

Designing Healthy Communities



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Objectively Healthy Cities

Urban design for the 21st century

George Weeks

 @georgeweeks2014

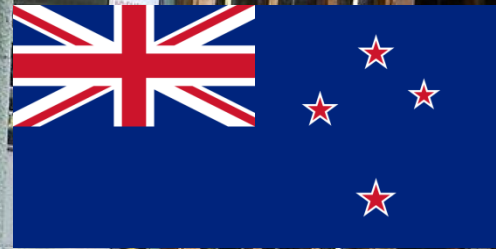
18 September 2017

Quiz!: *Public Health in OECD*

Three interventions that reduce health inequalities and improve health



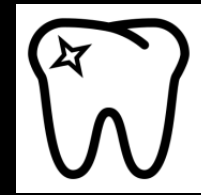
17%



Quiz!: Public Health in OECD

Three interventions that **reduce health inequalities** and **improve health**:

1. *Water fluoridation*



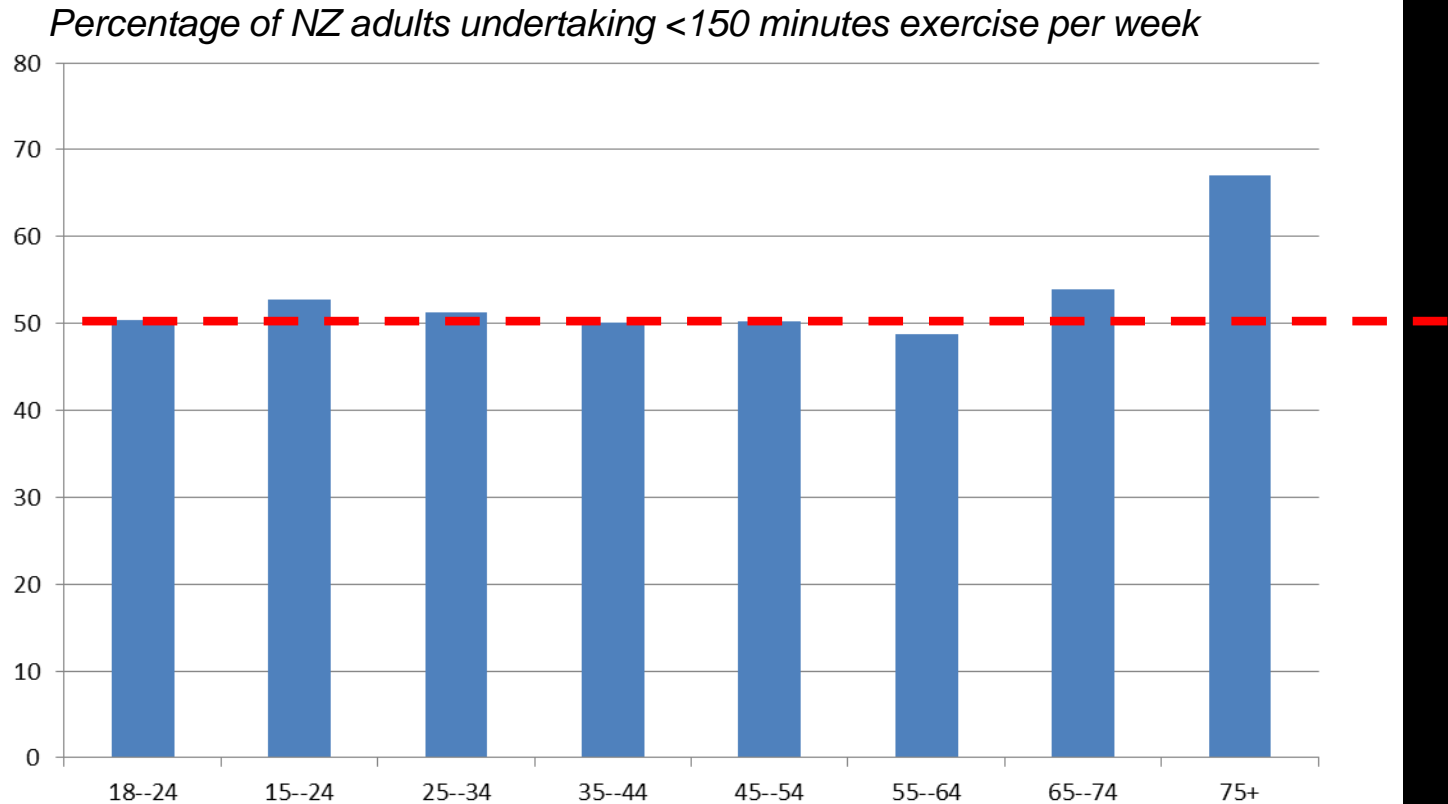
2. *Mass vaccination*



3. *Transforming streets*

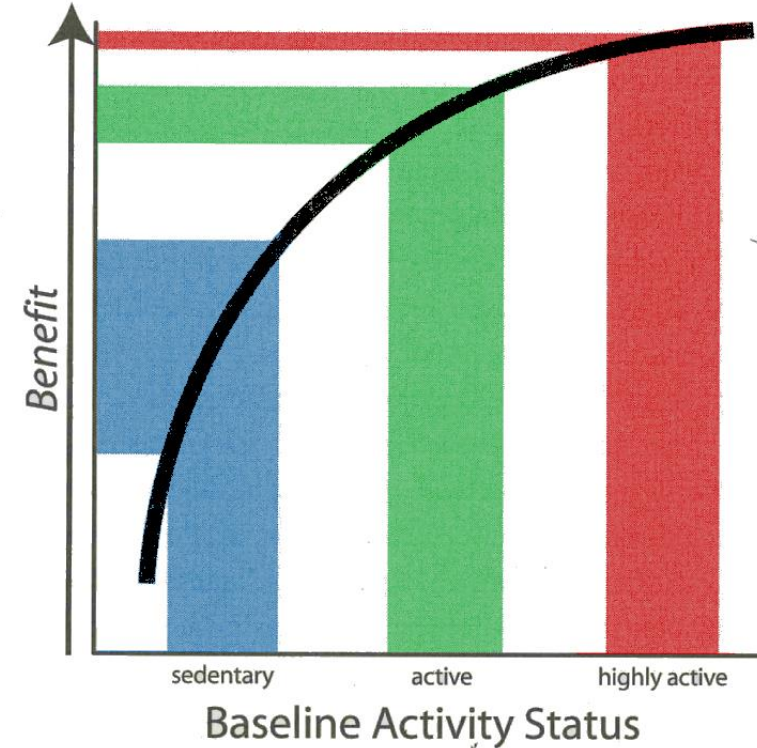
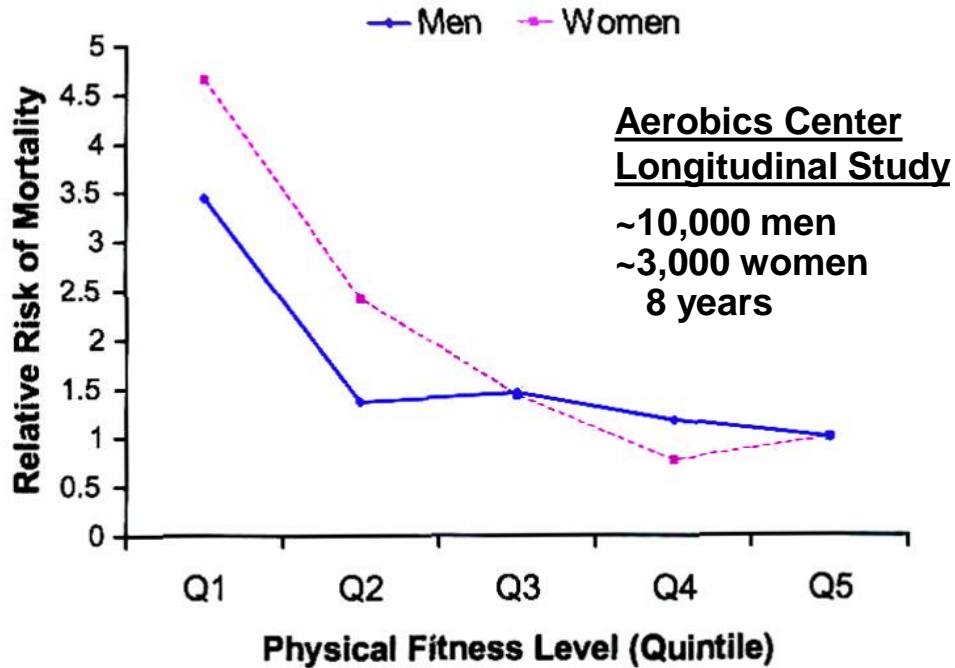


Insufficiently active adults



Source: NZ Ministry of Health

Benefits of physical activity



P T Katzmarzyk, 2007; *Physical Activity, Sedentary Behavior, and Health: Paradigm Paralysis or Paradigm Shift? Diabetes*; Nov 2010; 59, 11

"Physical activity and Health: A recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine" *Journal of the American Medical Association*, 1995 273 (5) pp 402 - 407

Benefits of physical activity

Cancer

Physical activity can reduce the risk of several types of cancer, including cancers of the breast, colon, prostate, and endometrium.⁸⁻¹⁰

Cardiovascular disease

Regular physical activity is a protective factor for, and reduces the risk of, cardiovascular diseases, including CHD and stroke.^{3,11}

Obesity

Physical activity is a key element in maintaining healthy weight and the prevention of weight gain.²⁰

Mental health

Regular physical activity has psychological health benefits, and can lead to improvements in self-esteem and mood, and reduced anger, depression and anxiety.¹¹⁻¹³

Diabetes

Physical activity has a role to play in the prevention and management of diabetes.^{21,22}

Bone density

Physical activity can increase bone mineral density in adolescents, maintain it throughout adulthood, and slow its decline in old age.¹⁴⁻¹⁹

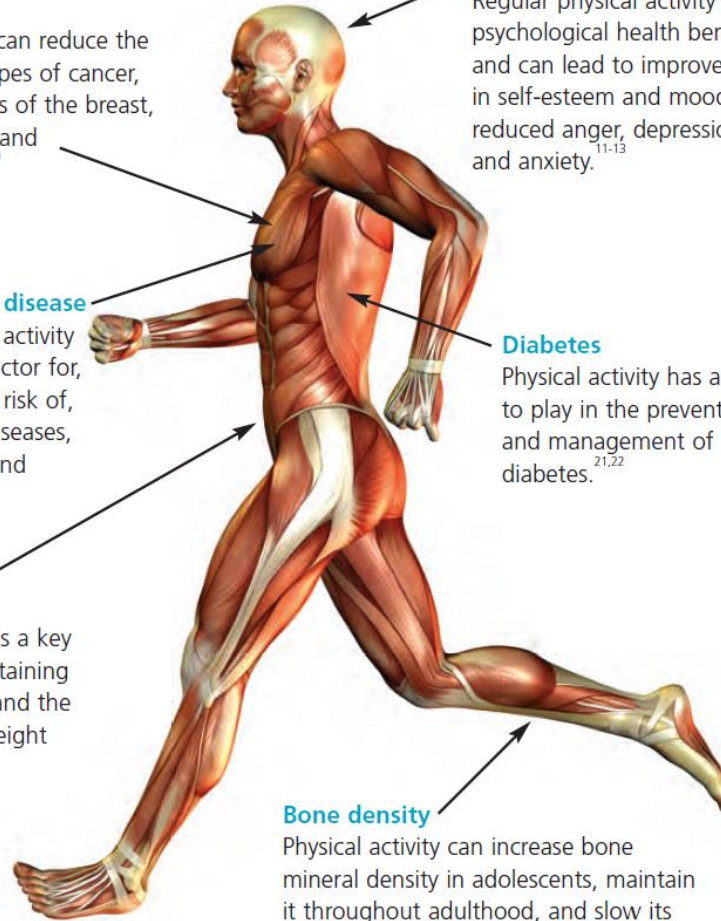
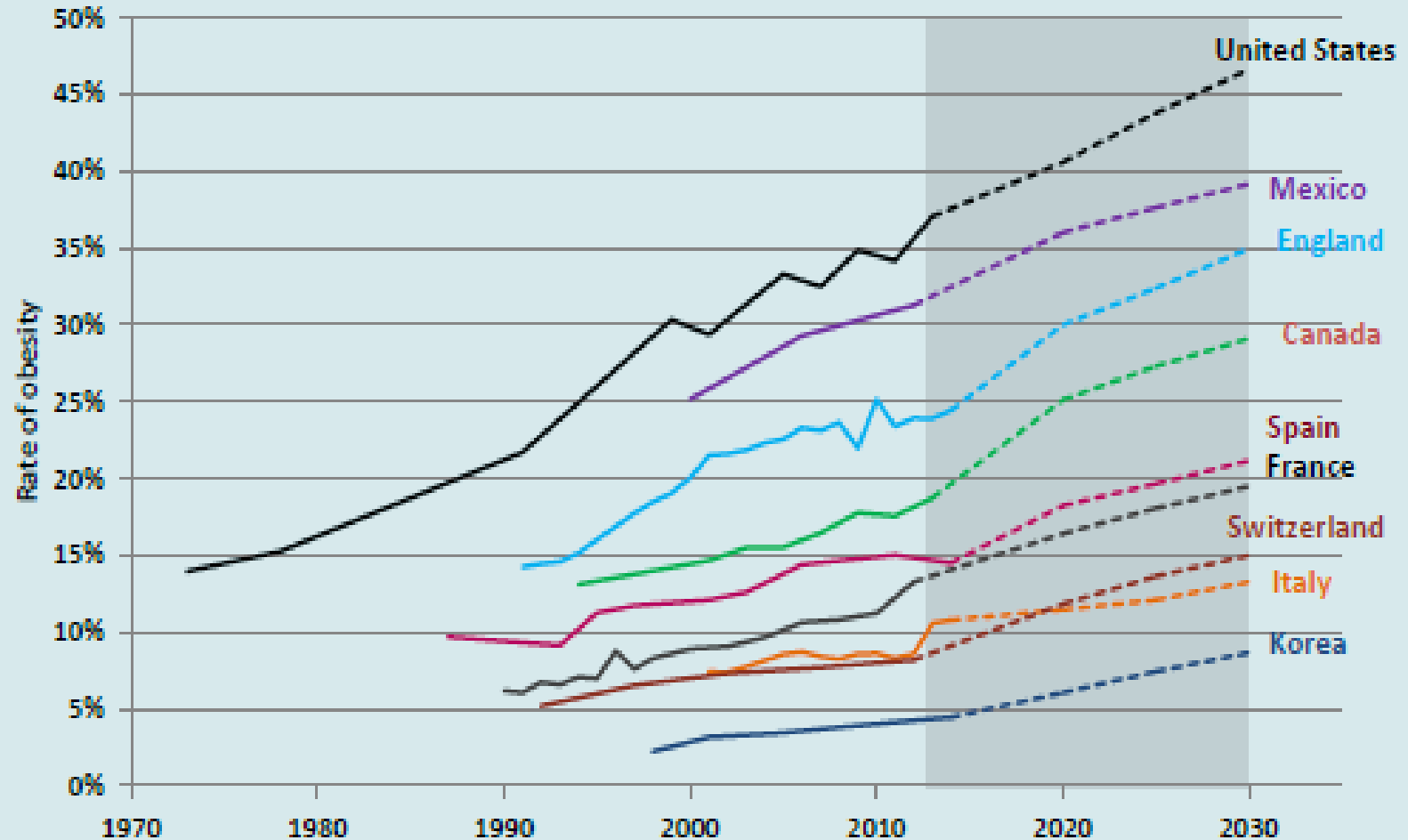
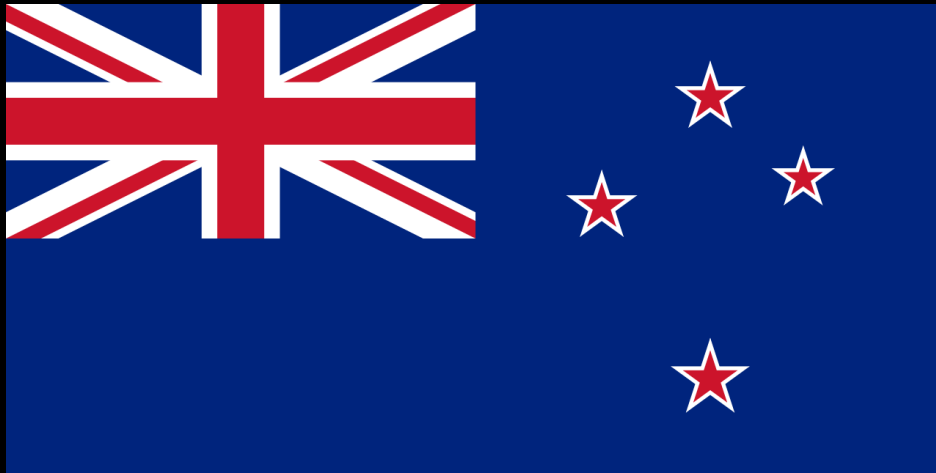


