1-15-2016

Assessing Travel Plans for Residential Developments

Geoff Rose
Monash University

MONASH University

Engineering

Assessing Travel Plans and their effectiveness

Presenter: Professor Geoff Rose

Based on PhD research by Chris De Gruyter
Co-supervisor: Professor Graham Currie

Institute of Transport Studies
Monash University, Australia

January 2016

PRESENTATION OUTLINE

1 Definition of a travel plan

2 Research gaps & aims

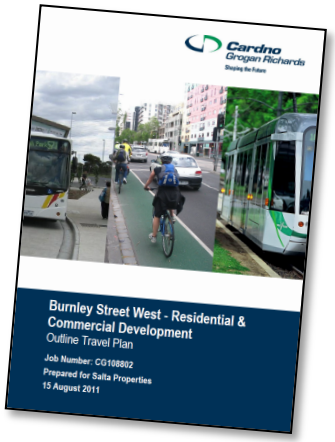
3 Research methods

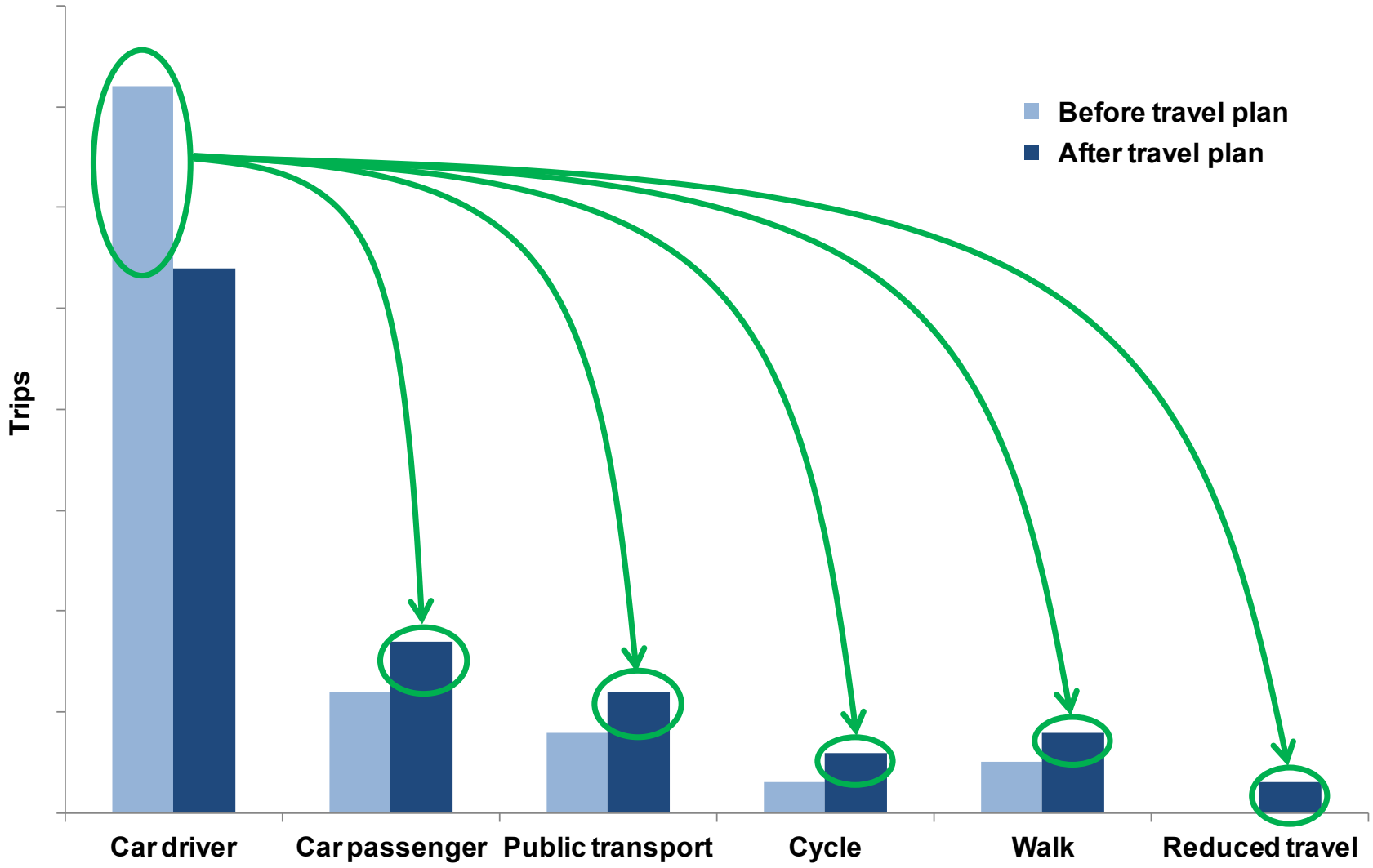
4 Key results

5 Conclusions

What is a travel plan?

- Strategy containing measures to manage car use & encourage use of more sustainable forms of transport
