ARUP

Creating sustainable cities

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Looking back…

Transport has shaped the history of human civilisation

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Cities are no exception

Transport can transform urban economies

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It can
catalyse
regeneration
and new
housing

It can catalyse regeneration and new housing

It can create
new parts of
the city

It can create new parts of the city

It can create
new parts of
the city

It can create new parts of the city

It can increase property values

Transport can create pride, and even delight, in the city

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But it's not all good news

Congestion

Severance

Blight

Danger

Pollution

Deprivation

How do we deliver more 'good'
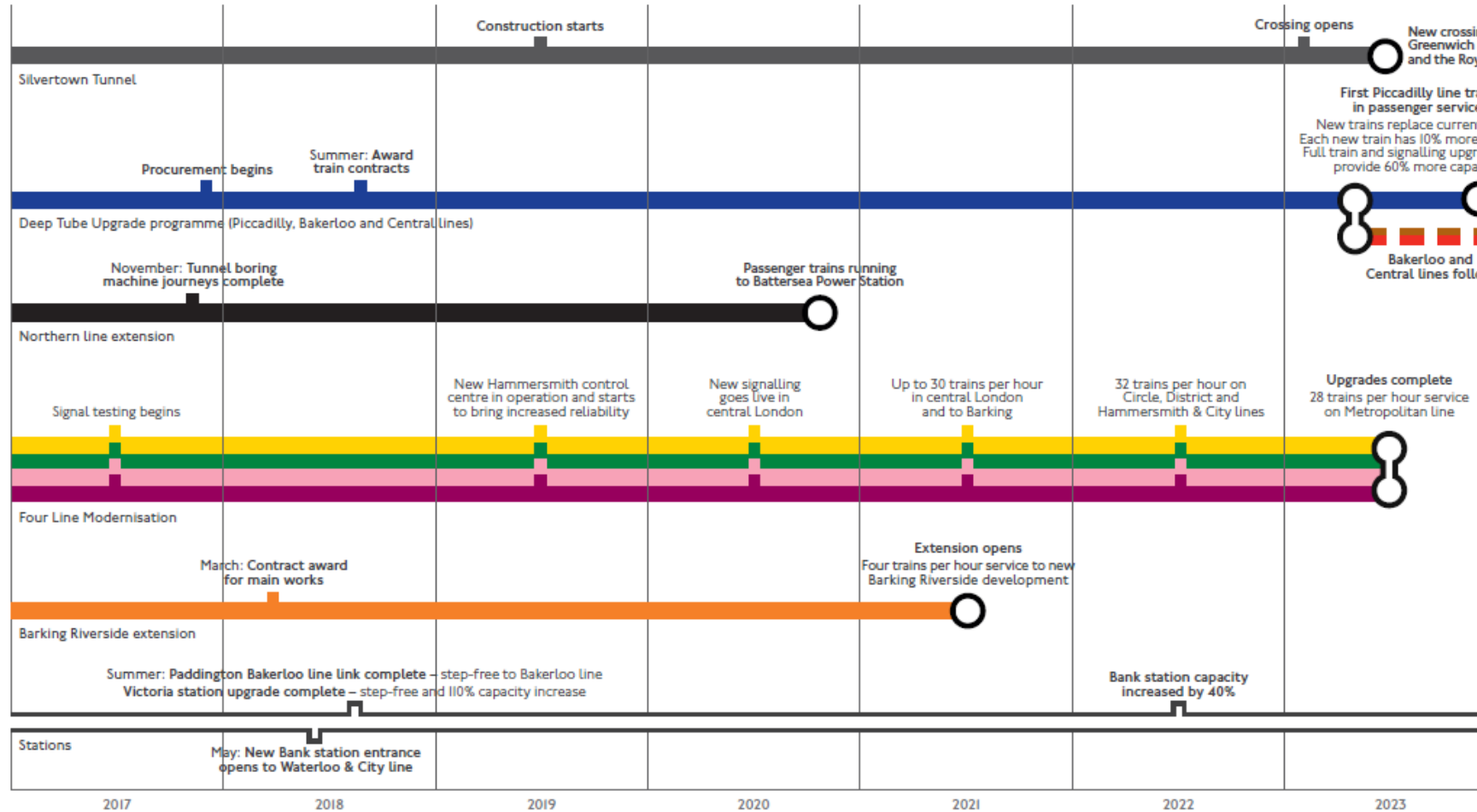and less 'bad'?

10 actions we can take

1 Put outcomes at the heart of design

We tend to get excited about large capital projects

Transport favours large capital programmes

Key milestones of the Investment programme

Silvertown Tunnel
- Construction starts
- Crossing opens — New crossing Greenwich and the Roy...

Deep Tube Upgrade programme (Piccadilly, Bakerloo and Central lines)
- Procurement begins
- Summer: Award train contracts
- First Piccadilly line tr... in passenger servic... New trains replace curren... Each new train has 10% more... Full train and signalling upgr... provide 60% more capa...
- Bakerloo and Central lines follo...

Northern line extension
- November: Tunnel boring machine journeys complete
- Passenger trains running to Battersea Power Station

Four Line Modernisation
- Signal testing begins
- New Hammersmith control centre in operation and starts to bring increased reliability
- New signalling goes live in central London
- Up to 30 trains per hour in central London and to Barking
- 32 trains per hour on Circle, District and Hammersmith & City lines
- Upgrades complete — 28 trains per hour service on Metropolitan line

Barking Riverside extension
- March: Contract award for main works
- Extension opens — Four trains per hour service to new Barking Riverside development

Stations
- Summer: Paddington Bakerloo line link complete – step-free to Bakerloo line
- Victoria station upgrade complete – step-free and 110% capacity increase
- May: New Bank station entrance opens to Waterloo & City line
- Bank station capacity increased by 40%

