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STRATEGIES FOR BALANCING URBAN TRANSPORT SHARE TO IMPROVE MOBILITY AND REDUCE ROAD CONGESTION

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Shift in thinking, shift in modes

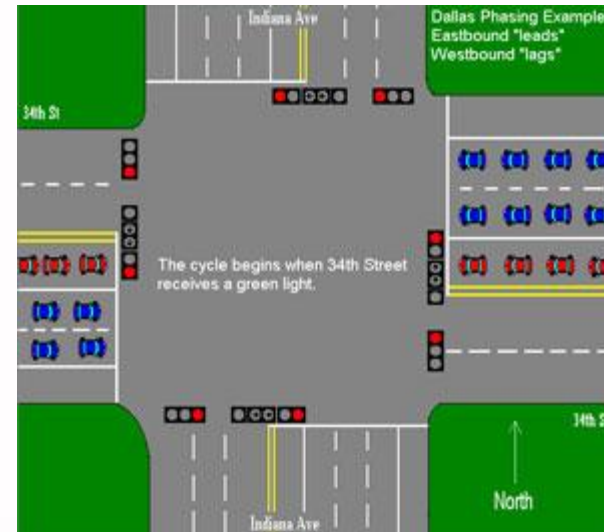


What is optimisation?

How to optimise the movement of this traffic?



Traditional approach – traffic modelling to optimise vehicle flow



What is optimisation?

How to optimise the movement of this traffic?



Shift in thinking, shift in modes



Demand for travel exceeds supply = congestion



How have we reached this point?

- Population growth
- Movement from rural to urban
- Inability to keep up with rate of growth
- Increasing levels of car ownership and affluence
- Greater demand for goods and goods movement per capita
- Our own road management strategies having flow-on effects



..and it's only going to get worse

2008



2035



What is the goal of transport system management?



One big goal: Quality of life

Four sub-goals:

- Fulfilling mobility needs
- Increased road safety
- Improved cost effectiveness
- Environmental sustainability



TCB.3 Improved Mobility in Urban Areas / Mejorando la Movilidad en Áreas Urbanas

WORKING GROUP 1

- Integration of the different modes of transport. Study strategies for balancing the share of urban transport modes to reduce congestion and improve mobility – by reviewing case studies leading to guidance for road administrations

GRUPO DE TRABAJO 1

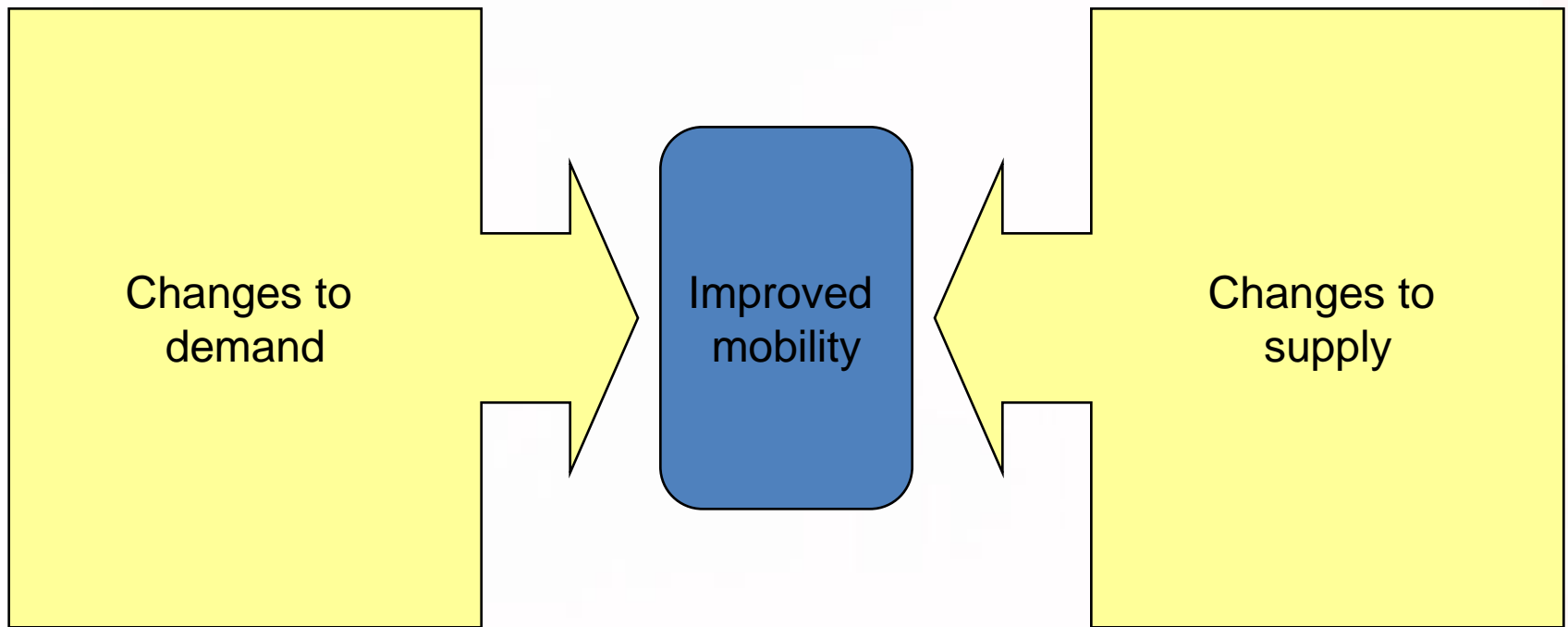
- Integración de los diferentes modos de transporte. Estudiar estrategias para balancear la parte de los diferentes modos de transporte para reducir la congestión y mejorar la movilidad – basándose en la revisión de casos de estudios que conducen a las direcciones de administración de caminos.

