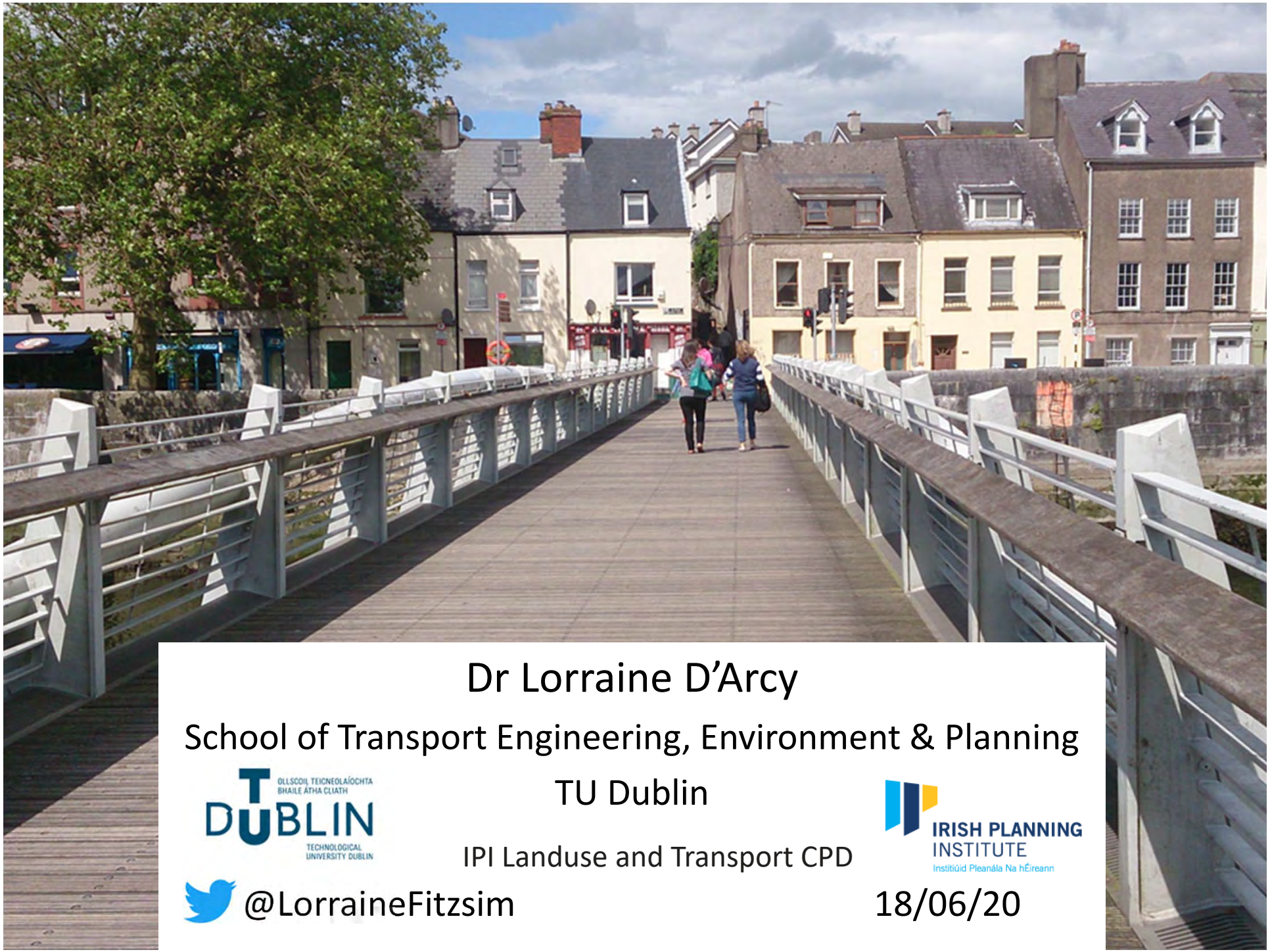


Dr Lorraine D'Arcy

School of Transport Engineering, Environment & Planning

TU Dublin

IPI Landuse and Transport CPD

@LorraineFitzsim

18/06/20

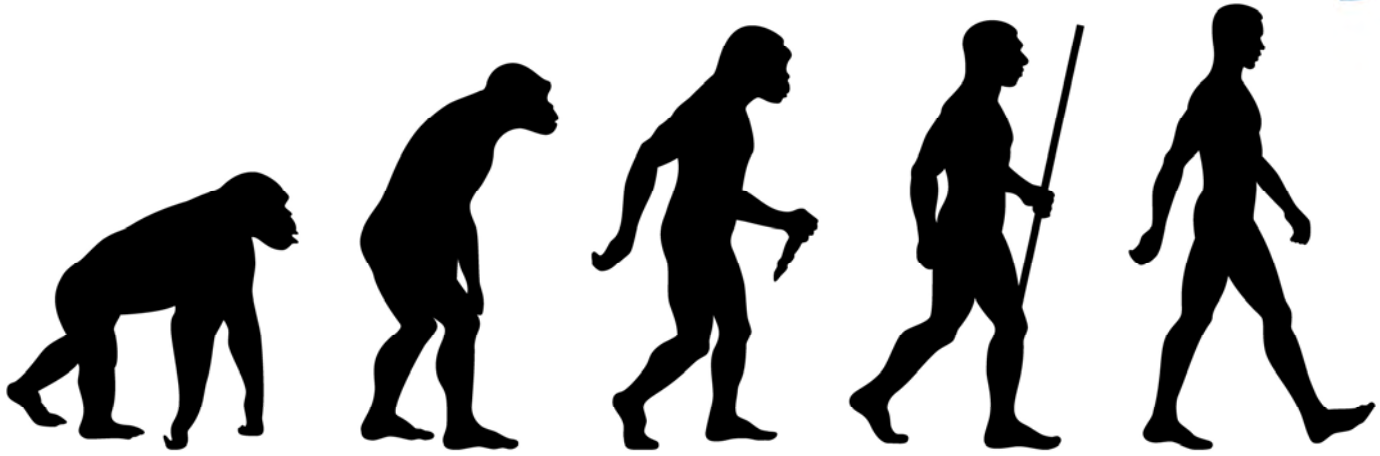
- Email: Lorraine.darcy@TUDublin.ie
- Web: https://www.dit.ie/steep/

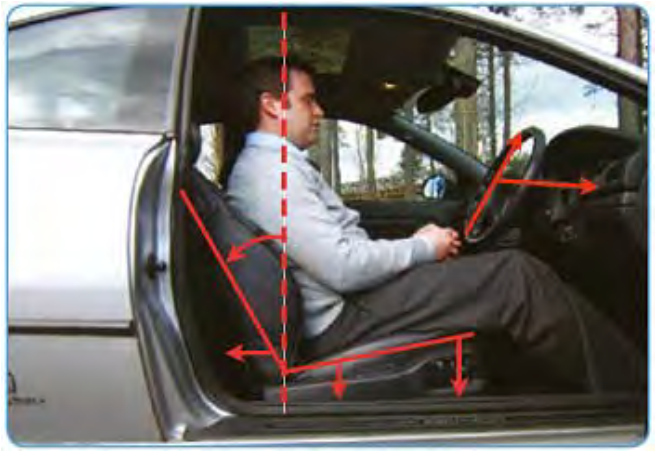
- Interested in collaborative research projects, teaching/ student project opportunities

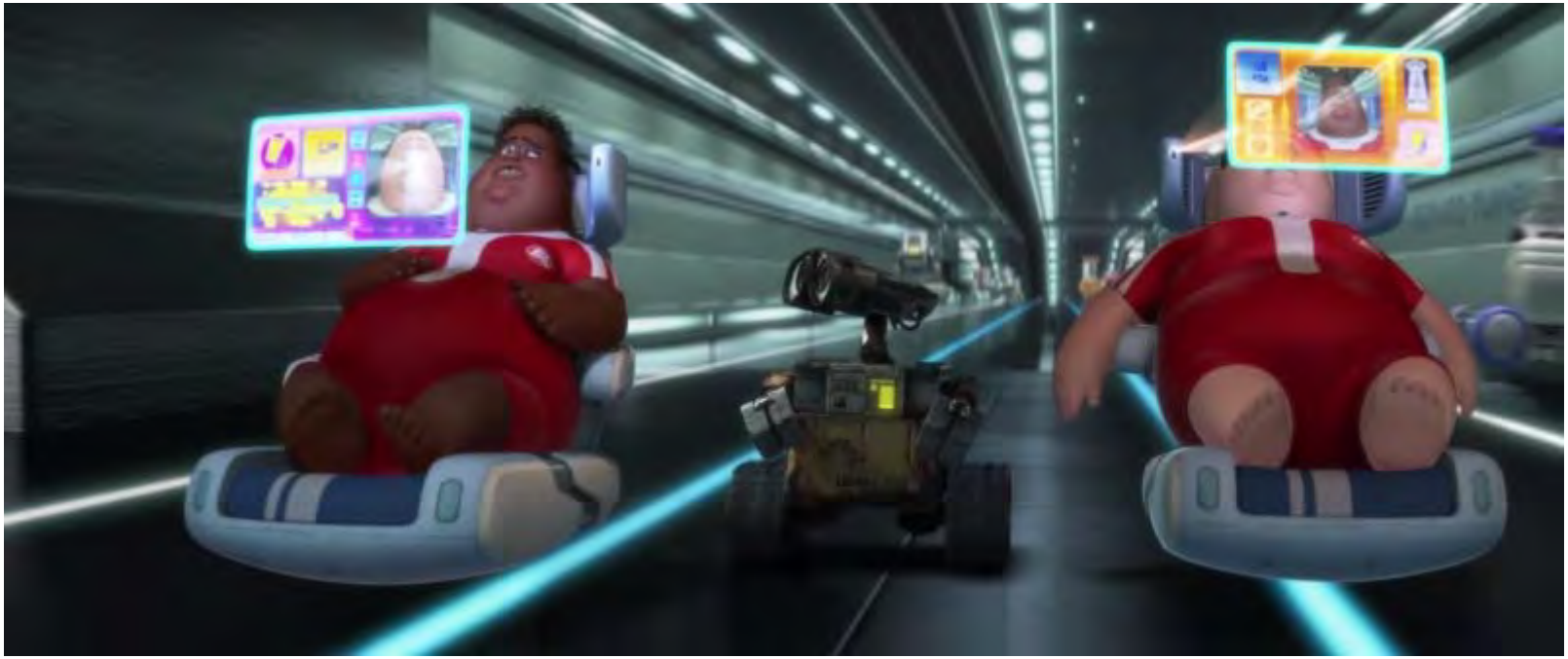
Walk21 International Conference Ireland 2022