2017 2018 2019 2020 2021 2022 2023

Transport favours large capital programmes

But people's most pressing concerns can be very different

This can slow down, erode or stop projects

Starting from outcomes creates political support – and can also deliver external funding
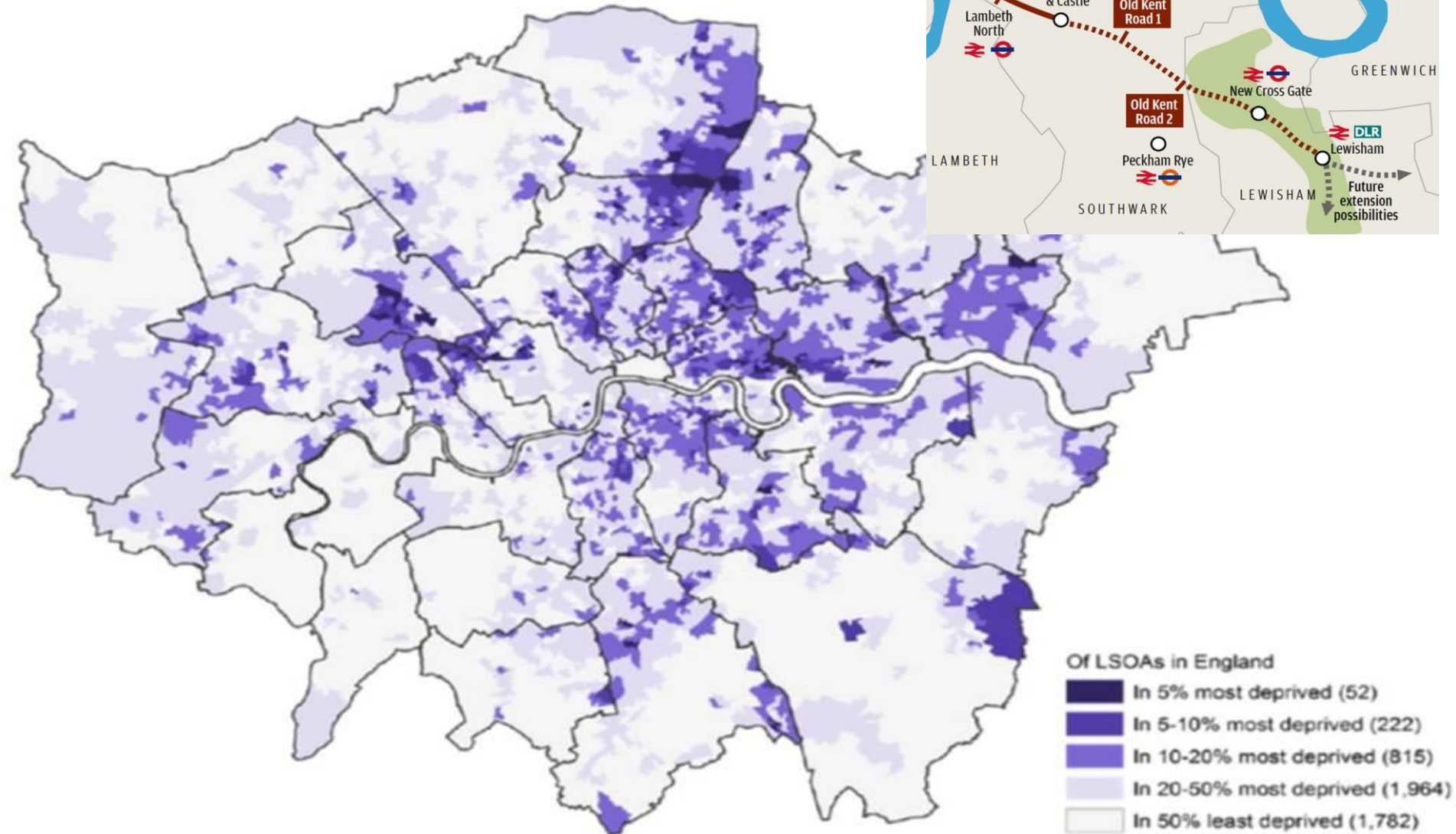
Starting from outcomes creates political support – and can also deliver external funding

Barking Riverside Extension Project - November 2015
Proposed Alignment and Extent of Land Required

Barking Riverside housing development
Barking Riverside, London

Starting from outcomes creates political support – and can also deliver external funding

Map 2 Index of Multiple Deprivation 2015, London

Of LSOAs in England
- In 5% most deprived (52)
- In 5-10% most deprived (222)
- In 10-20% most deprived (815)
- In 20-50% most deprived (1,964)
- In 50% least deprived (1,782)

Source: Indices of Deprivation, 2015, DCLG
Map is © Crown Copyright and database right 2015 Ordnance Survey 100032216 GLA

2 Embed progressive measures within large capital programmes

London cycling experience shows the value in defining a large capital programme

Or leveraging other capital programmes

3 Develop a better evidence base on the wider impact of transport

Increase in property values and business revenue due to investment in progressive measures
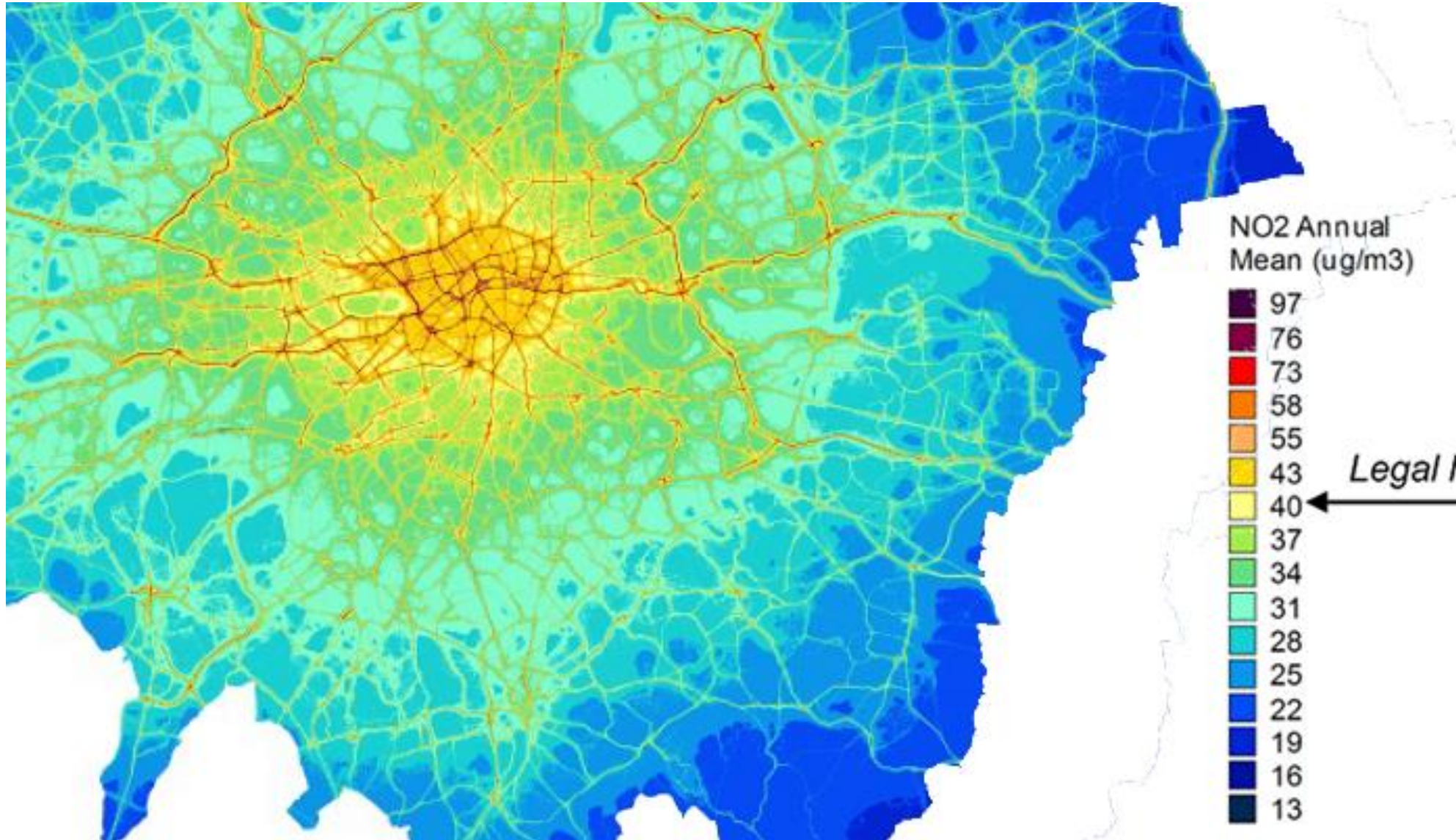
Increase in property values and business revenue due to investment in progressive measures

