

Transport Inequity & Car Dependency: A Self Reinforcing Relationship

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TASC CONFERENCE: JUNE 2017



Beechdale, Ballycullen



Image source: Google Streetview

Kennedy Place, Navan Town Centre



Image Source: S. Rock

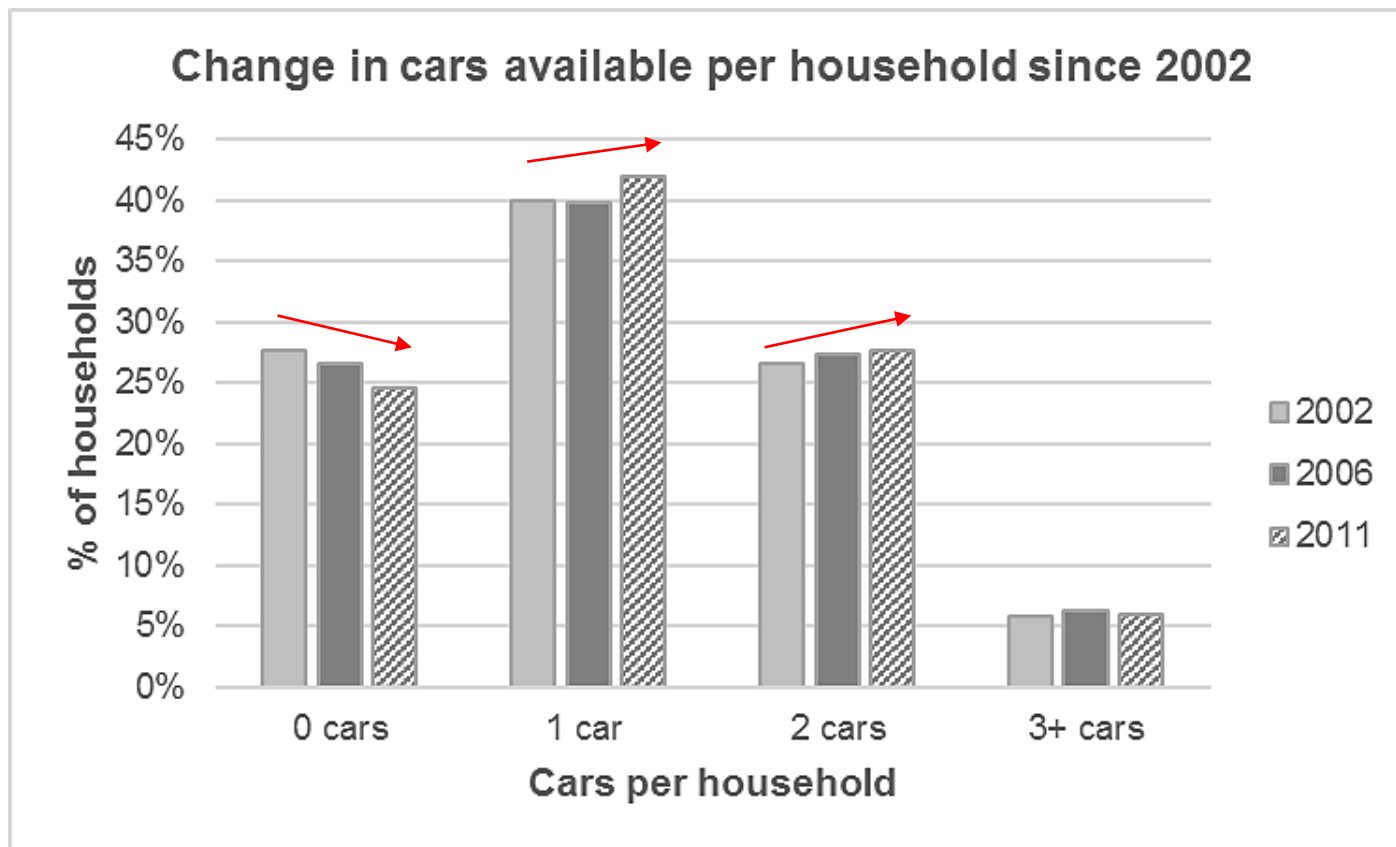


*Images source:
www.pka.ie*

Original vision
for a shared
public space.

Trend towards 2 car households

Dublin data:



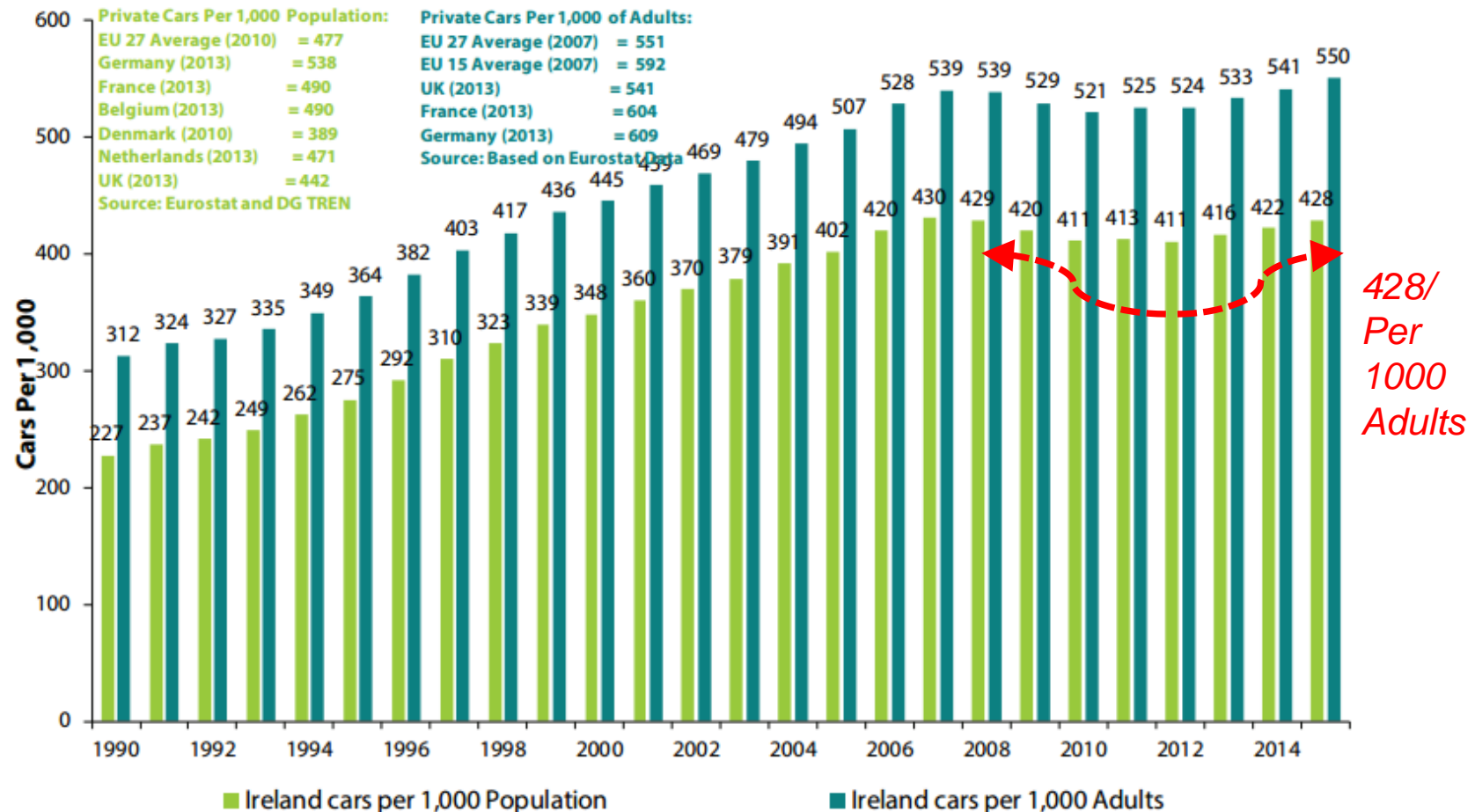
We have **increasing levels** of car ownership now & in Ireland there is a **strong relationship** between **car ownership & use**.