https://www.walk21.com/

Putting the Human back into Human Mobility







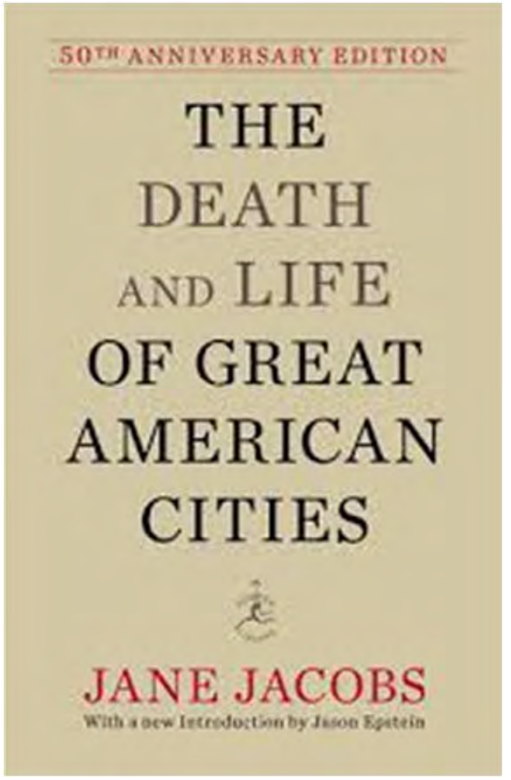
€400m = 39km = 15 to 30min time saving

15-30mins faster… to this

Induced Demand

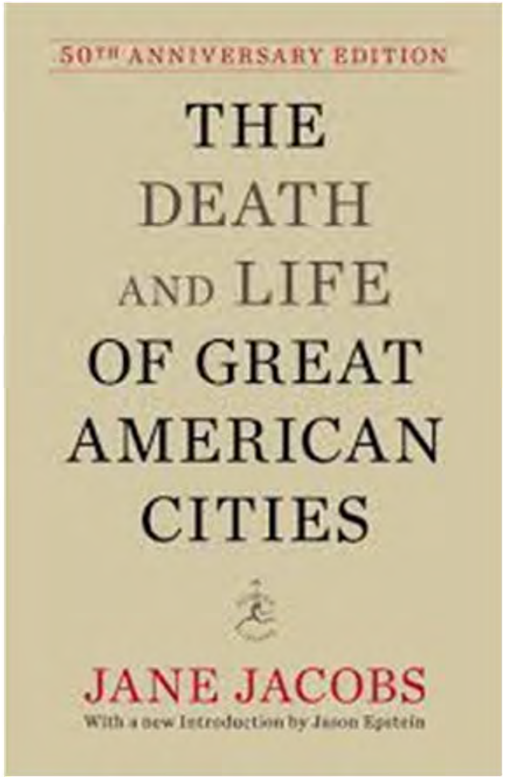
The simple needs of Automobiles are more easily understood and satisfied than the complex needs of Cities

Jane Jacobs 1961

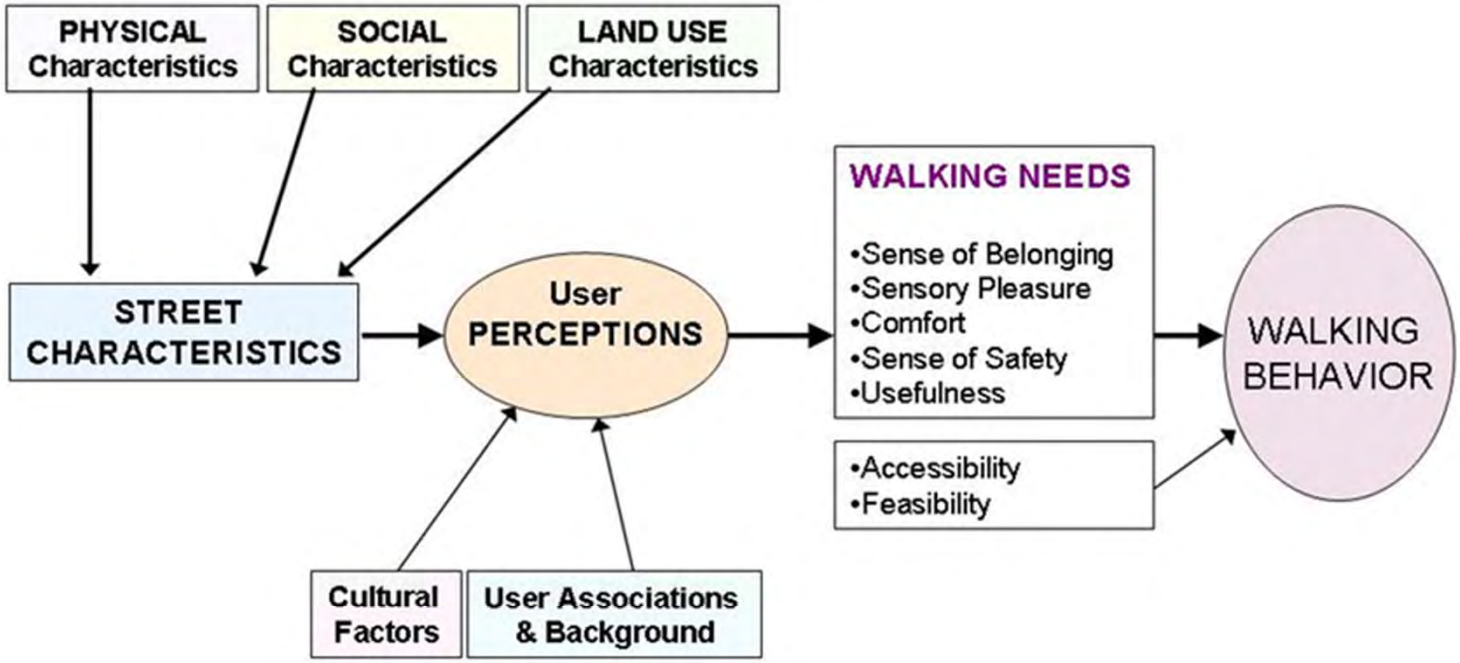


The simple needs of Automobiles are more easily understood and satisfied than the complex needs of Cities + People + Decision Makers

Jane Jacobs 1961



Conceptual framework of walking needs on Main Street Adapted from Mehta (2008)



KEEPING STREETS MOVING

One car takes up the same space as...

5 people cycling

or

20 people walking

or

12 cycle parking spaces

The average car in London carries:

1.56 people

Source: London Travel Demand Survey

Streetscape

Walkability Criteria

epa
Environmental Protection Agency

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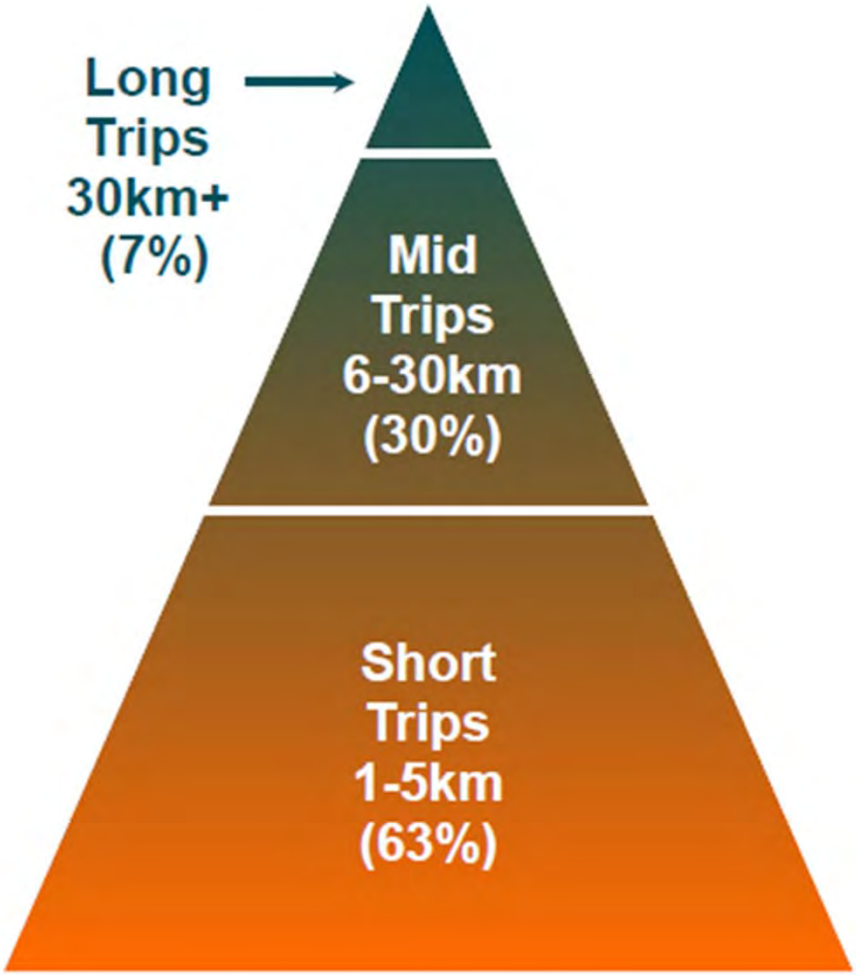
ORIUM
MAGIC
TRAFFIC
TROUBLE
U.S. MAIL

Clear uncluttered surfaces
Good signage
Access to good toilet facilities & changing areas
Opportunities to sit
Human Scale
Importance of shelter? – they are still wearing coats?

