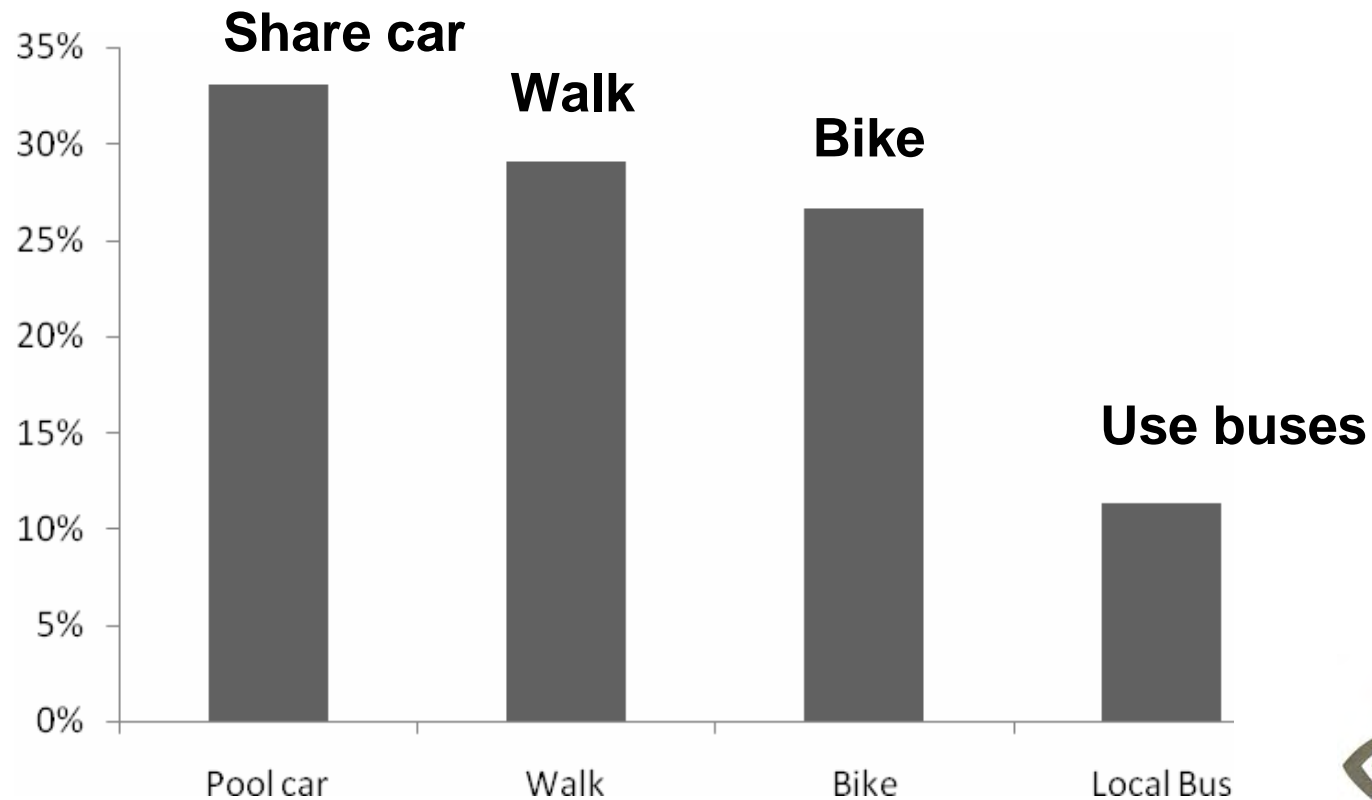
# A community 'education for sustainability' programme

- Since 2001. National support with tutor & learner materials on 8 topics, inc. **travel**.
- Delivery through high schools, district and regional government; MfE supported.
- Annual update on CD.
- Backed by research.
- Newsletter & website:

[www.sustainableliving.org.nz](http://www.sustainableliving.org.nz)



