



# Public Health at Otago.

POSTGRADUATE



CHRISTCHURCH

## Social Impacts of Mode Shift

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# Background

- Waka Kotahi (NZTA) proposing a series of measures aimed at mode shift in six high growth urban areas
- Focussed around three different policy levers:
  - Shaping urban form
  - Making shared and active modes more attractive
  - Influence travel demand and transport choices
- Our current transport system is unfair
- Reducing car dependence will lead to a more sustainable and equitable transport system
- BUT, the way in which this happens is important

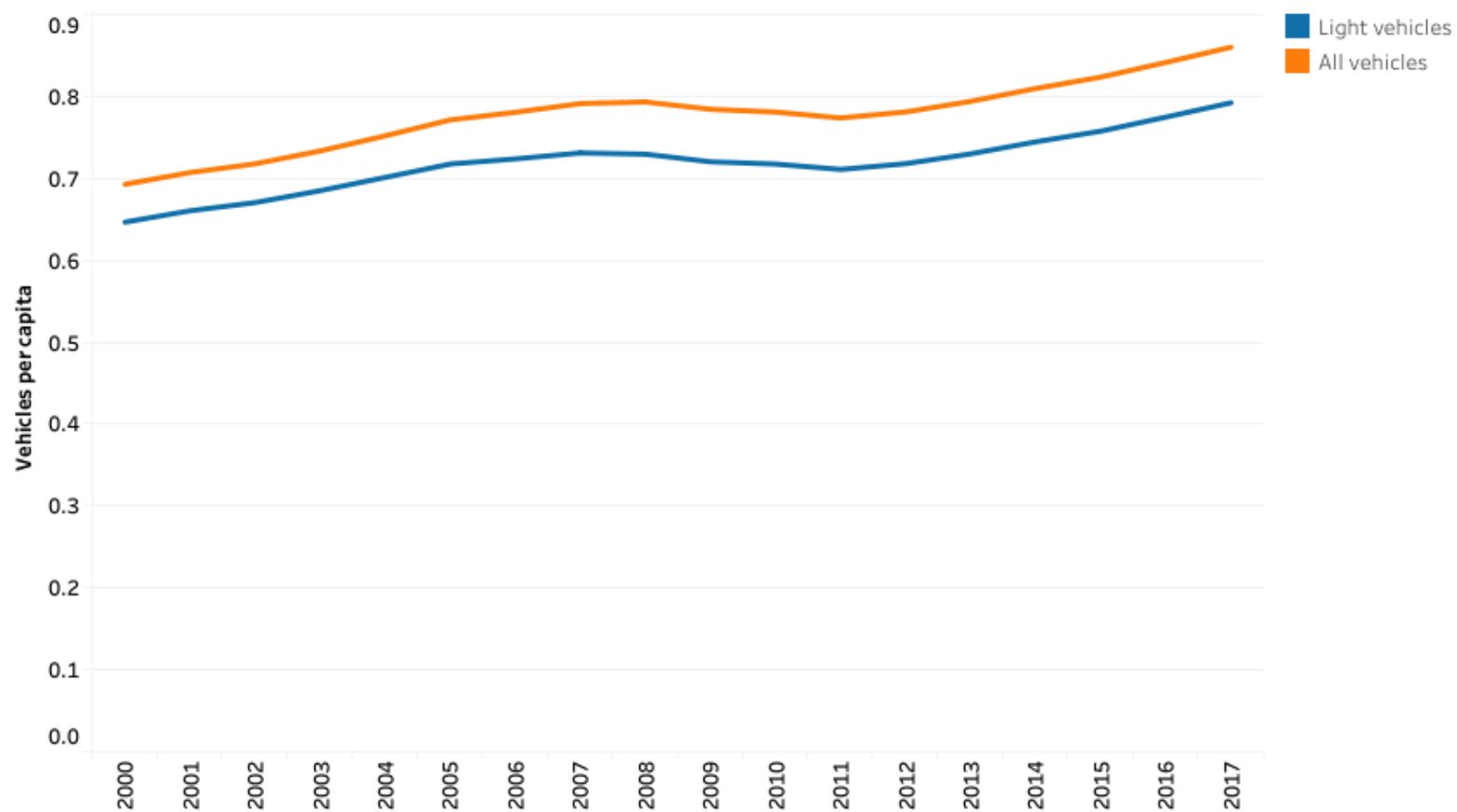
*Starting from a blank slate, one would be hard pressed to design a less efficient, less healthy and more socially and environmentally destructive system for moving people around (Jones 2008).*