Uniqueness?

Copenhagen, Denmark



Mobility distribution
by trip distance

Resource distribution
by perception of importance

These are used to calculate the external and private cost of automobility, cycling and walking in the European Union.

Results suggest that each kilometer driven by car incurs an external cost of €0.11, while cycling and walking represent benefits of €0.18 and €0.37 per kilometer.

Extrapolated to the total number of passenger kilometers driven, cycled or walked in the European Union, the cost of automobility is about €500 billion per year. Due to positive health effects, cycling is an external benefit worth €24 billion per year and walking €66 billion per year.

ELSEVIER

Ecological Economics
Volume 158, April 2019, Pages 65-74

Analysis

The Social Cost of Automobility, Cycling and Walking in the European Union

Stefan Gössling [a, b, c], Andy Choi [d], Kaely Dekker [e], Daniel Metzler [f]

https://www.isglobal.org/en/-/severo-ochoa-webinars-the-impacts-of-active-transport-a-multi-disciplinary-research-and-practice-field

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HIGHER SPENDS

High street walking, cycling and public realm improvements can **increase** retail sales by up to **30%**

Source: Lawlor, 2013

Cycle parking delivers **5x** the retail spend per square metre than the same area of car parking

Source: Raje and Saffrey, 2016

People who walk and cycle take more trips to the high street over the course of a month

Average number of visits to local town centre each month, by mode

16 visits

12 visits

8 visits

Source:, TfL 2014

Over a month, people who walk to the high street spend up to **40% more**

than people who drive to the high street

Source: TfL, 2013

Walking and cycling helps create

thriving high streets

As well as more customers, this brings benefits to the local community

Making it easy to walk and cycle to high streets means that more Londoners can enjoy these opportunities

SOCIAL VALUE

45%

of visitors to London high streets visit for **social** and **community** reasons

Source: Hall et al, 2017

Improving London high streets for walking and cycling led to a

216%

increase in people **stopping, sitting or socialising**

Source: Carmona et al, 2018

THRIVING HIGH STREETS

Retail vacancy was **17% lower** after high street and town centre improvements...

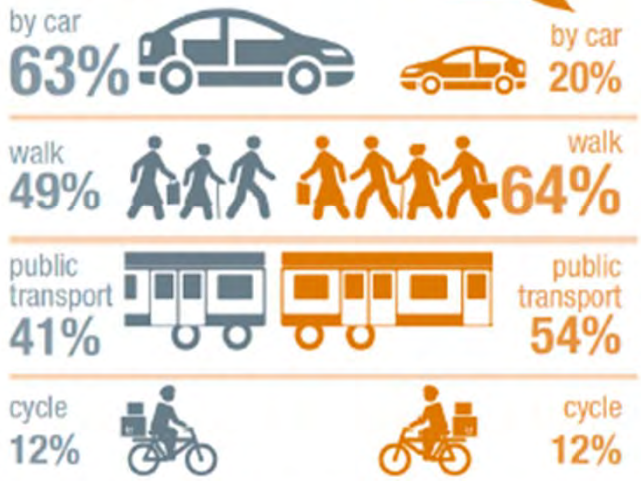
...and retail rental values rose by **7.5%**

Source: Carmona et al, 2018

Businesses may overestimate their customers' car use

Businesses on Lea Bridge Road **think** their customers travel to the area:

However, visitors said they travelled:



Source: London Borough of Waltham Forest

What do BIDs say?

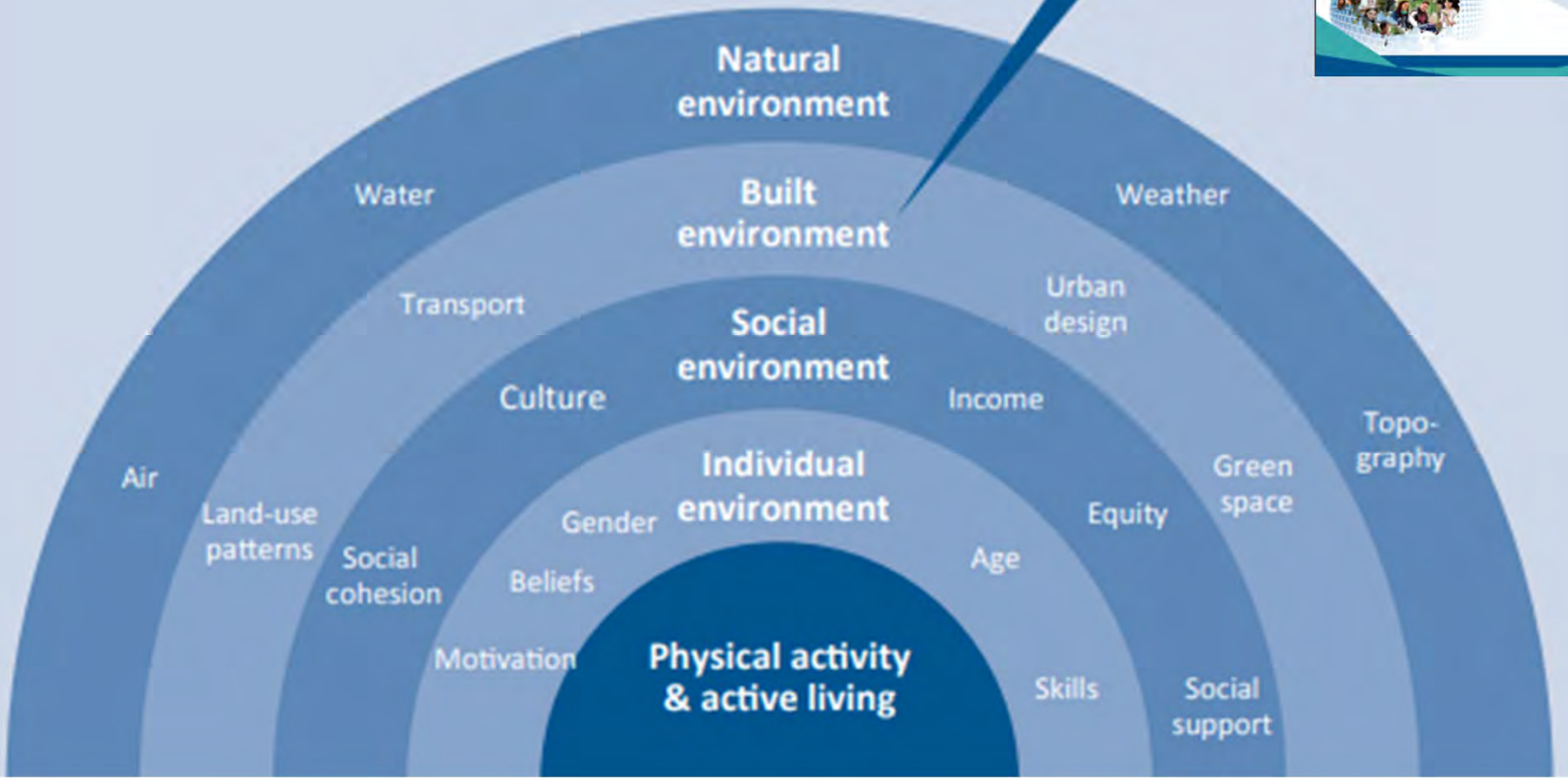
9 in 10 say walking and cycling creates vibrant areas

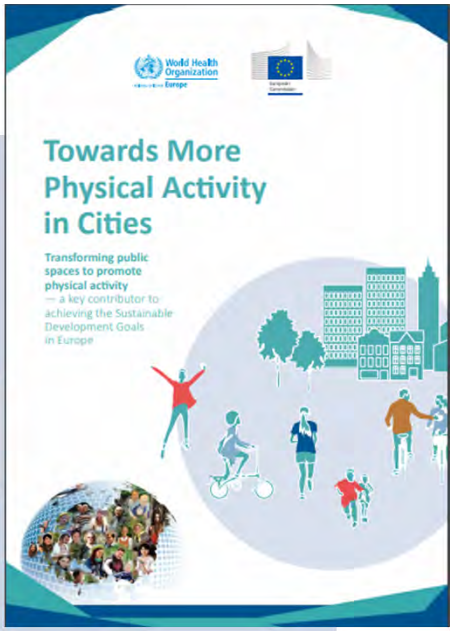
83% say it attracts more customers

Source: Aldred & Sharkey, 2017

Figure 1 **Factors influencing physical activity in communities**

Source: Figure from Edwards and Tsouros (2006).[8]





World Health Organization
Regional Office for Europe

If all citizens in the EU aged 20-74 cycled or walked an additional 15 minutes a day, **100,000 premature deaths could be prevented each year.**

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Technological University Dublin

‘there is irrefutable evidence of the effectiveness of regular physical activity in the primary and secondary prevention of several chronic diseases and premature death’