Crossrail pre-opening impacts analysis

Line-wide impact

Section-level impacts

Central

Western London section

Residential sales transactions

1%

3% 2%

11% 8% -8%

Central

Other sections

Office lets

7%

7%

4 Use – and create – burning platforms

Leveraging
political
pressure
from other
agendas

NO2 Annual
Mean (ug/m3)

97
76
73
58
55
43
40   ← Legal |
37
34
31
28
25
22
19
16
13

A charismatic
and tenacious
influencer

A
mobilised
community

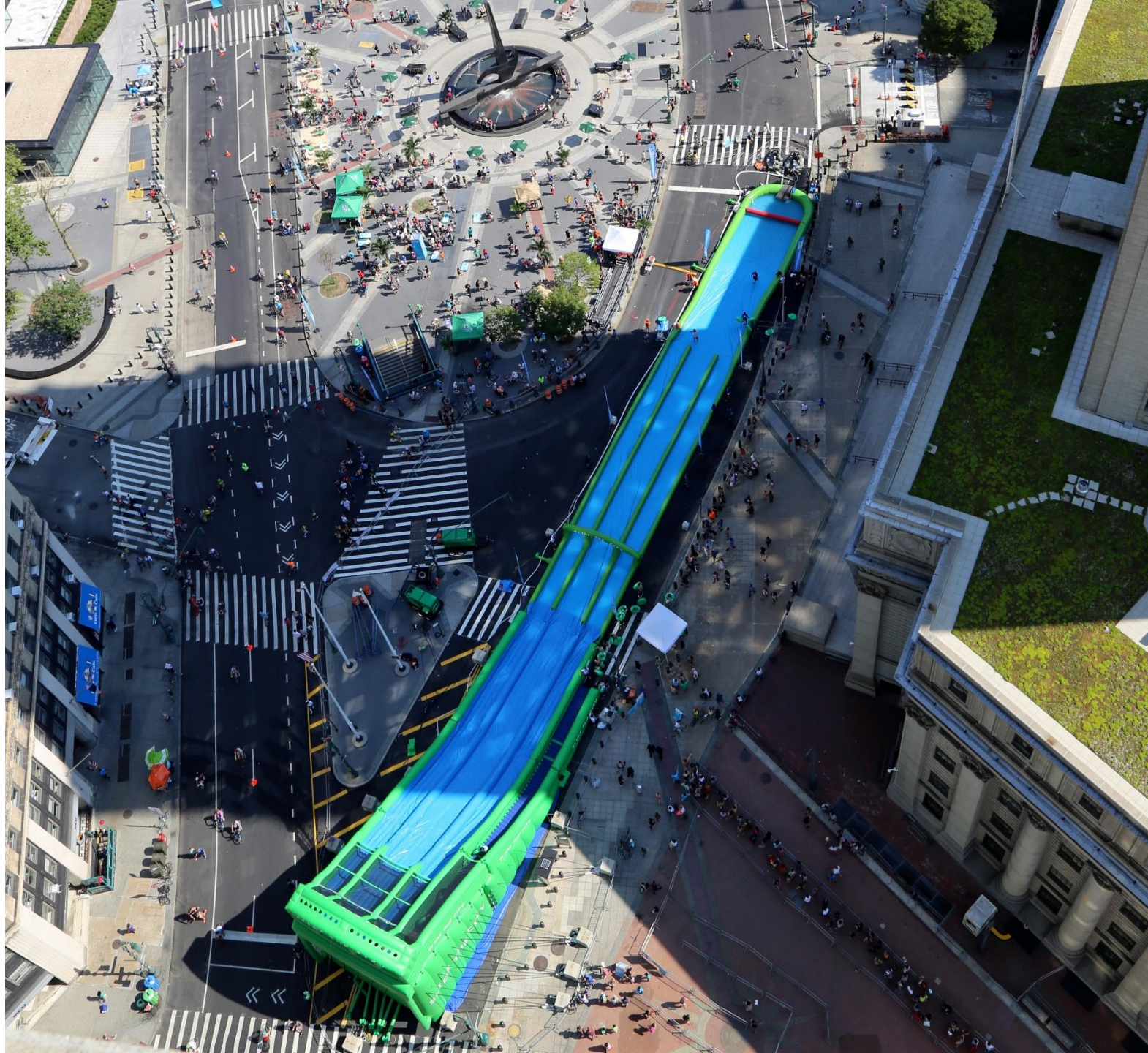# 5 Include iconic interventions

Even one progressive intervention can change mindset in the city

This can include
smaller interventions

It can reboot public and decisionmakers' perceptions of what the city can be

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6 Design more 'temporary' infrastructure

Less controversial to put in 'temporary' interventions

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Interim use of space reduces resentment of years of construction