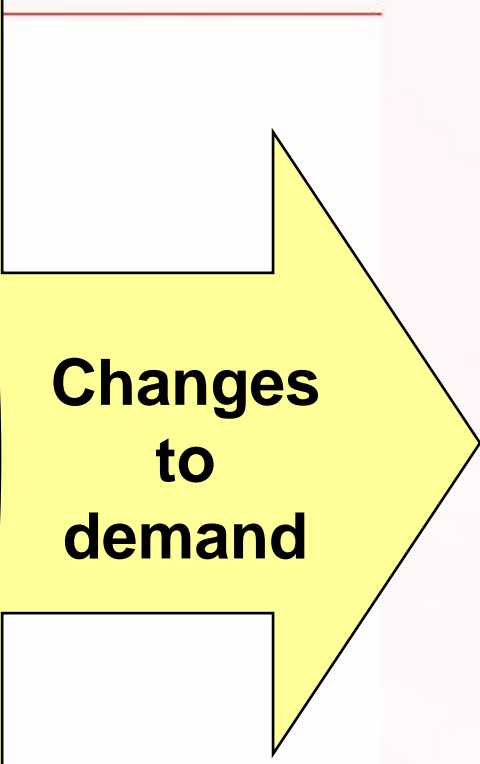
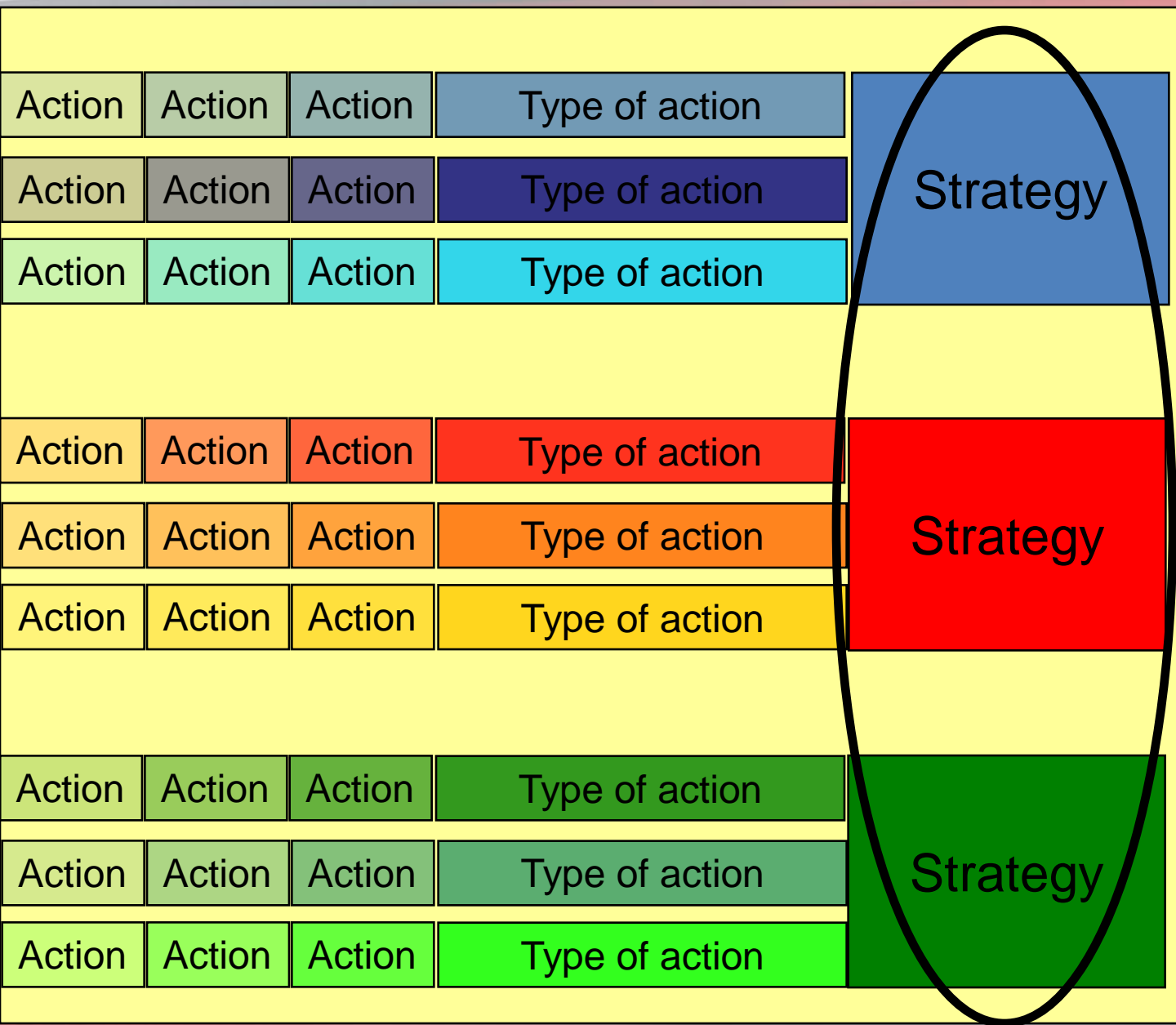