Warburton, Whitney Nicol and Bredin (2006)

Physical Activity is…

- An anti-inflammatory
- An anti-depressant
- An opportunity for social interaction
- Contributes to increased strength, flexibility, endurance and bone density
- Anti-aging properties - Up to half of decline in function thought to be caused by ageing is actually caused by not being active.
- Decreased risk of dementia
- Reduces absenteeism by up to 20%

People

Place

Purpose

Intelligent Health

Mobility & Transport Considerations

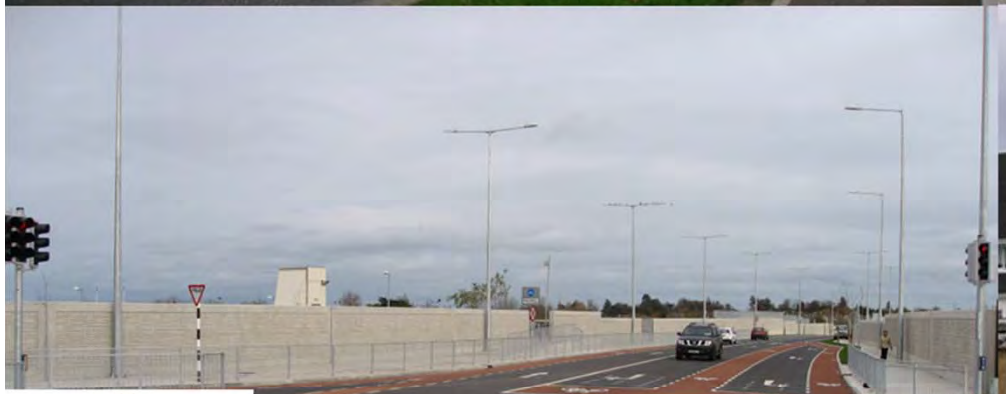
- Neighbourhood
- Catchment
- Corridors & Connections
- Health & Wellbeing, Economy & Environment
- Working with the existing

#1 Issue raised by Public Health

How do we retrofit suburbs to be healthier

What they mean is…

Carchitecture



Walkability Criteria

Image Credit Dr Lorraine D'Arcy TU Dublin

epa Environmental Protection Agency

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Key Challenges

Car advertising – if you buy a nice car you are never going to be stuck in traffic

Motorized individual transport is also closely associated with other traffic-related problems, such as (severe) injuries and fatalities, air pollution, congestion, noise, and urban heat effects, all questioning efforts to make cities more liveable.

Developments seem to point at two major issues for urban transport planners. The first is that the car competes for space with other transport modes. The second is that transport system change within cities is often hampered by commuters using private cars to move in urban areas. Urban planners and politicians throughout the world are confronted with the challenge of disentangling transport needs and calls for more liveable cities.

Journal of Urban Design ›
Volume 25, 2020 - Issue 4

Why cities need to take road space from cars - and how this could be done

Stefan Gössling

Pages 443-448 | Published online: 18 Feb 2020

The present abundance of private automobiles is one of the most **astonishing successes of the constant propaganda** by which capitalist production persuades the masses that car ownership is one of the privileges our society reserves for its most privileged members

- Guy Debord 1955 *Introduction to a Critique of Urban Geography* in *Critical Geographies*

Attractive walkable neighbourhoods

Increase in neighbourhood walking

Less car trips

Less carbon emissions

Increased likelihood of meeting PA guidelines

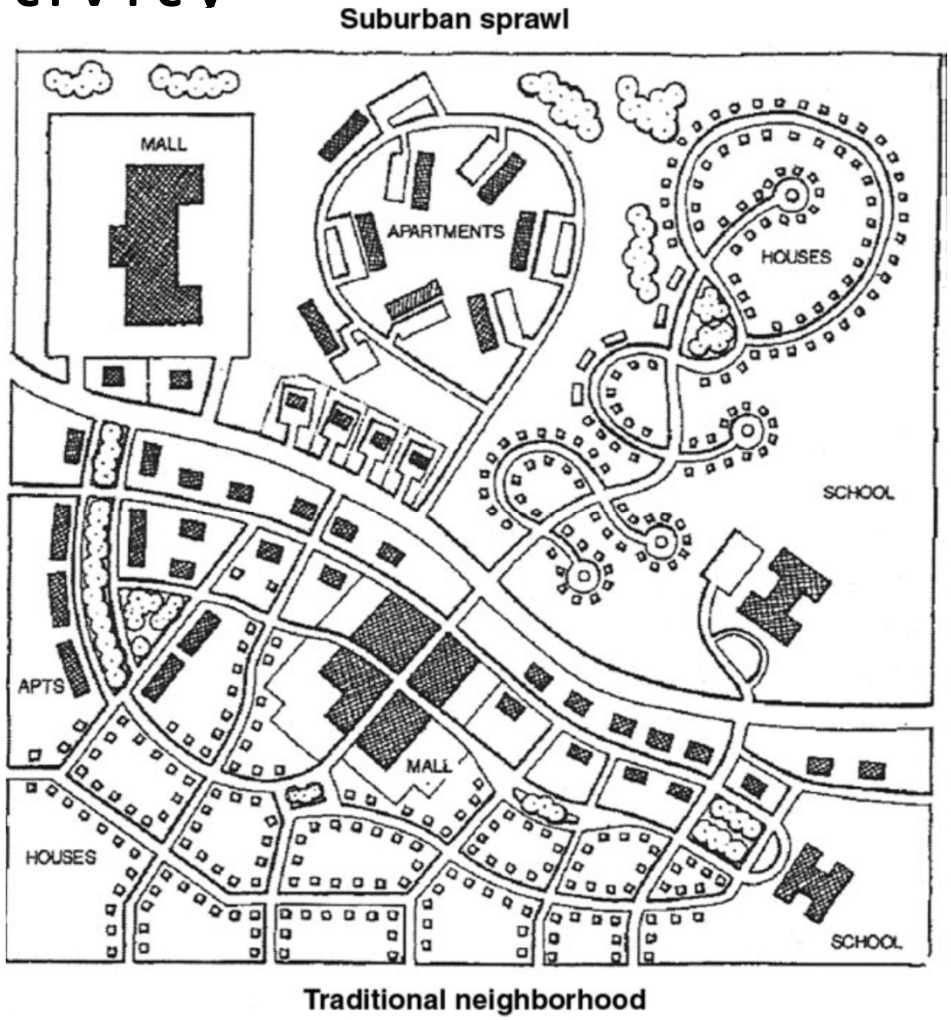
Lorraine D'Arcy

‘The extent to which the built environment is friendly to the presence of people walking, living, shopping, visiting, enjoying or spending time in an area’ Dan Burden

The Walkable and Livable Communities Institute, Inc.
Building Leaders to Rebuild the World's Cities

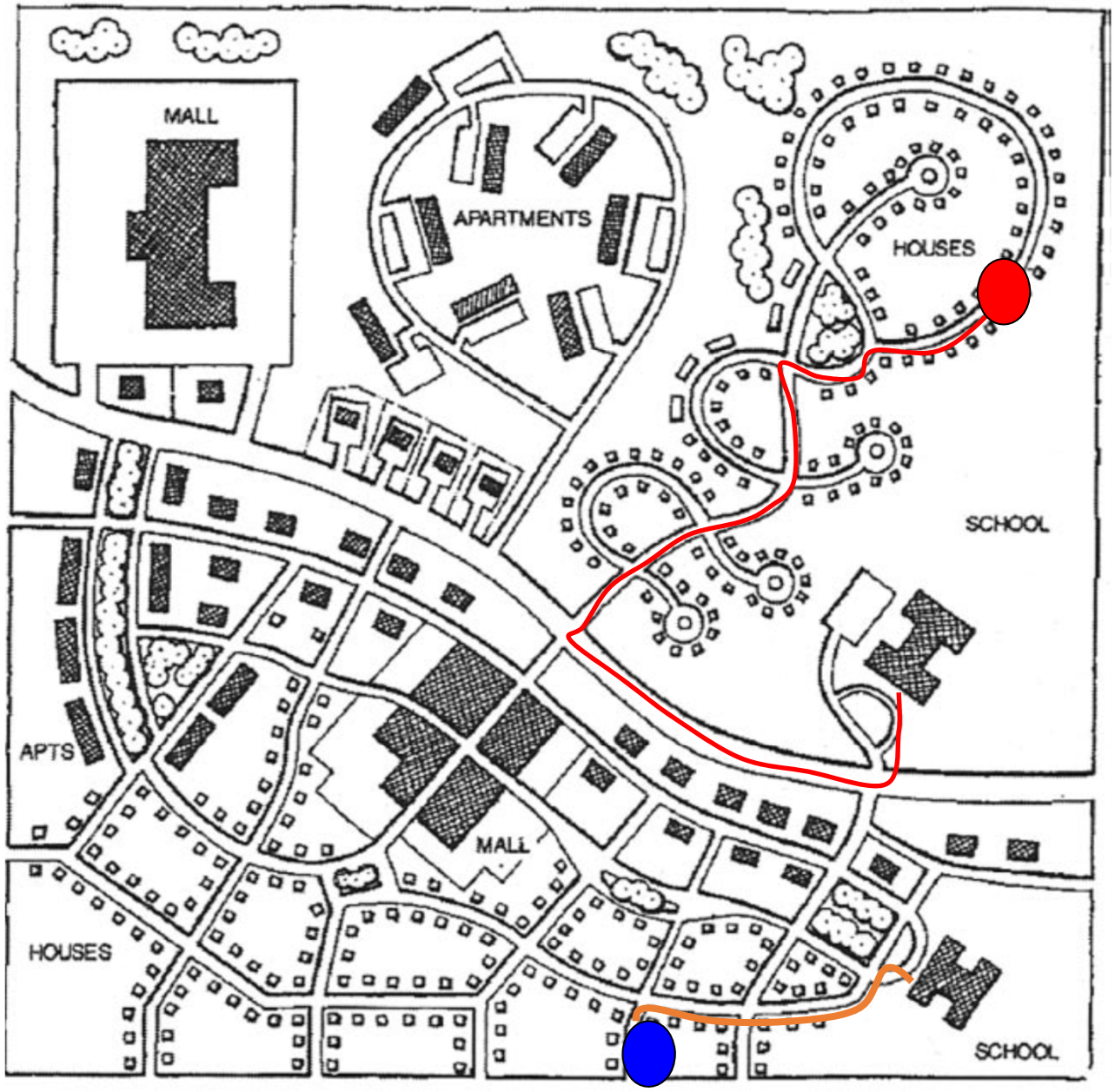
Lorraine D’Arcy

Connectivity



Two distinct community designs (Saelens, Sallis and Frank 2003)

