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Pedestrians and cyclists sharing facilities in Singapore

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Arnhem-Nijmegen, 14 June 2017

Singapore

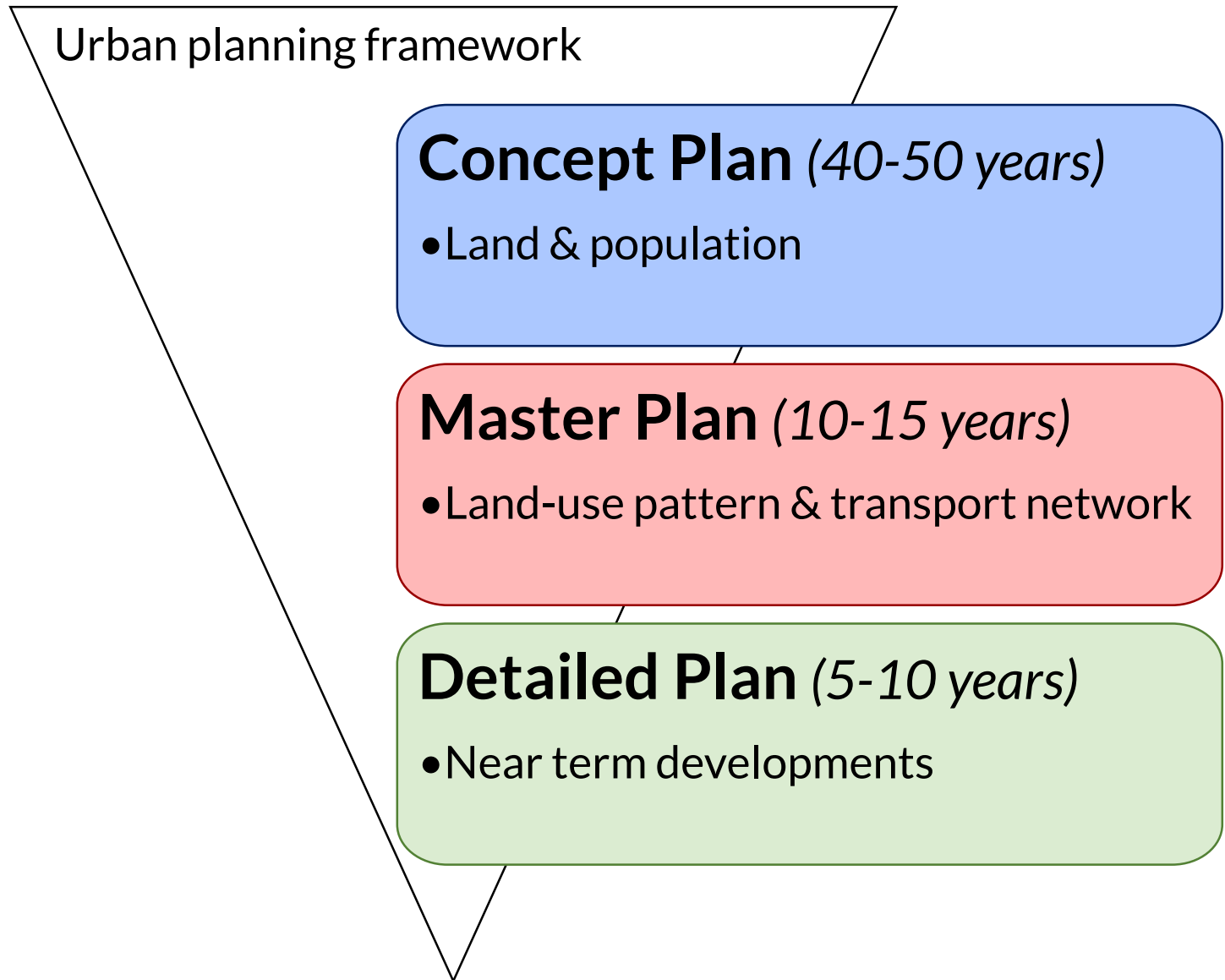


- Planning and provision for transport
- Shared spaces & users interaction

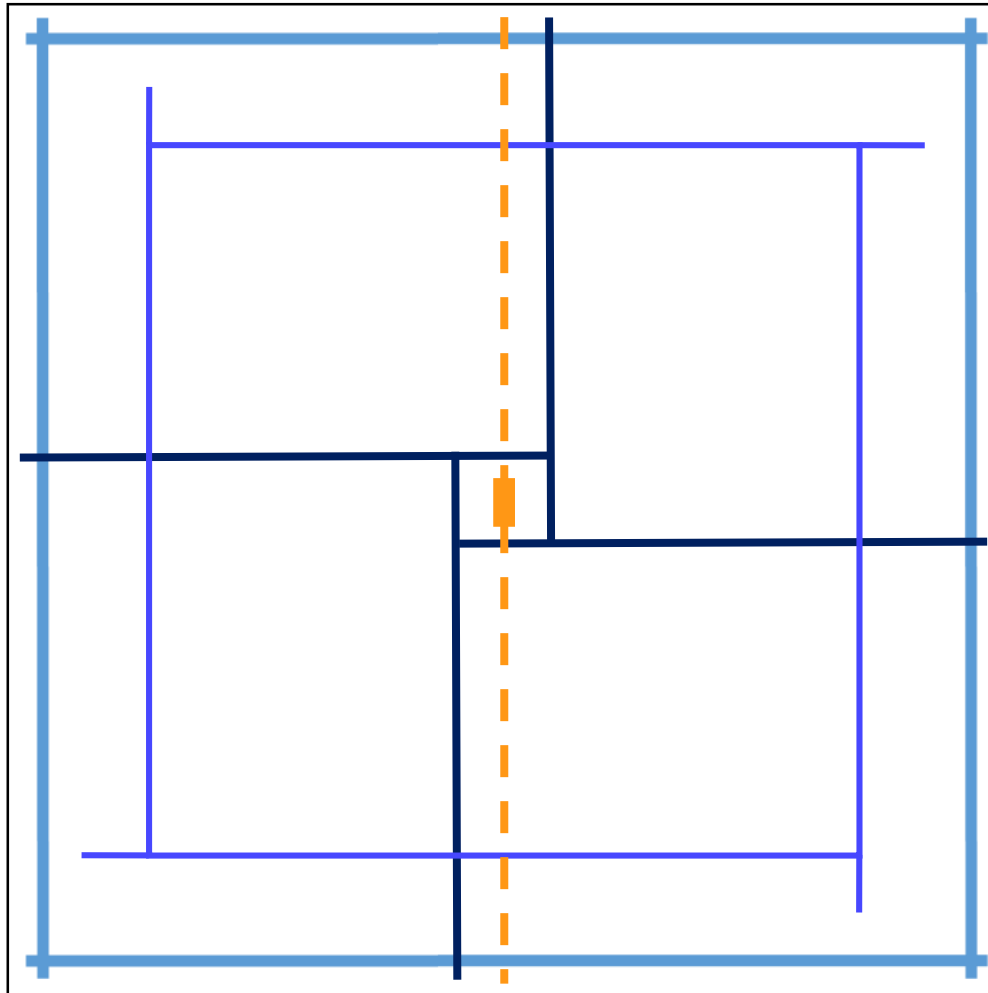
Planning & Spatial Characteristics



Planning & Spatial Characteristics



Transport planning & policies







- Expressway
- Major Arterial
- Minor Arterial
- - - MRT line/station
- Town

Active mobility planning & policies

Walking & cycling facilities
are being expanded

Policies to increase road
safety and trip comfort



Mode/Type of Personal Mobility Device (PMD)		Paths [Speed limit 15km/h]	Cycling/Extended Paths [Speed limit 25km/h]	Roads
	Personal mobility aid e.g. motorised wheelchairs			X
	Conventional bicycle	✓	✓	✓
	PMDs e.g. kick-scooter, hoverboards		✓	X
	Electric bicycle	X		✓

Case Study



- * To understand usage of cycling facilities*
- * To determine changes in travel behaviour*

