Cycling City 2030

Bicycle infrastructure as an enabler of access for users of mobility aids, e-scooters, and delivery robots

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Improving the way the world moves

Personal Mobility / Micro Mobility Devices

Delivery Robot

Bicycle

Mobility Aid

e-Scooter

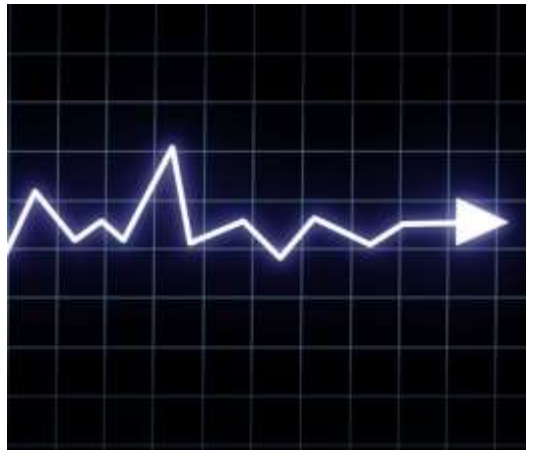
Trends for concern re: Future City 2030

Greenhouse gas emissions 2017 vs 1990

World:
+65%

UK:
-44%

UK Energy:
-59%



UK Transport:
-3%*

*Excludes International Aviation

Trends for concern re: Future City 2030 (II)

Global urban population

2030
Estimate:
c. 5.2bn

Today:
4.3bn

Cars on road globally:

2040
Estimate:
c. 2bn

Today:
c. 1.3bn

Trends for concern re: Future City 2030 (III)

Global population aged over 60:

2030
Estimate:
1.4bn

Today:
1.0bn

Cycle paths as a solution

- 1) Personal mobility aids (PMAs)
- 2) Electric kick scooters
- 3) Delivery robots

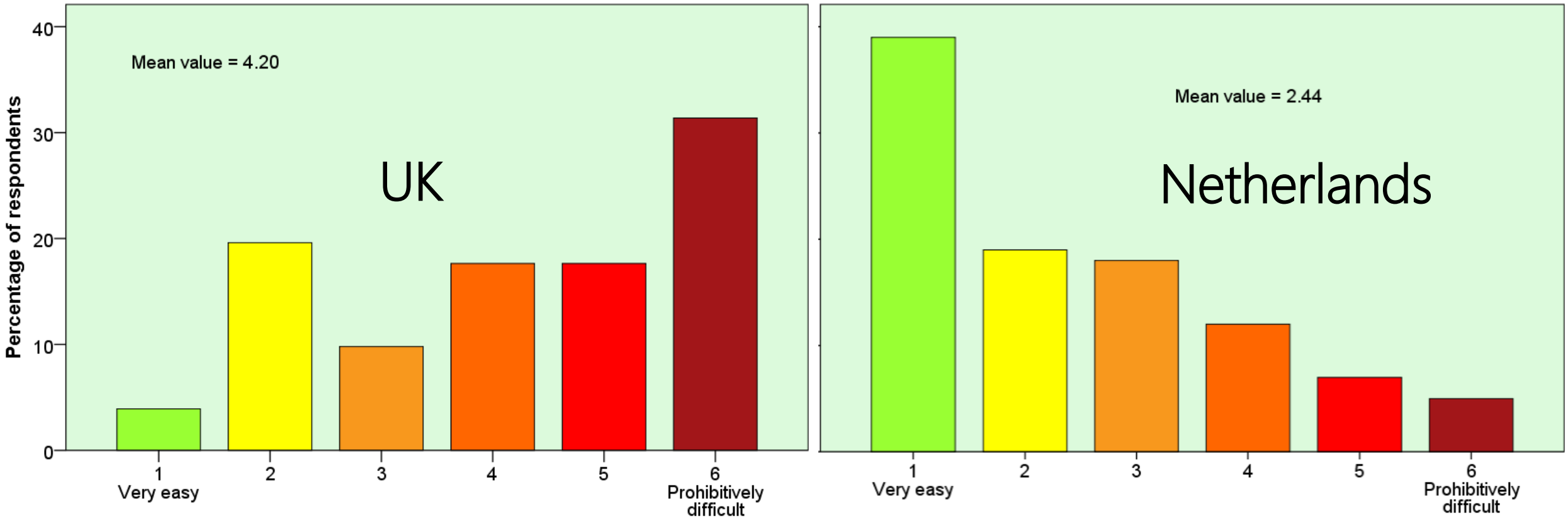
Personal Mobility Aids (PMAs)

- Wheelchairs, Mobility Scooters, and other assistive devices
- >1m wheelchair users in UK now, likely over 2 million by 2050 due to ageing: most mobility impairments are function of age-related conditions
- c.500k power wheelchair and mobility scooters in UK, with rapid annual growth in sales of the latter