Suburban sprawl



Traditional neighborhood

Village/ Neighbourhood

(Fitzsimons D'Arcy 2013)

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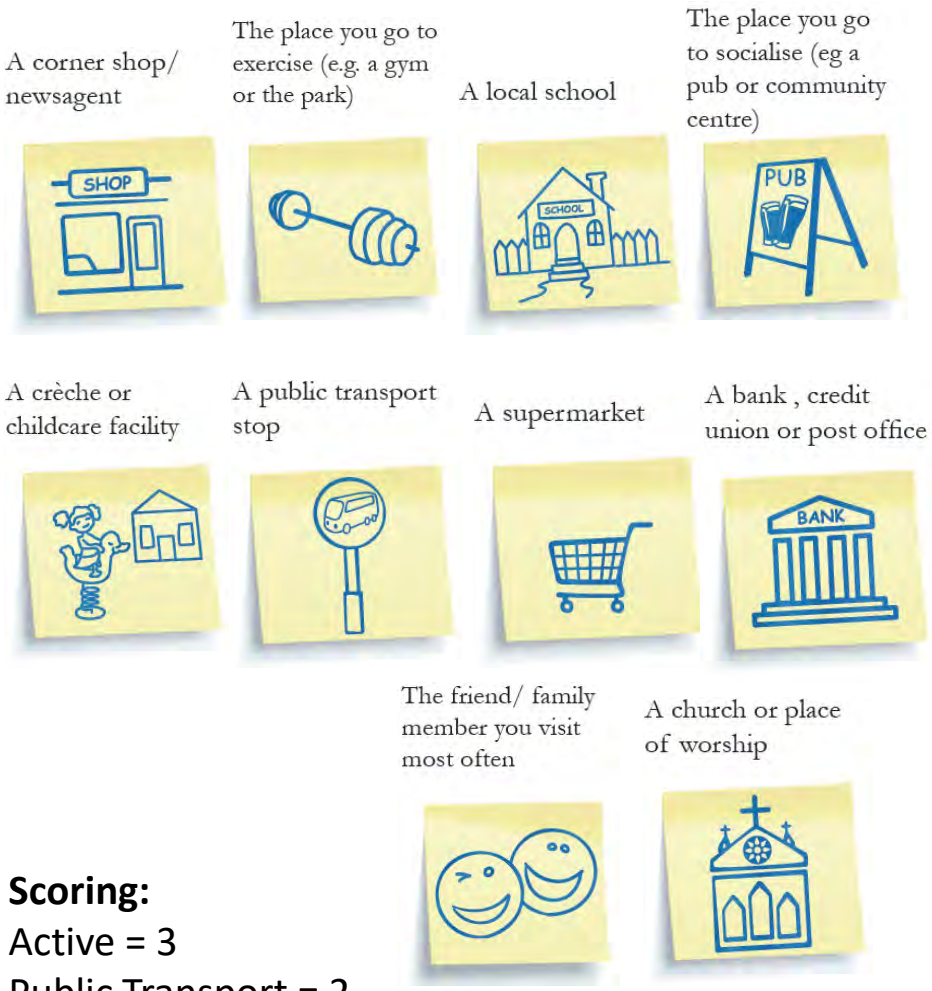
Behaviours

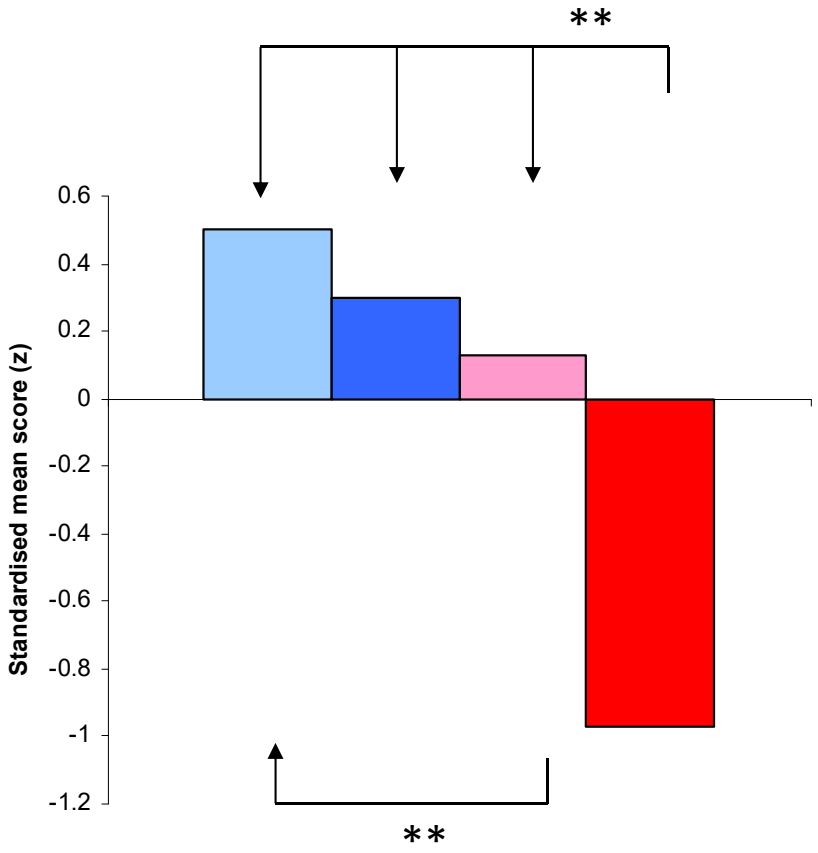


Scoring:
Active = 3
Public Transport = 2
Motorised = 1

$^{**}\rho < .01, \ ^{*}\rho < .05$

Lorraine D'Arcy

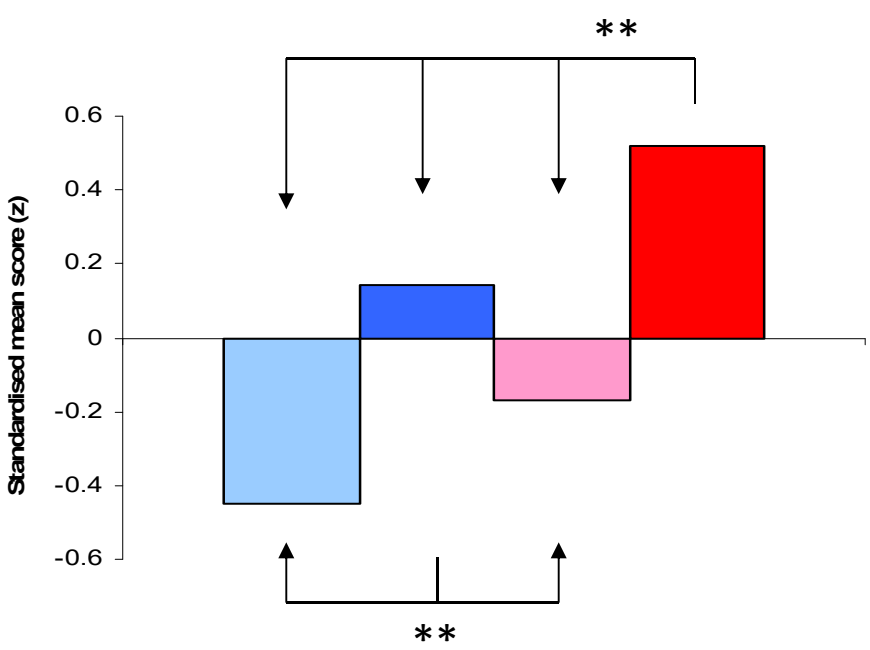
- High Walkable Deprived (N=278)
- High Walkable Not Deprived (N=279)
- Low Walkable Deprived (N=262)
- Low Walkable Not Deprived (N=242)