Figure 5: Projected rates of obesity



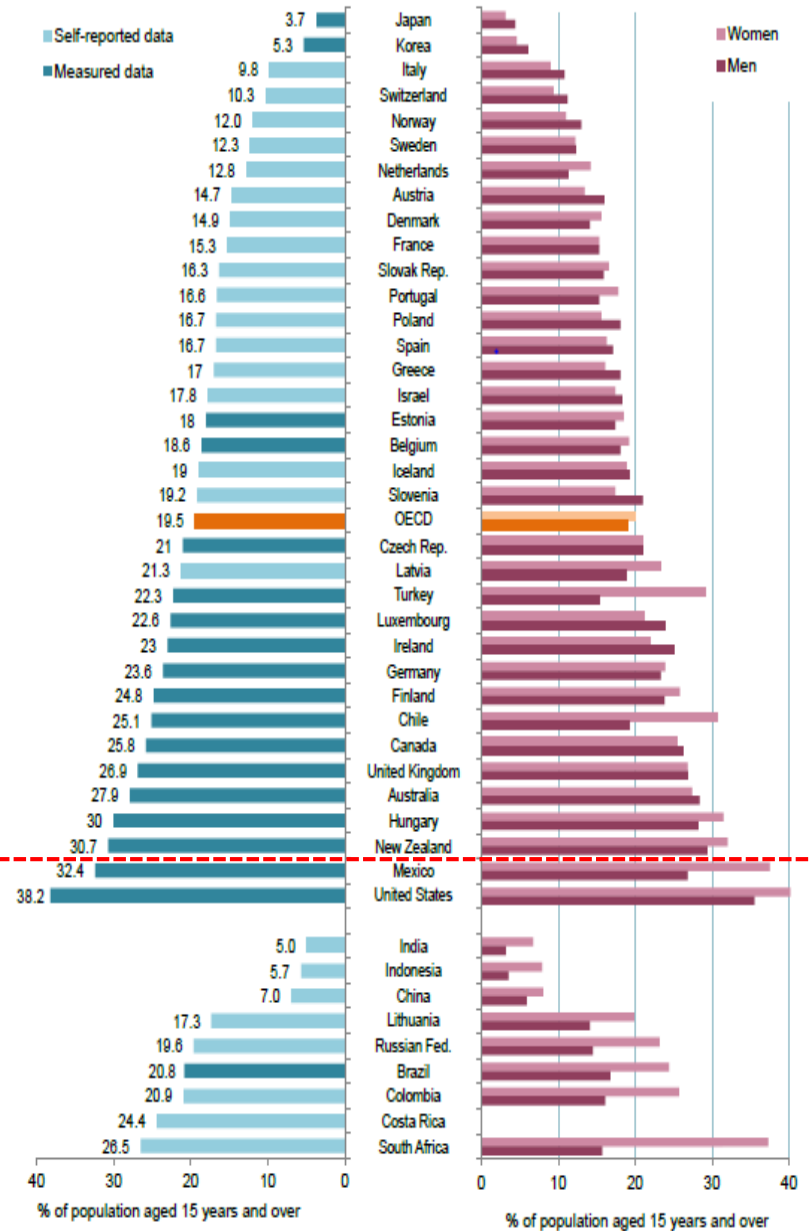
Source: Obesity Update 2017, OECD



30.7%

Source: Obesity Update 2017, OECD

Figure 1: Obesity among adults, 2015 or nearest year

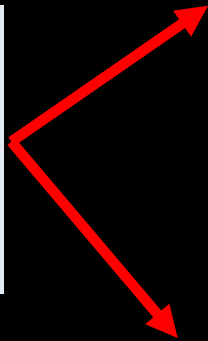


Types of Physical Activity

Recreational

Physical Activity

Utilitarian



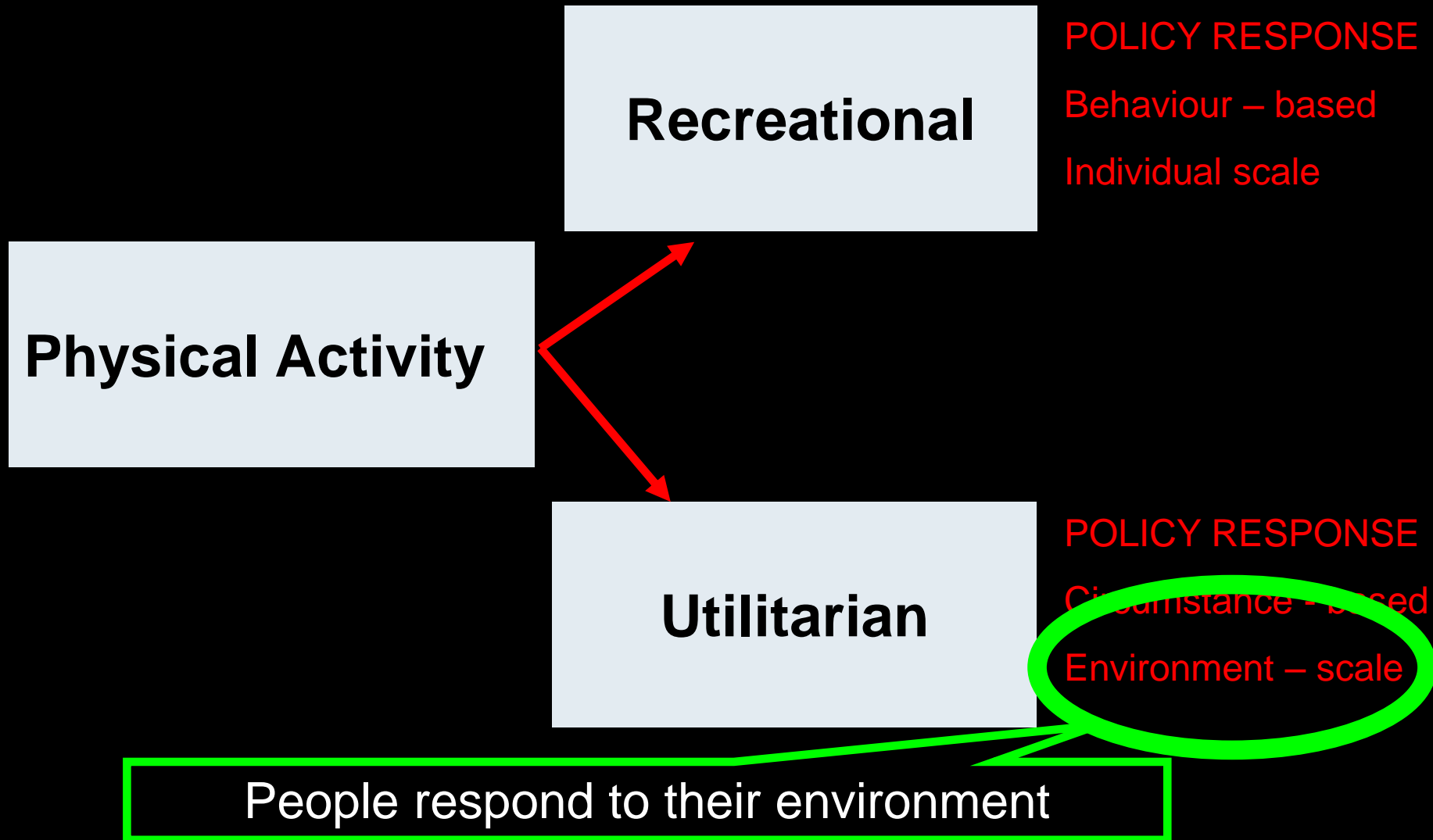
Recreational Activity

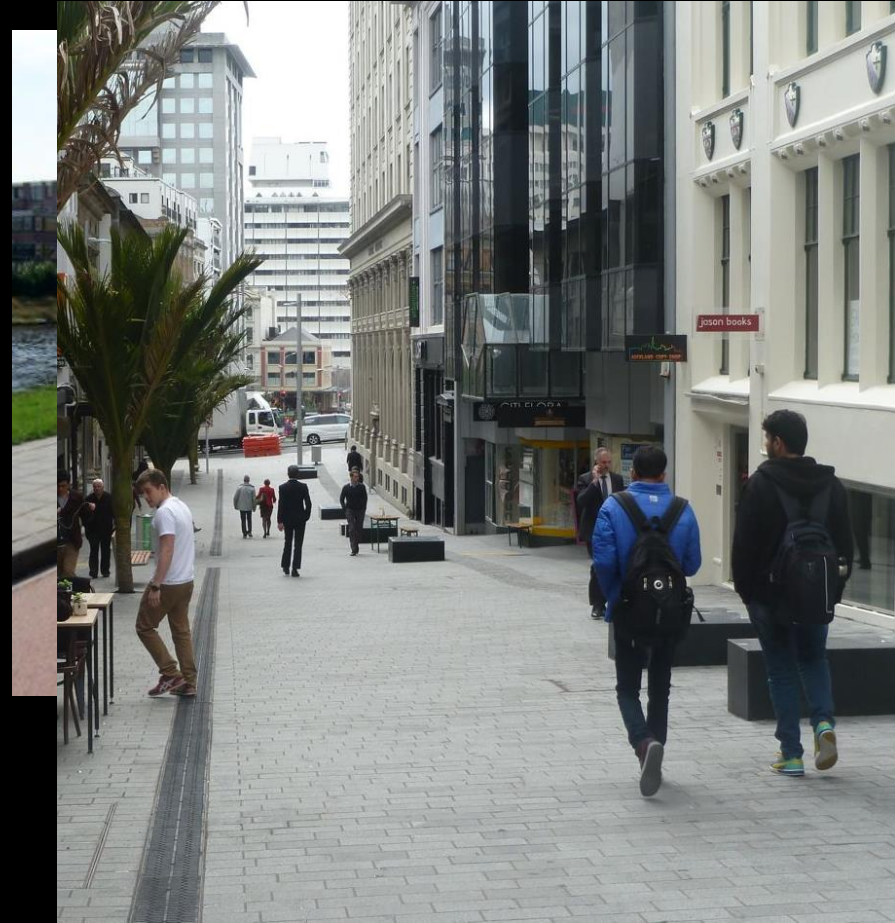


Utilitarian Activity



Types of Physical Activity





Would you cycle here?

People respond to their environment or here?

Environmental response!