# After Sustainable Living course

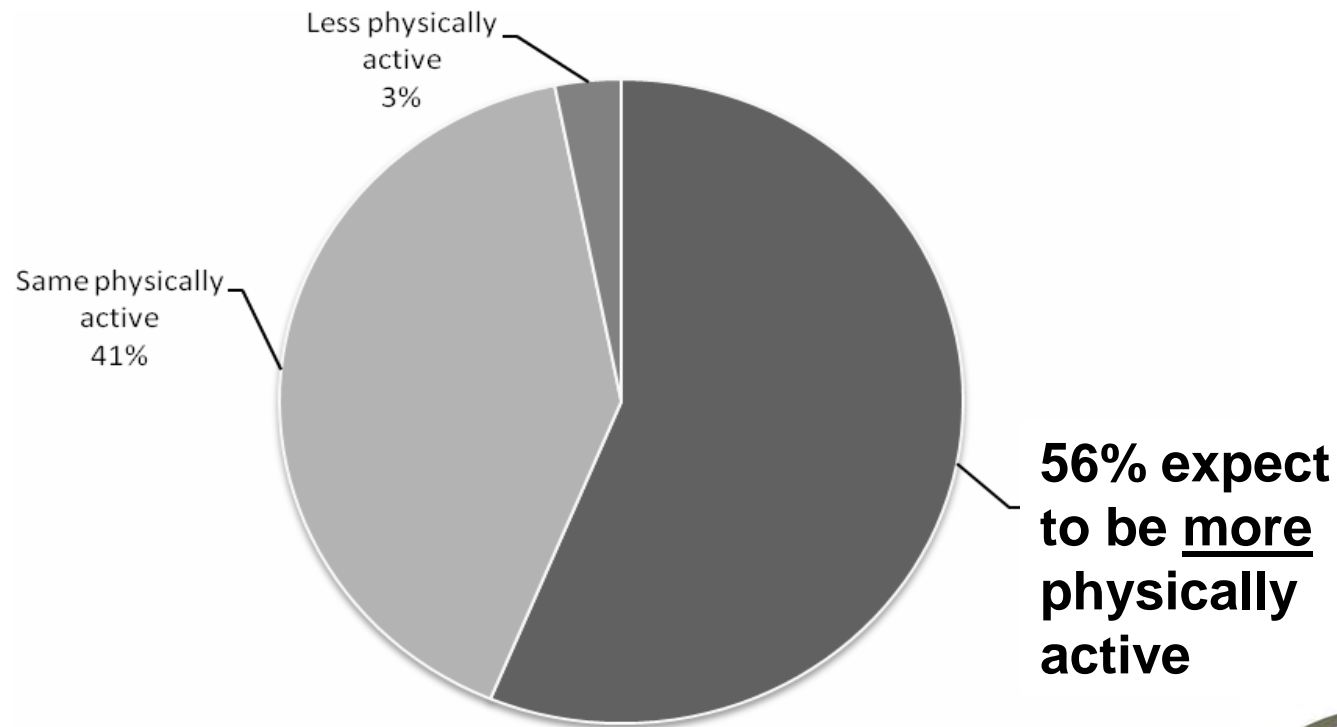


Transport – related actions chosen after 2007 SLP courses as ‘self reported’ through participant questionnaires.



Manaaki Whenua  
Landcare Research

# Activity level in next six months?



Anticipated activity in the 6 months after completing a 2007 Sustainable Living course – self reported on questionnaire



Manaaki Whenua  
Landcare Research

# Participant follow up survey

- Sample survey of 2006-7 Sustainable Living course participants, made in 2008 by phone (actions still self-reported, so may exaggerate?)
- Results: Car use reduced for short journeys, more trip-combining, more walking, more use of cycles, small extra use of public transport.
- 2008 fuel price rises “a good motivator” to now apply knowledge from course.



Manaaki Whenua  
Landcare Research

# Many programmes seek to affect 'internal' (behavioural) factors

- (Perth, Aus.) Individuals' trip planning, Travel Smart. (NZ) Eco-Kiwi travel planning visits.
- (NZ) Workplace travel planning, EECA
- Pledges? The Low Mileage Communities (USA) model adds together individuals into a neighbourhood commitment and tackles the 'tragedy of the commons/freeloader' issue.
- (UK) Carbon Reduction Action Groups as a value-led, measurement approach.
- (NZ & Aus) Sustainable Living courses, (UK & Holland) Global Action Plan.



Manaaki Whenua  
Landcare Research



# Reviewing overseas experiences

- The most commonly offered interventions will: provide information, explain consequences, offer exemplars, role models or champions.
- But, the most effective approaches: engage to prompt action practice, set specific goal or contract, encourage reflection/review/discussion.
- The least effective approaches were to induce regret or arouse fear. Guilt from using car does not make you a walker!



# Overseas experiences agree:

- Exemplify the changes sought in Project
- Enable them by tackling institutional, home or other barriers that now deter change
- Engage people learning to change, via social process; aim to connect with their needs
- Encourage by economic and social incentives, 'contracts/pledges', reminders, & the celebration of success.



Manaaki Whenua  
Landcare Research

# Closing the Value-Action Gap

- For those with higher income and education, undertaking new behaviour depends on having 'locus of control': believing that you can make a difference in your own life (and maybe towards social capital of community, or for ecosystem)
- Until social norms move, as they have done for public recycling, for others it takes courage to change ahead of the crowd. Social influencers (= early adopters) help get this started, so intervene there first?



Manaaki Whenua  
Landcare Research

# Change in a 'messy' world

- Often there's not a single best course of action. Trade-offs and compromises required (e.g. using a car to take bulky items for recycling.)
- People need to feel that they have competence (incl. good information) and confidence to act in new ways – social learning supports this.
- Money saving & health are change motivators.
- But, commercial world may undermine, e.g. 'green' ad claims by car makers.
- And alternative modes must be visible.



Manaaki Whenua  
Landcare Research

# Infrastructure: the external context of a person's change of habit

- To create change in a majority, beyond the early adopters, the barriers of lack of mode choice, infrequency of bus & rail, walker/bus user discomforts, safety, and affordability (compared to formerly cheap motoring) need to be tackled alongside behavioural influencers.



Free city bus, crossing lights, bio-diesel bus with cycle carrier.



# References

- Bruce James et al, Increasing Walking Trips through TravelSmart Individualized Marketing. World Transport Policy & Practice, Vol 7, No.4, 2001. pages 61-66
- Andrew Darnton, Driving Public Behaviours for Sustainable Lifestyles, 2004 for Defra, UK
- Defra/ONS Quality of Life Survey 2002 UK
- Research New Zealand (for MfE), Special Report - the General Public's views on 'sustainability', Wellington, Sept 2007 (survey of 500 over 15's across NZ, July 2007)
- Jager, Wander et al 1997
- Anja Kolmuss & Julian Agyeman August Mind the Gap in Environmental Education Research Vol 8, no 3, August 2002
- Zeibots M.E. 2003

## Signs of the times?