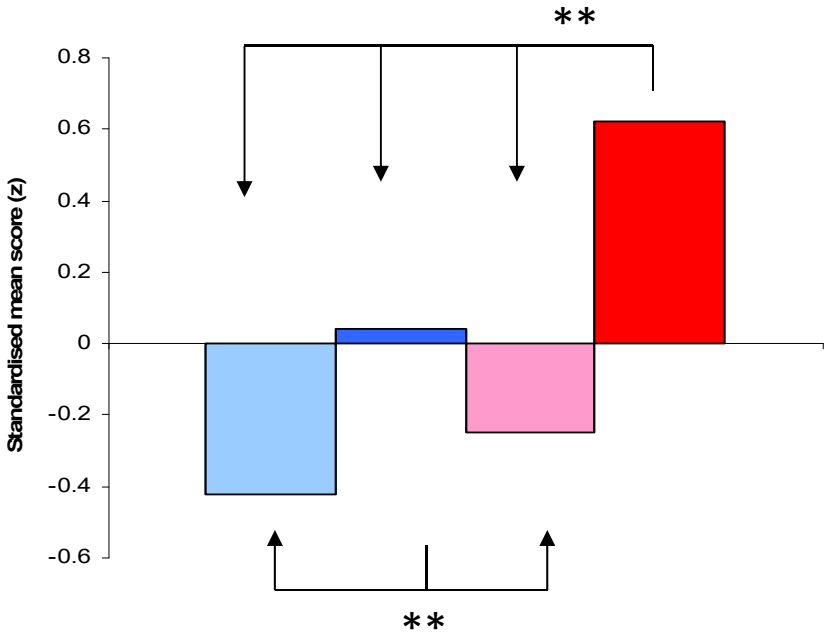
Average Mode Score

Behaviours

- High Walkable Deprived (N=278)
- High Walkable Not Deprived (N=279)
- Low Walkable Deprived (N=262)
- Low Walkable Not Deprived (N=242)



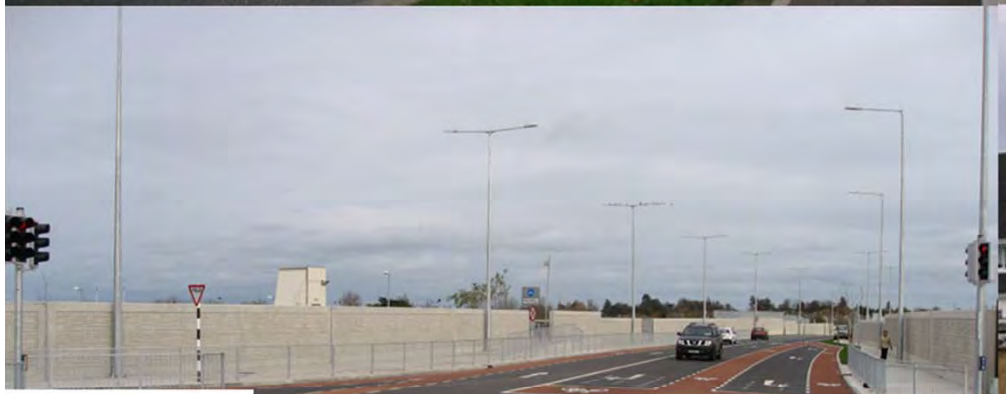
Cars per Adult



Individual Fuel Spend

$^{**}\rho < .01, ^{*}\rho < .05$

Carchitecture



Walkability Criteria

Image Credit Dr Lorraine D'Arcy TU Dublin

epa Environmental Protection Agency

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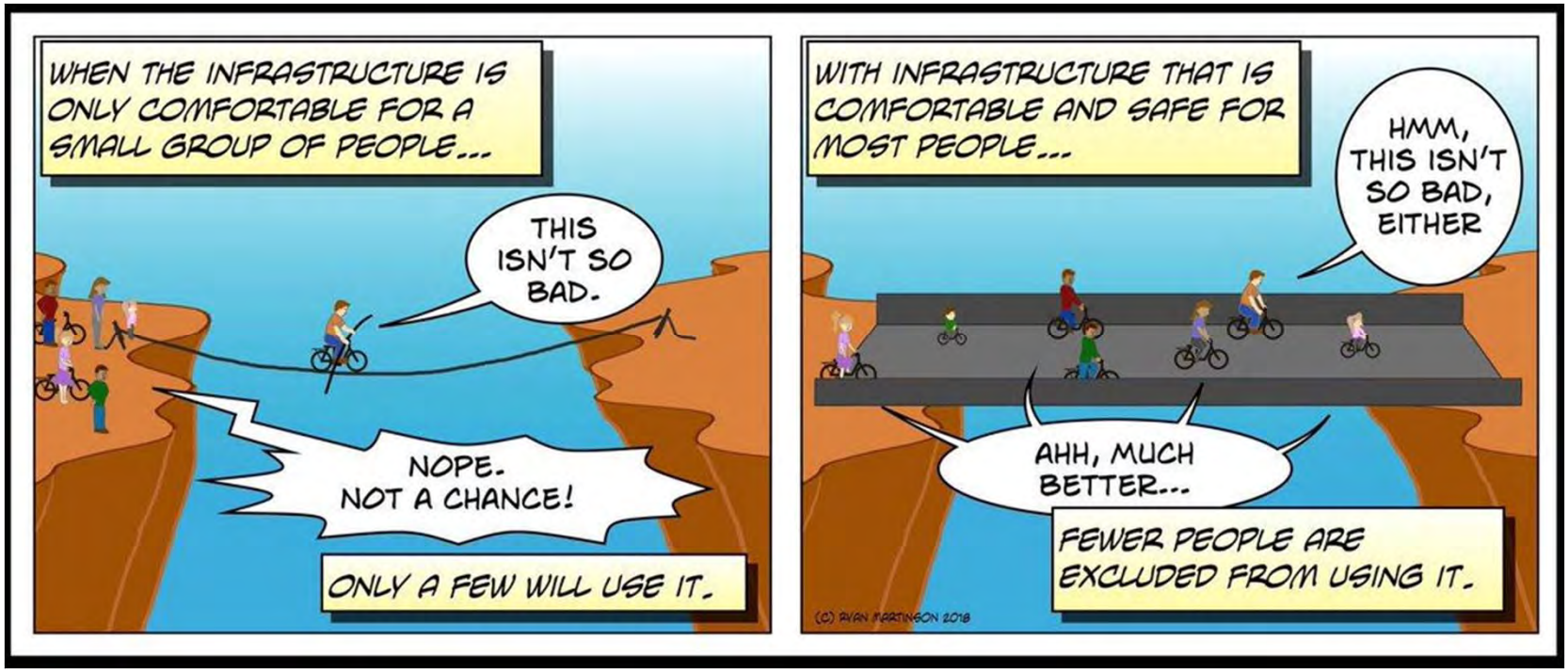

Emphasis on 'Comfort'

Permeability

Walkability Criteria

Ease of movement through an area

epa Environmental Protection Agency

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epa
Environmental Protection Agency
Lorraine F
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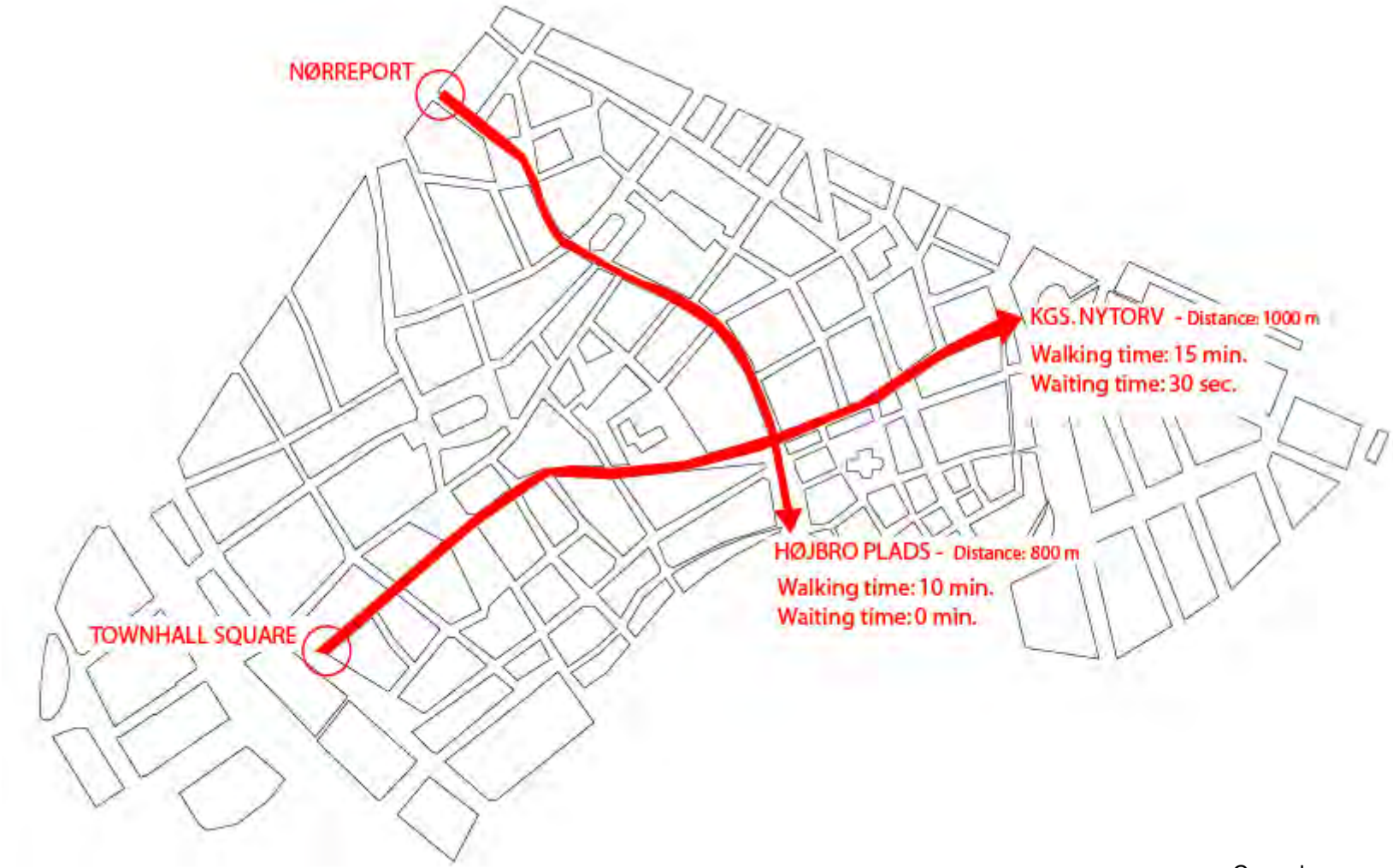
Walking time – waiting time