Study of PMA users

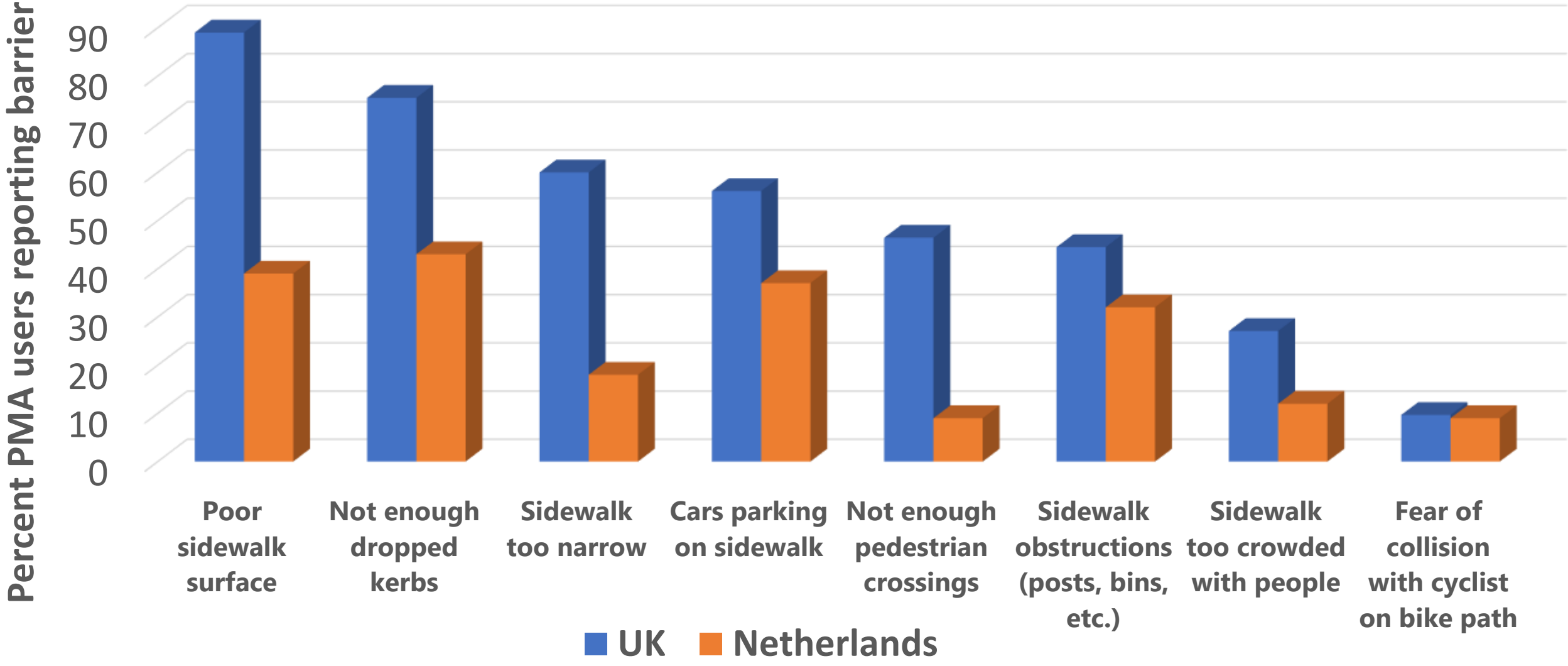
- Conducted research for MSc in 2014-15; large questionnaire of 223 wheelchair & mobility scooter users in the UK, Netherlands and Canada
- Dutch mobility scooters are more like bicycles: average reported top speed was 9.8mph, while UK devices go between 4 and 8mph.
- ~85% of Dutch PMA users travel on bike paths

Difficulty reaching the shops, using PMA only



Barriers to mobility

Barriers encountered on trip to shops/the park/work



The UK vs Dutch experience

- *"[I prefer] the manual chair, as my husband drives the car and he can't get my electric chair in the boot, so he pushes me around town." (Female, aged 65+, UK)*

vs.

- *"I can control how, where and when I want to go somewhere" (Female, aged 45-64, Netherlands, using mobility scooter)*

Electric Kick Scooters (e-Scooters)

- ~25km/h top speed, ~30km range
- Part of a recent boom in shared mobility devices that started in 2017 in California, now widespread around the Americas, Europe, and Oceania
- Over $1bn funding raised by operators Lime and Bird since their launch

(Image courtesy Jun'ichi Miyazaki)

e-Scooters – Barriers and Infrastructure

- Small wheels and rider position make users more vulnerable than cyclists
- Poor road surface and drains pose particular hazard
- 25km/h too fast for the sidewalk!
- Cycle paths appear to offer good solution
- Legislators scrambling to catch up
- **For more on e-Scooters, head to Session 2A after this!**

Autonomous Delivery Robots

- First came about in 2014 with Starship's robot (pictured)
- >$57m already invested in Starship and Marble, two of the first operators
- Other companies like Amazon, FedEx, Postmates, Ford and Toyota all releasing their own robots