# Research Objectives

The specified objectives for the research were to:

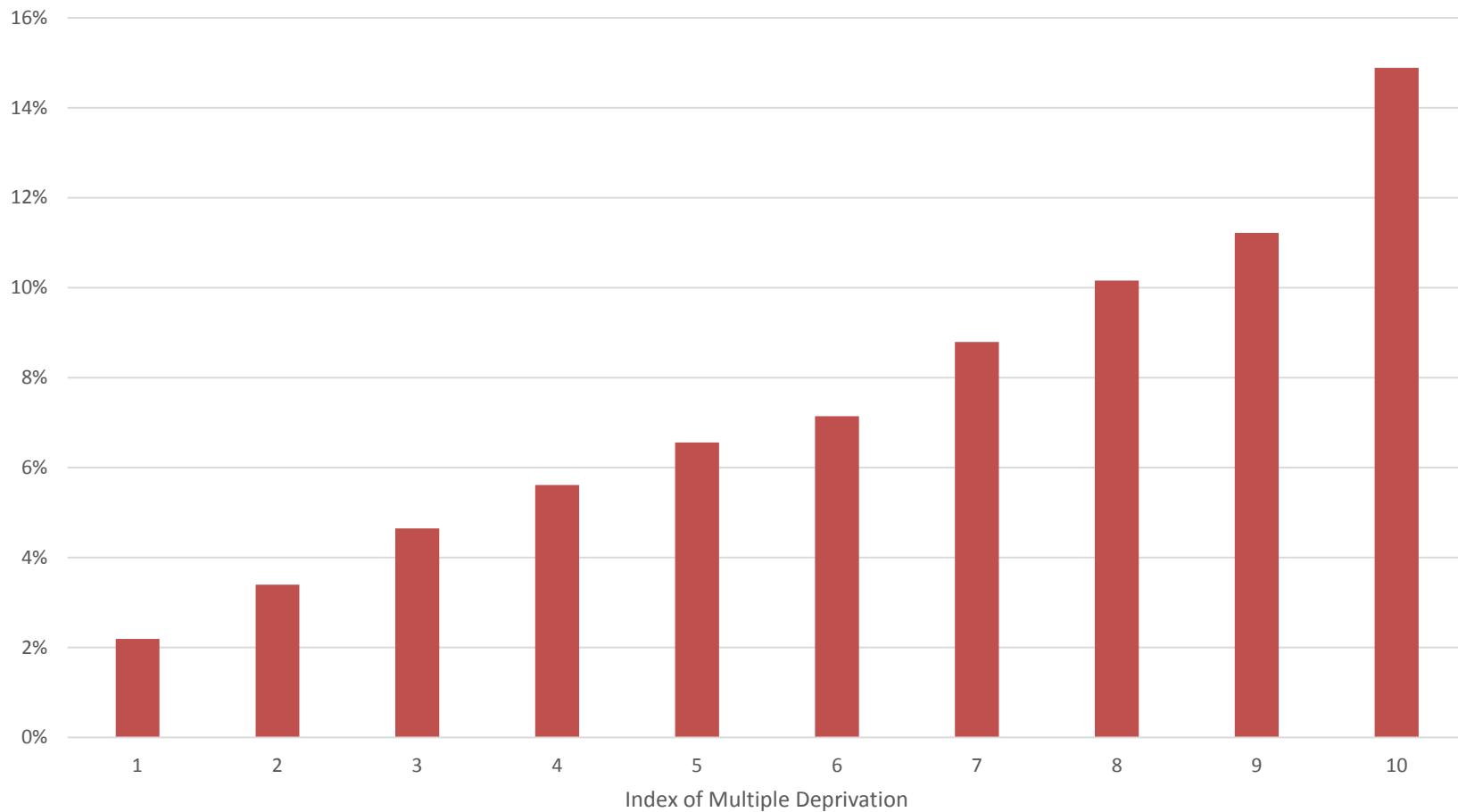
- consider and describe the potential impact of policy levers to encourage people to change modes from an equity perspective
- provide an assessment of the impact on people with different income levels and geographical/residential distribution
- outline what, if any, primary research is required for determining the social impact assessment of mode shift and the most appropriate method for this.