GEHL ARCHITECTS
URBAN QUALITY CONSULTANTS

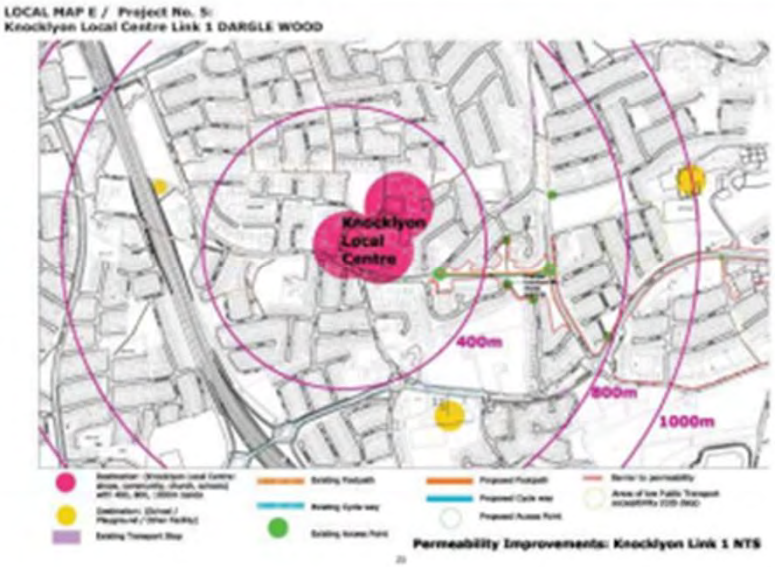


Copenhagen
Denmark

Dargle wood, Knocklyon

Údarás Náisiúnta Iompair
National Transport Authority

1, 110 more people within walking distance of Knocklyon Village



Public Transport is an Active Travel Mode and a key element of Active Communities

Wayfinding

- permeable, legible and easy to move through.
- high connectivity appropriately designed road crossings reflect pedestrian desire lines.
- good public transport
- Streets are designed to slow traffic to walking speed

Recap

- Neighbourhood
- Catchments
- Corridors

- Importance of the town and the interlinkages

- The car provided us with choice and freedom… but in planning for the car left us with legacy issues

The Human at the centre

If you plan for people and places you get people and places

Clonakilty

Image Credit: Guilia Valone Cork County Council

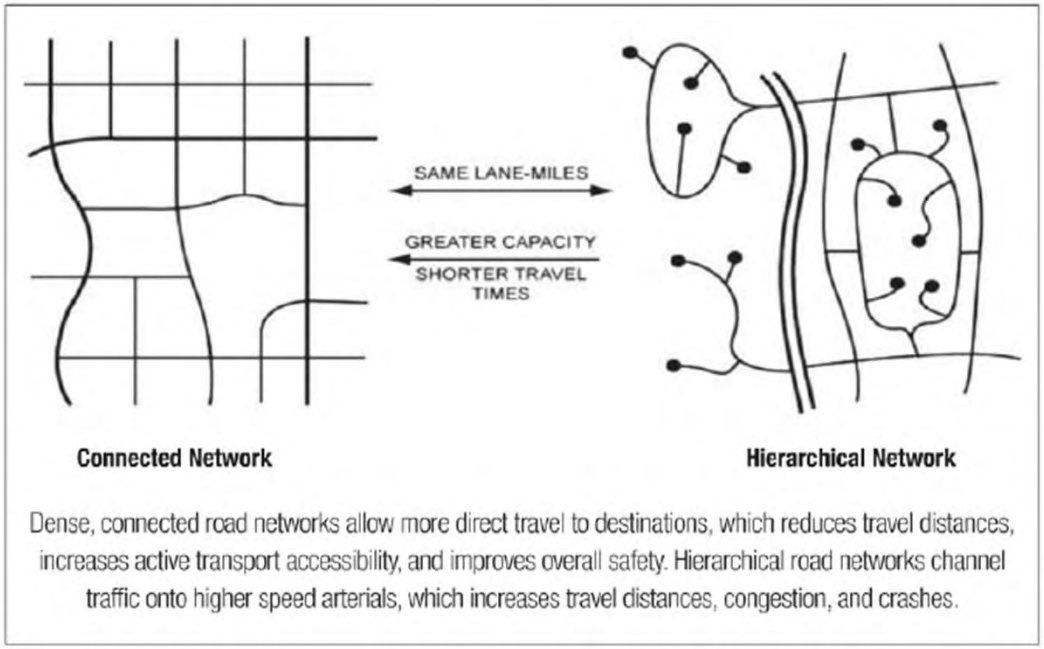


Figure 2. Connected Versus Hierarchical Road Networks (Kelbaugh 2011)

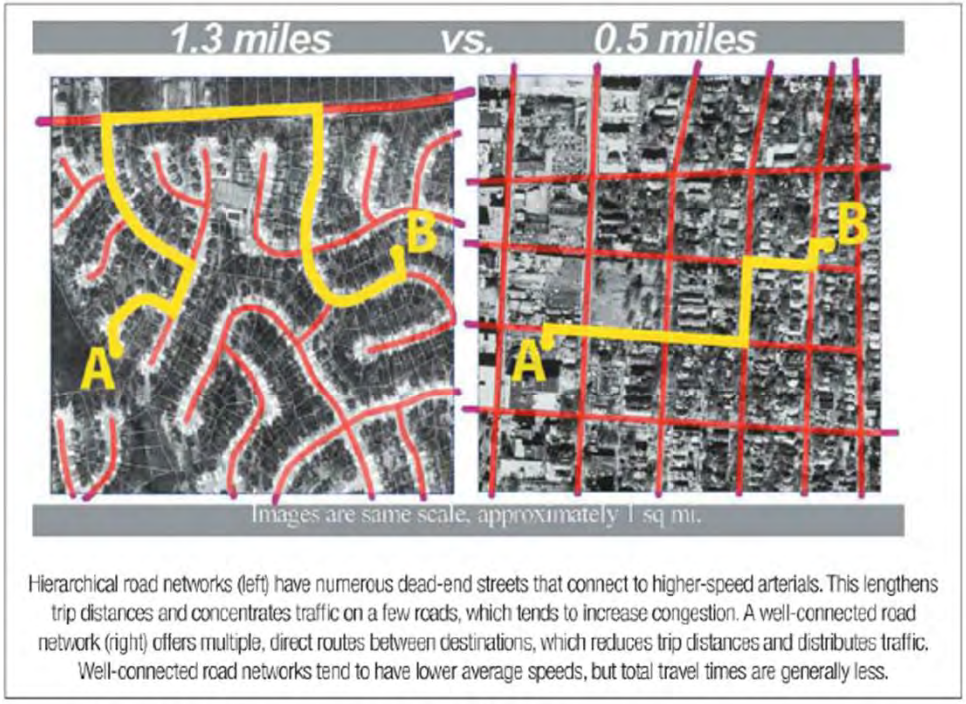
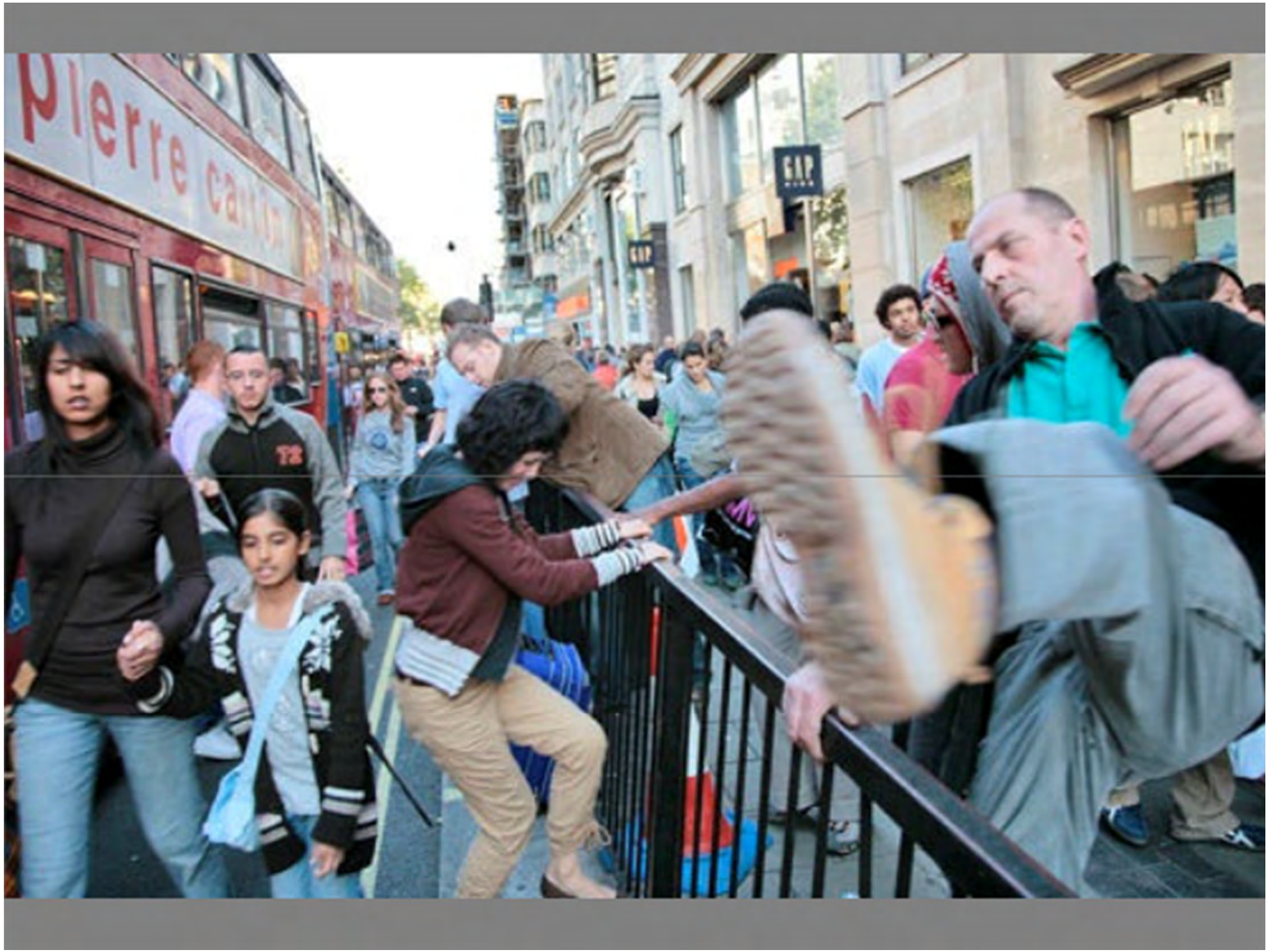