People Balancing Act



Levers for improved mobility



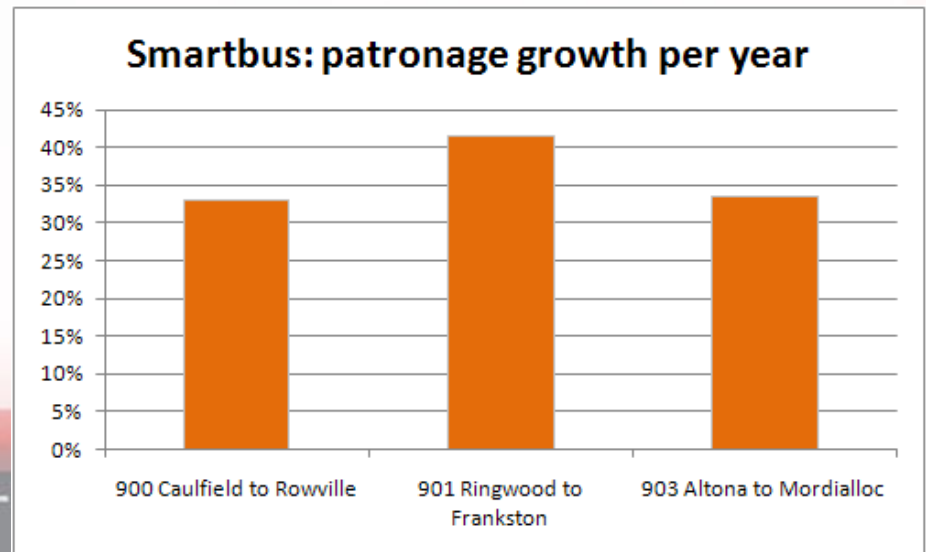


Five Demand Strategies

- Promoting public transport
- Promoting cycling
- Promoting walking
- Promoting intermodality
- Influencing car demand



Promoting public transport



What did the case studies tell us?

- Types of promotion of public transport included:
 - Mexico City Metrobus
 - BRT in Istanbul
 - Osaka PT promotion
 - PT networks in Portland



Mexico City Metrobus

- Second bus rapid transit line opened 2008
- Halved commuting time for its 450,000 passengers, mode shift of 6 per cent from private car to BRT



Bus Rapid Transit in Istanbul

- 41 km of D-400 motorway given over to BRT
 - 750,000 passengers per day
 - average speed of 39 km/h
 - reducing a trip of up to 3 hours by car to 30 minutes by BRT



Osaka PT promotion

- Osaka has taken longer-term measures to promote public transport
 - 20th of every month – no private car day
 - Unlimited ride ticket flat fare used on that day and also every Friday
 - Special campaigns very successful in attracting more users (eg weekend and holiday fares)
 - SmartCard with reward system
 - School education program



Portland, Oregon

- Investment in light rail, bus and street car (Tri-met) has resulted in a 45 per cent increase in ridership in 10 years to 2007



Promoting cycling

- Bicycle rental – two of the biggest schemes
Velib, Paris & Bicing, Barcelona



Promoting cycling – rental schemes



- Paris Velib
- 2001: 1 per cent cycling mode share
- 2007: 2.5 per cent cycling mode share
- Note: cycling infrastructure also improved!