Infrastructure

Traditional paths



Extended paths



Infrastructure

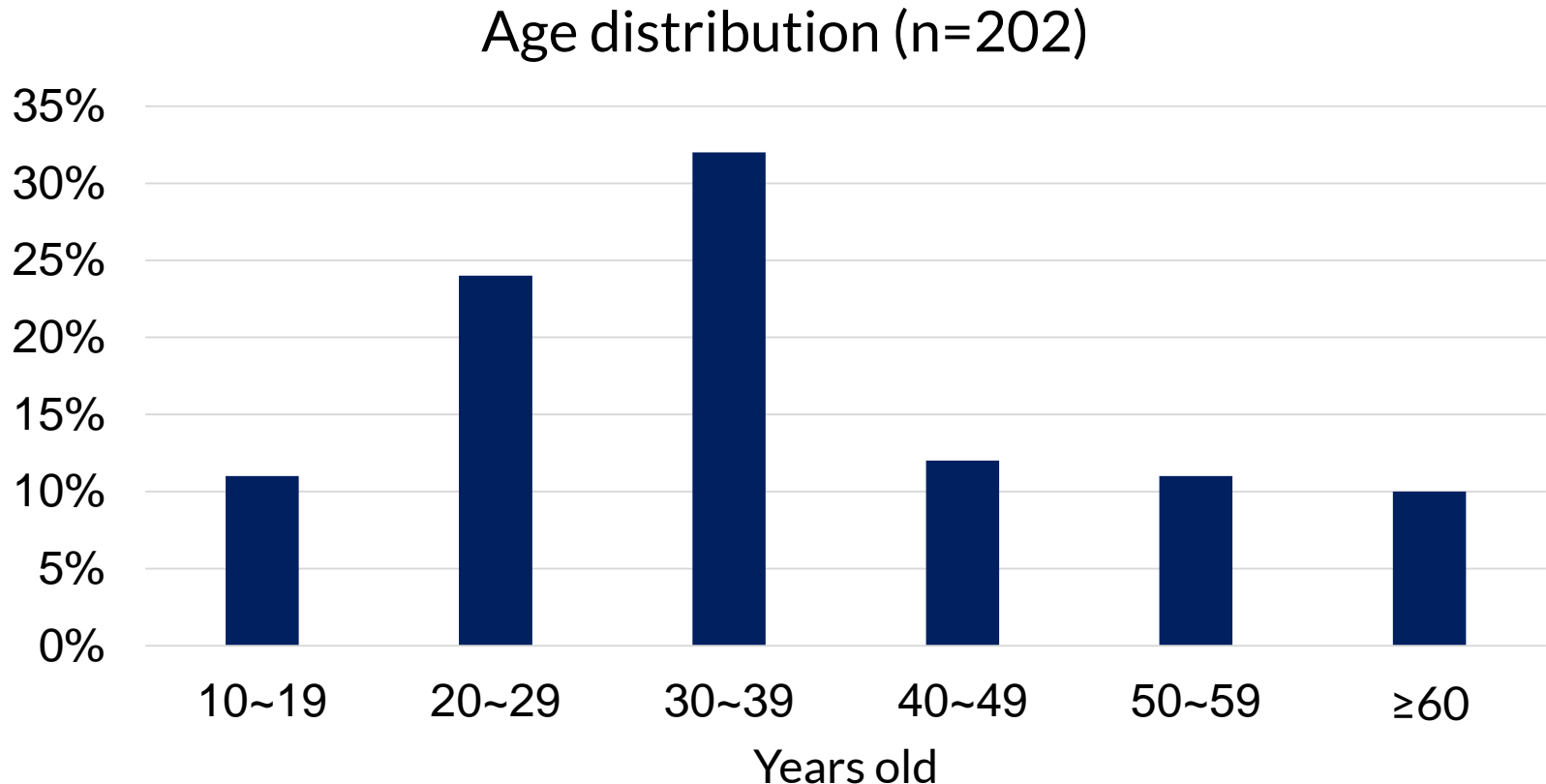
Segregated paths



Demarcated (adjoining) paths



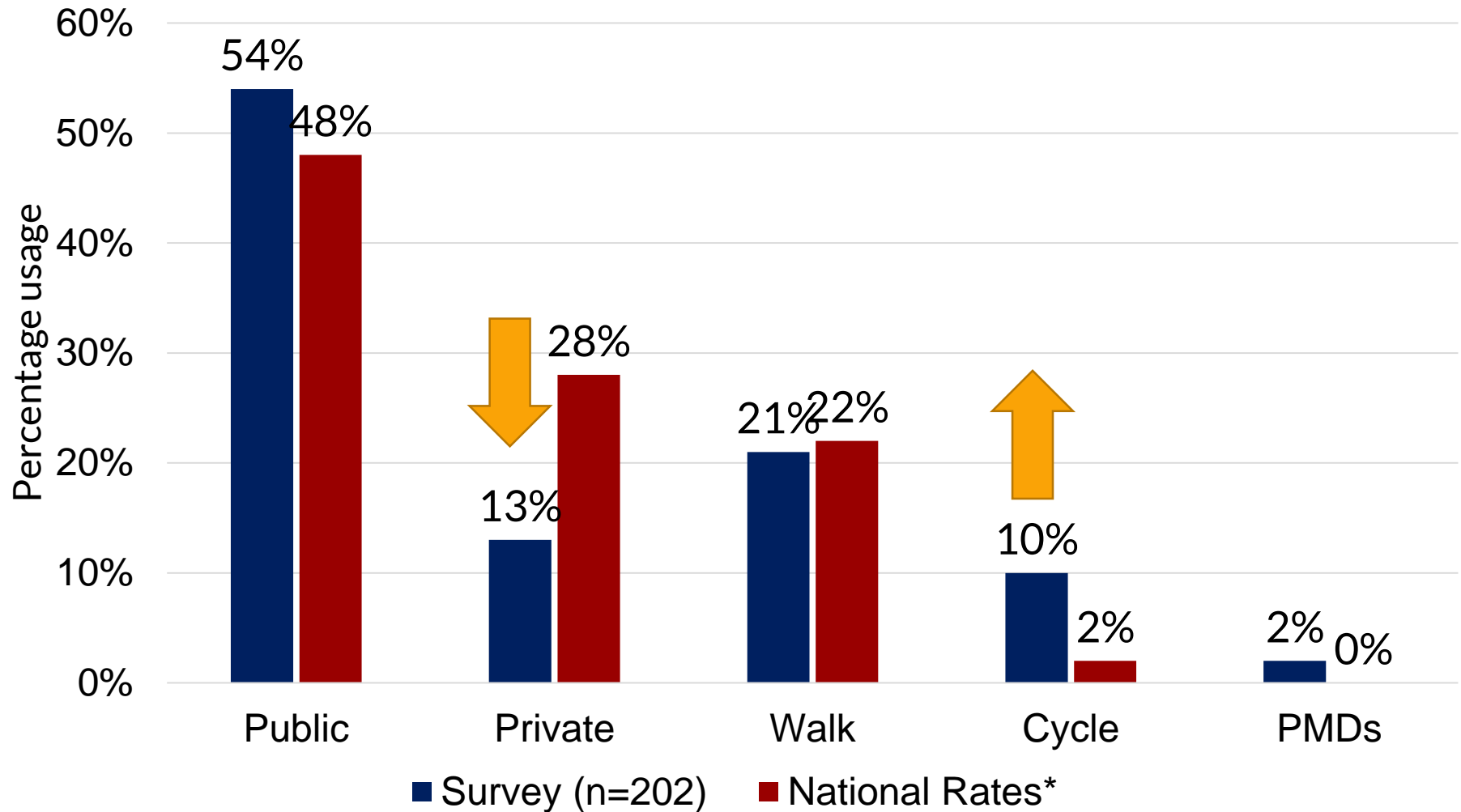
Sample characteristics



3 every 4 households owned some type of bicycle.

1 every 2 respondents cycled in the towns under study.

Most commonly used mode of transport





Mostly off road cycling

- 55%

Aware of the demarcated paths in the towns.