Walkability

- Density
 - Mix of uses
 - Connectivity
- } - Proximity

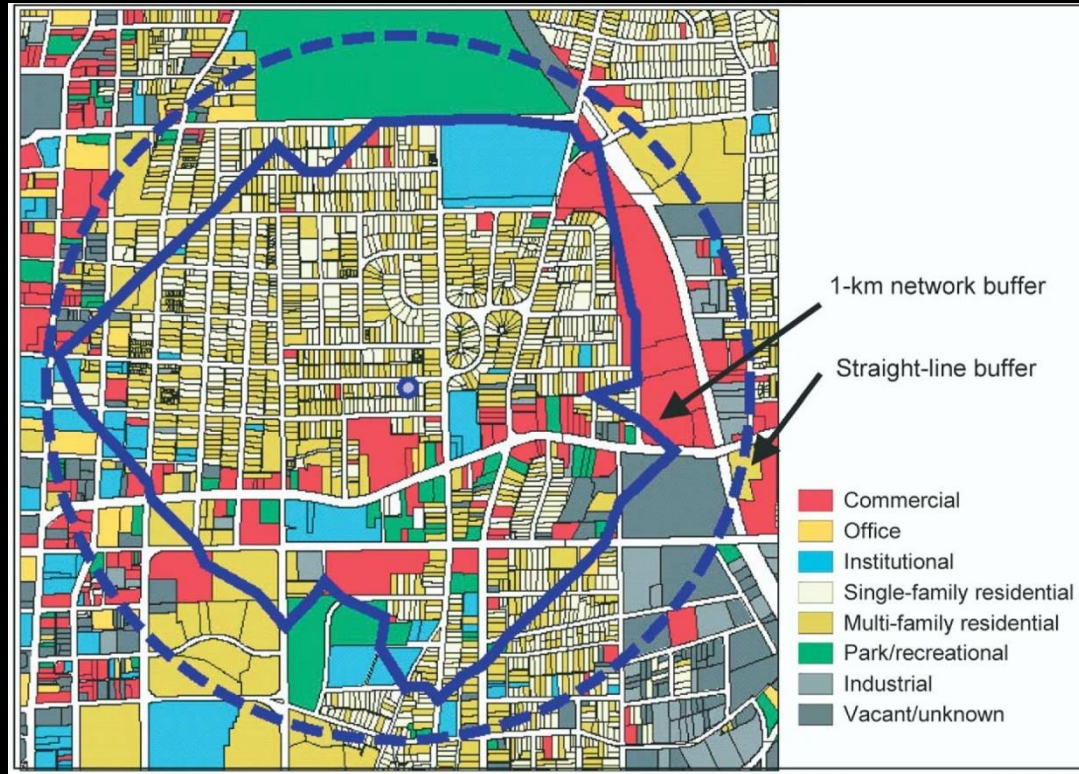


Residents' assessment
of their neighbourhoods'
walkability

Researchers' own prior
assessment of degrees
of walkability

Very strong correlation ($p < 0.0001$)

Results (Lawrence *et al*, 2005)



*“An **objectively measured** walkability index was significantly related to **objectively measured** moderate intensity physical activity in adults.”*

Walkability + health

Walkability encourages exercise, irrespective of whether or not people have an expressed preference for it.

Van Dyk et al (2009)

Residents of walkable neighbourhoods always tend to undertake more physical activity

Hanlon P., D. Walsh and B. Whyte (2006)



Physiology

Humans are designed for movement and have evolved to have high levels of energy expenditure

P T Katzmarzyk, 2010; *Physical Activity, Sedentary Behavior, and Health: Paradigm Paralysis or Paradigm Shift? Diabetes*;59,11



*“Despite all the technological advances in modern medicine, **regular physical activity** is as close as we’ve come to a **magic bullet** for good health.”*

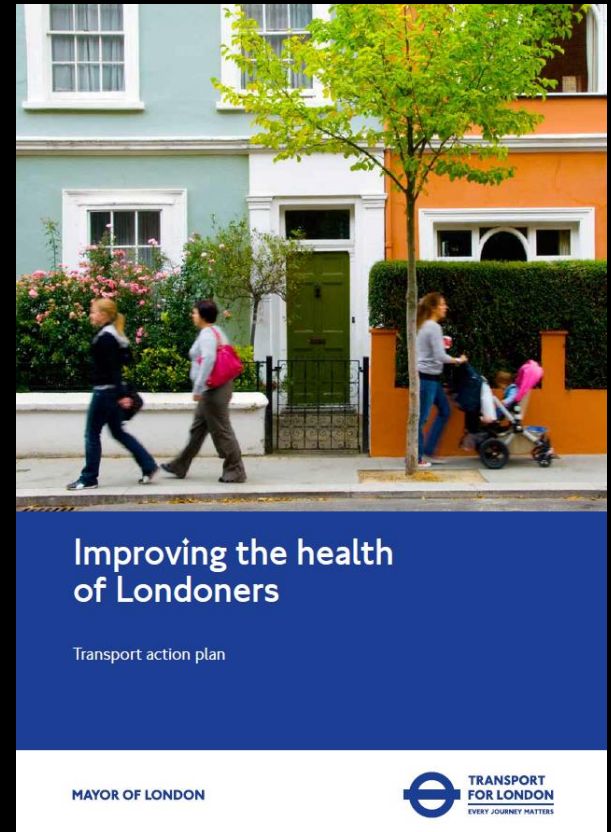
Dr JoAnne E. Manson, Professor of Medicine, Harvard Medical School & Chief, Division of Preventive Medicine, Department of Medicine, Brigham and Women's Hospital



Transport Health Action Plan

Improving the Health of Londoners - TfL (2014)

*Active and sustainable transport
improves health and physical activity
levels and physical activity
for people using cycling and
using public transport*



Transport & Health in London

Main impacts:

- Physical activity



- Air quality

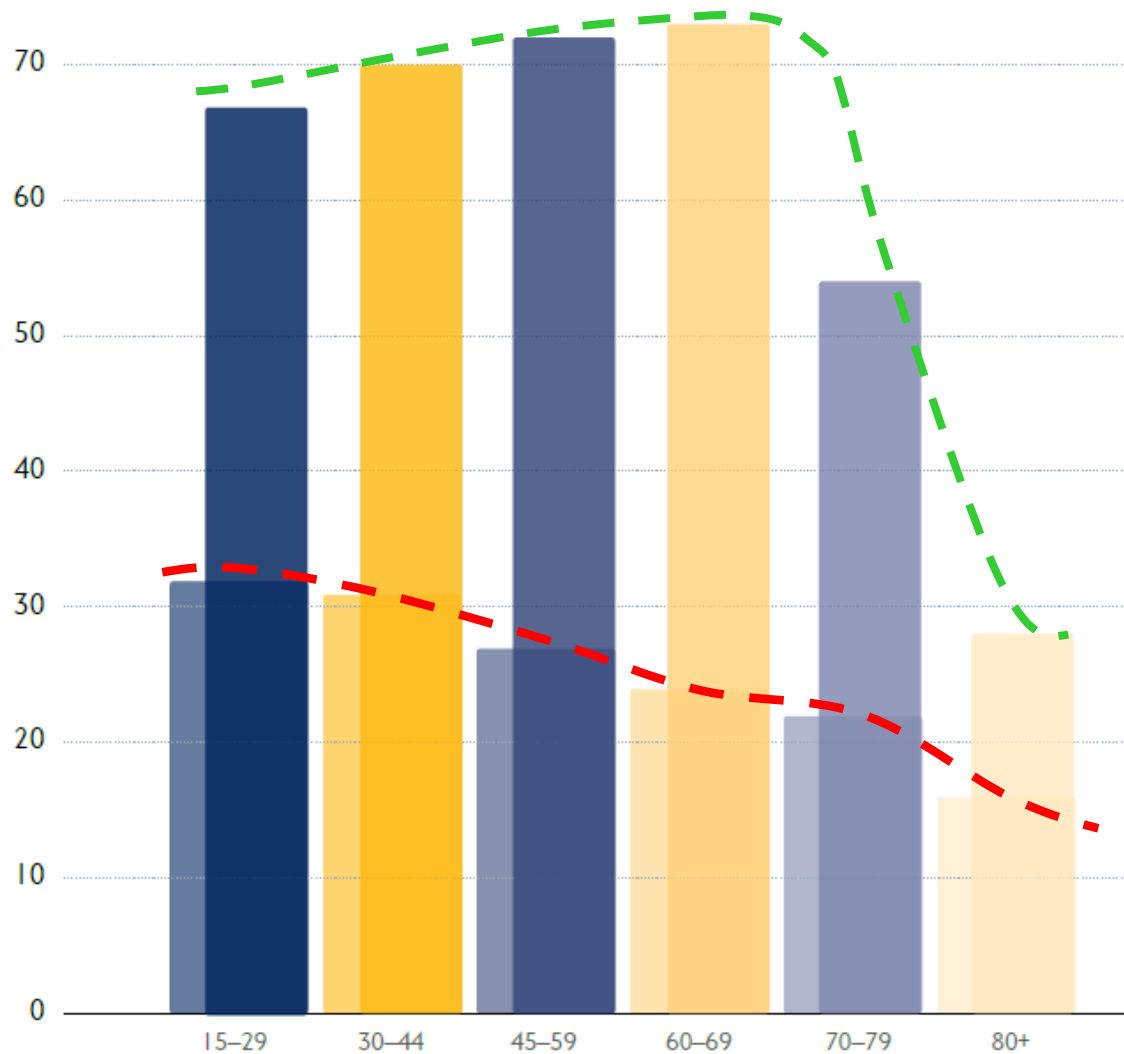


- Road traffic collisions



Active travel and physical activity

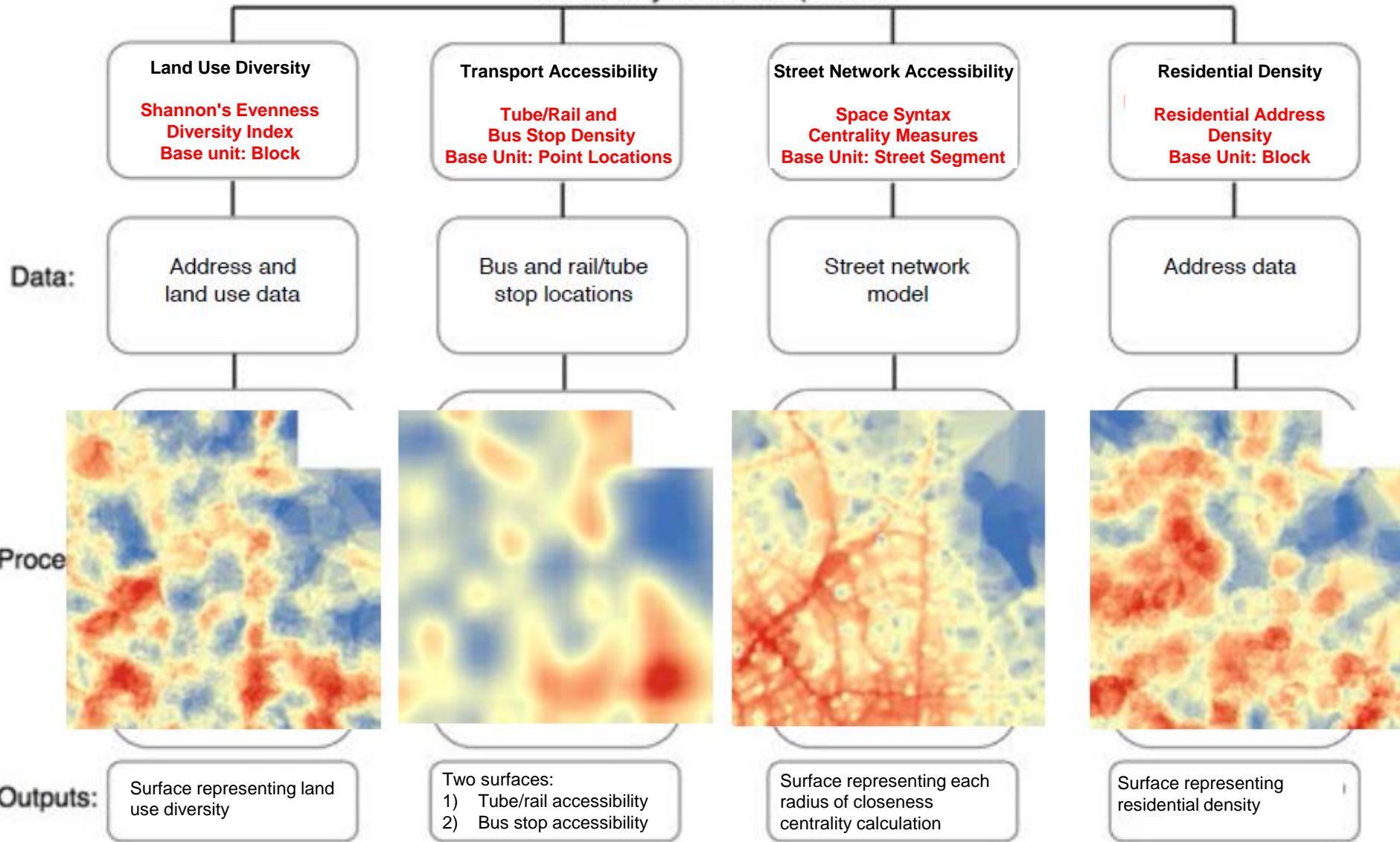
Figure 9: Proportion of adults in London who could meet their physical activity needs through walking and cycling