Figure 3. Hierarchical Versus Well-Connected Road Networks

https://gehlpeople.com/blog/5-key-points-to-seeding-mobility-culture-change/

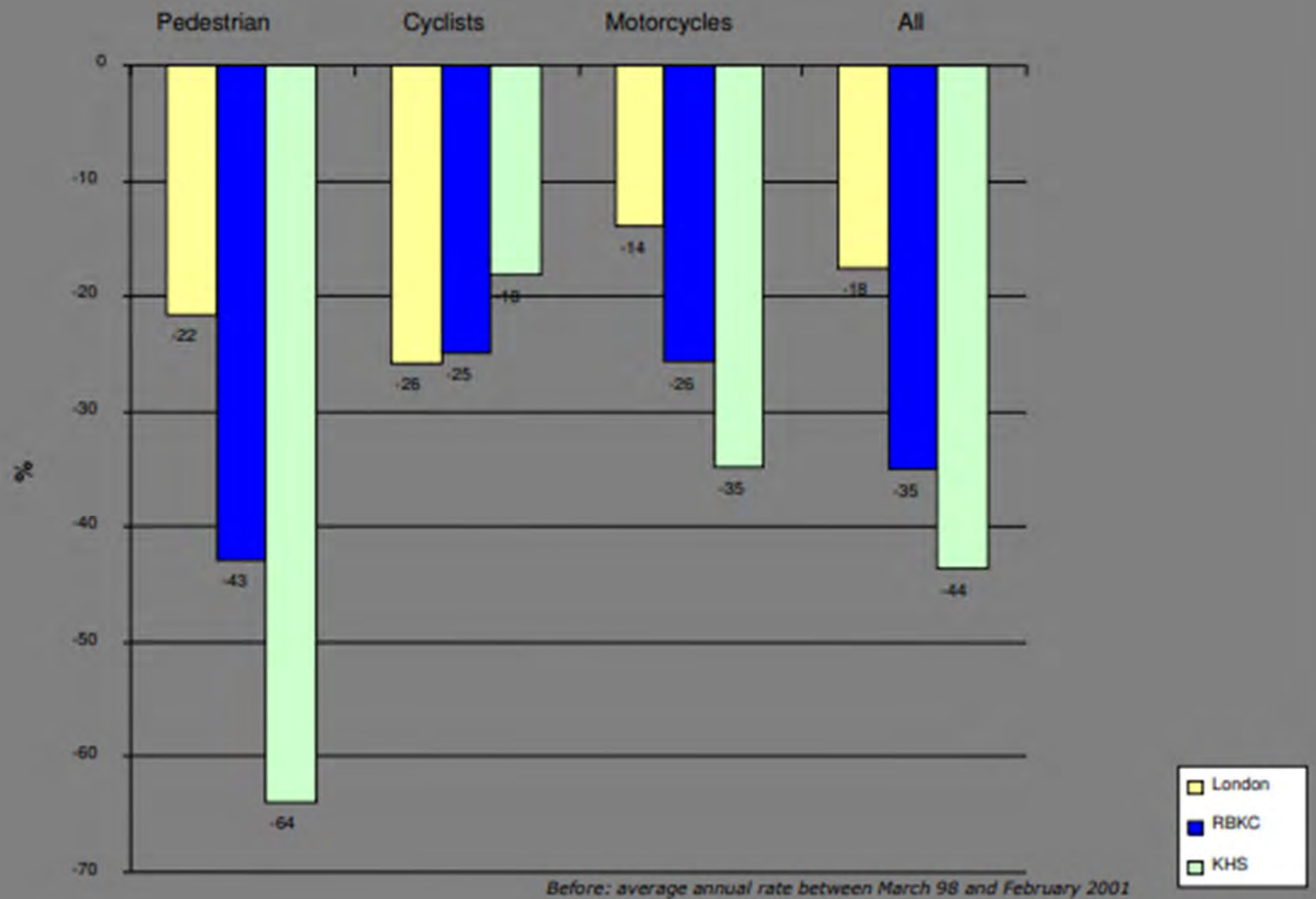
Queens Boulevard, NYC


pierre cardin
GAP


49

Kensington High Street Casualty Review

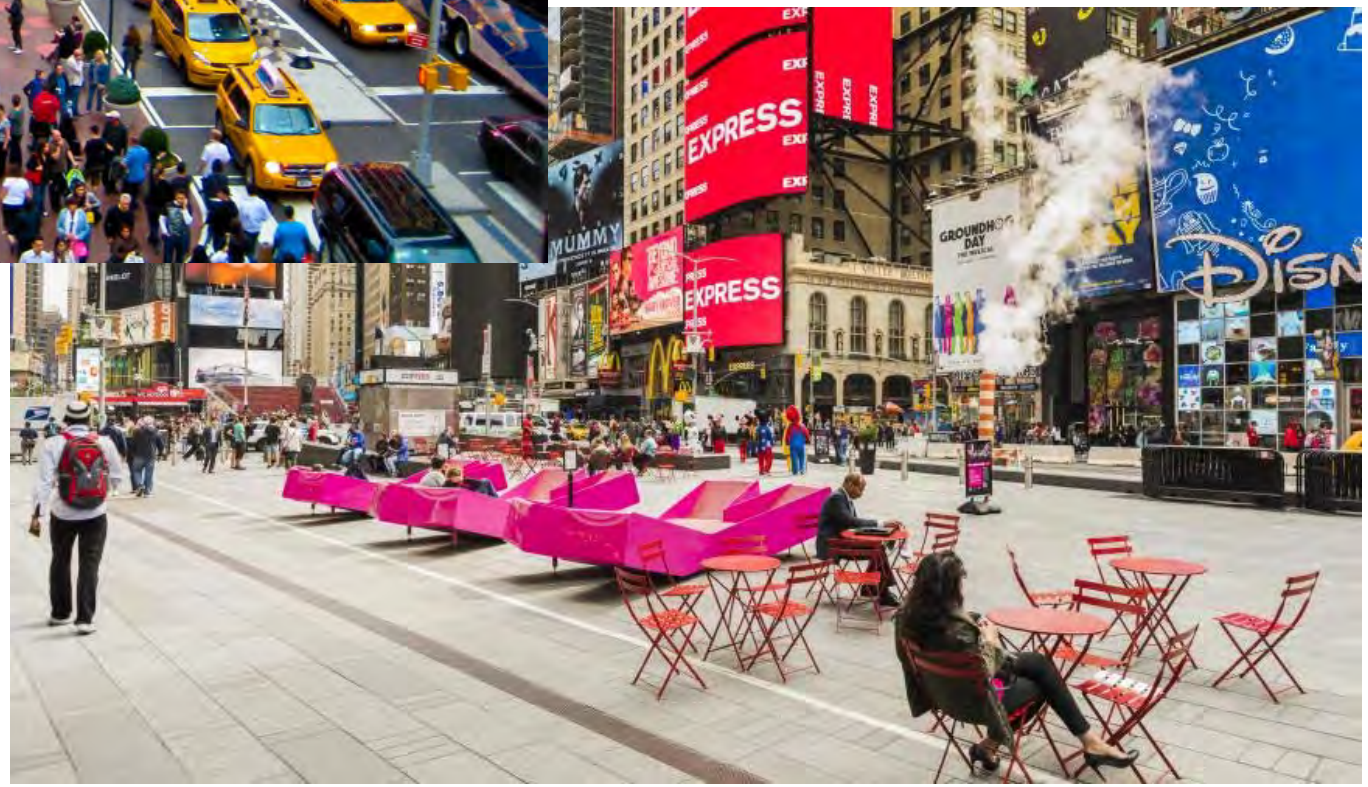
Drop in casualties from 1999 to 2004



Before: average annual rate between March 98 and February 2001

After: average annual rate between September 2003 and March 2005


Kodak
maxell
WAIT FOR WALK SIGNAL


EXPRESS
EXPRESS
MUMMY
GROUNDHOG DAY


Lorraine D’Arcy


Lorraine D’Arcy


ONGLIDEAL


GIFTS & SOUVENIRS
½ HOUR PHOTO
SOUVENIRS
OF
HOLLYWOOD
Dolby
Theatre
DO NOT
BLOCK
INTERSECTION


3 COLLISIONS


SLOW
DOWN
DRIVE LIKE
YOU LIVE HERE
Lorraine D'Arcy