7 Design flexible and adaptable infrastructure

Typically we have designed for permanence

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Flexibility across
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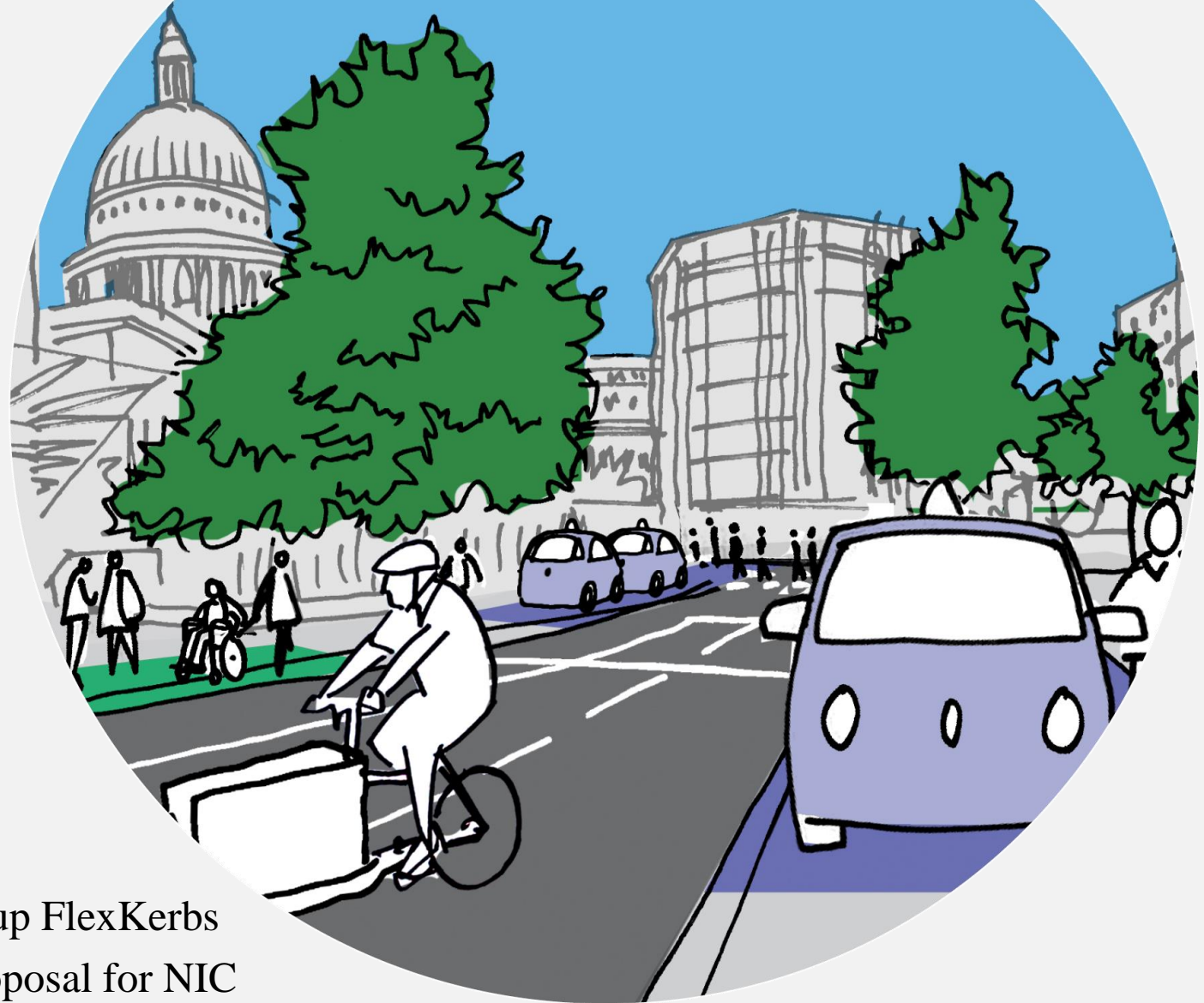
Arup FlexKerbs
Proposal for NIC

Enabling our
users to be
flexible also
creates
operational
capacity

Rise in uncertainty about future technologies
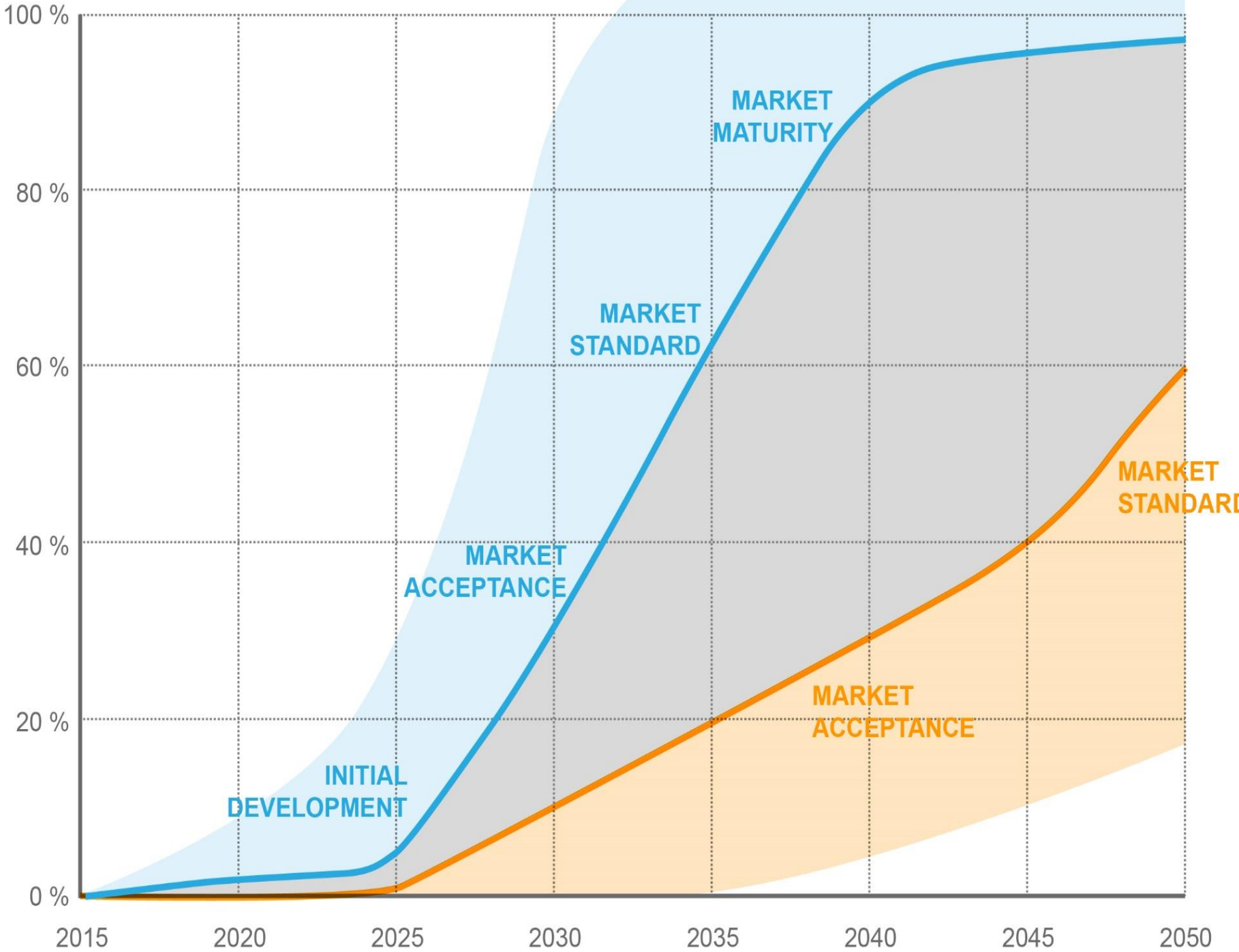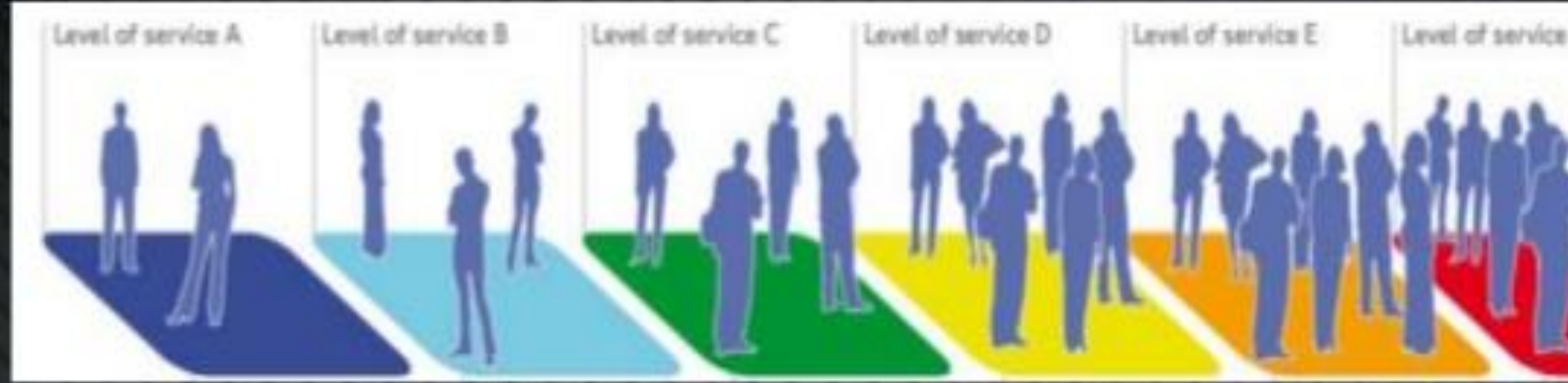
Moving towards more 'adaptable' designs

8 Use big data to design for
what our users really want

What is a station for?