Source: CSO Census of Population data, adapted by S.Rock

We are back buying cars

(Ireland wide data)

Figure 46 Private Cars per 1,000 of Population



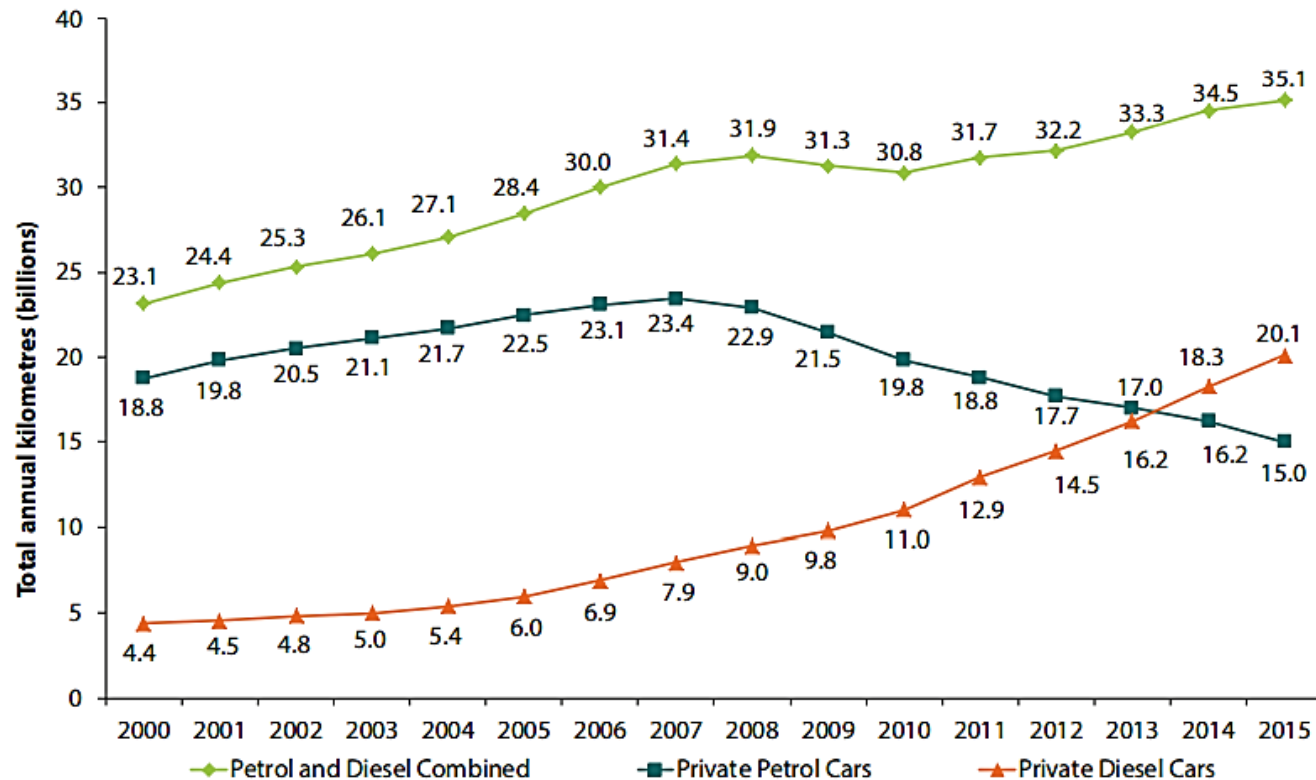
Source: Based on Vehicle Registration Unit and CSO data

Source: SEAI (2016), Energy in Ireland 1990-2015

We are travelling further by car

(Ireland wide data)

Figure 51 Total Private Car Annual Mileage 2000 – 2015

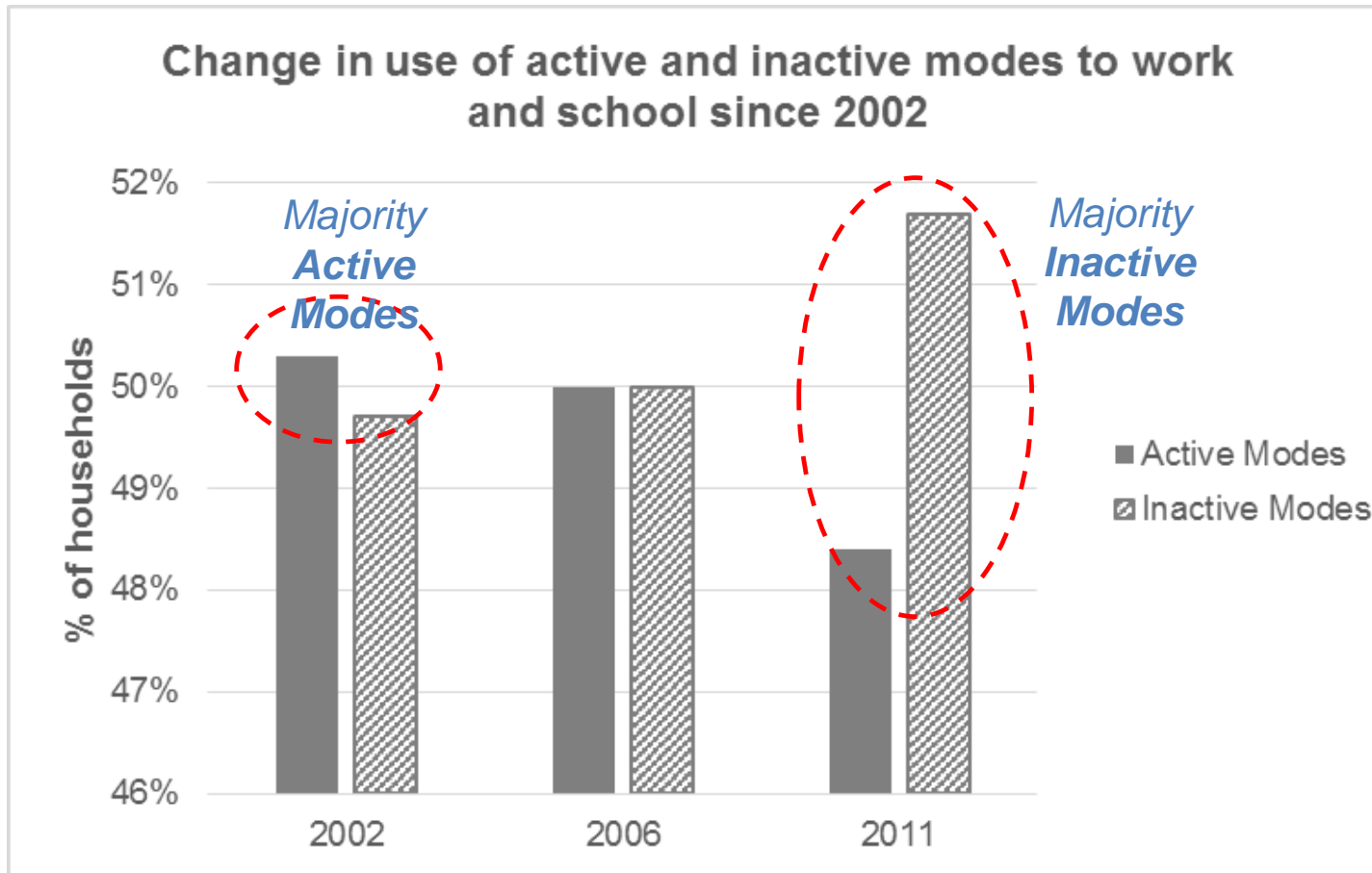


Total mileage by private cars increased by 52% over the period 2000 – 2015.