### RD027 - Vehicle ownership per capita

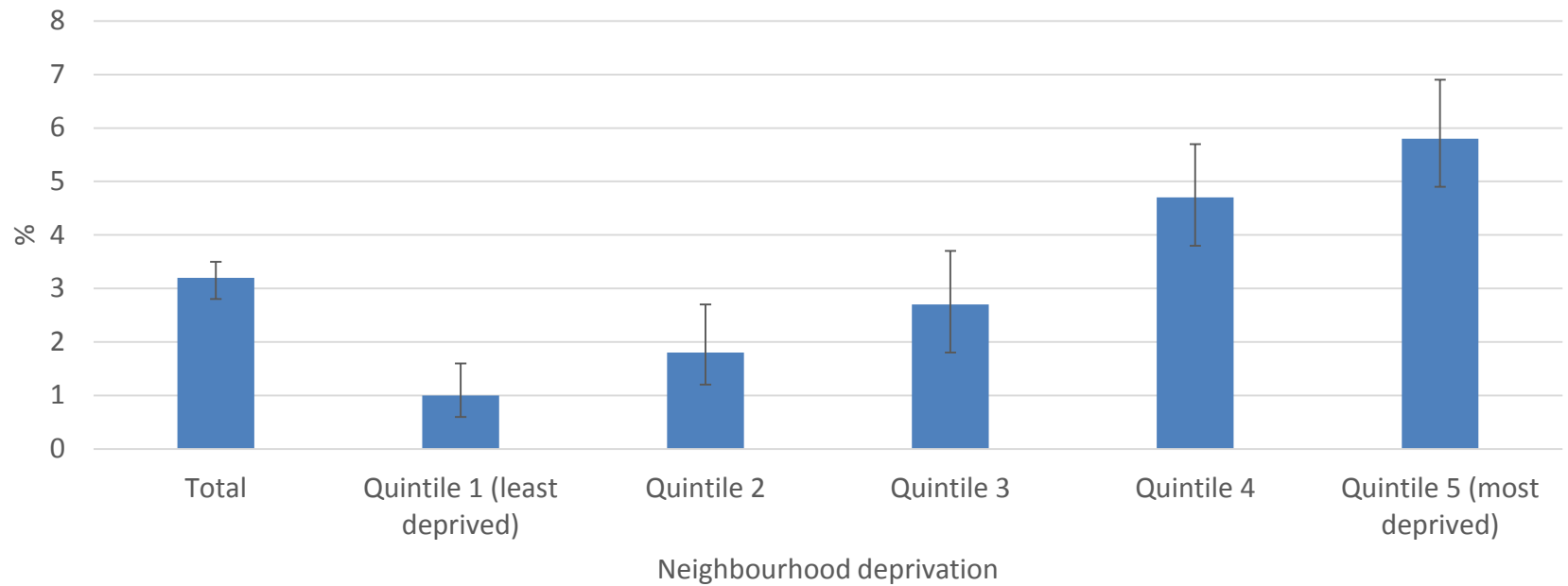


Source: NZ Transport Agency Motor Vehicle Register, Stats NZ (population)