  - Also known as TDM plans or mobility management plans
- Typically developed for individual sites, e.g. schools & workplaces
- Can be required for new developments as part of planning approval
  - Focus of this research is on residential developments




Before travel plan
After travel plan
Trips
Car driver
Car passenger
Public transport
Cycle
Walk
Reduced travel

Research gaps and aims

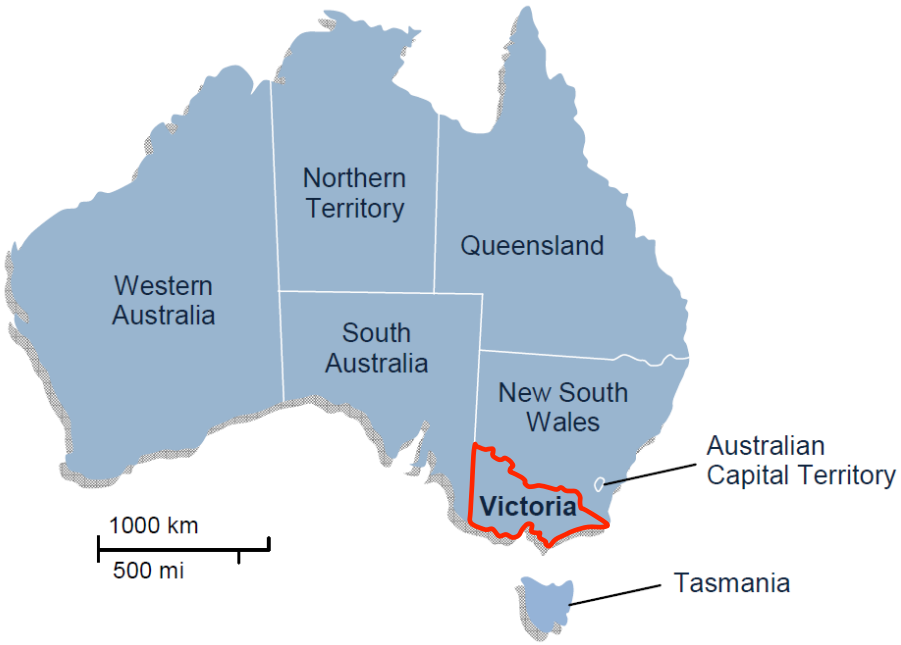
- Little consideration given to evaluating travel plan quality
- Improving travel plan quality can increase the likelihood they will achieve their objectives and be implemented successfully
- **First research aim**
  - **Assess the quality of travel plans for new residential developments**

Research gaps & aims (Cont.)