London Walkability Model

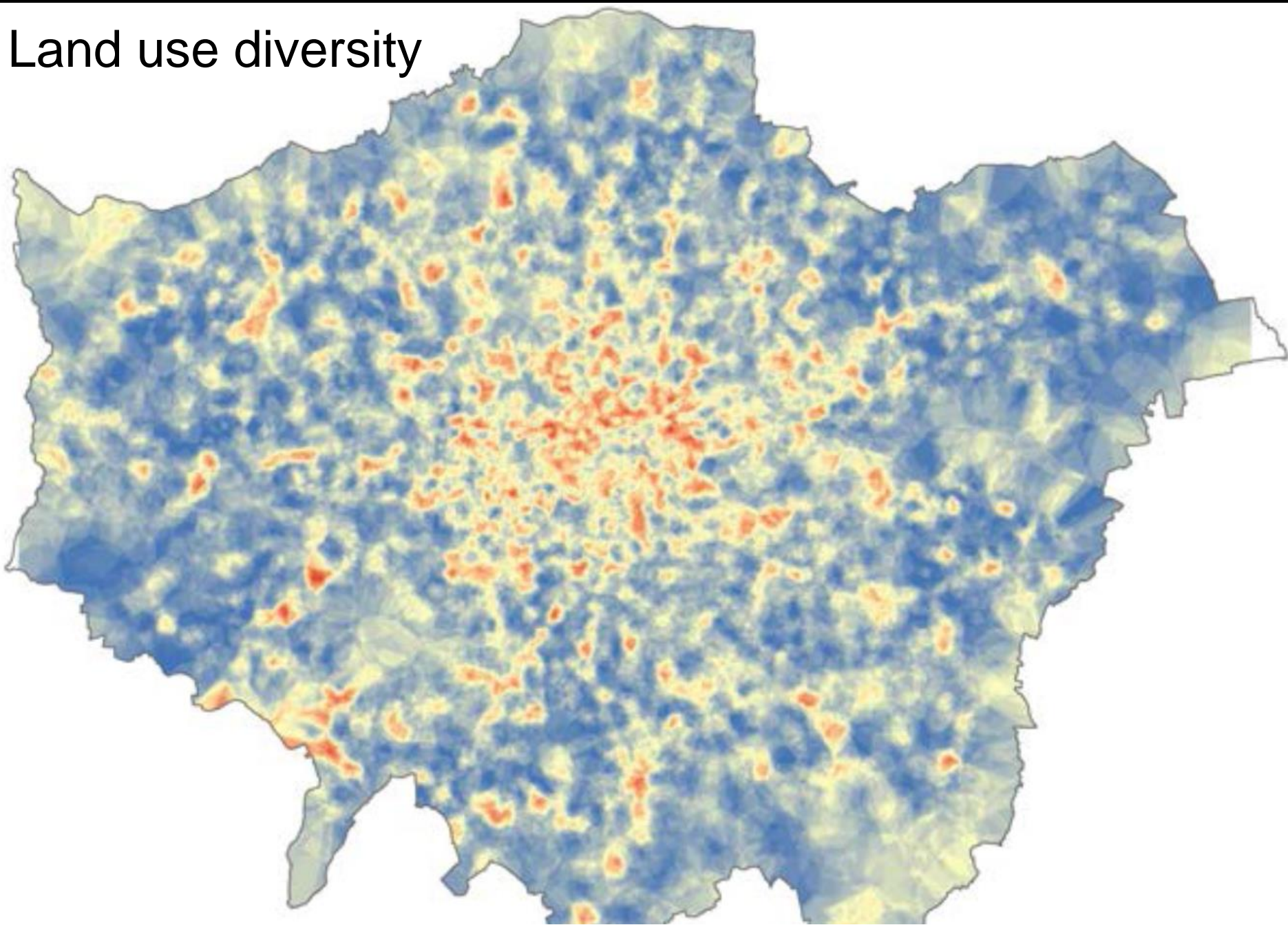


Walkability Index Components



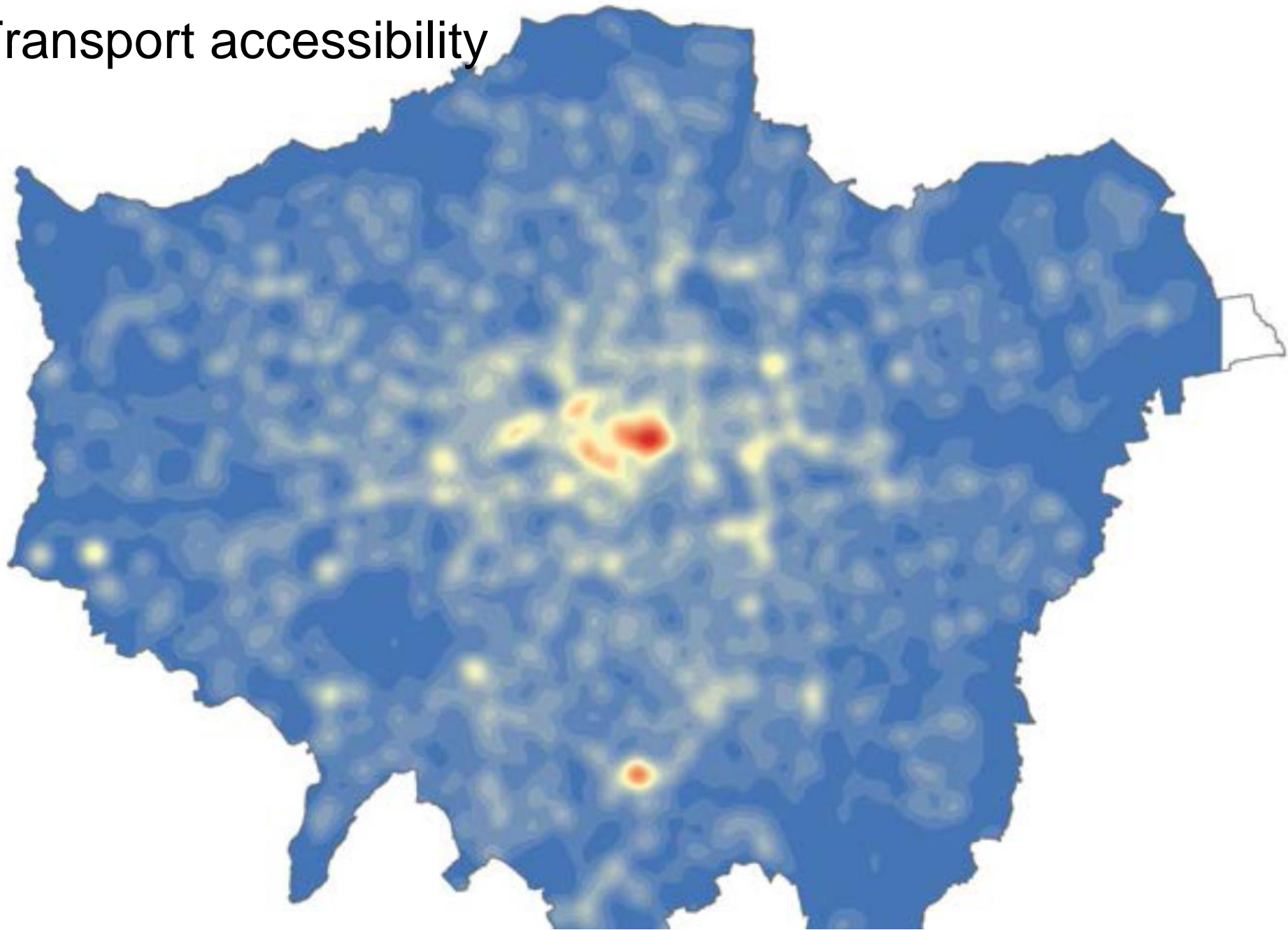
All images: Dr Ashley Dhanani, UCL

Land use diversity



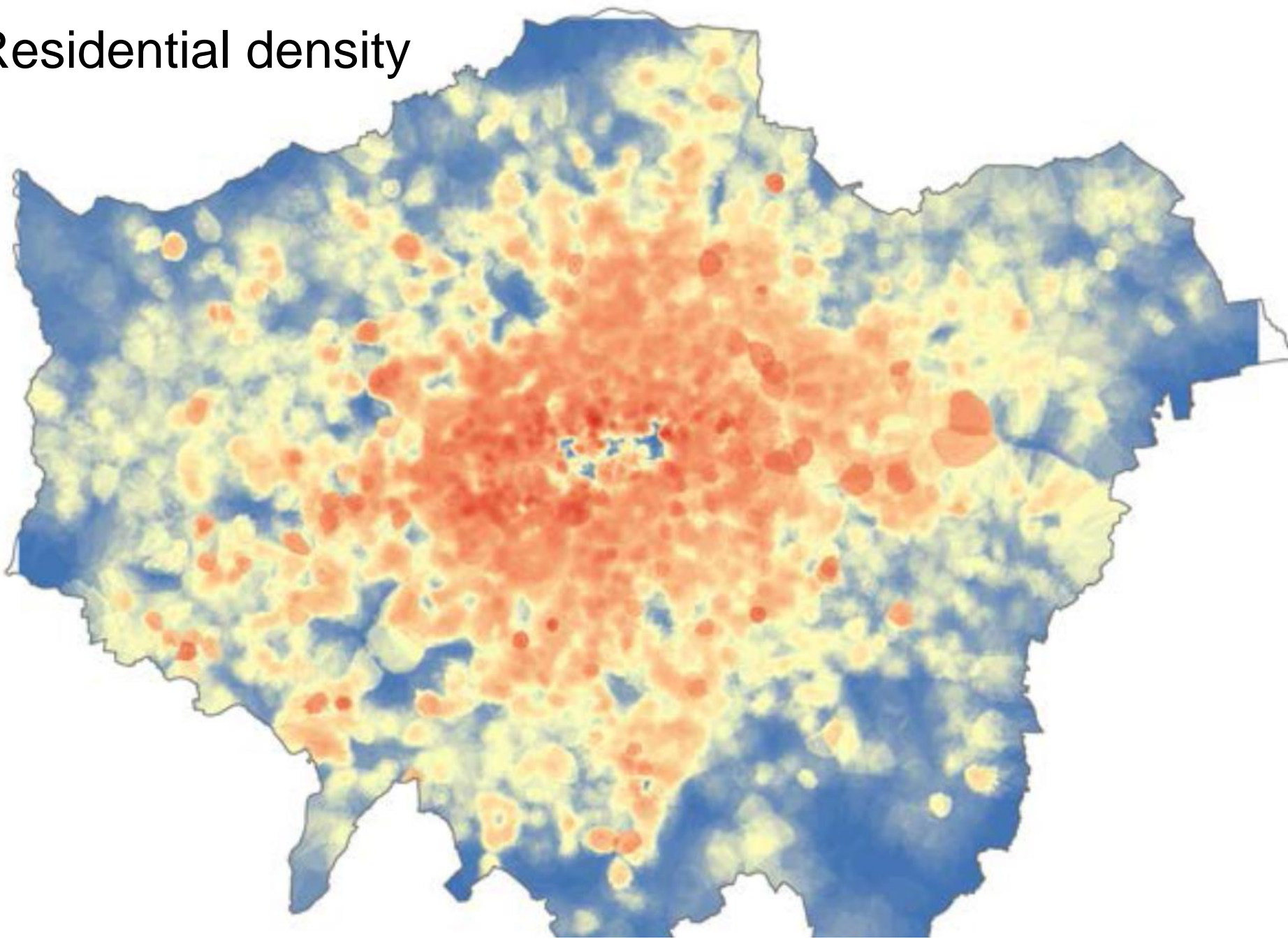
All images: Dr Ashley Dhanani, UCL

Transport accessibility



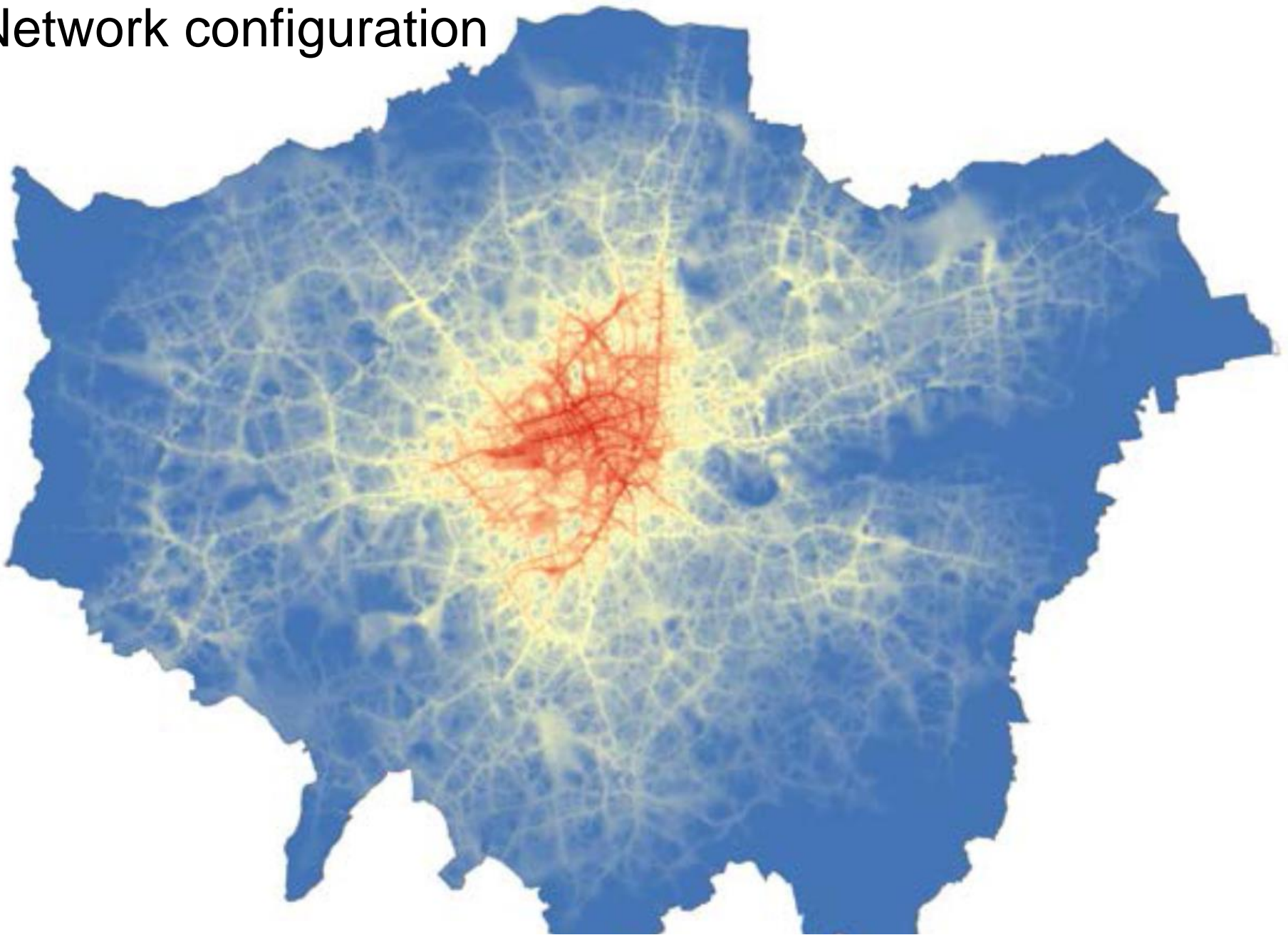
All images: Dr Ashley Dhanani, UCL