Promoting cycling – rental schemes

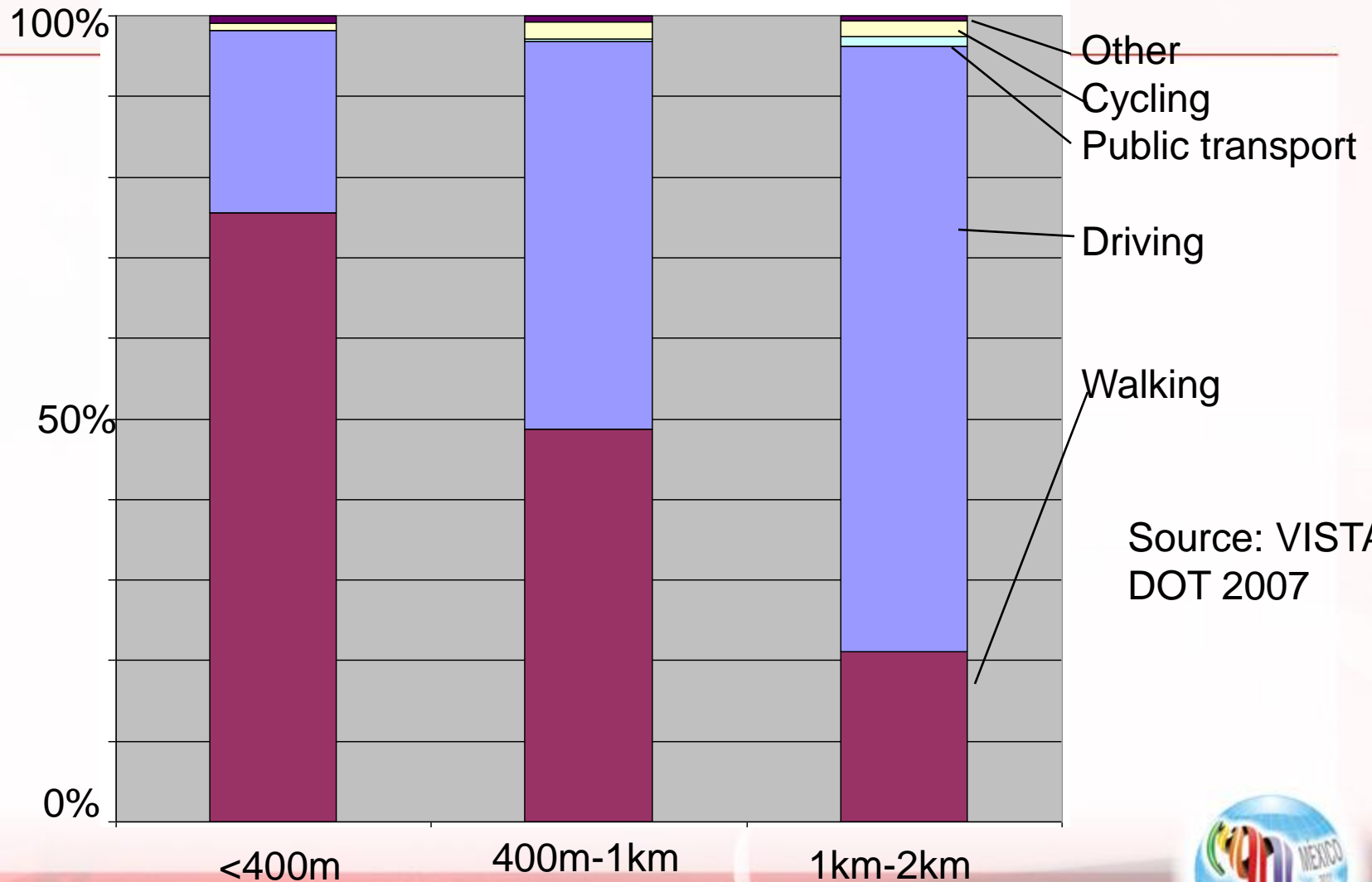
- Barcelona Bicing
- 2005: 0.75 per cent cycling mode share
- 2007: 1.76 per cent cycling mode share
- Note: cycling infrastructure also improved!



Promoting walking



Walking trips less than 2km



Source: VISTA, DOT 2007



Promoting intermodality

- Two main types of intermodality
 - Involving parking
 - Not involving parking
- Principles of good modal interchanges
 - Easy to navigate (wayfinding)
 - Good timetabling of connecting services
 - High quality urban design and waiting facilities
 - Minimal walk needed between modes



Promoting intermodality

- Heavy rail in centre of Kwinana freeway in Perth, Australia with stations
- Bus services interchange with stations
- Park and ride at stations, integrated with freeway design
- Truly intermodal!



Murdoch Station Perth, Australia

1/12/2010

Railway line
Freeway



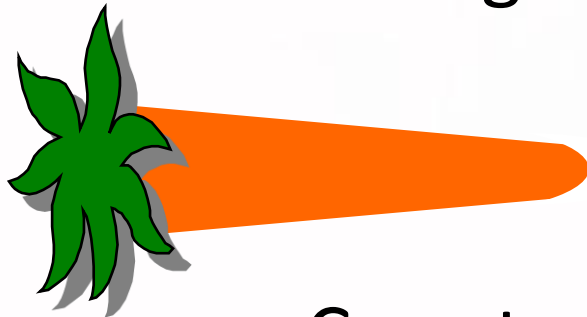
Murdoch Stn

Bus interchange

Parking

A word on promotion

- Programs to encourage people to change have been introduced in many sectors worldwide
- What are the options open to us to encourage change?



Carrot



Stick

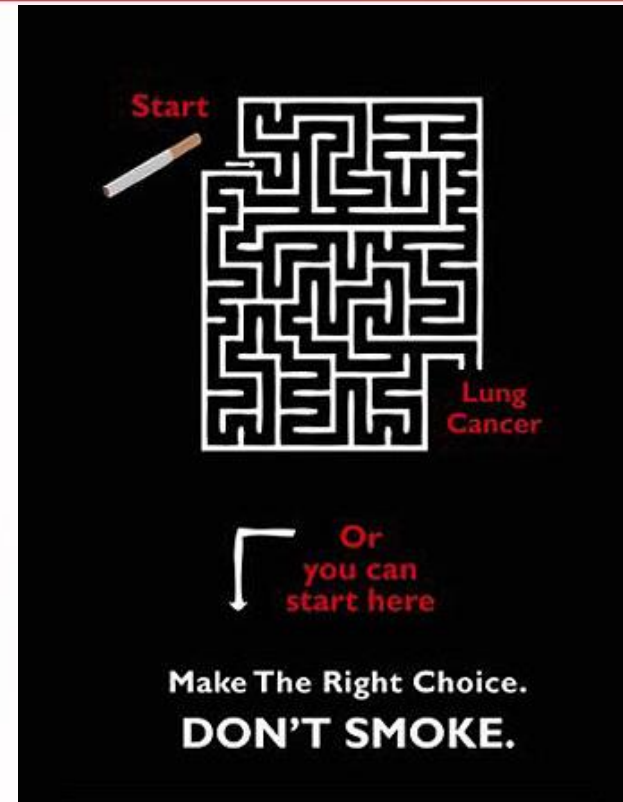


Here are some “do less” encouragements....