## Households with no car

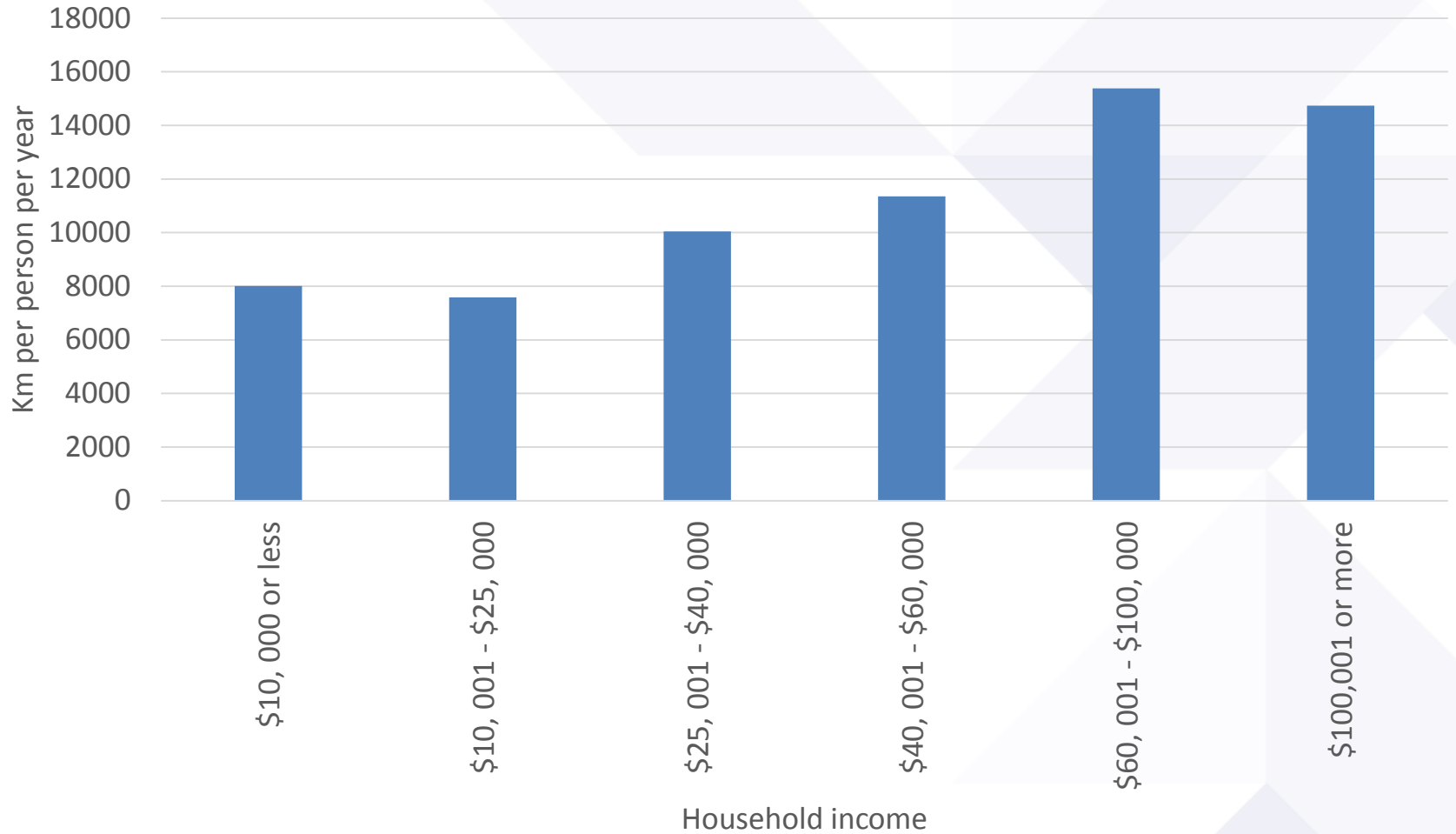


## Unmet need for GP due to lack of transport in last 12 months: Deprivation



(source: Ministry of Health, re-use licensed under Creative Commons Attribution 4.0 International Licence)

## Distance travelled by car or van



Source: New Zealand Household Travel Survey





### Inclusive access

Enabling all people to participate in society through access to social and economic opportunities, such as work, education, and healthcare.

### Economic prosperity

Supporting economic activity via local, regional, and international connections, with efficient movements of people and products.

### Healthy and safe people

Protecting people from transport-related injuries and harmful pollution, and making active travel an attractive option.

### Environmental sustainability

Transitioning to net zero carbon emissions, and maintaining or improving biodiversity, water quality, and air quality.

### Resilience and security

Minimising and managing the risks from natural and human-made hazards, anticipating and adapting to emerging threats, and recovering effectively from disruptive events.