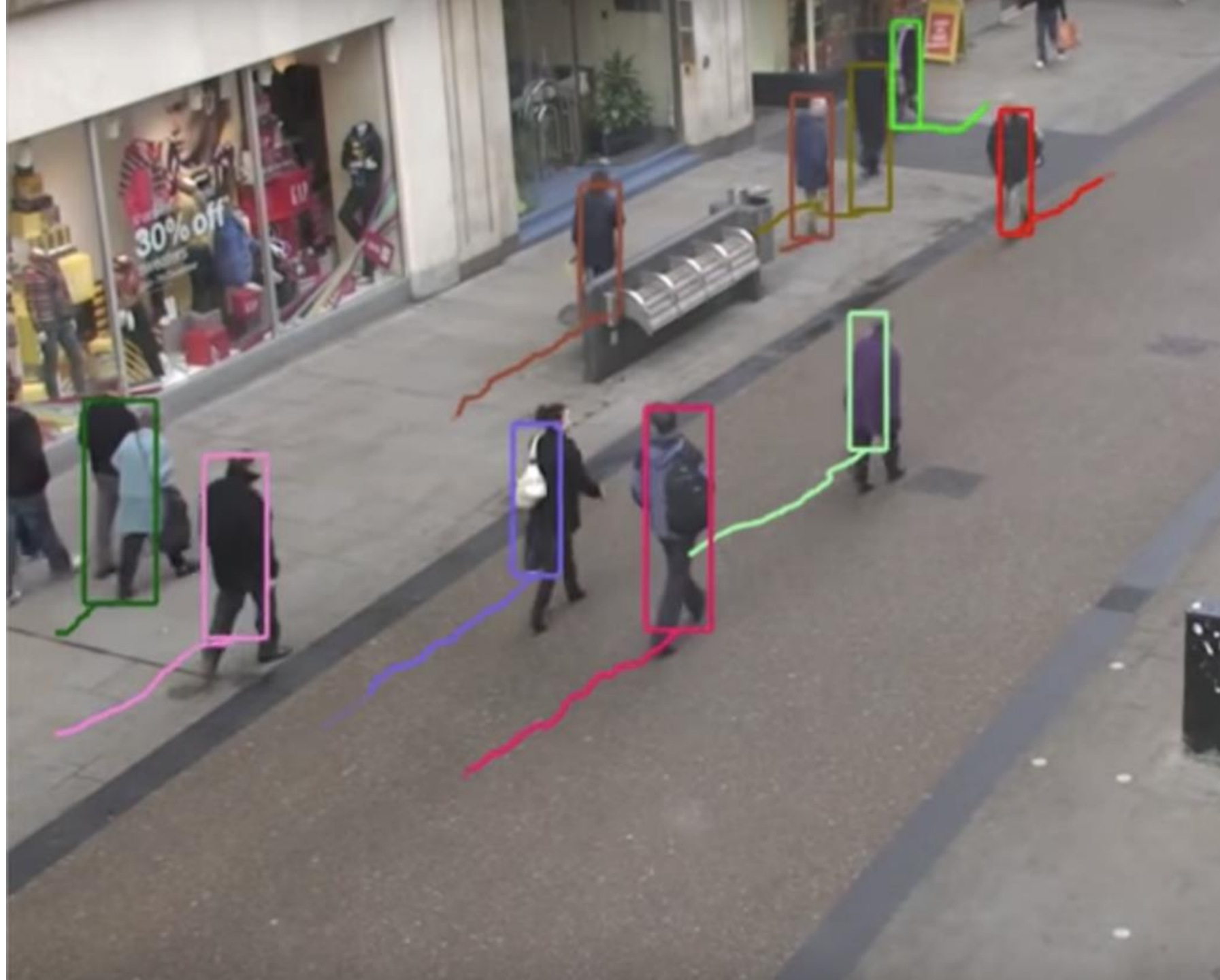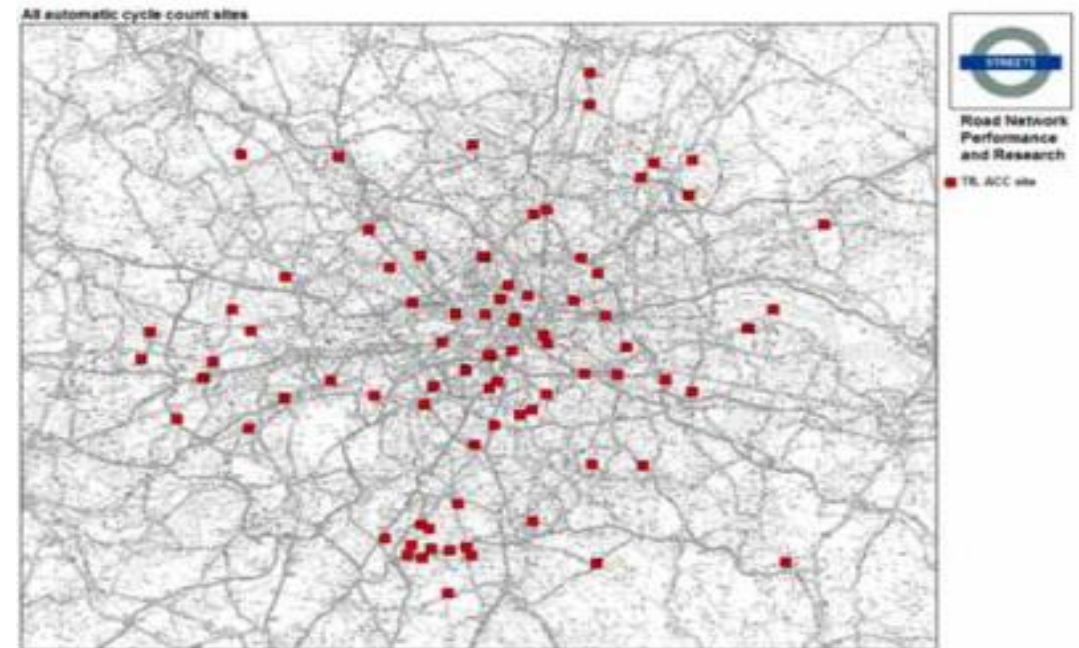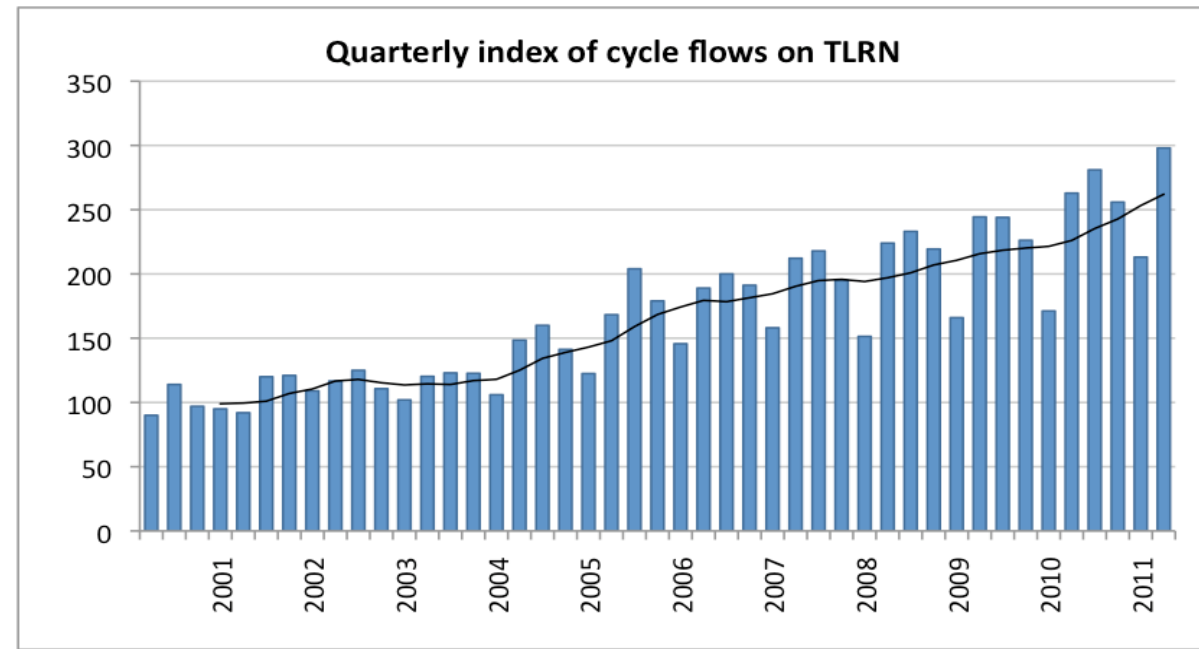Station design based