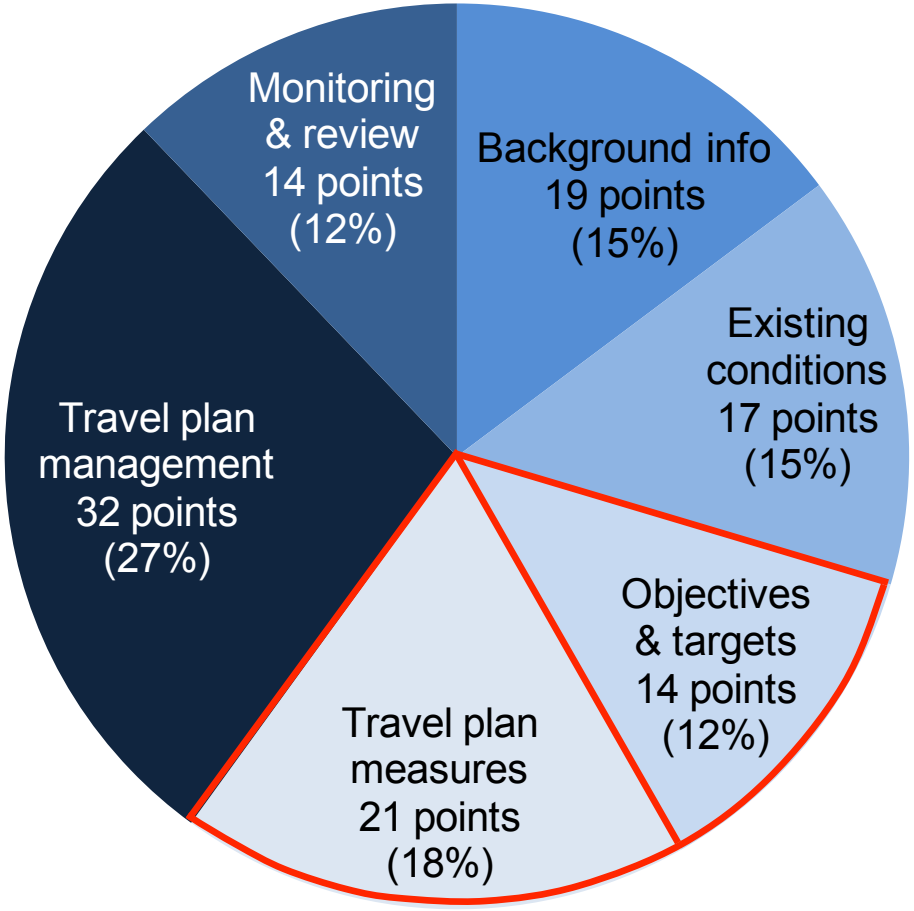
- Limited evidence of effectiveness of travel plans for new developments, particularly residential sites
- Generally no baseline/before data available at new developments, so evaluations often based on comparisons to secondary data, e.g. census, regional travel survey data, trip generation rates
- BUT, secondary data is:
  - Not usually collected during same time period (often many years before)
  - Not always based on same location (sometimes different countries)
  - Not always based on same dwelling type (leading to differences in parking)
- **Second research aim**
  - **Measure the effectiveness of travel plans for new residential developments**

Research method: Assessing travel plan quality

1. Development of assessment framework – 6 key headings, 55 criteria
2. Sourcing of travel plans – 31 in total from Victoria
3. Review of travel plan content
4. Application of assessment framework – scoring each travel plan against set criteria



Assessment framework



Reflects best practice elements & their relative importance, as informed by the research literature