A transport system that improves wellbeing and liveability

# Social Impact Assessment in Transport

- Traditional transport appraisal methods have prioritised mobility over accessibility
- Broader social impacts are not well accounted for
- Environmental and economic impacts have been better integrated
- Omitting social impacts draws into question investment decisions predicated on social outcomes

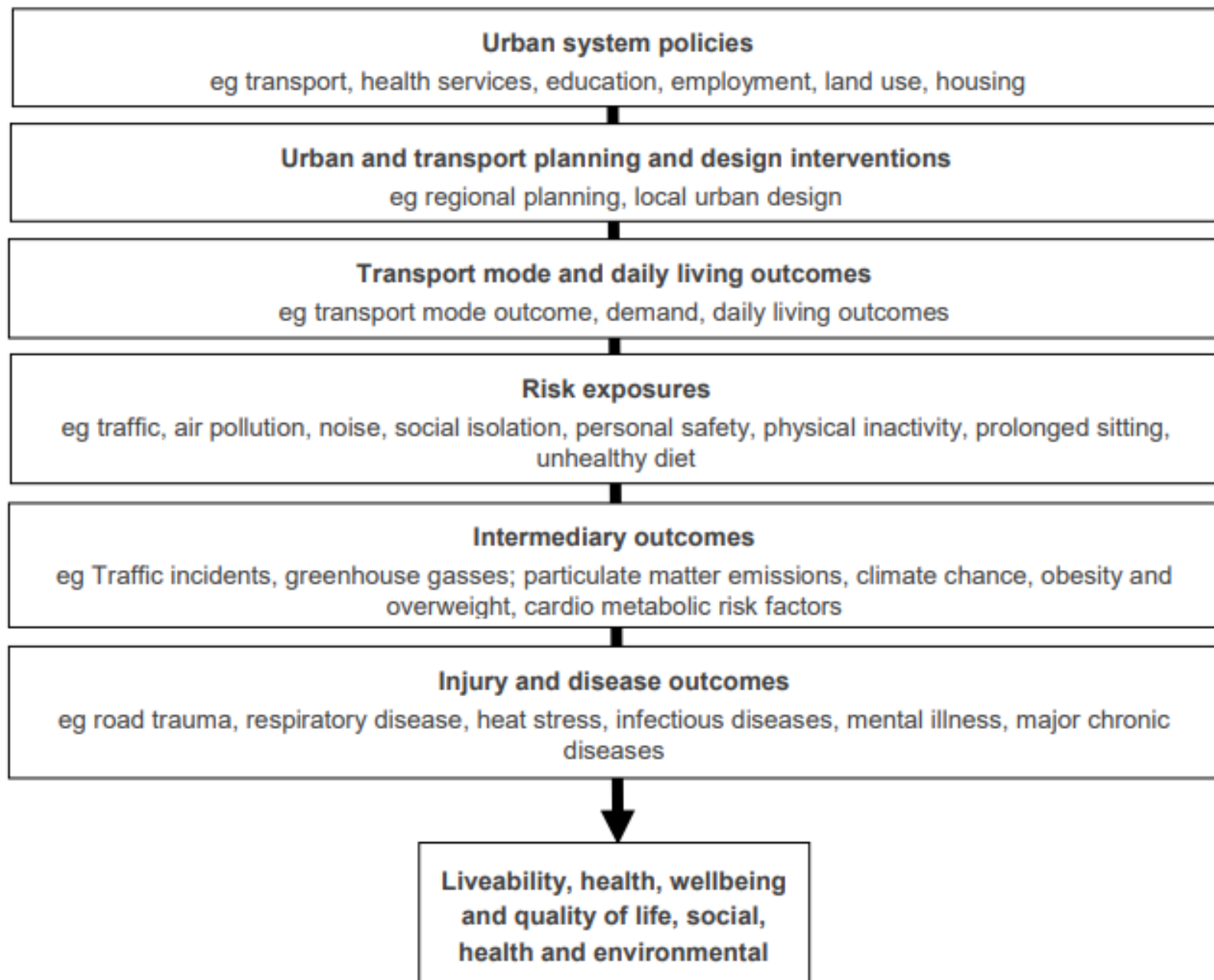
(Searle & Legacy, 2019; Mottee & Howitt, 2018)

- Social impacts are positive too!