- Waste reduction



- Water reduction



- Discouraging smoking



Some “sticks” for the same issues....

- Waste reduction
 - Levies on waste disposal
 - Charges for plastic bags in shops
- Water reduction
 - Incremental charging rates that penalise higher use
 - Regulation of days you are allowed to water plants
- Discouraging smoking
 - High taxes on cigarettes
 - Banning smoking in public places



Influencing car demand (5th demand strategy)

- Ways to help people decide not to drive their car include
 - Positive encouragement
 - Negative discouragement

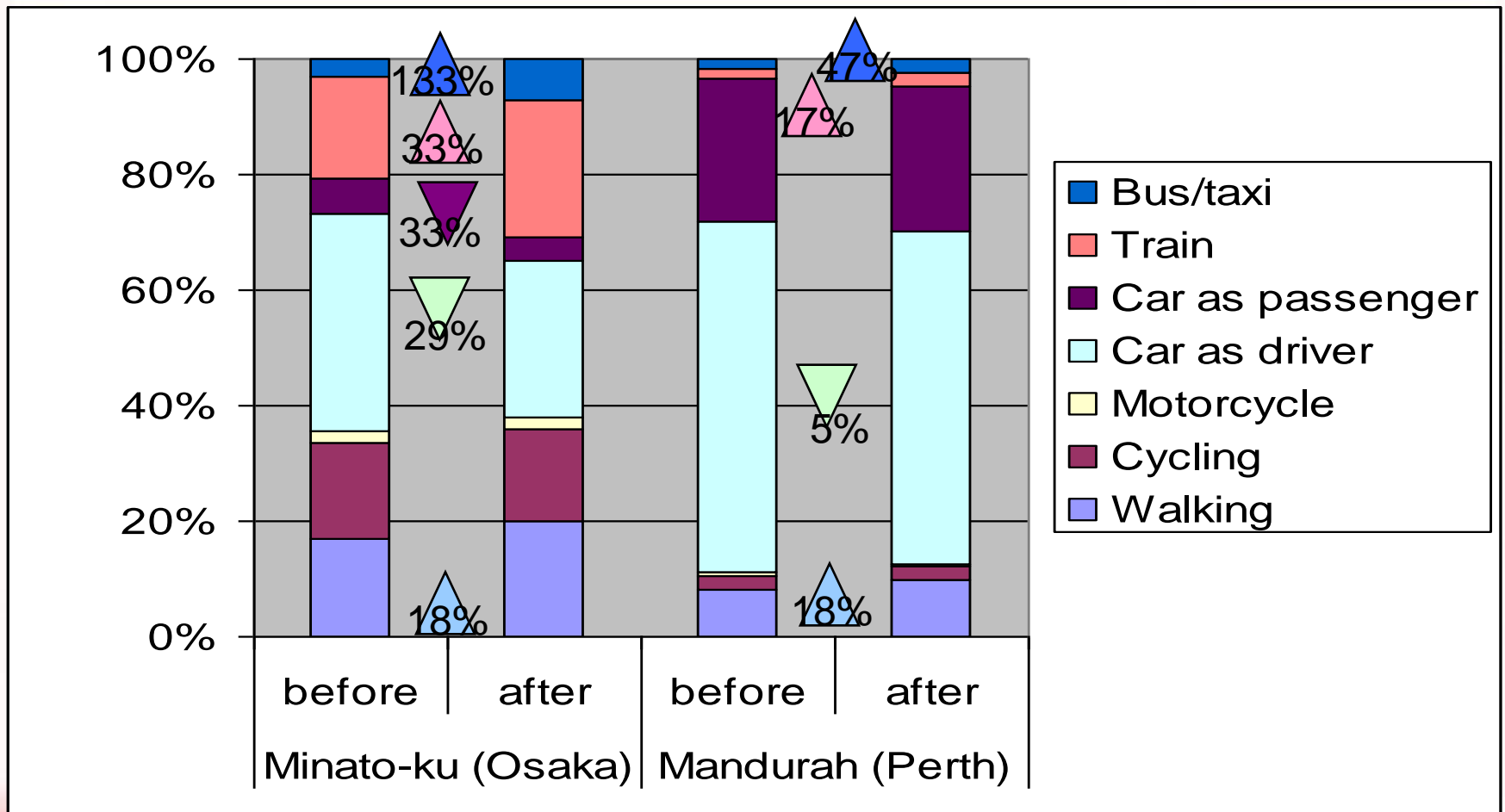


Influencing use of car with better information

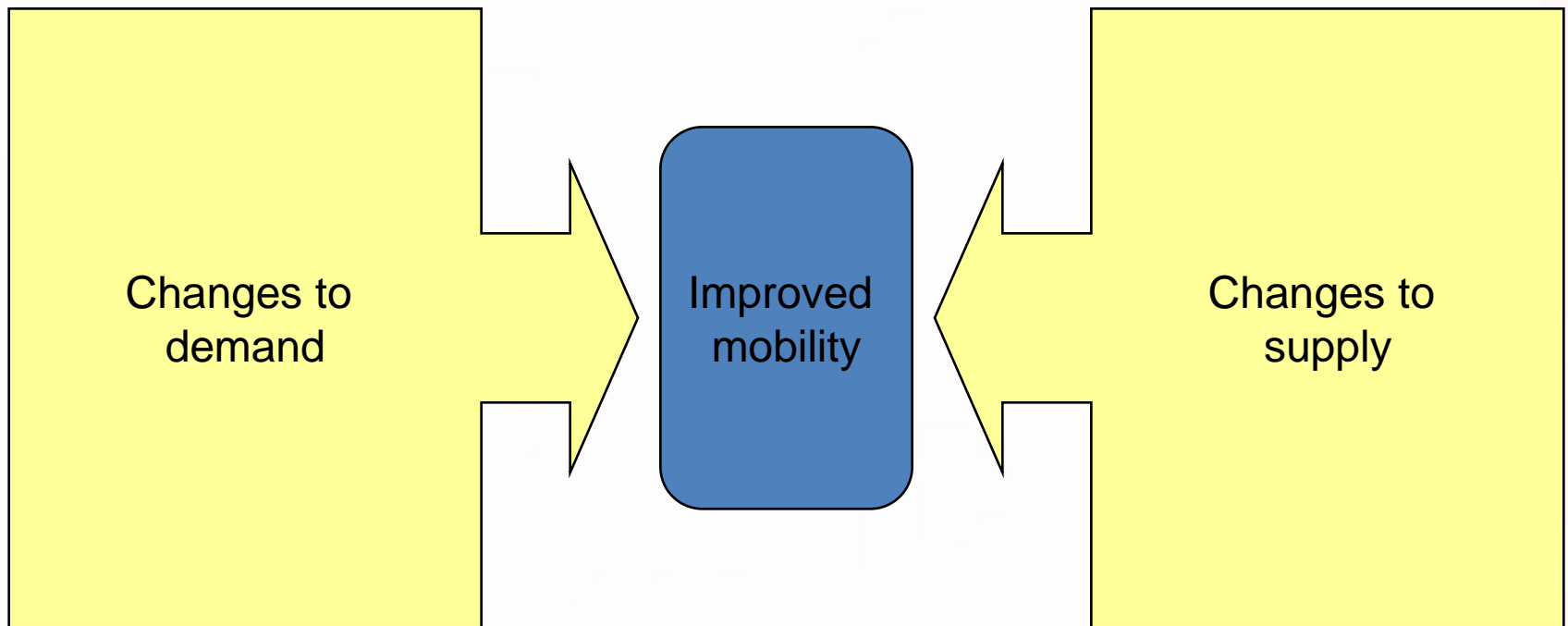
- TravelSmart in Mandurah, Perth
- Mobility Management in Minato-ku, Osaka
- Both schemes featured:
 - Travel survey
 - Travel options information and education
 - New travel survey
- Mandurah was 2008 compared to 2010
- Minato-ku was 2006/7