on Fruin values established in the 1970s
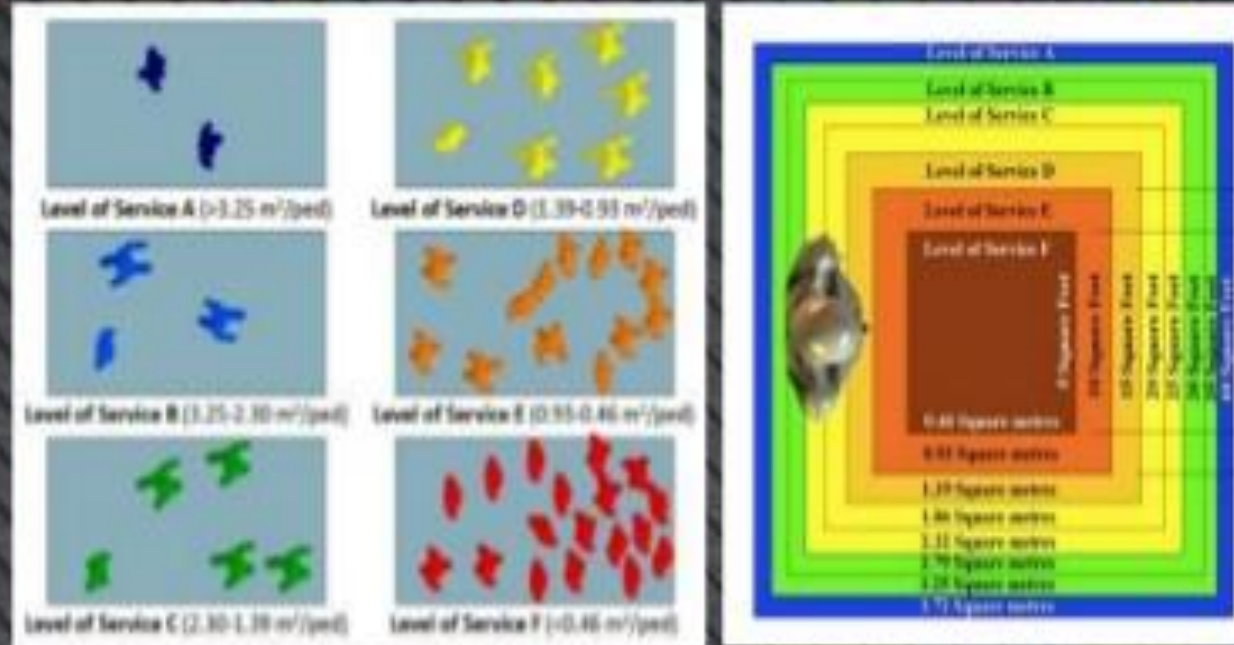
Real data about individual behaviours opens up new vistas