Source: Based on NCT Data

Source: SEAI (2016), Energy in Ireland 1990- 2015

We are travelling less by Active Modes

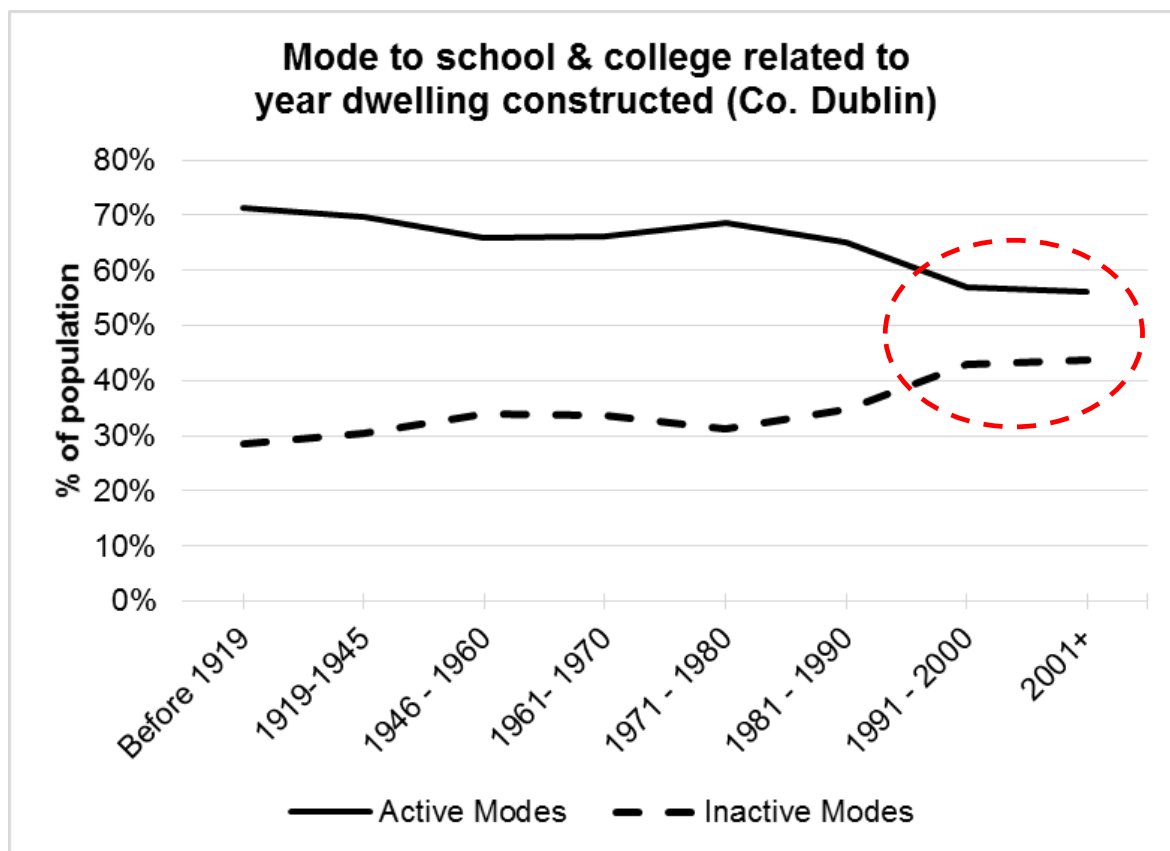


Data relates to Dublin.

We are travelling more by car and less by walking, cycling & public transport.

Source: S.Rock, based on CSO Census of Population 2011 data

The newer the dwelling, the less sustainable the journey



Particularly for the journey to school:

- Worse in areas developed from 1991 onwards.
- **11% fewer children walking** to school in areas built after 2001 than before 2001.

Source: S.Rock, based on CSO Census of Population 2011 data

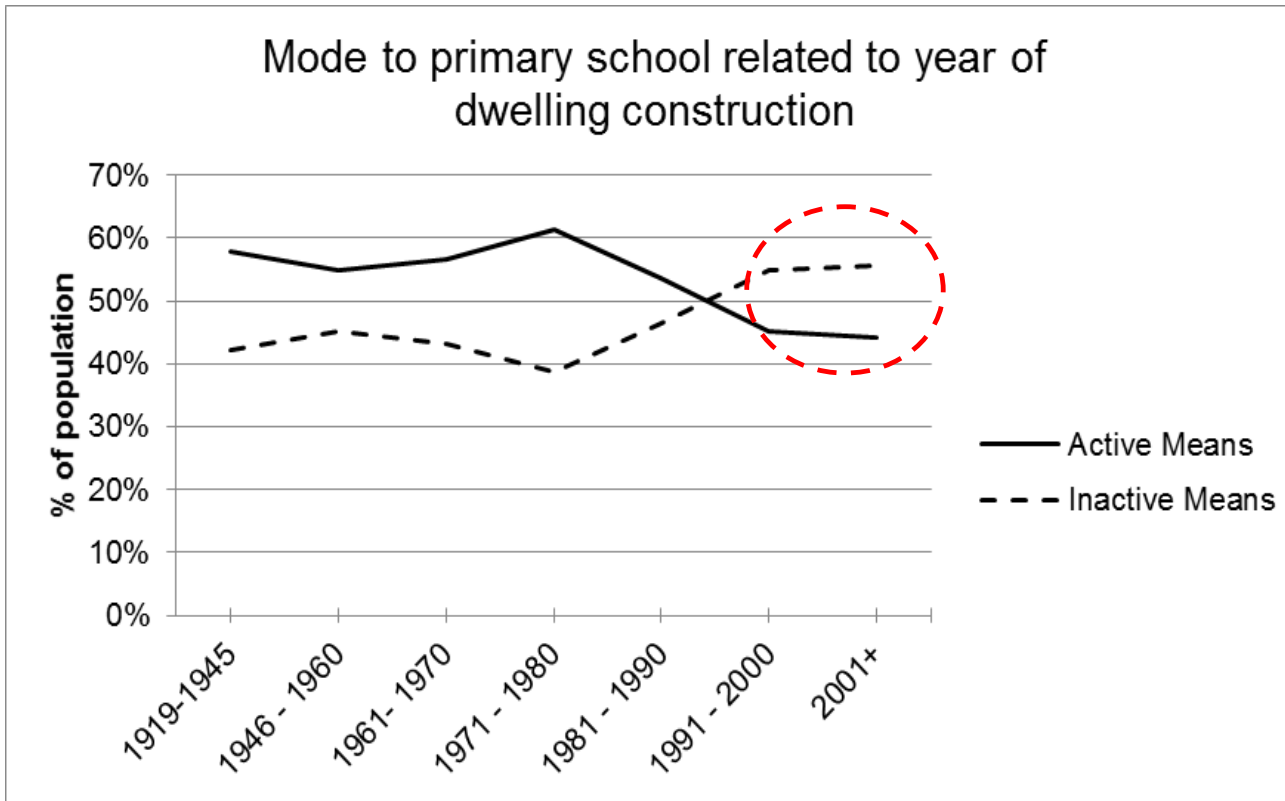
Primary School

Primary school journey even more unsustainable:

- **Dublin 48.5%** of primary children driven to school; **Ireland: 61.4%**;
Celtic Tiger areas within Dublin: 55.6% (CSO, 2012)
- **Finland: 20%***
- **Norway: 22%***
- **Great Britain: 44%^**

*Data sources: *Fyrhi et al., 2011; ^UK Government, 2014*

Primary School



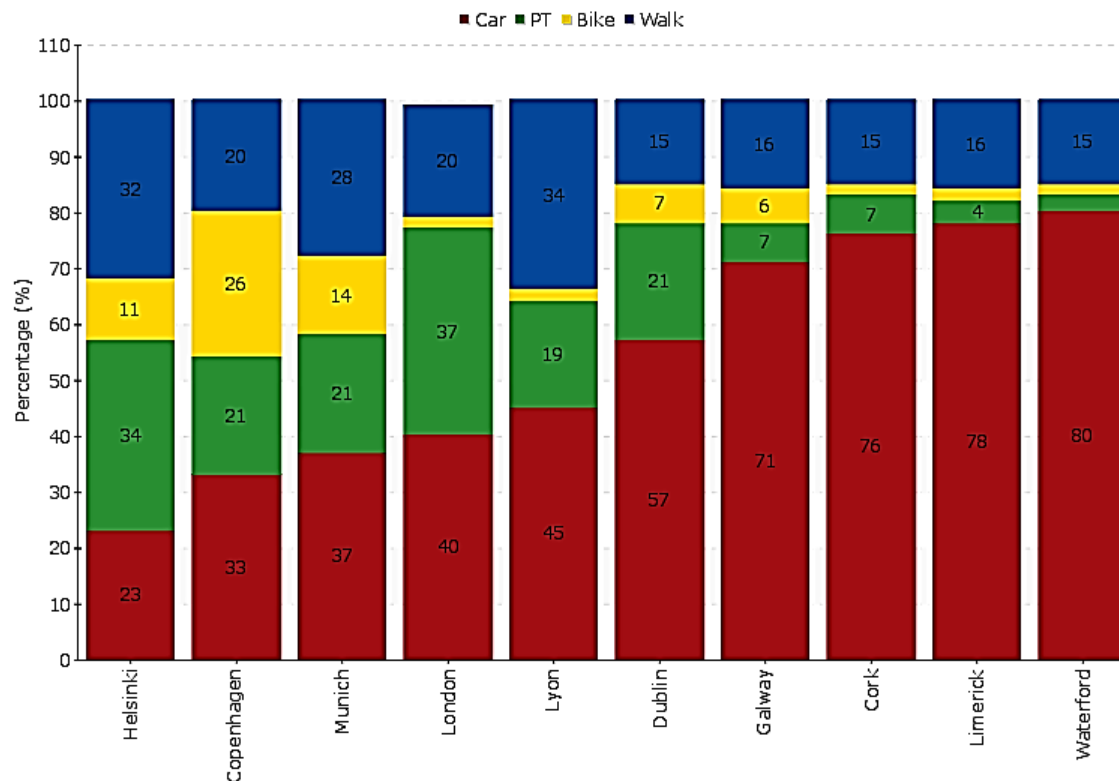
Source: S.Rock, based on CSO Census of Population 2011 data

- **Majority children driven** to primary school in areas developed from 1991 onwards.
- Proxy for local trip making - points to **failure in transport planning and land-use integration** at the local level.