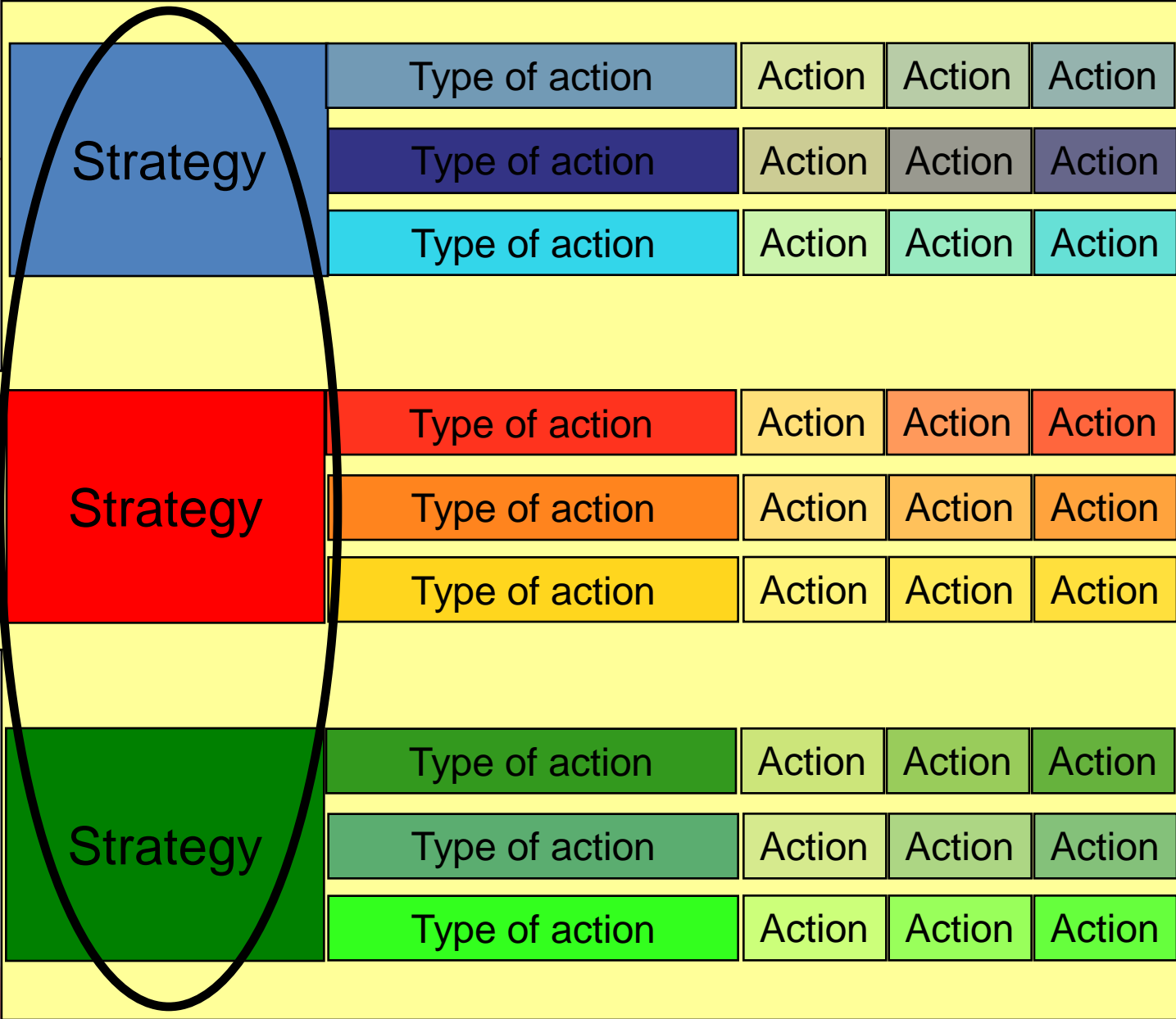
Changes in mode resulting from travel behaviour change programs



Levers for improved mobility



**Changes
to
supply**



Supply-side strategies

- Organising roadworks to have the least possible impact



- Better incident management



- Fitting more people into the same number of vehicles (e.g. HOV/HOT lanes)



Supply-side strategies

- In place since April 2008
- 8 min saving in morning
- 3 min saving in afternoon
- Toll \$1.25 for SOV
- Being extended to improve afternoon operations



- Fitting more people into the same number of vehicles (e.g. HOV/HOT lanes)



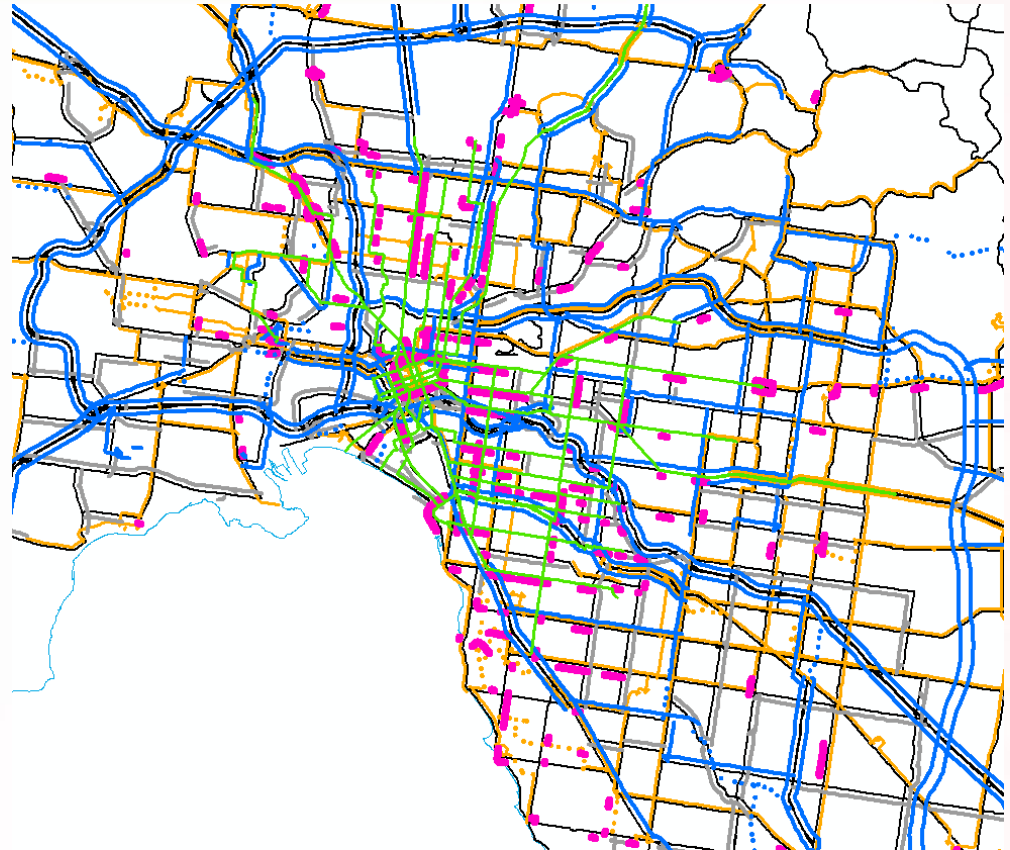
Supply-side strategies

- Limiting parking permitted on roadway
- Dealing with illegally parked vehicles promptly and effectively



Supply-side strategies

- Having a coordinated approach to traffic signal and road space management. Which mode, and which direction, gets priority when? – part of a big picture plan.