£1b of cycling
investment…

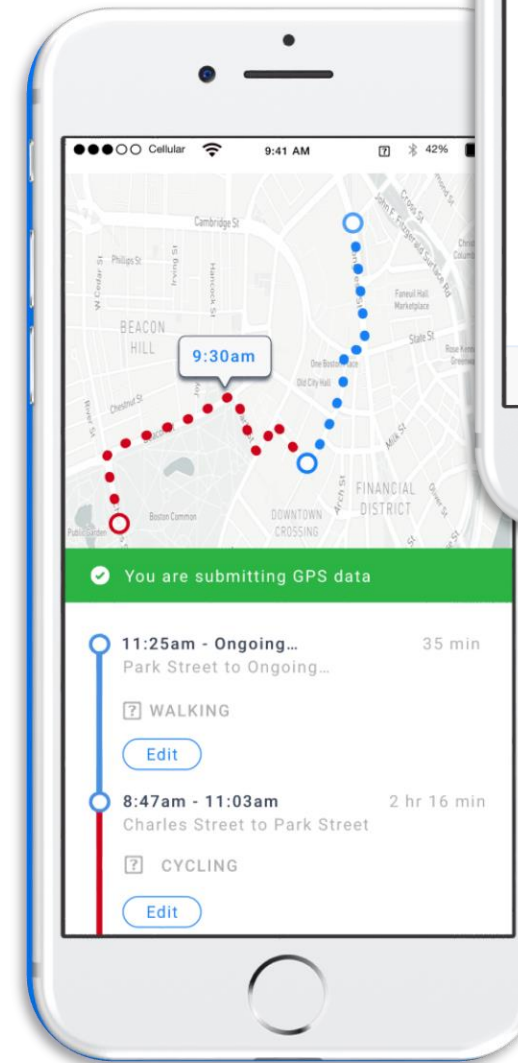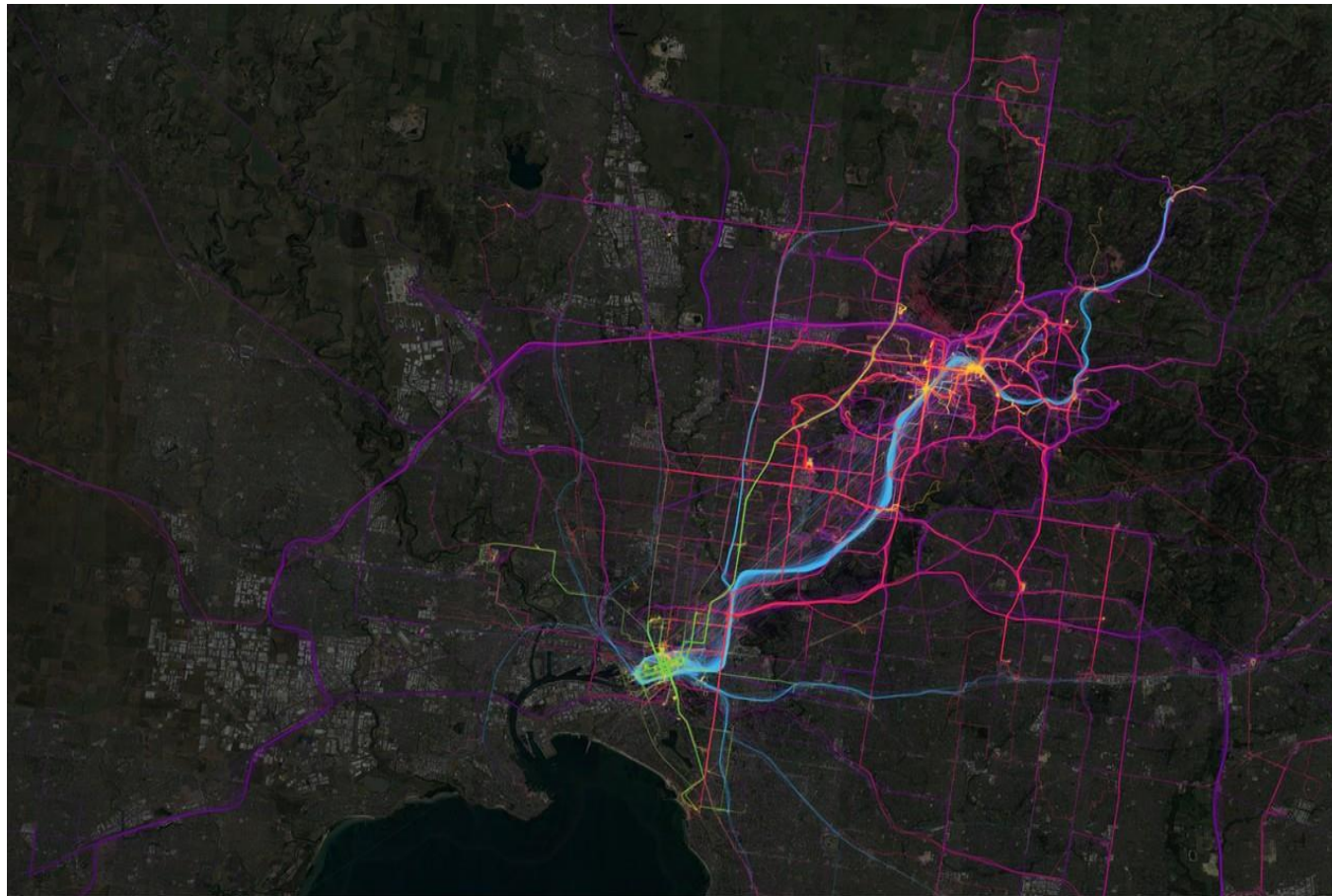… based on a pretty limited fact base