TEMS - The EPOMM Modal Split Tool

10 results found!

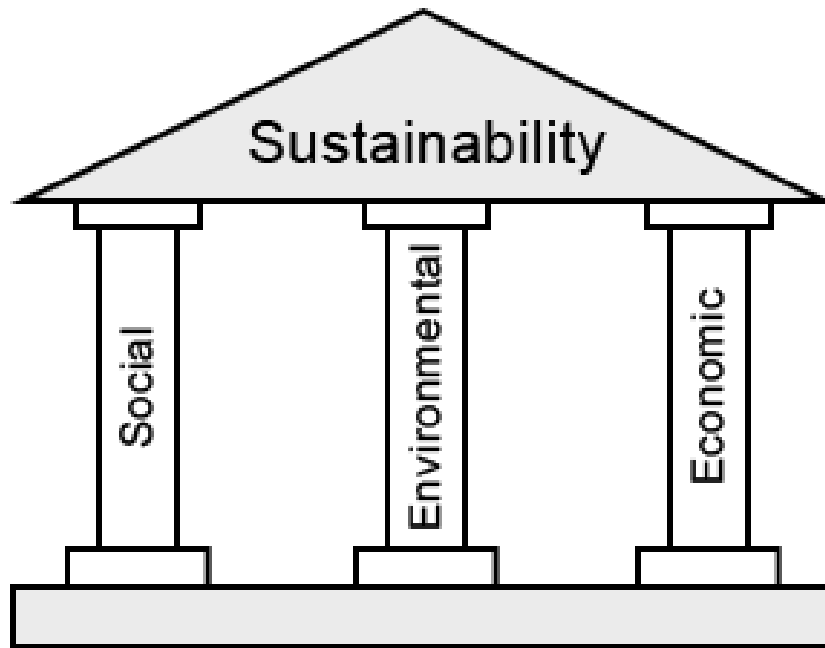
Modal Split Chart



How does Dublin & other Irish cities compare internationally?

<http://www.epomm.eu/>
European platform on mobility management – all daily trips made (mobility) by what mode.

What's the Problem with all this?



Balanced?

Sustainable Development &
Sustainable Mobility -
Convergence of **3 pillars** of :

1. **social equity**
2. **environmental** protection
3. **economic** development.

Social Equity: Transport Equity

Transport has **impacts** – positive & negative.

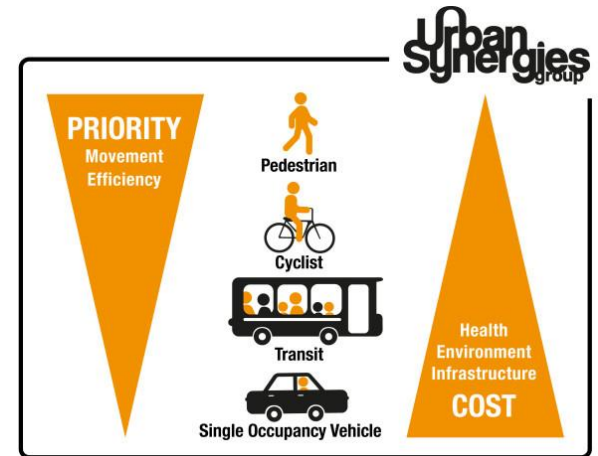
Transport Equity – **fair distribution** of these impacts.

- ‘Fair’ – value laden, for simplicity it’s about ‘**Comparative Fairness**’
(how people fare relative to each other)
- Key concept: access to ‘**Equity of Opportunity**’ - in an urban environment, does a person without a car have access to comparable job/education/healthcare opportunities as a person with a car?
- **Car** is one part of the transport system, but can be argued as being the **least equitable**, as it has the **most negative social, environmental & economic impacts overall**.

Social Equity: Transport Equity

Most equitable hierarchy overall is the **sustainable transport hierarchy**:

- Pedestrian first, then cyclist and public transport user,
- Then service & commercial vehicles,
- Then all other vehicles.



Planning & designing for the car is a **negative self-reinforcing cycle** – the more one caters for travel by car, the more one reduces the ability to effectively travel by other means.

Car dependency is **our increasing over-reliance on the car** (and **increasing exclusion from services** & amenities for those without a car). Dynamic process that usually increases over time.

References: Lucas & Jones, 2009; Goodwin, 1995; Newman & Kenworthy, 1999; Mattioli, 2014

Legend

- Tram (Luas) stations
- Rail stations
- Bus services with dedicated bus lanes
- Dublin_City_SuburbSettlement

Additional Travel Times by Public Transport over Private Transport

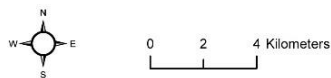
- c.3 min-10 min
- c.10 min-15 min
- c.15 min-20 min
- c.20 min-26 min
- c.26 min-50 min

Uncompetitive Public Transport

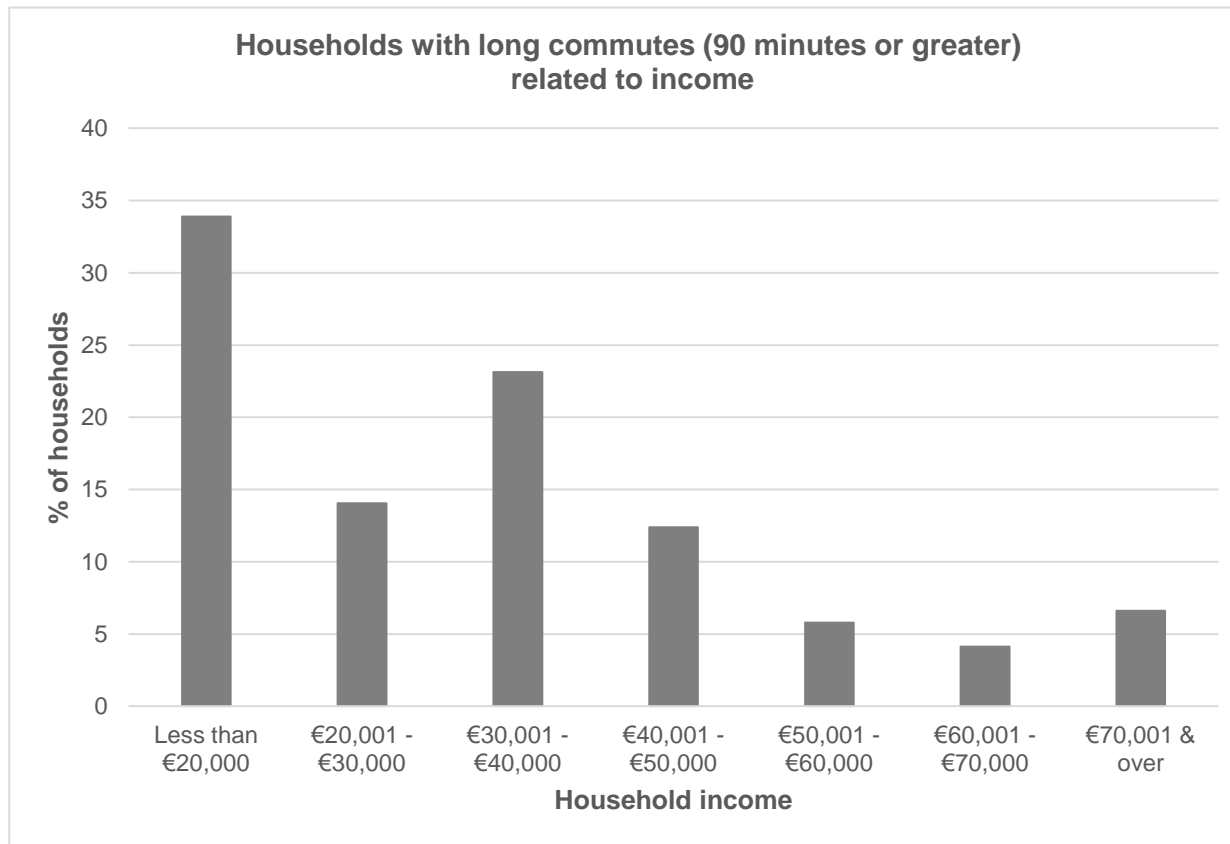
- Map of Dublin showing **additional travel time by public transport** compared to travel by car.
- Impacts on people's lives of additional travel time – who will the **burdens** most likely to fall upon?