More

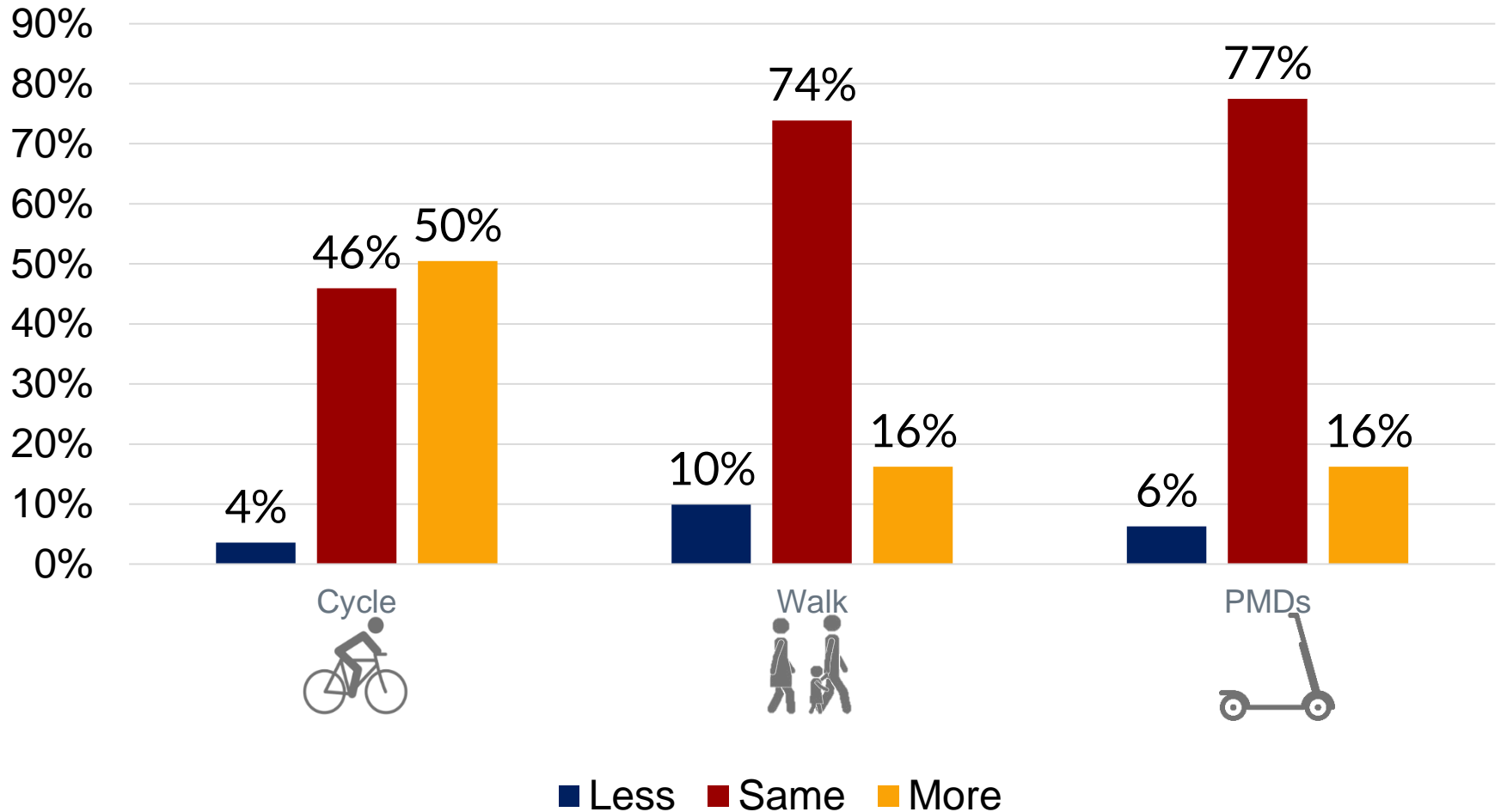
→ Convenience



Same/less

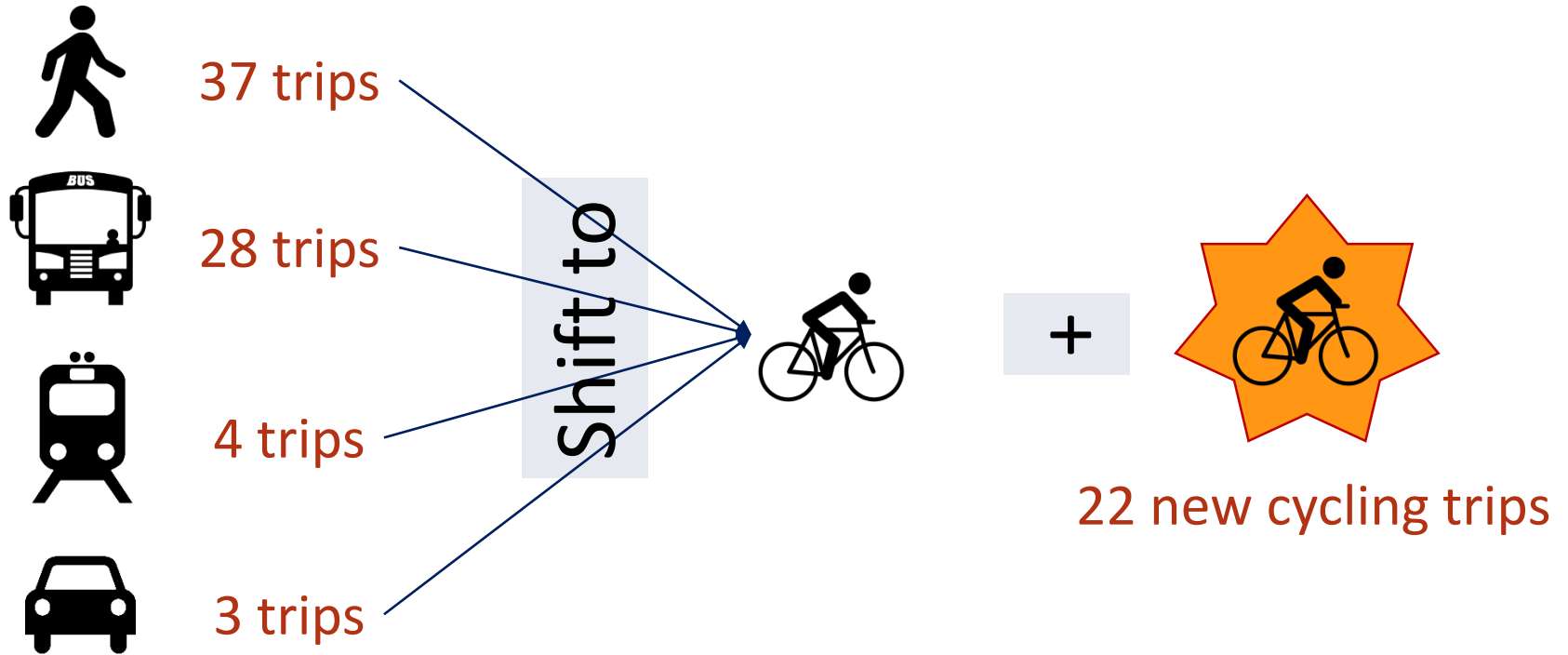
→ Did not recognise
the improvement

More cycling trips after enhancement of off-road facilities



(n=111)

Users interaction & shift-rate



Shift-rate

Key factor to increase accurately forecast cycling trips

$$b = \frac{\text{Reported cycling trips from bus}}{\text{Total cycling trips}} = \frac{28}{100} = 0.28$$

$$\text{Shift-rate}_{\text{(from bus to bicycle)}} = \frac{b \times \text{Cycle}}{\text{Bus}}$$

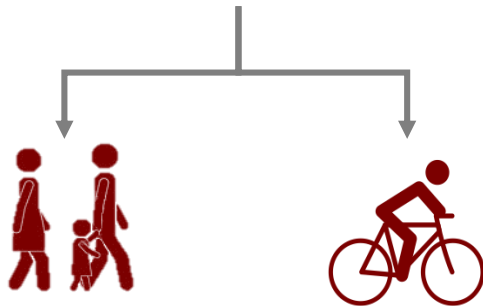
Cycle = daily trips by bicycle (towns under study)

Bus = daily trips by bus (towns under study)

Sum-up

Organised planning → Infrastructure provision & policies

Increased & enhanced infrastructure



Reduced private transport & increased bicycles usage

Conclusions

- Examine and consider users interaction
- Characteristics & locations of paths
 - Make cycling a “competitive” mode of transport
- “Striking” characteristics to increase awareness





Thank you!

Questions?

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