Barriers / Infrastructure Utilisation

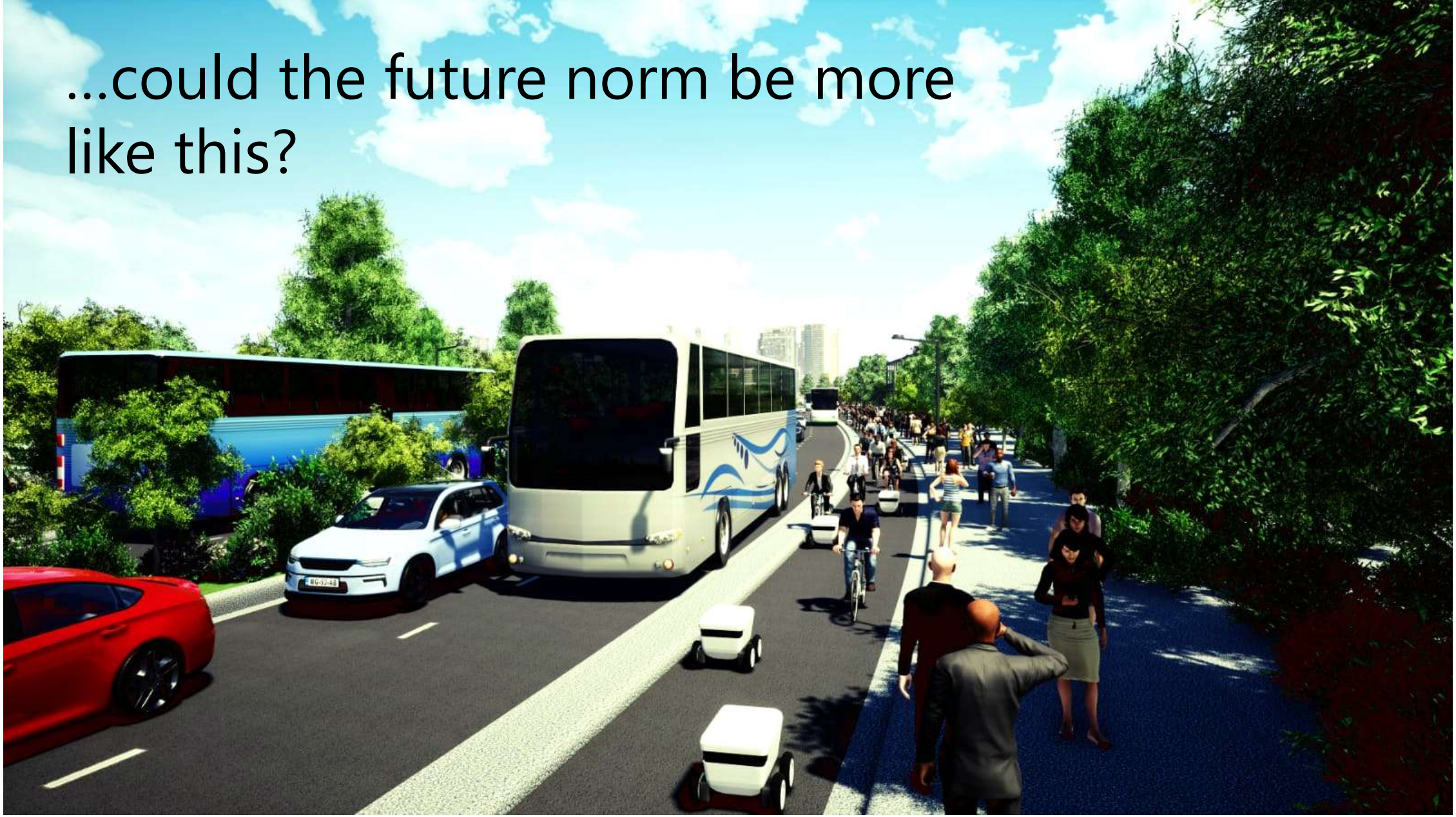
Photo: gdleung / flickr (cc)

Photo: Todd Mecklem / flickr (cc)

Typical UK urban ring-road

Rendering: Mark Osalvo / David Hicks

…could the future norm be more like this?



Rendering: Mark Osalvo / David Hicks

Considering the Future

- If small delivery robots become popular, would cycle paths need a "robot" / slow lane? Would design standards need to change?
- Delivery robots and other autonomous vehicles collect huge amount of data – why aren't we using this?
- Bird offered to pay $1/scooter/day toward cycle paths – could a small fee per scooter/robot result in huge increase in cycle infrastructure?

Considering the Future

- How do we legislate for these devices? Cautious approach or liberal one?
- We're at a turning point in mobility – do we legislate scooter/robot designs & speeds to suit current infra, or do we re-think the design of our cities?
- Is the term "Cycle Path" still apt, or should we re-name them "Mixed-Mobility Paths" or "Micro-Mobility Paths"?

Thanks for attending!

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