Additional Travel Times by Public Transport over Private Transport

- c.3 min-10 min
- c.10 min-15 min
- c.15 min-20 min
- c.20 min-26 min
- c.26 min-50 min



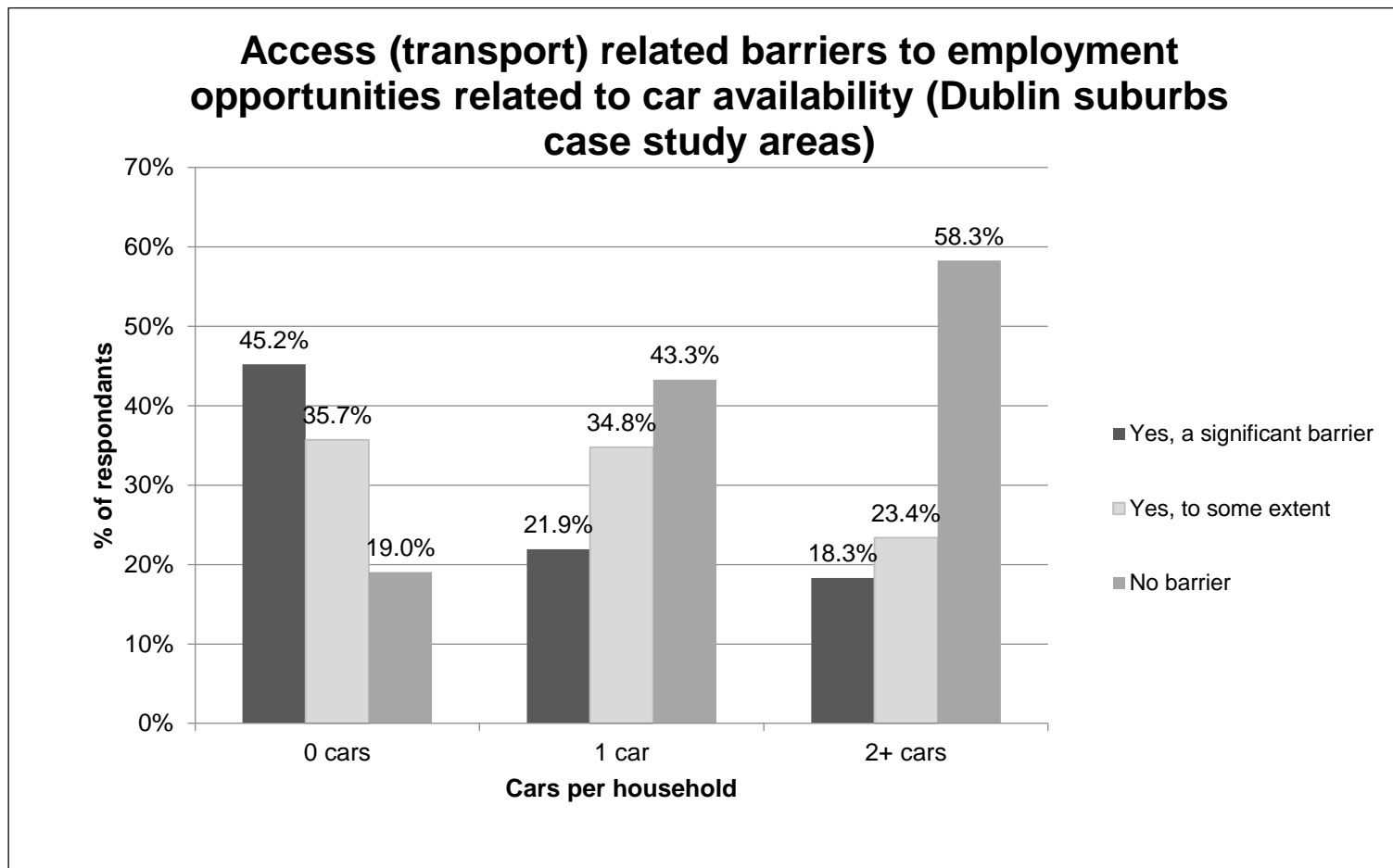
Percentage of households with **long commutes** (90min+) to work related to **household income** (data from suburban case study areas, Dublin)



Low & middle income households that are experiencing the longest commutes.

Source: S. Rock, 2015 – Income refers to after-tax income

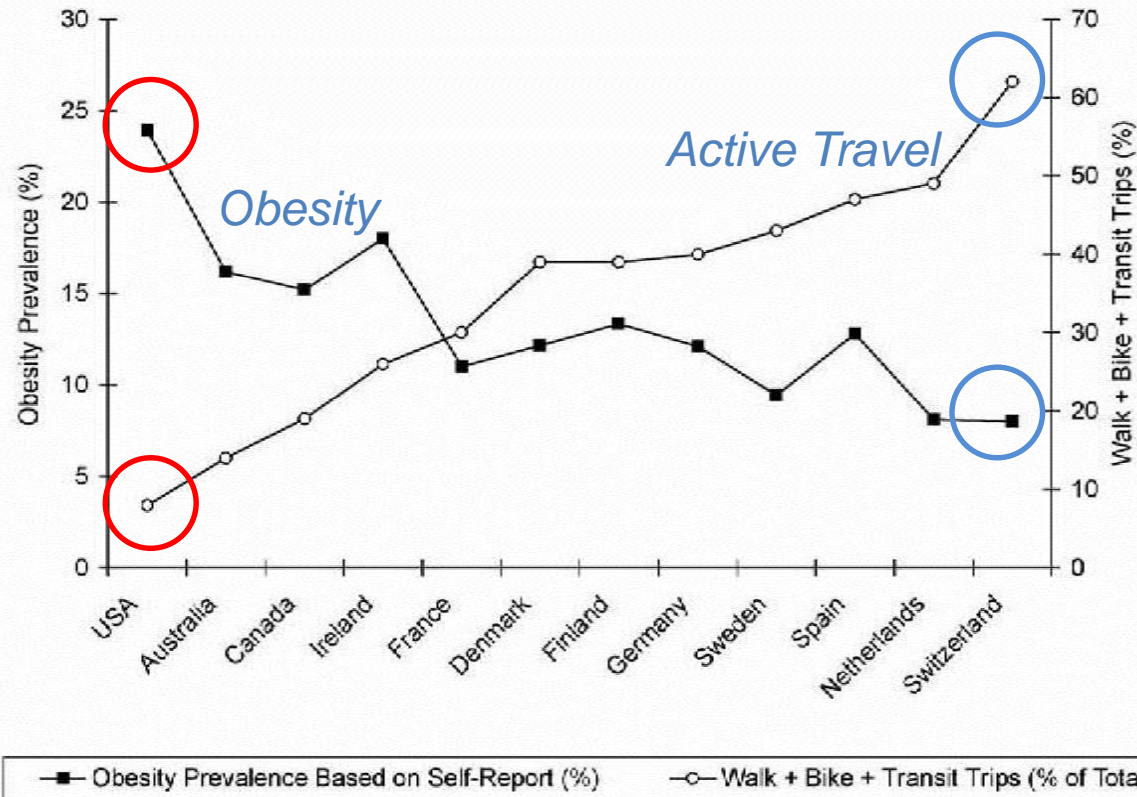
Access to Opportunities



Pearson Chi-Square (54.99; df 4) $\leq .000$
Gamma = .330 ($p \leq .000$)

Those without cars felt they experienced significant barriers to employment opportunities compared to those with cars.