Quarterly index of cycle flows on TLRN

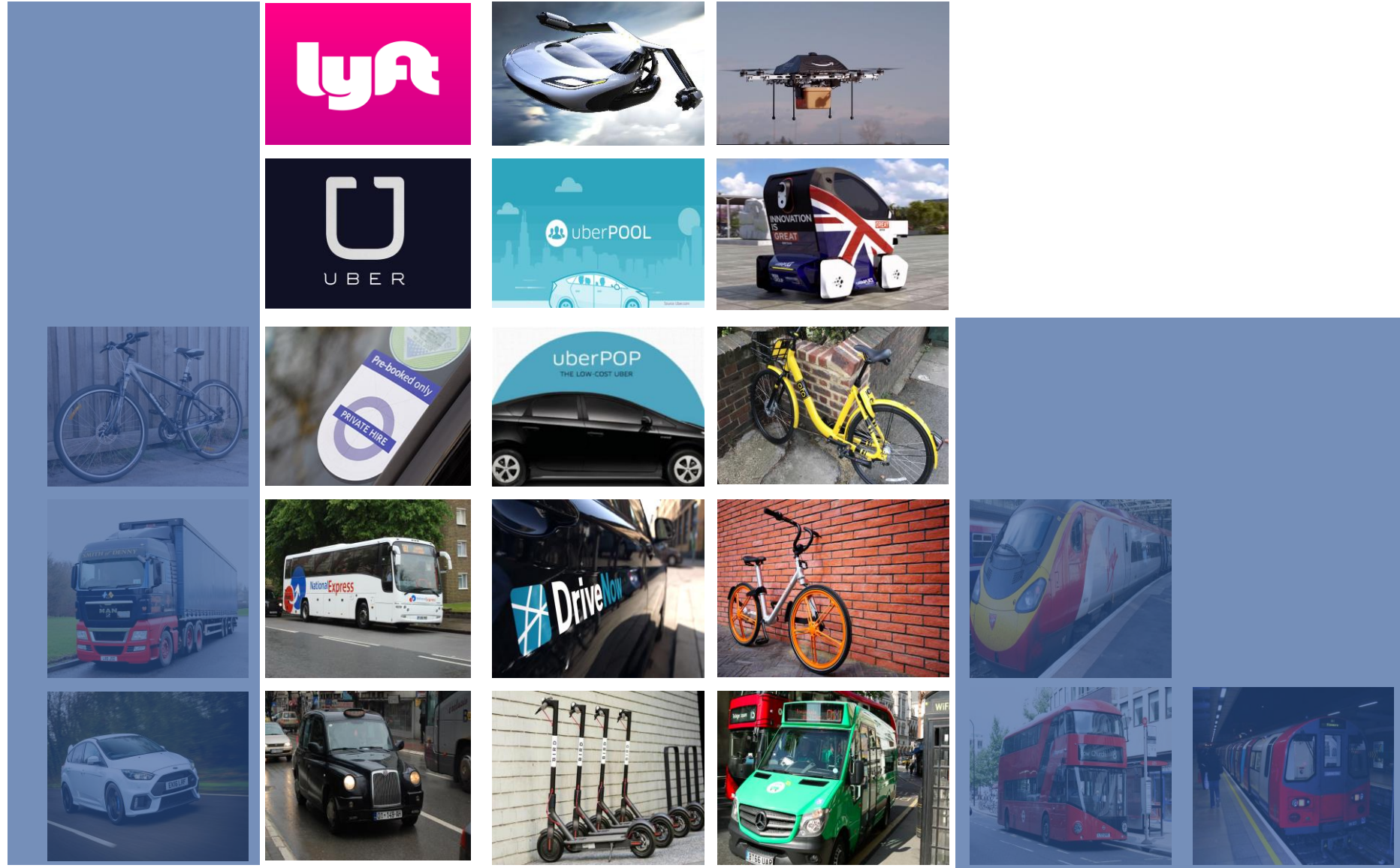All automatic cycle count sites

Even simple tools can improve on this

And with more sophisticated tools we can understand real origins and destinations, and mode choice (Mobility Mosaic)
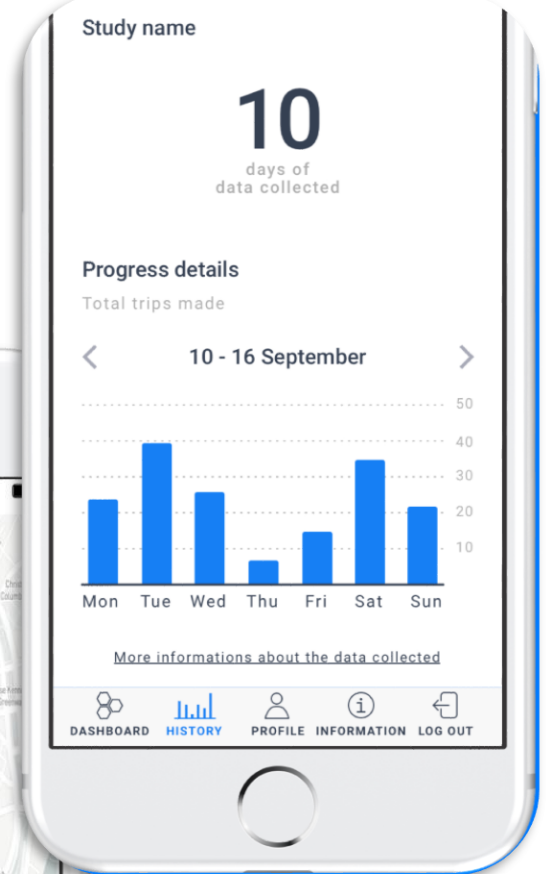
9 Cities need to move into a more proactive, strategic policy role

Explosion of new technologies and business models which <u>could</u> be harnessed for good

Privately operated   Licensed   Franchised   Publicly operated

Explosion of new technologies and business models which <u>could</u> be harnessed for good

Assertive outcome-led urban policies will be needed

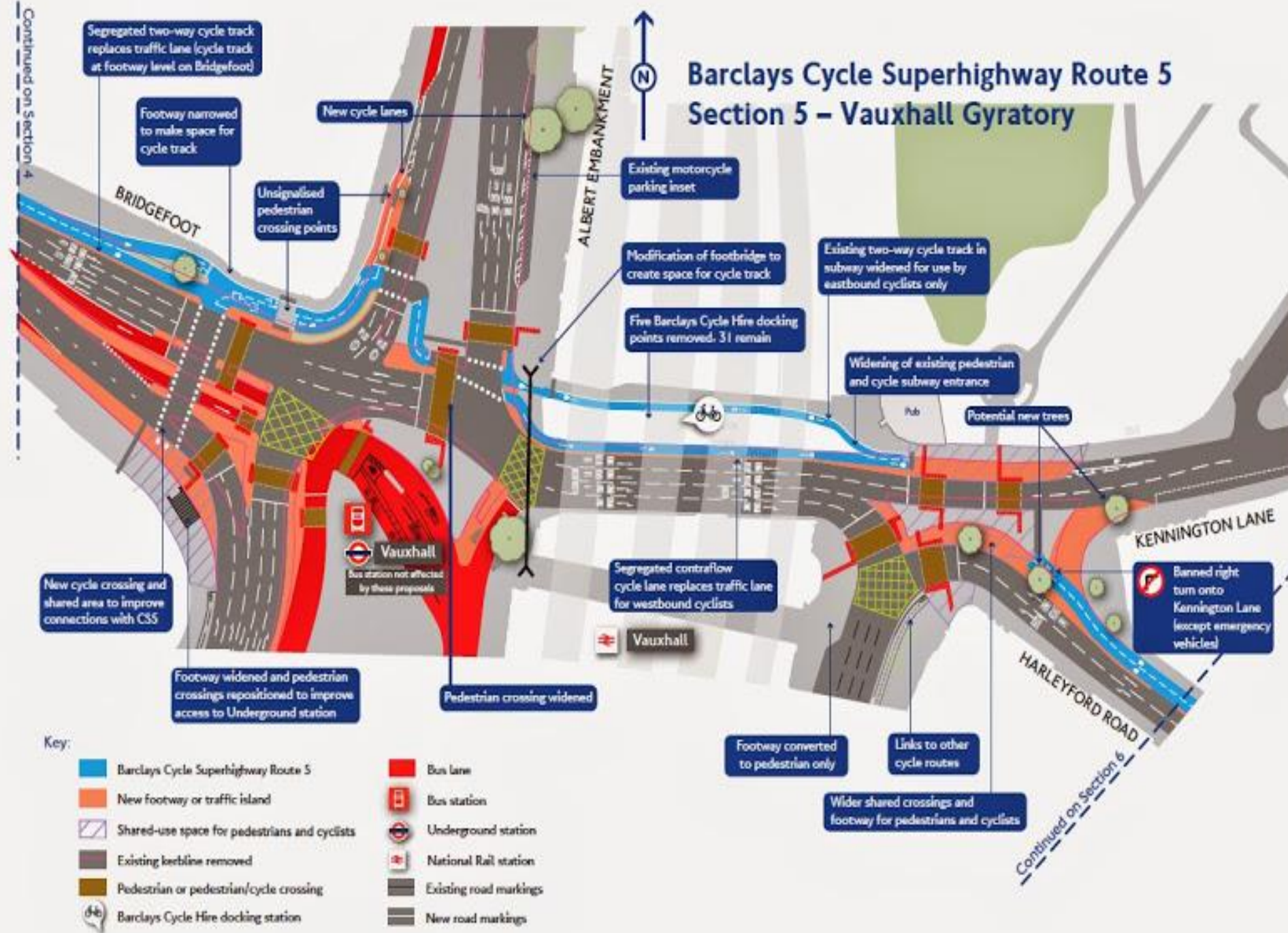Assertive outcome-led urban policies will be needed

Assertive
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10 Co-create with the public

Traditional engagement approach tends to be ineffective

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Grassroots design

Creating stronger support, and better solutions, by designing jointly with the public

1   Put outcomes at the heart of design

2   Embed progressive measures within large capital programmes

3   Develop a better evidence base on the wider impact of transport

4   Use – and create – burning platforms

5   Include iconic interventions

6   Design more 'temporary' infrastructure

7   Design flexible and adaptable infrastructure

8   Use big data to design for what our users really want

9   Cities need to move into a more proactive, strategic policy role

10 Co-create with the public

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Thank you

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