# Methods

- Review of existing literature, focussed on studies that either:
  - Outline the social impacts of transport for different social groups
  - Examine the social impacts of policy levers
  - Examine the impacts of policies of different groups



### **Transport-related resources**

- Access to transport resources facilitates the capability to access employment, education, healthcare, recreation, and so on.
- Measuring how transport resources (the means) are distributed amongst the population, describes what people, in the same circumstances could do, but it does not predict how these resources enable different individuals participate in society.
- It is important to consider how transport resources translate into opportunities (or risks) for different groups of society.

### **Opportunities and risks**

- Capabilities depend on the attributes of both individual transport users (including their transport resources) and their environment, and corresponds to both social and spatial accessibility.
- Accessibility is the main way in which transport resources are translated into opportunities.
- Risks, such as pollution, traffic safety and health should also be considered.
- Opportunities and risk influence behaviours (or transport outcomes).

### **Outcomes**

- Observing people's daily travel behaviour measures what people actually do, rather than their capabilities to do the essentials to participate in society and for survival.
- Negative outcomes related to transport might include respiratory disease, or the road toll.

### **Subjective wellbeing**

- Ultimately, all transport policies influence the subjective wellbeing of populations.
- This is best measured by how individuals perceive their wellbeing.

# Mode Shift Policies

- 1) Shaping urban form
- 2) Making shared and active modes more efficient
- 3) Influencing travel demand and transport choices

**Keeping Cities Moving (NZTA)**

**Better Travel Choices (Auckland Council)**

Bay of Plenty Regional Mode Shift Plan

Hamilton-Waikato Metro Area Mode Shift Plan

Wellington Regional Mode Shift Plan

Greater Christchurch Regional Mode Shift Plan

Queenstown Lakes District Mode Shift Plan



# Shaping Urban Form

	Social impacts			Distributional impacts		
	Transport resources	Risks and opportunities	Outcomes and wellbeing	Income	Location	Ethnicity
<b>Spatial and place-based planning</b>	Reduced need for transport resources	Improved access to opportunities Reduced exposure to risk	Reductions in overall travel Increased active travel and social connectedness	Can reduce housing and transport costs Can increase property values (gentrification)	Can impact on housing and transport costs Can reduce travel distances and need to travel	Can lead to displacement Opportunity for incorporating cultural values and identity in design
<b>Policy and regulatory settings</b>	Easier to walk and cycle, public transport More difficult to drive	Reduced exposure to risk (safety and severance)	Fewer road traffic injuries Improved social connectedness	Can reduce safety risk in deprived areas	Can reduce safety risk in deprived areas	Regulations may lead to discrimination