Impacts: Obesity

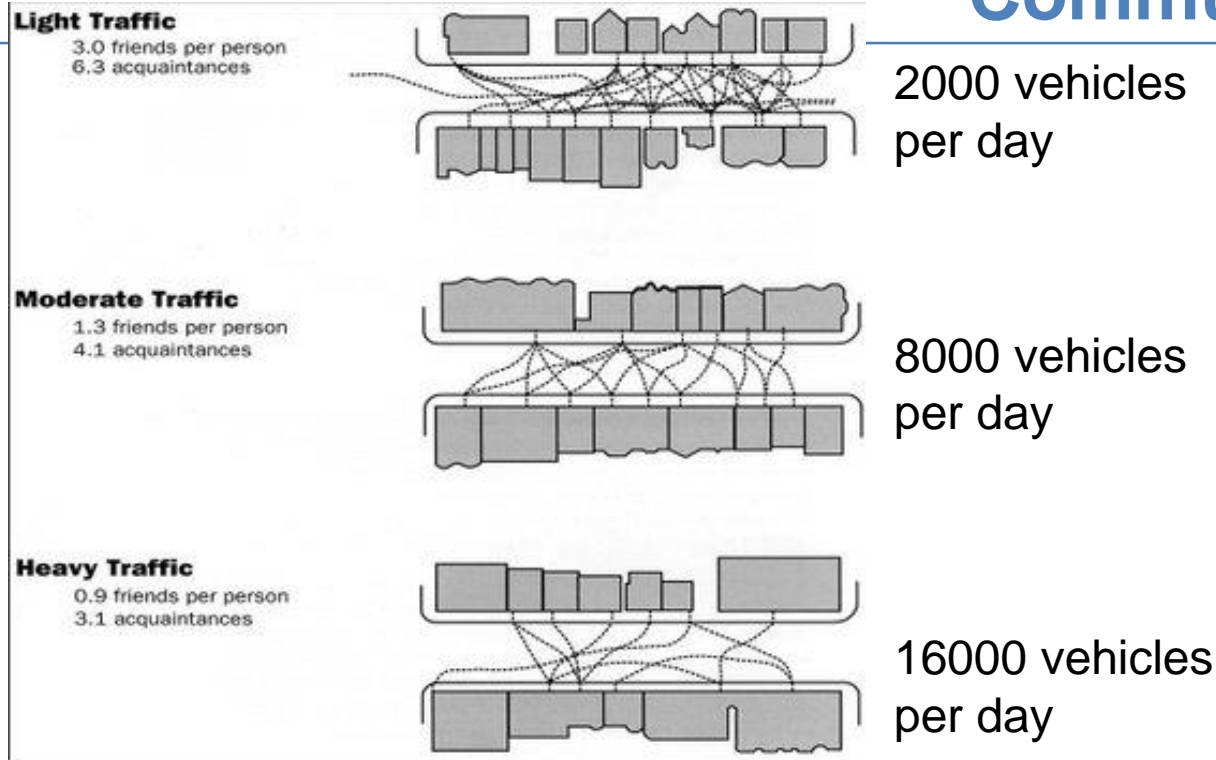


Clear
correlation
between
lack of active
travel &
obesity

Figure 2 — Obesity ($\text{BMI} \geq 30 \text{ kg} \cdot \text{m}^{-2}$) prevalence and rates of active transportation (defined as the combined percentage of trips taken by walking, bicycling, and public transit) in countries of Europe, North America, and Australia. BMI was computed from self-reported height and weight. Data were obtained from national surveys of travel behavior and health indicators conducted between 1994 and 2006 (see text for details).

Source: Bassett et Al, 2008, 'Walking, Cycling & Obesity Rates in Europe, North America & Australia', *Journal of Physical Activity & Health*, 5, 795-814

Community Severance



Social interaction & traffic volumes

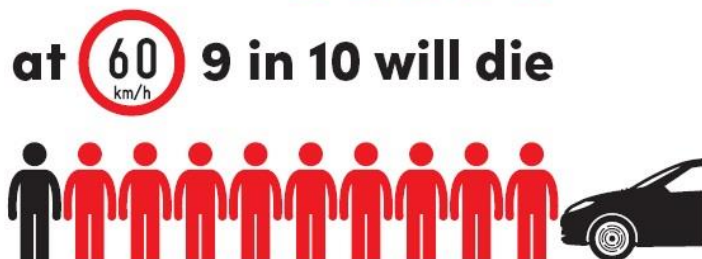
In the late **1960s Appleyard** conducted a renowned **study** on livable streets, comparing **three residential streets in San Francisco** which on the surface did not differ on much else but their **levels of traffic**.

His research showed that residents of Light Street had three times more friends and twice as many acquaintances as the people on Heavy Street.
(www.pps.org)

Impacts: Accidents, Injuries & Fatalities

HARD AND **FAST** FACTS

Pedestrians hit by a car...



Source: Road Safety Authority & Irish Times

Cyclists:

March 2017 – 5 deaths

June 2017 – 8 deaths

Cyclist death toll for 2017 now half of total for last year

Five cyclists killed in road collisions so far this year in Counties Dublin, Kildare, Clare


© Tue, Mar 28, 2017, 17:53


Updated: Tue, Mar 28, 2017, 17:56

Rachel Flaherty, Pat Flynn



Cyclist Des Butler was fatally injured in a collision with a camper van in Co Clare on March 26th. File photograph: Facebook

 The number of cyclists killed this year has already reached half of last year's total of 10 deaths, just three months into 2017.

 Garda figures show 10 cyclists died in road incidents in 2016. Five cyclists

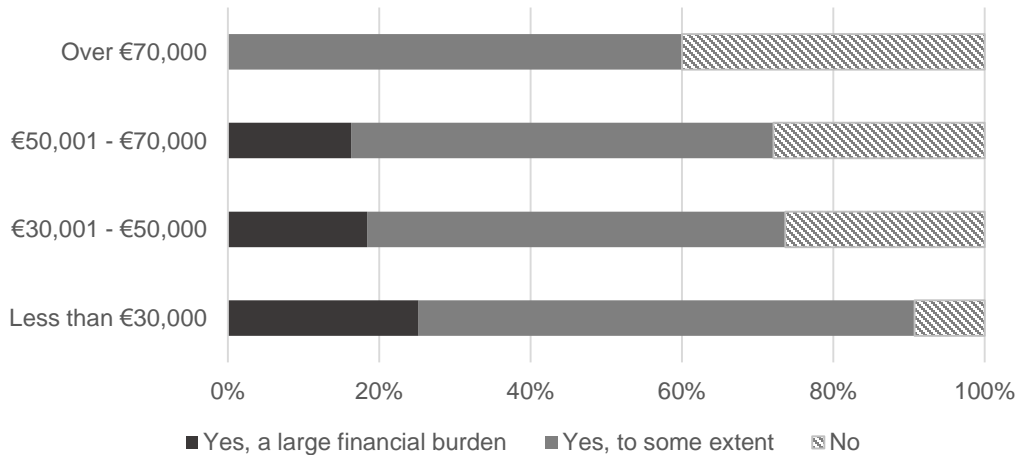
‘Forced’ Car Ownership

Survey response to question regarding whether **owning a car** was seen as a **necessity** where they lived:

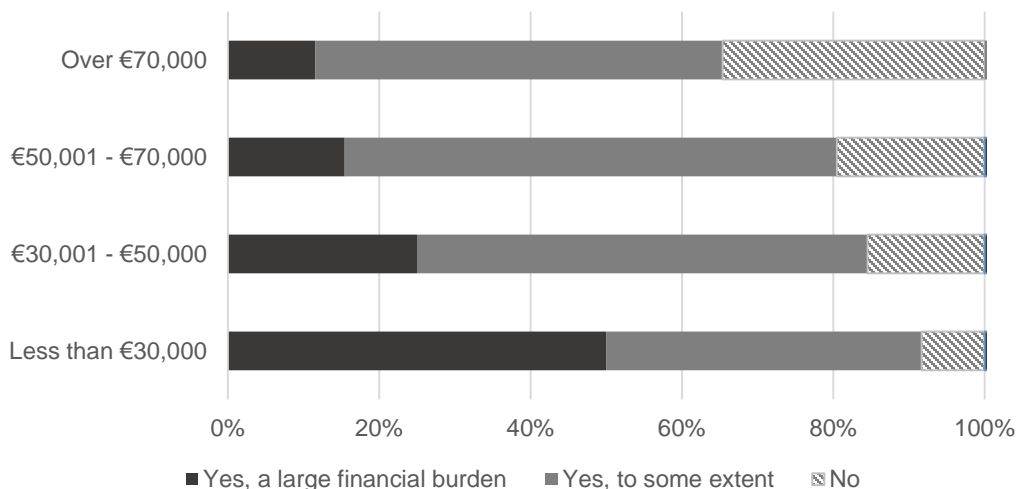
- **Yes, definitely: 79.5%**
- **Yes, to some extent: 18.5%**
- **No: 2%**

But, car ownership is causing **significant financial burdens** on many households.