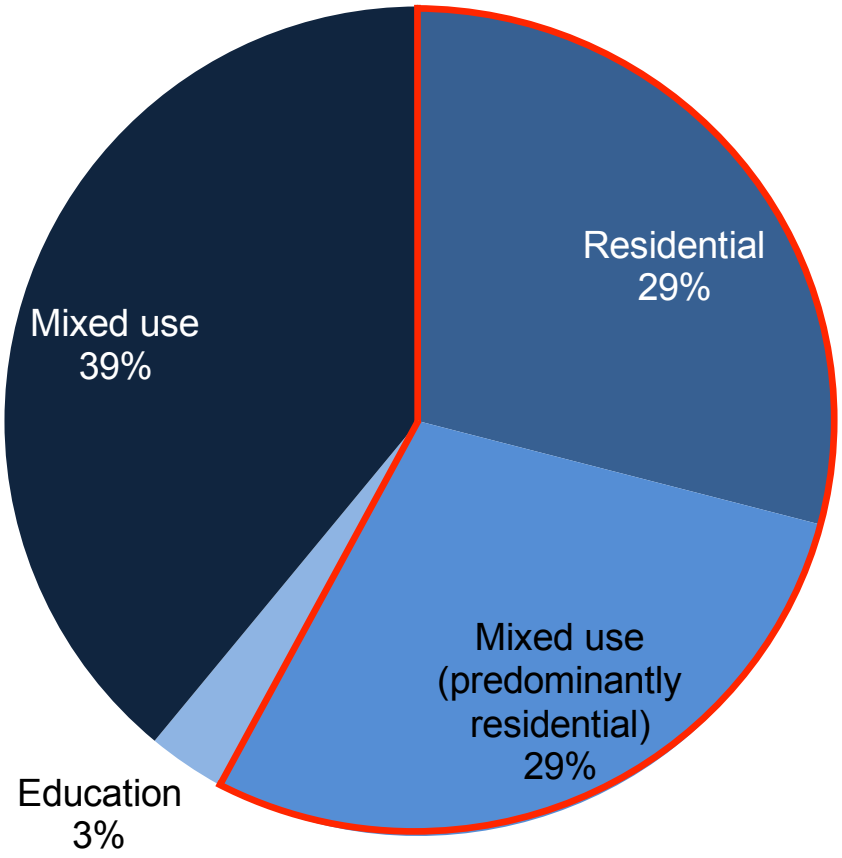
Assessment framework

OBJECTIVES AND TARGETS		
6.	**Are a clear set of appropriate objectives identified? (max 6 points)**	
6.1	Are the objectives linked to relevant policies and/or strategies?	No = 0, partially = 1, yes = 2
6.2	Are the objectives responsive to issues & opportunities facing the site?	No = 0, partially = 2, yes = 4
7.	**Are a clear set of appropriate targets identified? (max 8 points)**	
7.1	Are targets focused on the outcomes of the travel plan (not process or outputs)?	No = 0, yes = 1
7.2	Are targets linked to the travel plan's objectives?	No = 0, partially = 1, yes = 2
7.3	Are targets informed by existing conditions?	No = 0, partially = 1, yes = 2
7.4	Do the targets contain SMART elements? *(Specific, Measurable, Achievable, Relevant, Time-Based)*	None = 0, 1-3 elements = 1, 4-5 elements = 2
7.5	Are suitable accompanying indicators identified?	No = 0, yes = 1
TRAVEL PLAN MEASURES		
8.	**Is a package of suitable measures proposed? (max 13 points)**	
8.1	Are the measures aligned with the objectives and targets identified?	No = 0, partially = 2, yes = 3
8.2	Is consideration given to all relevant modes (incl. trip substitution)?	No = 0, partially = 3, yes = 5
8.3	Are the measures likely to address the transport issues at the site?	No = 0, partially = 3, yes = 5
9.	**Is sufficient information provided to guide the implementation of each measure? (max 8 points)**	
9.1	Is a description of each measure given?	No = 0, partially = 1, yes = 2
9.2	Is a timeframe for implementing each measure stated?	No = 0, partially = 1, yes = 2
9.3	Is the responsibility for implementing each measure stated?	No = 0, partially = 1, yes = 2
9.4	Is the cost of each measure specified?	No = 0, partially = 1, yes = 2

Traffic engineers prepared most of the travel plans, followed by town planners

Predominant service/discipline of organisational author	Number of travel plans	% of travel plans
Traffic engineering	18	58%
Town planning	5	16%
Architecture	3	10%
Transport planning	2	6%
Environmentally Sustainable Design (ESD)	2	6%
Housing provision/management	1	3%
Total	**31**	**100%**

Residential developments were the most common land use for travel plans



Bicycle parking was the most common travel plan measure

Travel plan measure	Number of travel plans	% of travel plans
Bicycle parking	28	90%
New residents kit	27	87%
Free or discounted public transport tickets	25	81%
Maps	24	77%
Noticeboard/information display	21	68%
Online information	15	48%
Public transport timetables	14	45%
Events (e.g. Ride to Work Day)	14	45%
Bicycle User Group (BUG)	12	39%
Car sharing service	11	35%