Residential density



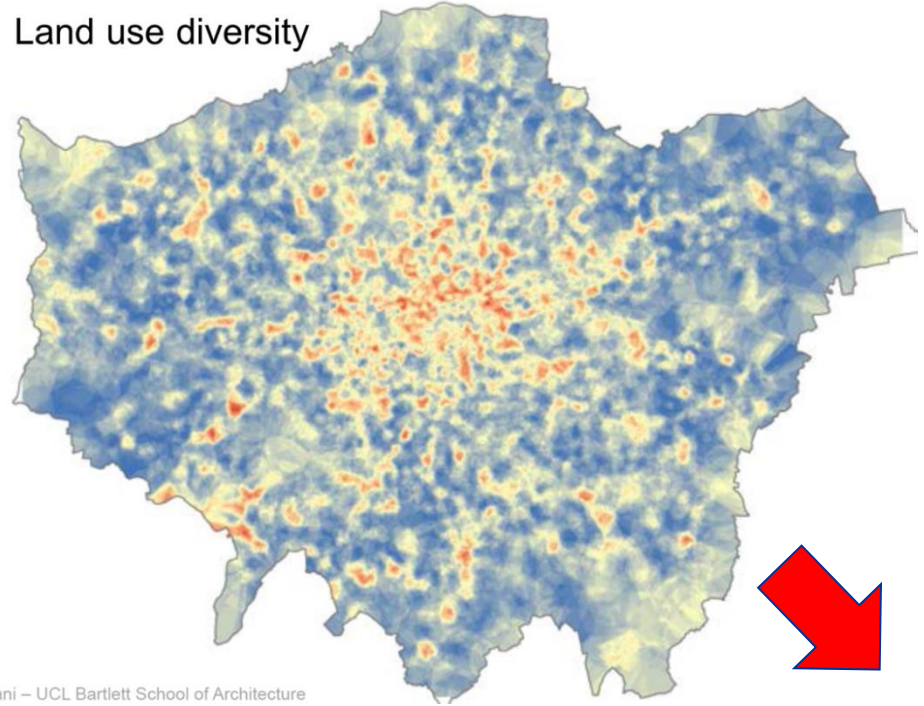
All images: Dr Ashley Dhanani, UCL

Network configuration

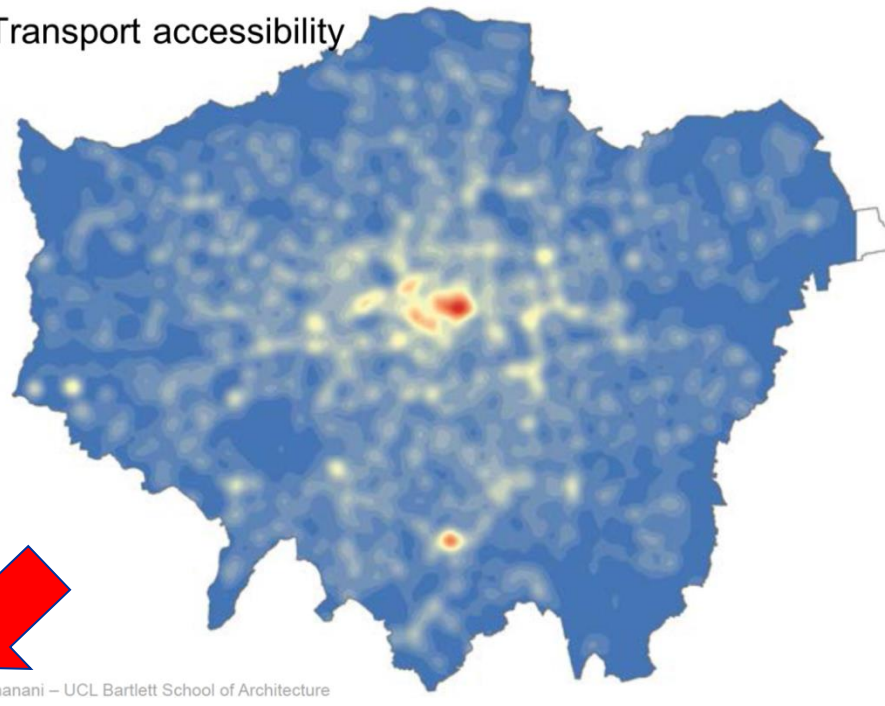


All images: Dr Ashley Dhanani, UCL

Land use diversity



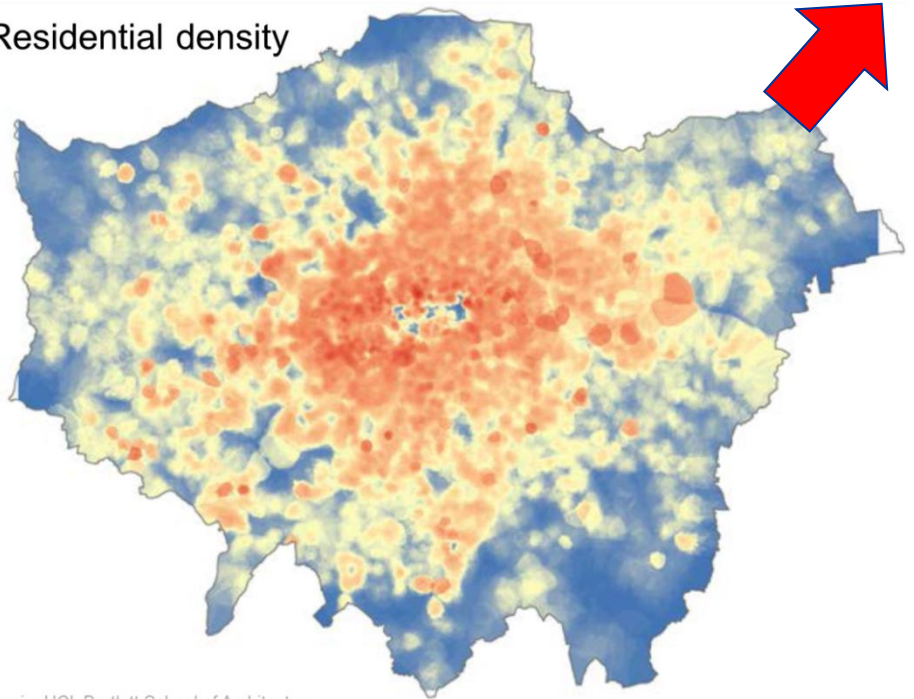
Transport accessibility



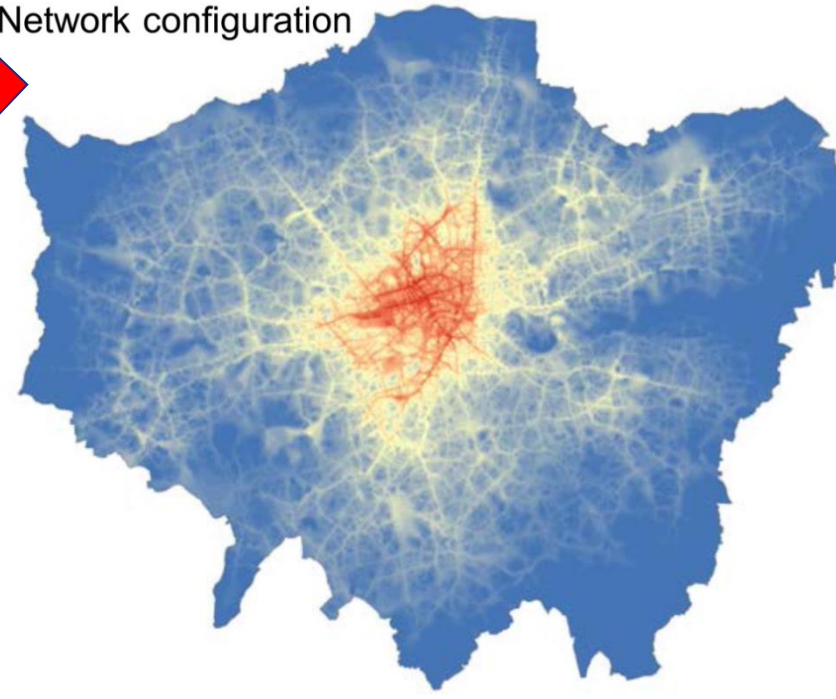
ani – UCL Bartlett School of Architecture