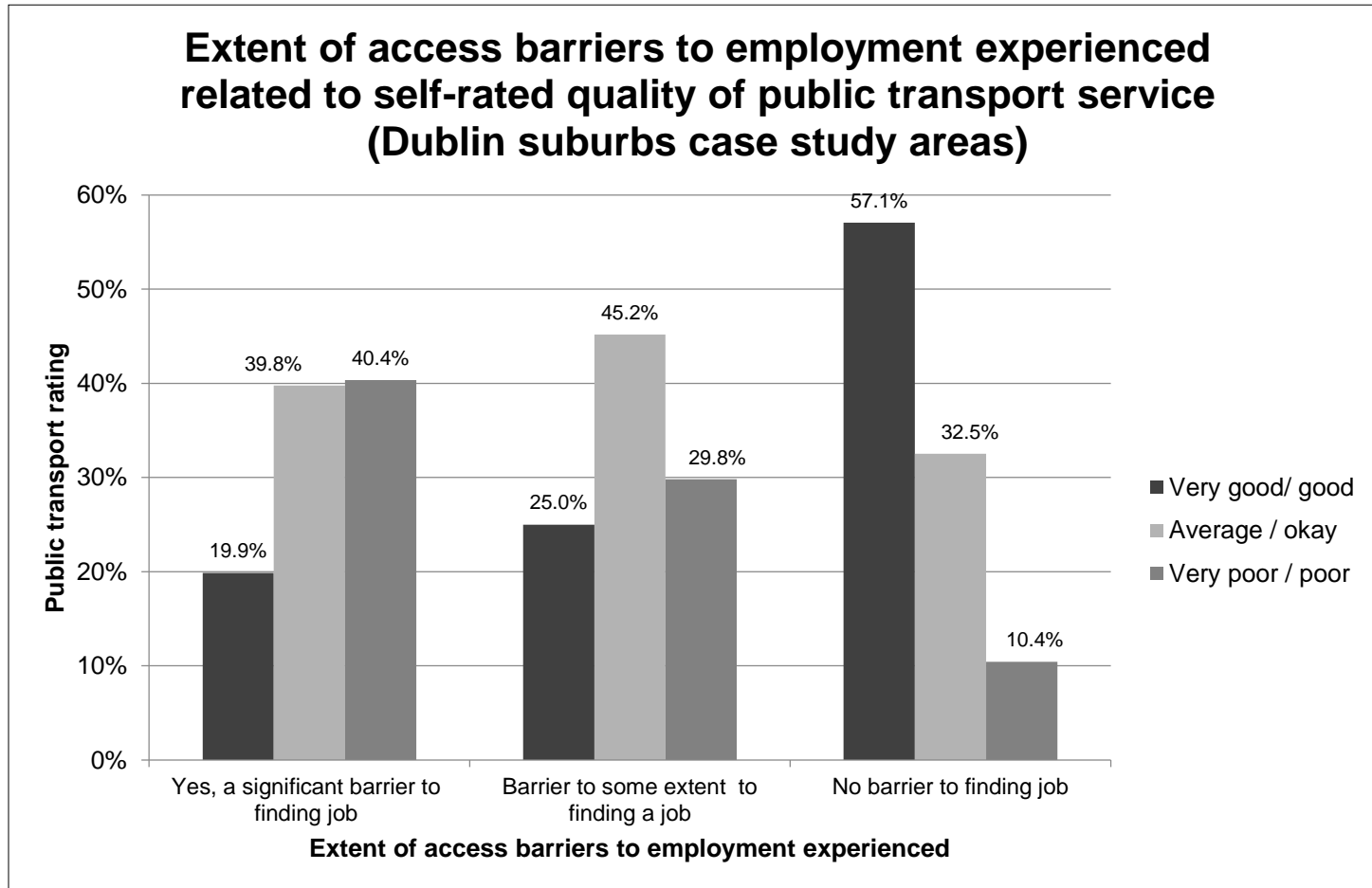
Single car households and car related financial burdens related to household income (Dublin suburbs case study areas)



Multi-car households and car related financial burdens related to household income



Good Public Transport Helps



Pearson Chi-Square (106.92; df 4) $\leq .000$
Gamma = -.504 ($p \leq .000$)

Good public transport reduces access barriers to employment opportunities.

Transport Equity Principles to Guide Future Development

1. Transport should **not be a barrier to equity of opportunity** to key life chances.
2. **Groups vulnerable to transport disadvantage** should be given special consideration in plans & projects (e.g. lower income; children; elderly; lone parents; mobility & sensory impaired).
3. People are **entitled to use walking, cycling and public transport** as an **effective, safe** and efficient mode of transport
4. People should be able to have zero-car ownership in urban areas, and be able to **reach key local and strategic destinations** (at least) by effective walking, cycling or public transport.

Opportunity to Help Shape Future Policy



The screenshot shows the homepage of the National Transport Authority (Údarás Náisiúnta Iompair). The header is purple with the NTA logo on the left and a search bar on the right. A left-hand navigation menu lists various services with plus icons. The main content area features a purple 'HOME' button and a large heading for an online public consultation. The text below the heading explains the consultation on the 2018-2022 Strategy Statement, mentions increased demand and traffic congestion, and states the consultation will close on Wednesday 21st June 2017 at 12pm.

Údarás
Náisiúnta Iompair
National Transport Authority

Enter a search term... x Q

- + PUBLIC TRANSPORT SERVICES
- + TAXI LICENSING
- + BUS LICENSING
- + INVESTMENT PROJECTS
- + PLANNING AND POLICY
- + PUBLIC CONSULTATIONS
- + PUBLICATIONS AND STATISTICS

HOME

Online Public Consultation on Statement of Strategy 2018 to 2022

The Authority is commencing a public consultation on our new Strategy Statement for 2018 to 2022. We want to develop the opportunities that arise to see the continued improvement of all modes of public transport services to the public. The challenges we face for the next few years involve a continued growth in demand of services with our population growth. From 2014 we have seen an increase in transport usage for all modes – bus, commuter rail, Luas and cycling. Car travel has also increased over the Dublin region and on the M50 users of the motorway are experiencing increased journey times during peak hours. On all major radial routes we have seen increased traffic volumes which leads to longer commuting times.

Traffic congestion impacts on all of us whether you are a commuter, car driver, on a business or leisure trip. It is important to note that congestion also impacts on the efficiency of the bus service as most bus journeys are conducted in general traffic. Traffic congestion is a growing problem and can only be solved through the delivery of appropriate public transport alternatives including cycling and walking.

In drafting our new consultation we will consider emerging technologies and we will also look at the Rural Transport programme – Local Link bus service which seeks to address the issue of rural social inclusion and ensure that as we develop any future services that they are integrated with other public transport services. We also have obligations in respect of Climate Change and we need to make progress in reducing carbon emissions from transport. We would like to continue to increase the number of public transport users by

Public consultation will close on **Wednesday 21st June 2017 at 12pm** to all submissions.

Our Vision

National Transport Authority Statement of Strategy 2015-2017

"Greater share of high quality, accessible sustainable transport being used by all"

Our Mission

Our Mission is to increase the share of travel by sustainable transport across the country by

1. Regulating and procuring attractive, high quality and safe public transport services,
2. Securing the development and implementation of an accessible and integrated transport system,
3. Contributing to the effective integration of transport and land use planning policy and investment, and
4. Enhancing the perception and raising awareness of public transport

in a manner that supports Government policies and priorities and contributes to economic development, environmental sustainability and social cohesion in the State.

- **Bolder vision needed?**
- The link between car dependency and social inequity needs recognition.
- Greater **focus on walking and cycling** needed – as safe, effective & equity modes of transport.

DMURS: Sustainable Transport Hierarchy

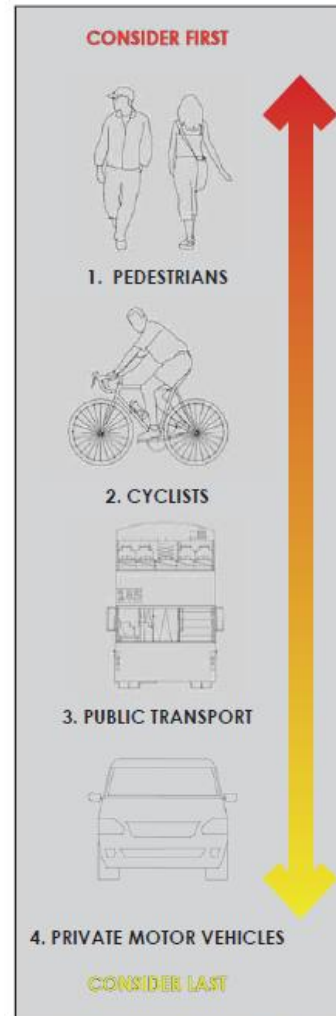
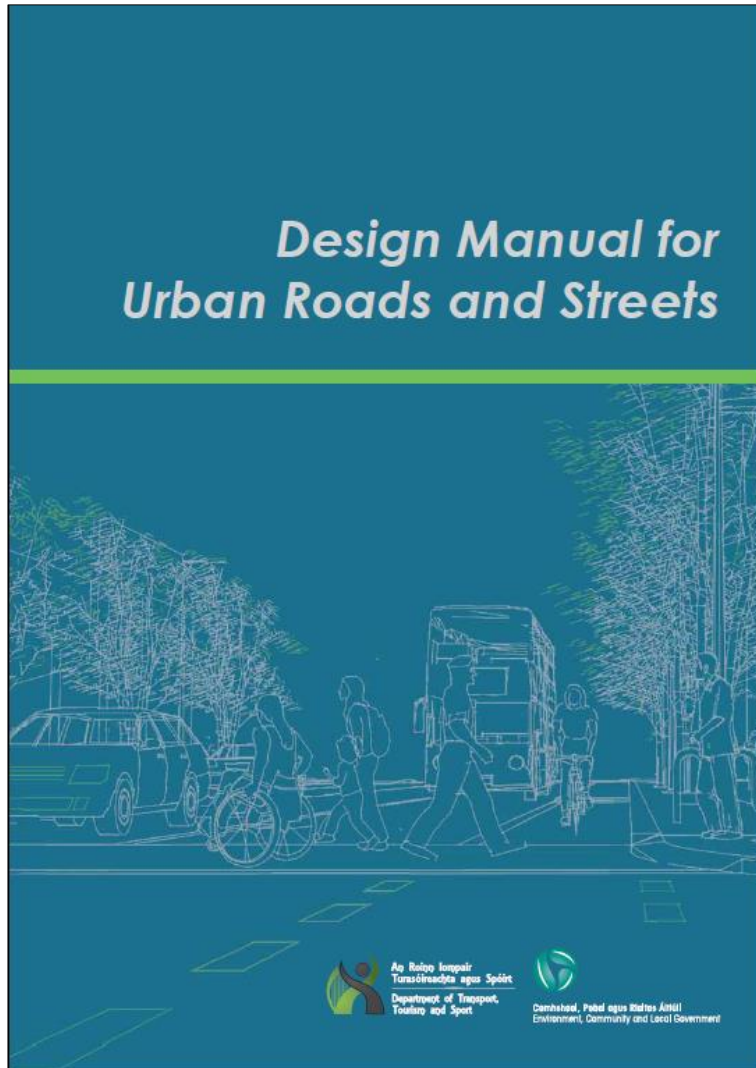