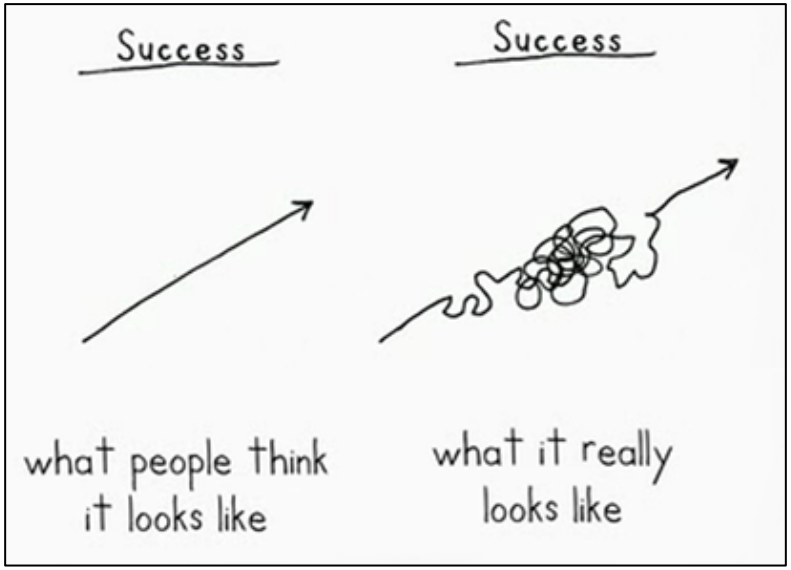
How did the travel plans perform?

Assessment component	% of maximum possible score		
	Lowest scoring travel plan	Highest scoring travel plan	Average across all travel plans
Background information	58% ◑	74% ◕	62% ◕
Existing conditions	29% ◔	88% ●	50% ◑
Objectives and targets	0% ○	93% ●	53% ◑
Travel plan measures	43% ◑	90% ●	71% ◕
Travel plan management	3% ○	31% ◔	19% ○
Monitoring and review	0% ○	71% ◕	45% ◑
Total	**22%** ◔	**69%** ◕	**47%** ◑

○ = 0-20% ◔ = 21-40% ◑ = 41-60% ◕ = 61-80% ● = 81-100%

Travel plan mgt needs to consider…

- Commitment from the developer and future property manager
- Clarity of roles and responsibilities, incl. travel plan coordinator
- Budget for implementing measures
- Plans for ongoing communication with users of the site



Research method: Assessing travel plan effectiveness using case control method

- **Case sites (apartment buildings with Travel Plans)**
  - four new residential developments, built and occupied, with travel plans that had been implemented
- **Control sites (apartment buildings with no Travel Plan)**
  - matching control sites involved a considerable number of site visits and discussions with property managers
  - limited to what was available
  - aimed to ensure sites were matched on their location, average dwelling size, on-site car parking provision, proportion of owner-occupiers, and the year that occupation commenced