Advice to authorities

- What is the ultimate goal? Mobility or congestion management?
- How does achieving these goals coincide with also achieving other goals (e.g. emissions reduction, place making, social equity) and how would that affect decision making?
- Taking the demand and supply strategies in turn, what “levers” can you influence alone?
- Road space reallocation – a specific road authority responsibility



Rethinking road space allocation

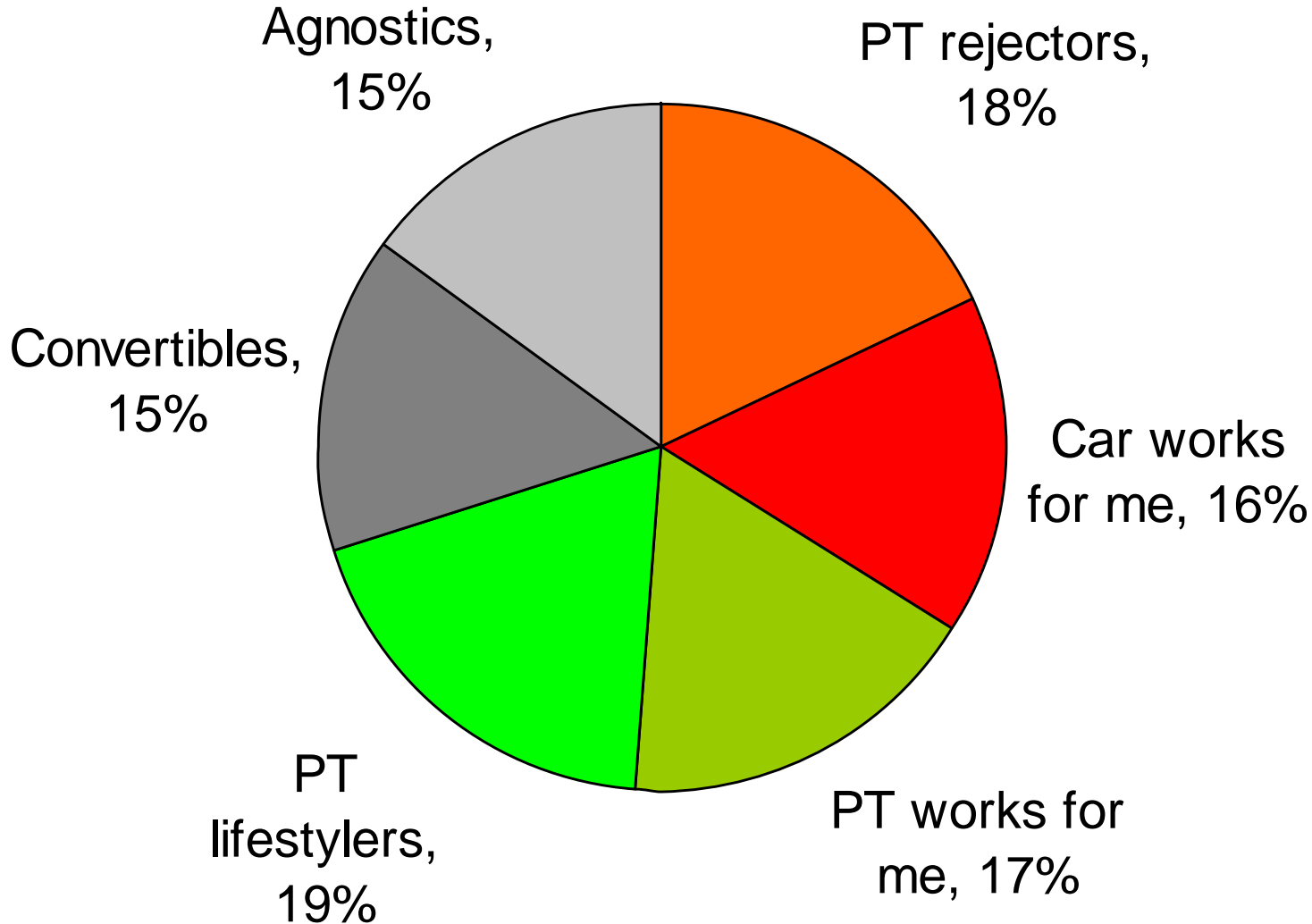
- Examples in our case studies
 - Bamako – Sotrama mini bus ring
 - Washington State – HOV/HOT lane
 - Istanbul/Mexico City – BRT lanes
 - Frankfurt – Low emissions zone



It's not just our thinking we need to think about! How do travellers think?



Thinking about modes – who is the target?



Source:
Gaymer,
2010



Shift in thinking, shift in modes