Dhanani – UCL Bartlett School of Architecture

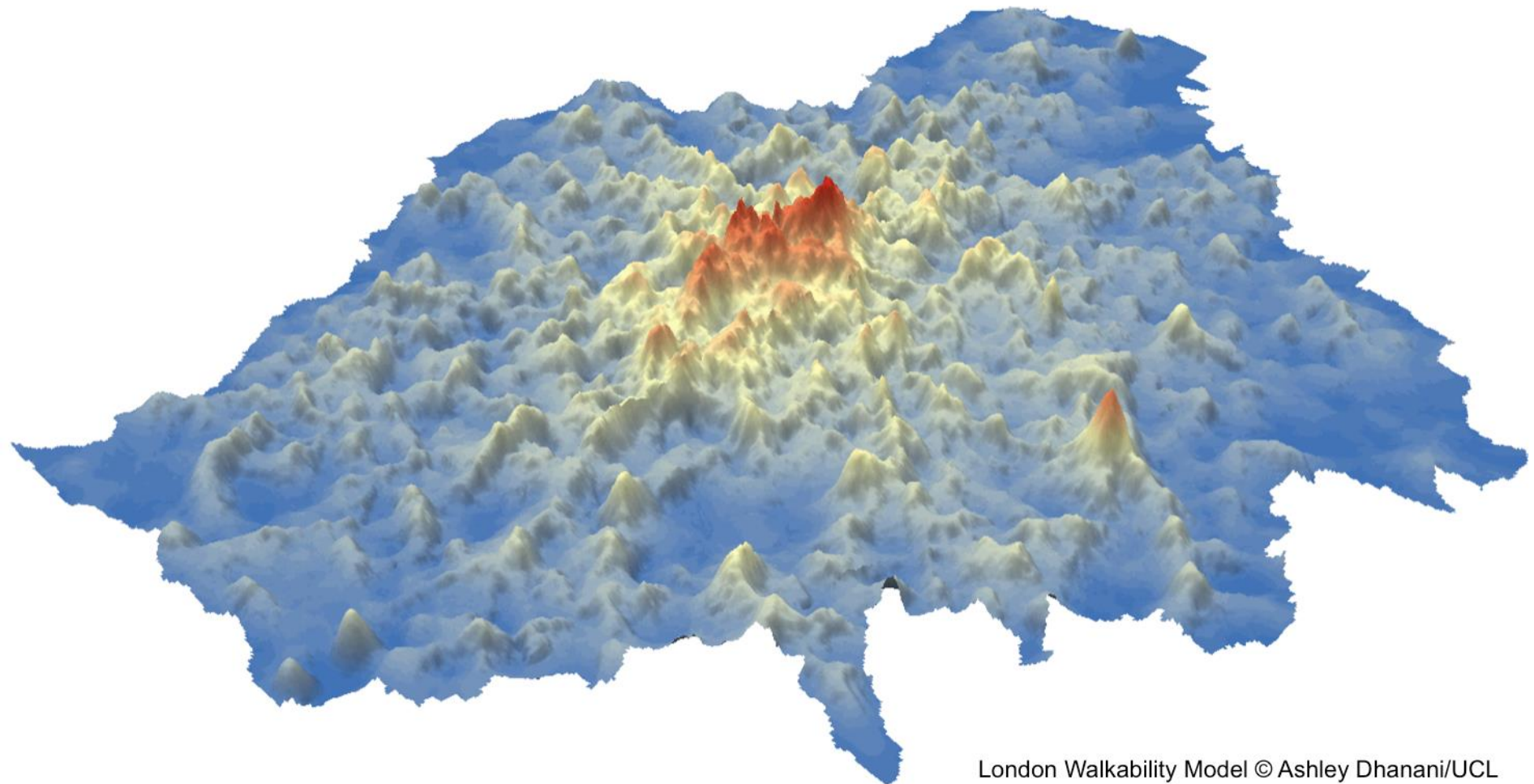
Residential density



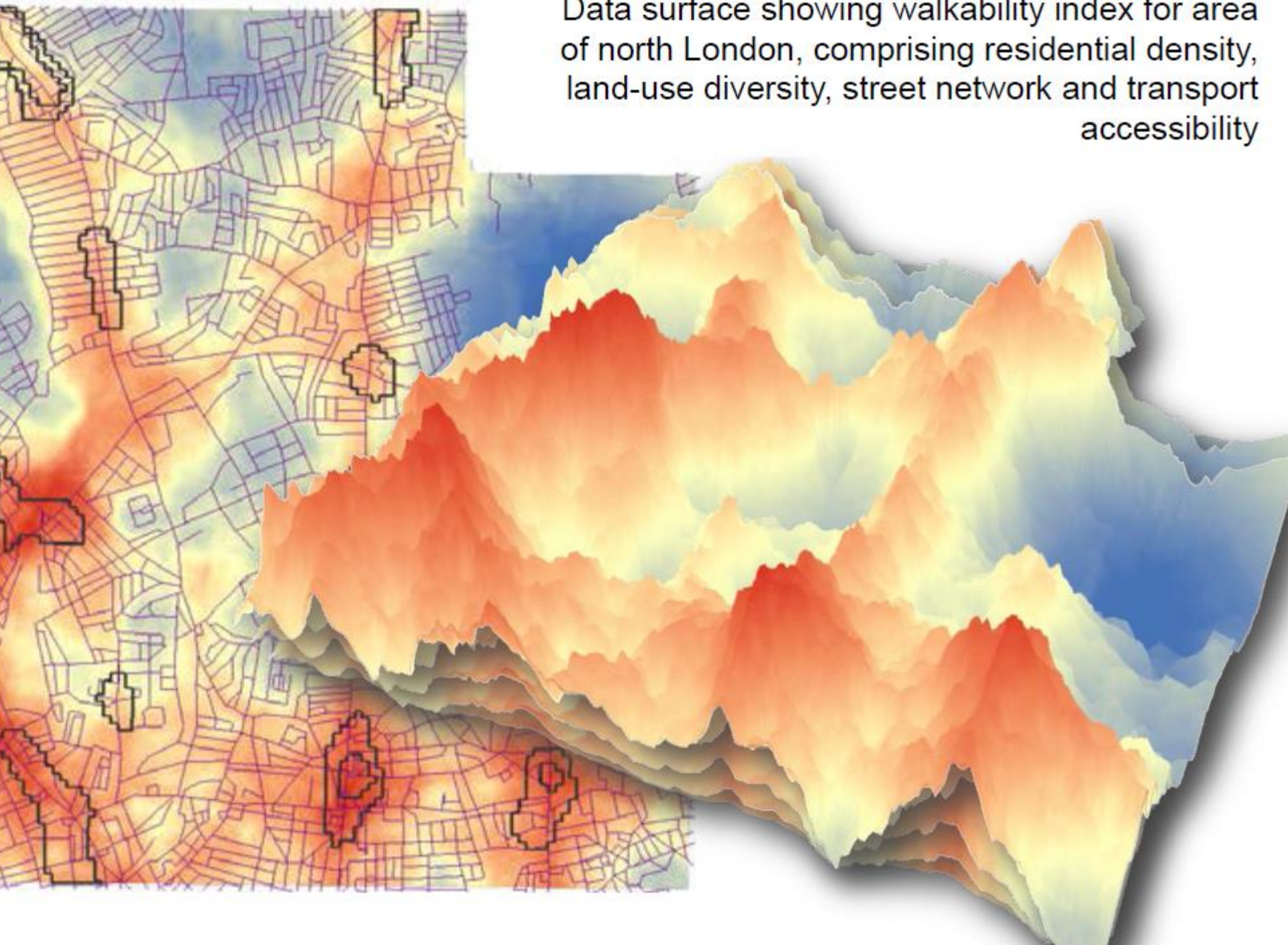
Network configuration



London-wide model



Data surface showing walkability index for area of north London, comprising residential density, land-use diversity, street network and transport accessibility



Marylebone High Street



Brent Cross



***“In your own
jail”***

**Fritz Perls
(1893 – 1970)**



Importance of utility

“There was...a difference between neighbourhoods regarding walking for errands. This...is consistent with transportation research that finds no differences in walking for exercise but finds significant differences in walking for transport purposes between high- and low walkability neighbourhoods”

Saelens et al, 2003

Cycling – similarly healthy?



Cycling – good for you?



Walking, cycling, driving = similar risk of injury per hour

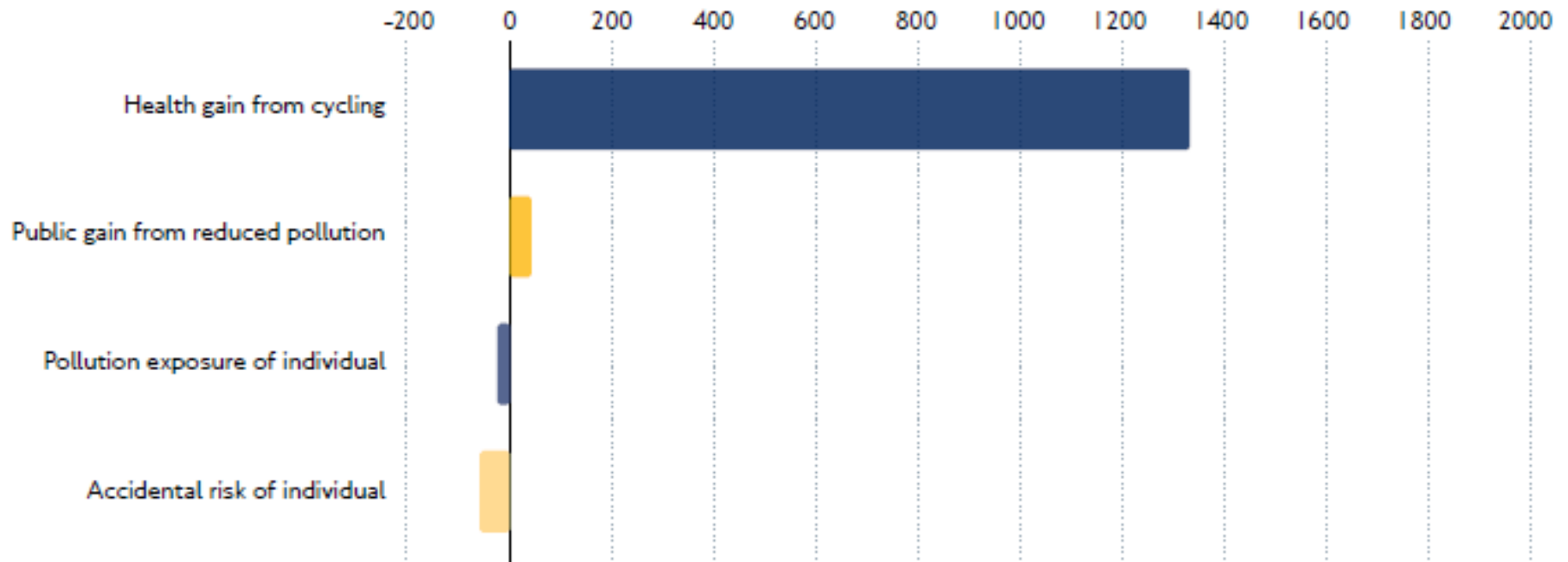
EXCEPT

Males aged 17 – 20: Driving = 5x risk of injury per hour

J.S. Mindell, D. Leslie & M. Wardlaw (2012); *Exposure-Based, 'Like-for-Like' Assessment of Road Safety by Travel Mode Using Routine Health Data*, PLoS ONE, 2012; 7 (12): e50606 DOI:

Cycling – good for you

Figure 10: Typical changes in mortality cost per person who switches from driving to cycling, €/yr



Source: Rabl, R and de Nazelle, A (2012)

Calculating the savings

Health

Economic

Assessment

Tool



“Conduct an economic assessment of the health benefits of walking or cycling”



*World
Health
Organization*



Department
for Transport

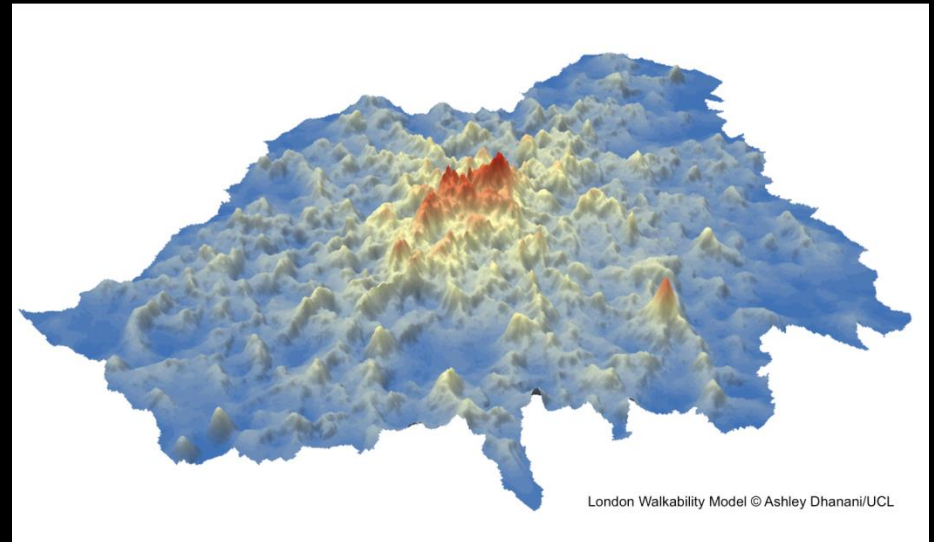
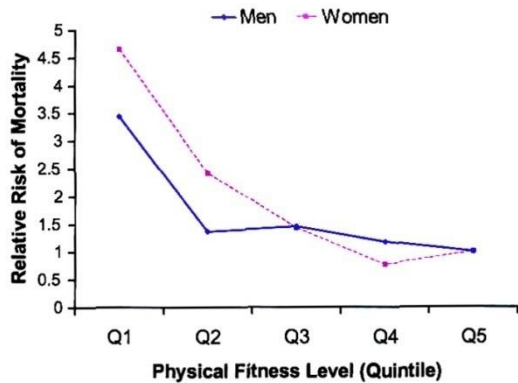
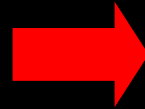


Recap

*“Despite all the technological advances in modern medicine, **regular physical activity** is as close as we’ve come to a **magic bullet** for good health.”*

Dr JoAnne E. Manson, Professor of Medicine, Harvard Medical School & Chief, Division of Preventive Medicine, Department of Medicine, Brigham and Women's Hospital

Recap



Implications

1. Neighbourhood walkability = objective measure
2. Walkability correlates with physical activity
3. Physical activity correlates with significantly lower levels of illness and better health
4. Walkable and bikeable mixed use environments contribute significantly to public health

= Objective, public health based justification for walkable, mixed use urban design

Designing Healthy Communities

Sam Corbett

18 September 2017



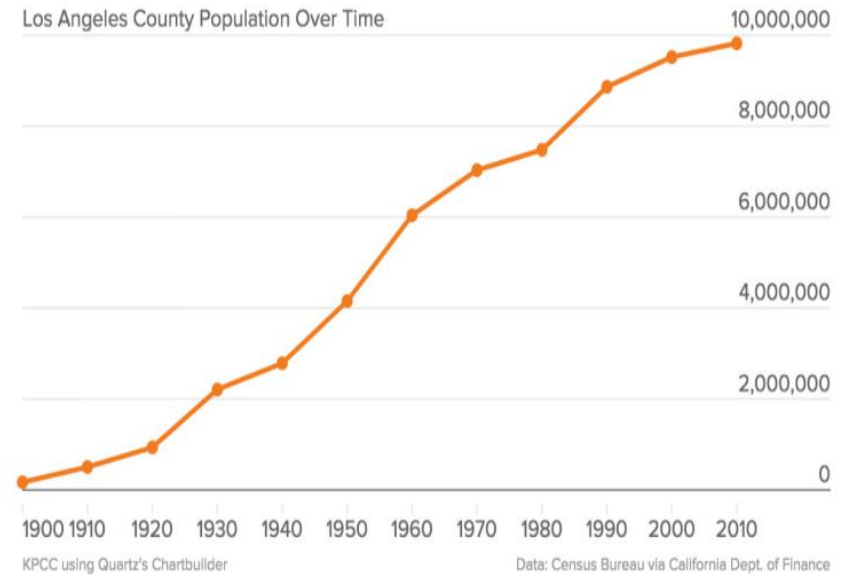
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County of Los Angeles



Los Angeles County Population Over Time



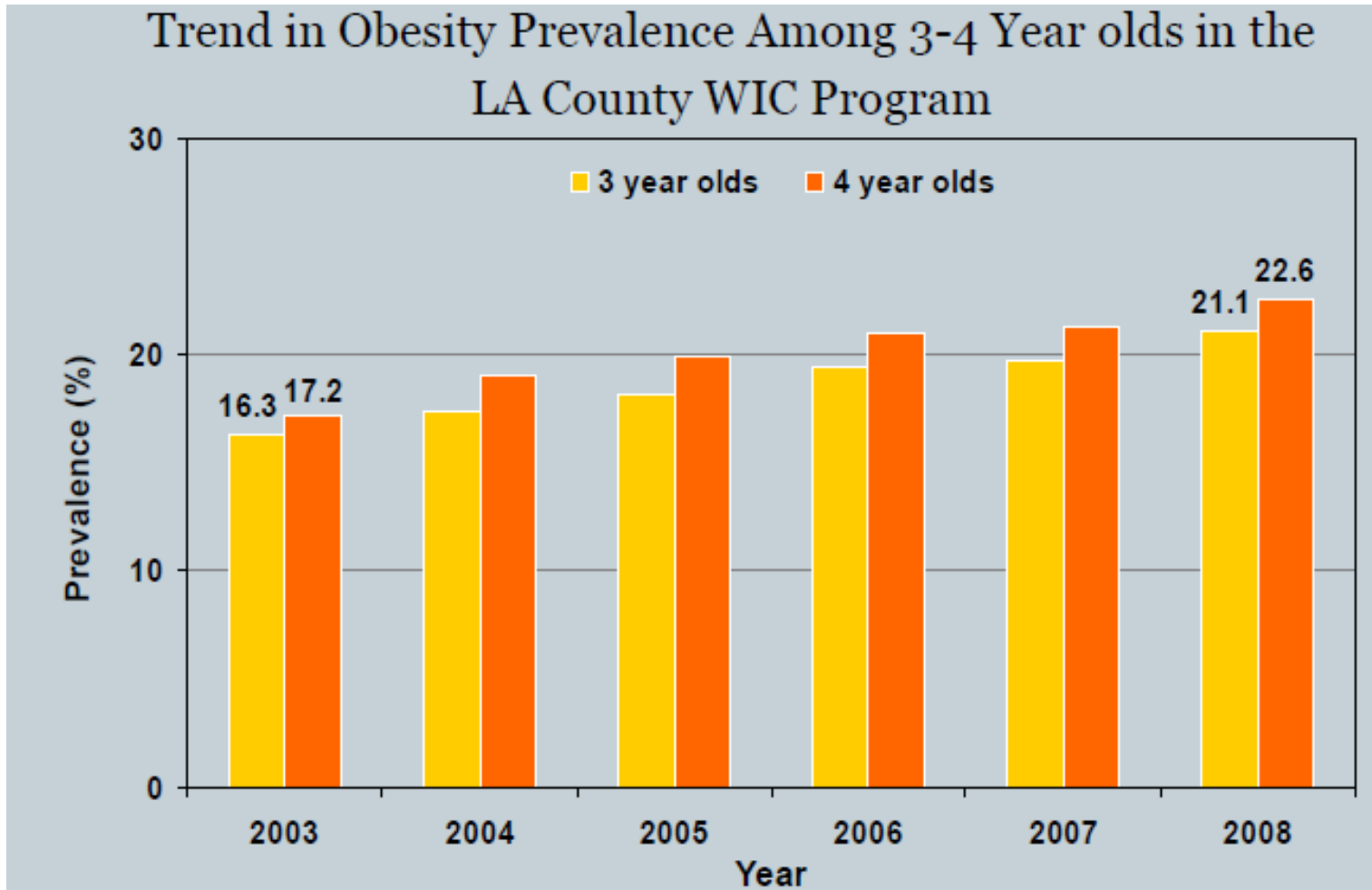
- Most populous county in the US
- Larger than 42 individual US States
- 88 incorporated cities
- One of the most ethnically diverse counties in the US