Case sites – located in Melbourne, Australia




Control sites – within 200 metres of corresponding case sites





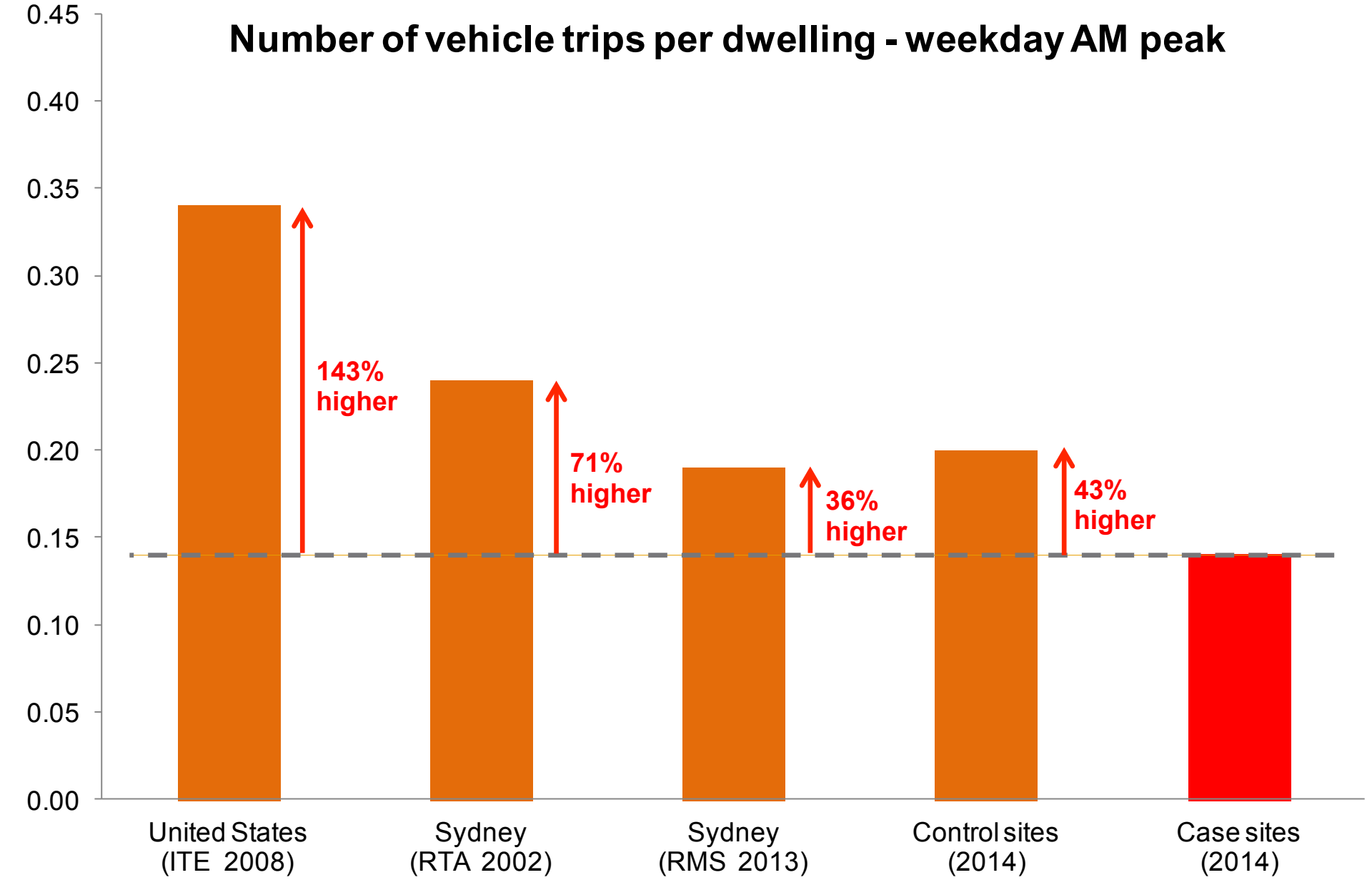
Case site 4
24 dwellings
Brunswick
Control site 4
34 dwellings
Control site 3
45 dwellings
Case site 3
124 dwellings
Control site 2
156 dwellings
Melbourne
CBD
Control site 1
54 dwellings
Case site 2
282 dwellings
South
Melbourne
South
Yarra
Case site 1
242 dwellings
2 km
1 mi