Table 2.21: User hierarchy that promotes and prioritises sustainable forms of transportation

Dept. of
Transport,
Tourism & Sport,
2013

BusConnects

Figure 8: Long Term - Comprehensive Regional Rail Network



Figure 10: Medium-Term - Core Radial Bus Corridors

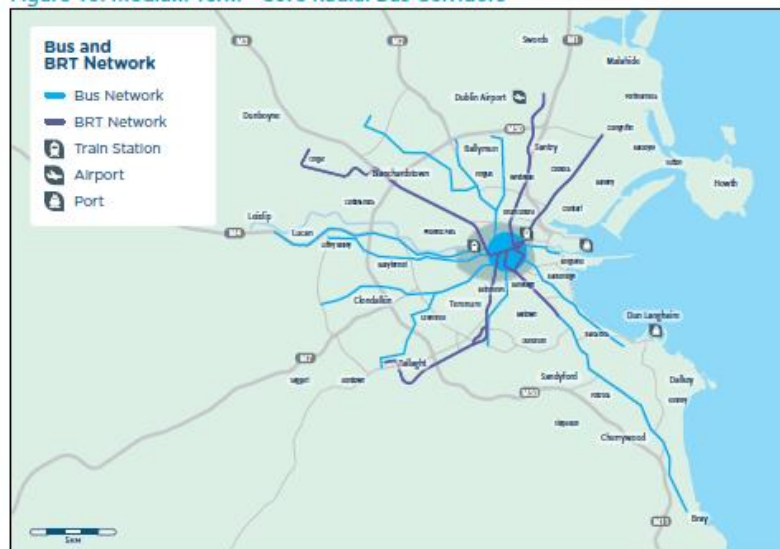


Figure 9: Medium Term - Bus Rapid Transit Corridors

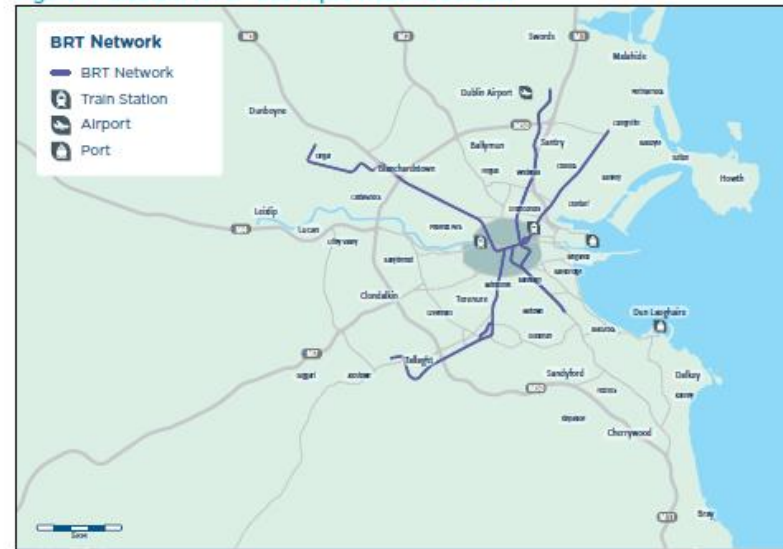


Figure 11: Medium Term - Core Orbital Bus Corridors

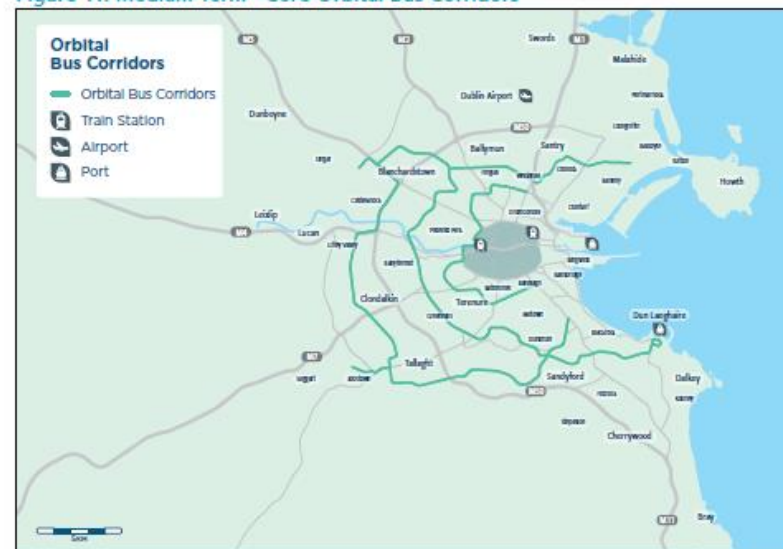




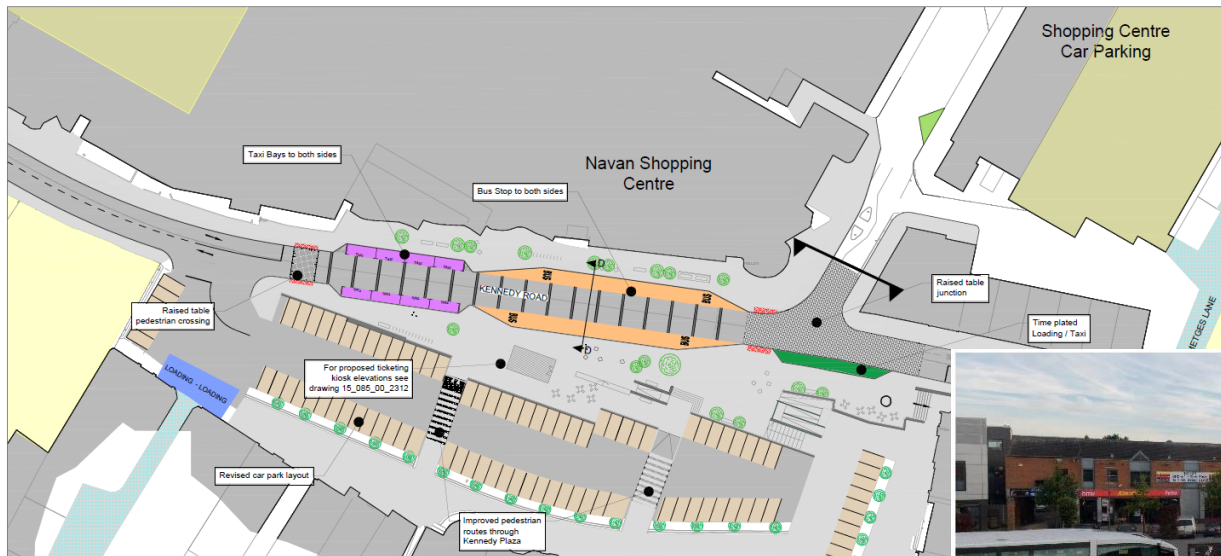
Image Source: S. Rock



Images source: www.pka.ie

Proposed Navan Town Centre Public Transport Hub

Part 8 Public Consultation currently underway by Meath County Council for series of **public realm and sustainable transport improvements** around Navan Town.



Source:
<http://www.meath.ie/CountyCouncil/MajorProjects/Navan2030Plan/>



Figure 10: Kennedy Road, incorporating set back bus stops and taxi ranks, increased pedestrian space and potential for a new ticketing/information facility.

Stop Polluting.

The icebergs are
collapsing!
Walk instead!