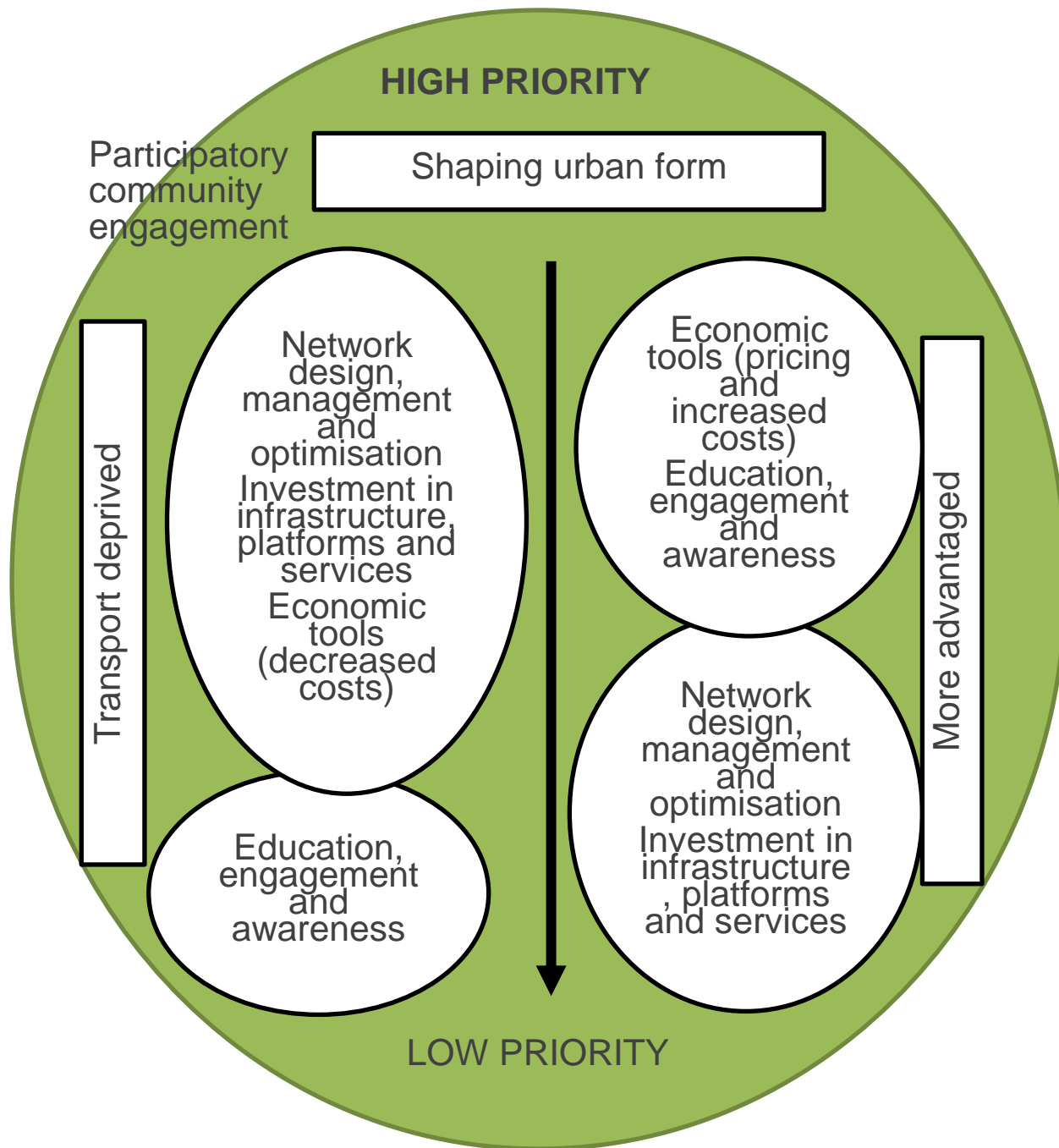
# Making shared and active modes more attractive

	Social impacts			Distributional impacts		
	Transport resources	Risks and opportunities	Outcomes and wellbeing	Income	Location	Ethnicity
<b>Network design, management and optimisation</b>	May change access to PT. May change need to travel	Changes to network design impact on accessibility to opportunities. Street design can reduce pedestrian injury	Can lead to more active transport	Optimisation can remove coverage from low income areas. Safety improvement can benefit lower income areas	Optimisation may reduce rural services	May benefit from targeted safety programmes
<b>Investment in infrastructure, platforms and services</b>	Can improve access to transport networks. New infrastructure may increase cost	Can reduce injury for pedestrians and cyclists. Can increase access to opportunities	Walking and cycling infrastructure can increase physical activity. PT infrastructure can lead to shifts from active modes	May cause displacement (gentrification). AT infrastructure can increase walking and cycling and access to opportunities	Rural areas may not benefit from PT or AT investment	May cause displacement (gentrification)



# Influence travel demand and transport choices

	Social impacts			Distributional impacts		
	Transport resources	Risks and opportunities	Outcomes and wellbeing	Income	Location	Ethnicity
<b>Economic tools (pricing and incentives)</b>	Impacts the cost of travel	May change access to opportunities	Public transport subsidies can increase trips, disincentives to car use can improve health	Can cause financial stress	Peripheral areas may lack car alternatives	Impacts depend on design
<b>Education, awareness and engagement</b>	Can support skills development	Can broaden access to opportunities through enhanced skills	Can help road safety and confidence with active travel May have limited impact	May benefit most advantaged	Peripheral areas may not be included	Targeted programmes can address inequities



# Recommendations for mode shift policy

- Prioritisation of mode shift policies to promote positive social impacts and equitable transport policy
- Participation and partnership in decision making
- Rights and needs based approaches
- Reducing overall travel
- Funding, appraisal, evaluation and longer term perspectives

# Final Report



## Social impact assessment of mode shift

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NZ Transport Agency research report 666  
Contracted research organisation – University of Otago

- <https://www.nzta.govt.nz/assets/resources/research/reports/666/666-Social-impact-assessment-of-mode-shift.pdf>