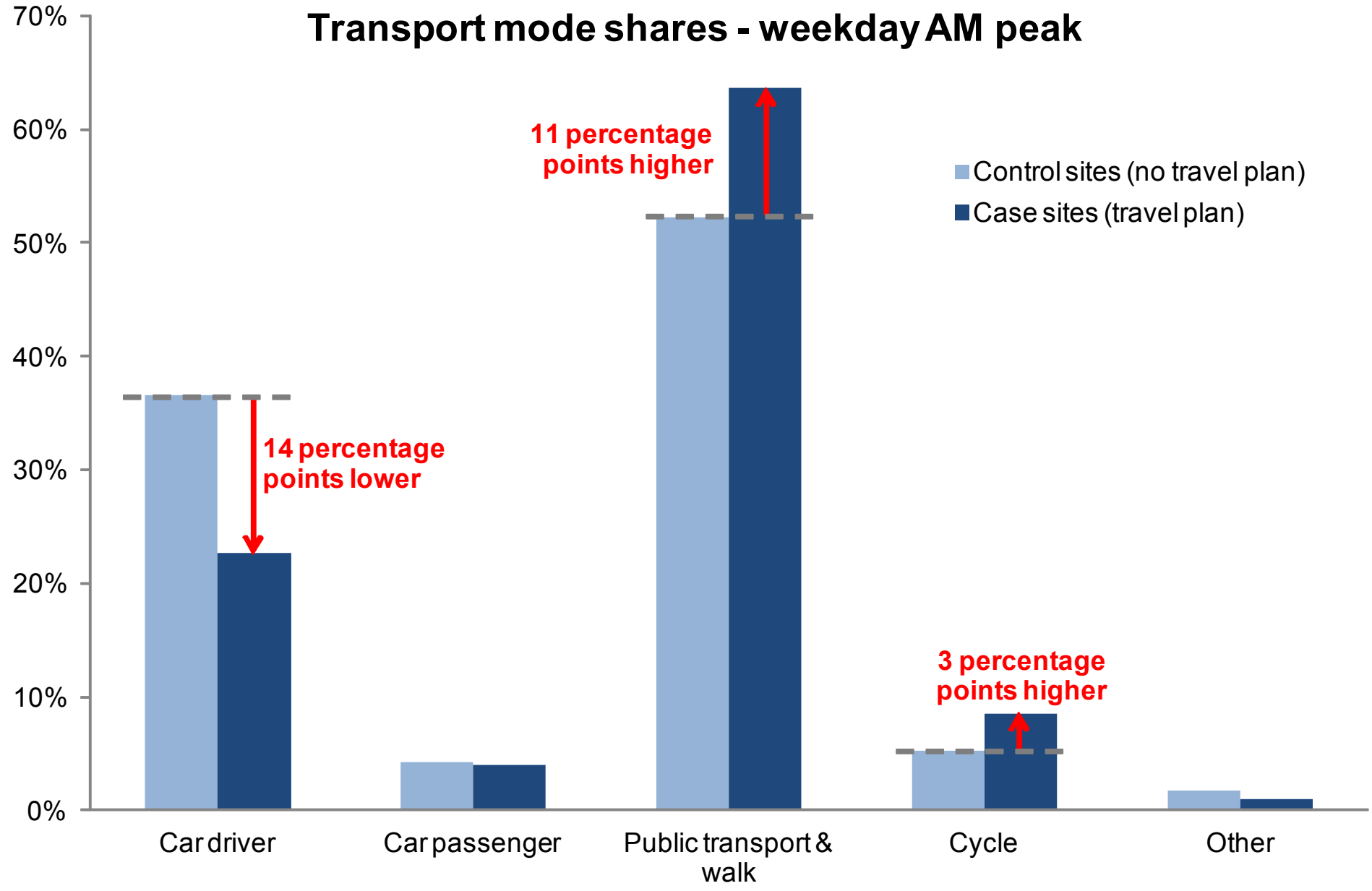
Data collection and analysis at case and control sites

- **Count of people** (by transport mode) entering & leaving:
  - 4 case sites: residential developments with travel plans
  - 4 matching control sites: residential developments without travel plans
- **Count of car & bike parking** utilisation at each case and control site

✓ Comparisons to published vehicle trip generation rates

✓ Comparisons made between case and control sites


Number of vehicle trips per dwelling - weekday AM peak
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
143% higher
71% higher
36% higher
43% higher
United States (ITE 2008)
Sydney (RTA 2002)
Sydney (RMS 2013)
Control sites (2014)
Case sites (2014)


Transport mode shares - weekday AM peak
70%
60%
50%
40%
30%
20%
10%
0%
11 percentage points higher
14 percentage points lower
3 percentage points higher
Control sites (no travel plan)
Case sites (travel plan)
Car driver
Car passenger
Public transport & walk
Cycle
Other

Car & bicycle parking utilisation

	Avg cars parked/dwelling	Avg bikes parked/dwelling
Control sites	0.55	0.43
Case sites	0.42	0.73

- Less cars & more bikes per dwelling at case sites

	% car parking spaces used	% bike parking spaces used
Control sites	52%	98%
Case sites	68%	102%

- More efficient utilisation of parking facilities at case sites
- Over supply of car parking and under supply of bike parking

Conclusions

- **1st aim: Assess quality of travel plans for new residential developments**
  - Diverse quality in travel plans which were assessed & travel plan management is a key area for improvement
  - Assessment framework could be used by local government to assess quality of submitted travel plans
    - Addressing areas identified for improvement could enhance the delivery and subsequent outcomes of travel plans
- **2nd Aim: Evaluate their effectiveness**
  - Lower car use at developments with travel plans compared to similar developments without travel plans
  - Control sites can provide a more accurate indication of travel plan effectiveness over secondary data sources
  - Future research needed to establish larger evidence base and investigate extent of residential-self selection

MONASH University

Engineering

Assessing Travel Plans and their effectiveness

Thank you. Questions?