Los Angeles – Birthplace of the Freeway



Obesity Epidemic



Costs of Obesity and Physical Inactivity

Economic Costs of Overweight, Obesity & Physical Inactivity Among Adults in LA County, 2006

	Overweight and Obesity Billions	Physical Inactivity Billions
Health Care	\$3.60	\$2.39
Lost Productivity	\$2.38	\$3.51
Total:	\$5.98	\$5.90

Total Cost:

\$11.88 BILLION

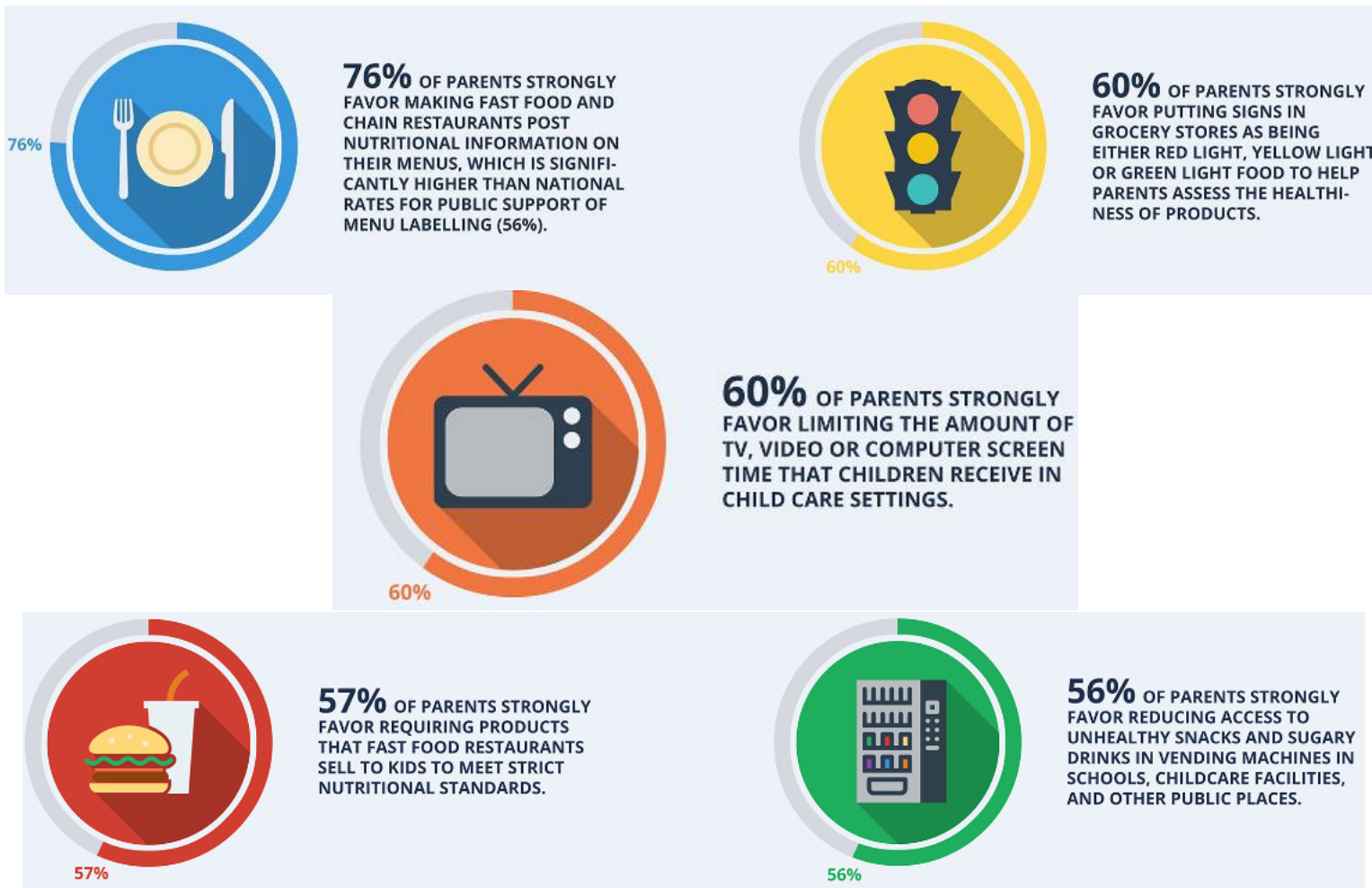
Source: California Center for Public Health Advocacy, 2009.

Multi Pronged Effort to Reduce Obesity Rates

Community Action Plan

- 1) Adopt healthy food and beverage policies in eight cities
- 2) Adopt healthy food/beverage policies in three L.A. County departments
- 3) Improve school meal nutrition in four local districts, including LAUSD
- 4) Adopt nutrition and physical activity guidelines for preschools
- 5) Adopt policies to support breastfeeding in county and private firms
- 6) Increase teacher capacity to implement physical education requirements
- 7) Adopt or strengthen joint-use policies in school districts
- 8) Adopt land use policies to increase pedestrian activity and biking

Multi Pronged Effort to Reduce Obesity Rates



Source: Achieving Healthy Weight Early in Life, Connecting the Dots

LA County Healthy Design Ordinance

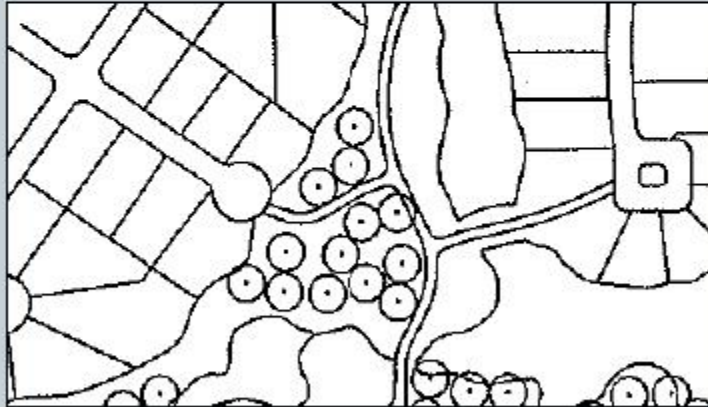
Healthy Design Features

Creating safe, convenient and pleasant places



1. Pathways and trails

Trail thru-access



Thru-connections for cul-de-sacs

2. Mix of land uses



Mixed uses within buildings and block

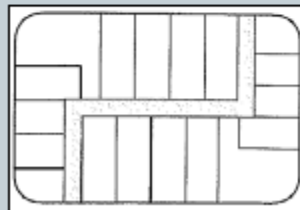
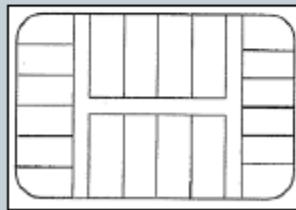
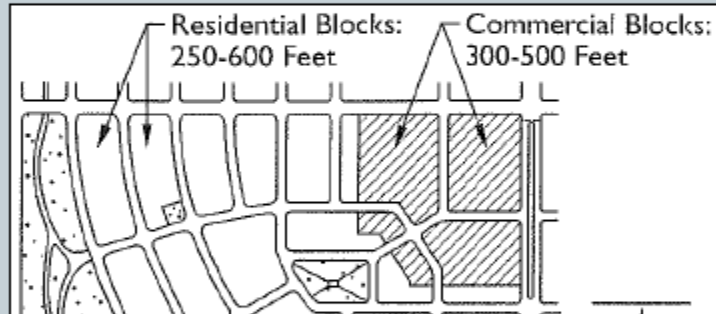
LA County Healthy Design Ordinance

Healthy Design Features

Creating safe, convenient and pleasant places



3. Block design



Maximum block perimeters

4. Street design

Charlotte, NC



New public, private street standards

LA County Healthy Design Ordinance

Healthy Design Features

Creating safe, convenient and pleasant places

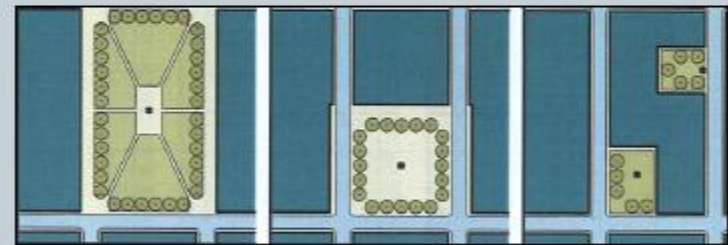
5. Transit facilities

New York City



Bike amenities near transit

6. Parks/civic spaces



squares

plazas

playgrounds

Smaller decentralized spaces

LA County Healthy Design Ordinance

Healthy Design Features

Creating safe, convenient and pleasant places



7. Buildings

Old Town Pasadena



Minimum 2 stories, minimal setback

8. Landscaping



Berkeley, CA

Appropriate type, interval for shade

LA County Healthy Design Ordinance

Healthy Design Features

Creating safe, convenient and pleasant places



9. Parking



*Trader
Joe's
(Chicago)*



Cars in back, bikes in front

10. Walls, fences, porches



Clearly defined public, private space

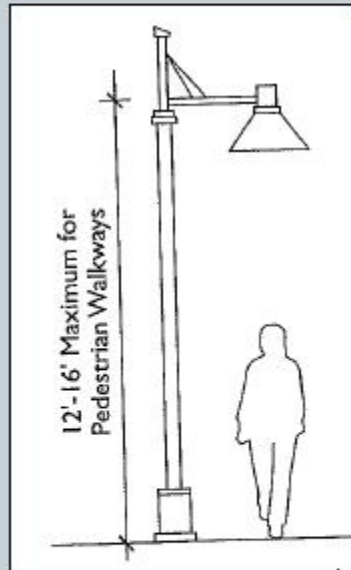
LA County Healthy Design Ordinance

Healthy Design Features

Creating safe, convenient and pleasant places



11. Lighting



Shorter, lower wattage, more frequent

12. Signs

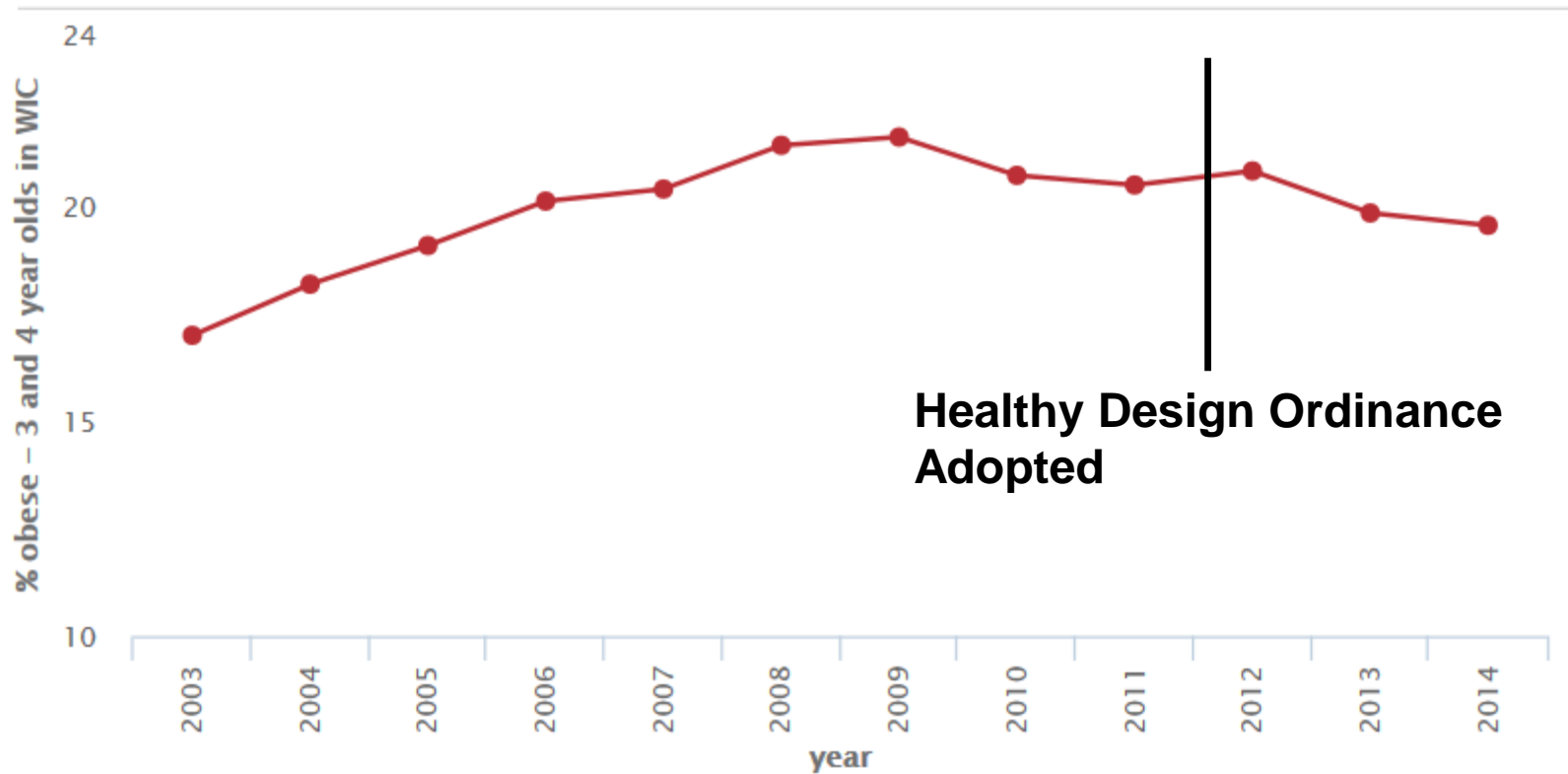
London



Smaller size near sidewalks

LA County Obesity Rates (2003 – 2014)

Obesity Rates Among 3 and 4 year olds



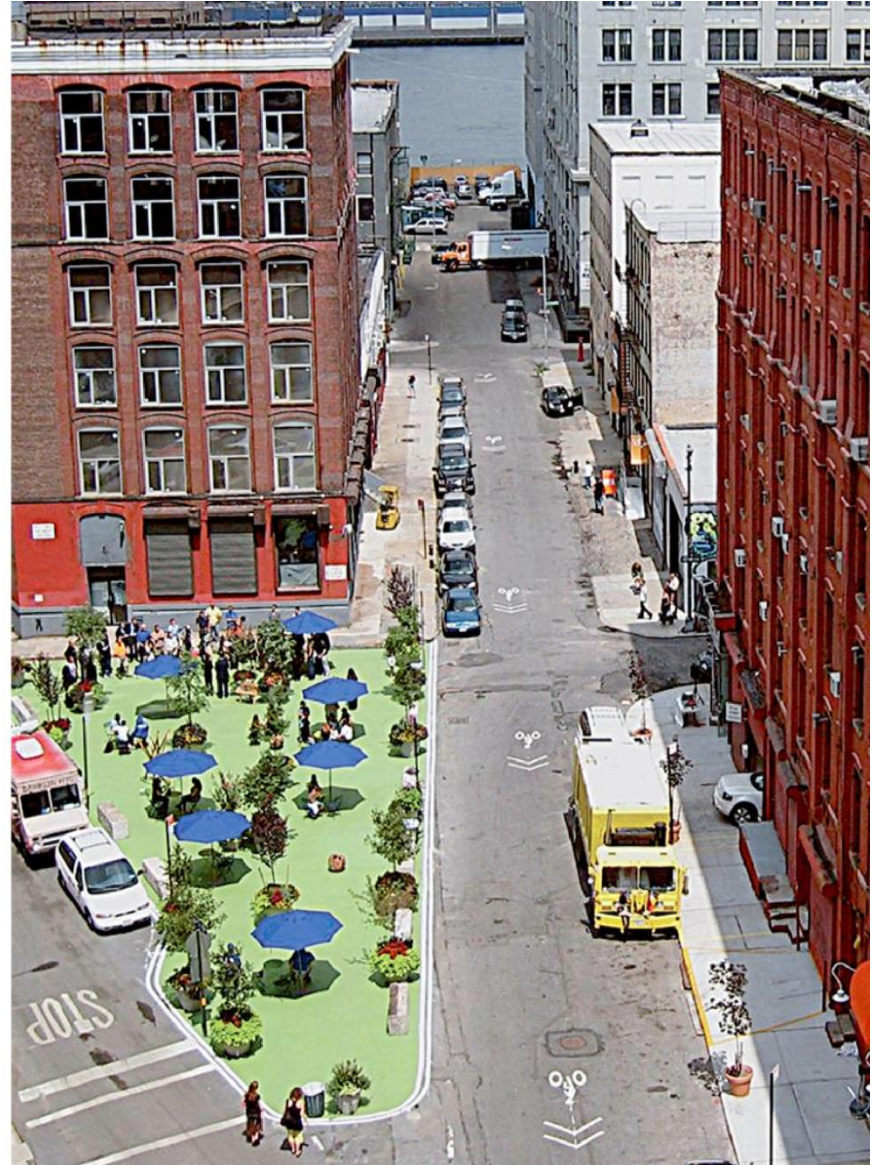
Lessons Learnt

- The built environment does have an impact upon our health and well being and we should be designing places to promote physical activity in the form of walking, cycling and exercise
- Safety, convenience and creating great/vibrant places are key principles in designing healthy communities
- It is possible to change – in fact, it is the **ONLY** option as the status quo is not acceptable

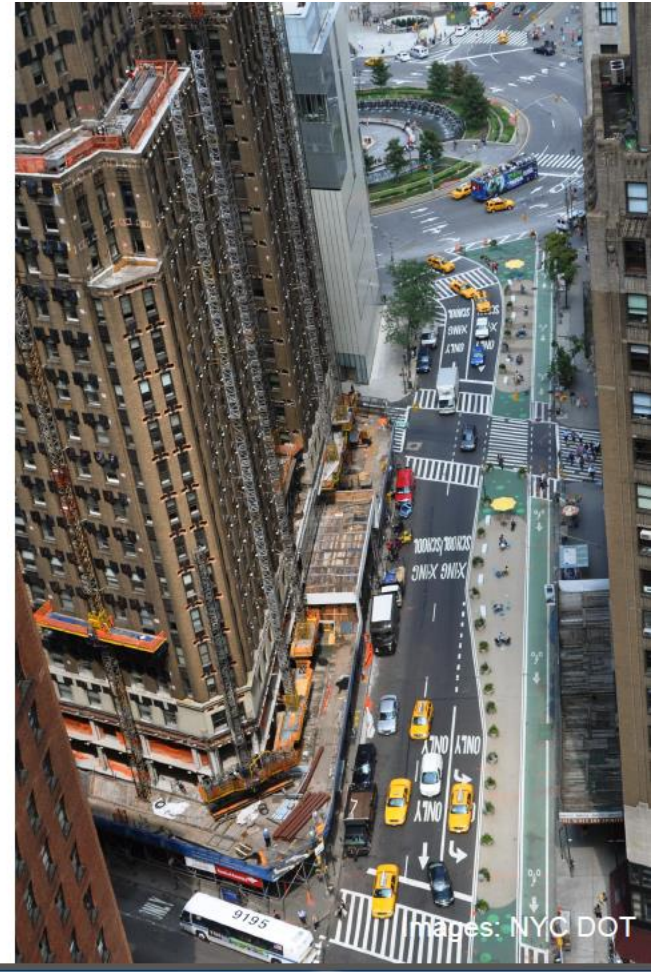
Healthy Design Photo Album – Create Great Places



Healthy Design Photo Album – Activating Underutilised Spaces



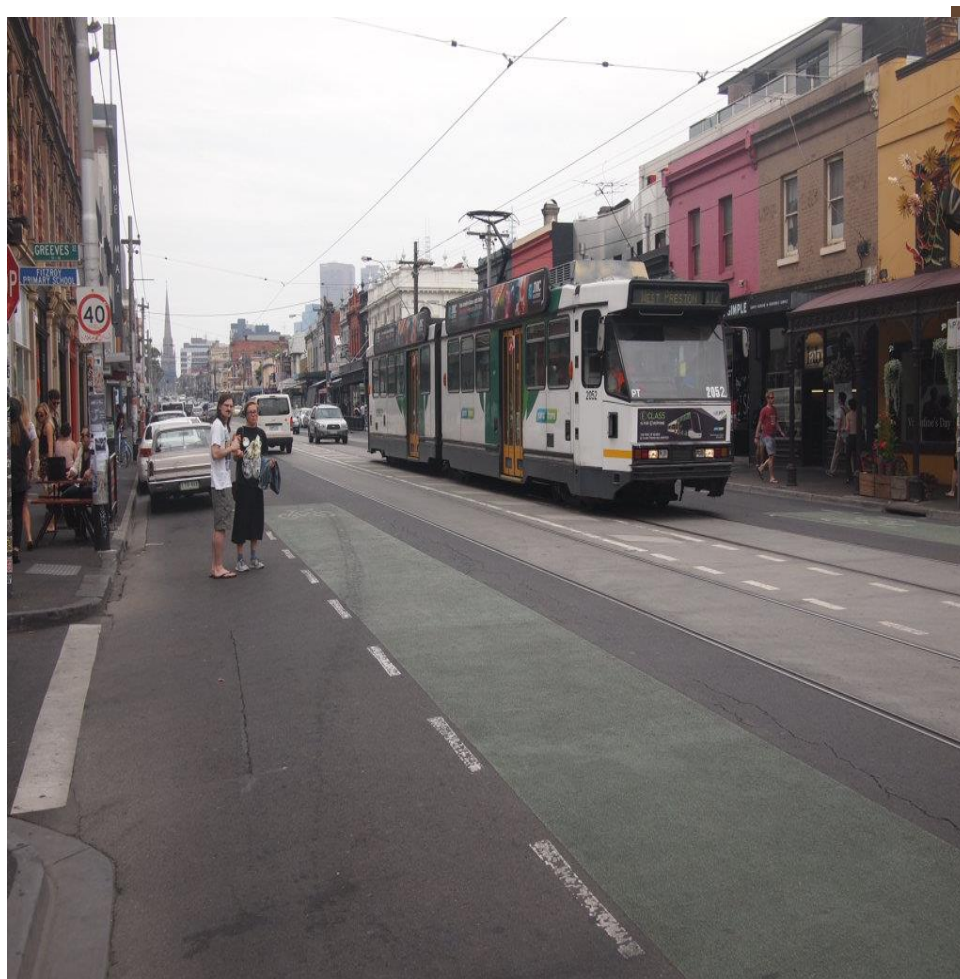
Healthy Design Photo Album – NYC Pilot Plazas



Healthy Design Photo Album – Pedestrian Friendly Spaces



Healthy Design Photo Album – Design Streets (and Bridges) for All Modes



Healthy Design Photo Album – Provide for Cyclists



Healthy Design Photo Album – Place Activation



Healthy Design Photo Album – Parklets or Pocket Parks



Oakland, CA

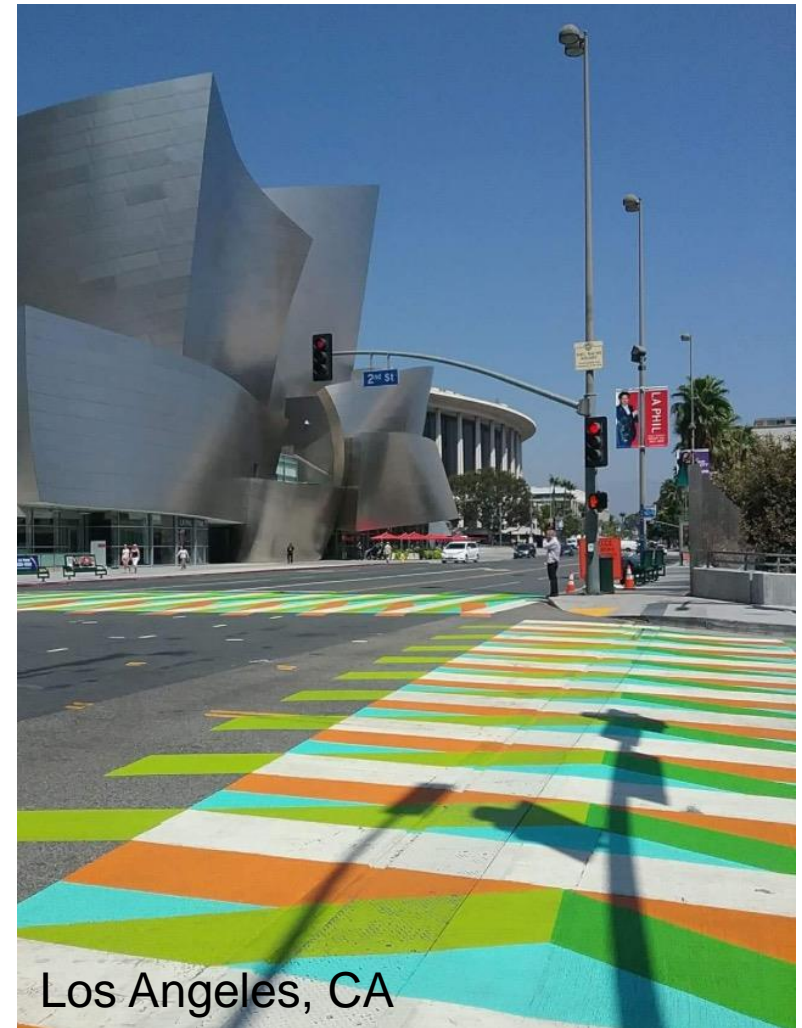


San Francisco, CA

Healthy Design Photo Album – Pedestrian Crossings



Montreal, Quebec



Los Angeles, CA

Healthy Design Photo Album – Ciclovias/Open Streets



Healthy Design Photo Album – Drinking Fountains



Healthy Design Photo Album – Cycle Parking

Wall of Fame



- Bicycle parking structure
- Amsterdam, NL
- Where did I put my bike?

Wall of Shame



- This is what happens when cycle parking is not provided

Healthy Design Photo Album – Public Restrooms

Wall of Fame



Wall of Shame



Healthy Design Photo Album – Universal Access

Wall of Fame



Wall of Shame





Source: www.eltis.org / Harry Schiffer

Thank you

Any questions?

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