

Transport planning for health and happiness

Part 1: Transport as a health and happiness issue

Part 2: Measuring transport related health and happiness

About this document

Intended audience: Public health professionals, transport planners, spatial planning and highways teams working in public bodies with a role in transport planning and active travel.

After reviewing this document, we hope you will:

- Feel confident talking about how and why transport is a health issue. (Part 1)
- Know where to look for health and transport related data. (Part 2)
- Have some ideas about key public health considerations relevant to transport planning (Part 3). Specifically,
 - Active travel / walking wheeling and cycling plans and strategies, and
 - Local Transport Plans / Integrated transport plans and strategies.

Overview

PART 1: Transport as a Health & Happiness Issue (Slides 4-23)

PART 2: Measuring transport-related health and health inequalities (Slides 24 - 32)

PART 3: Health considerations for transport planning (local transport plans and active travel strategies)
(Separate guide)

PART 1: Transport as a Health and Happiness Issue

A. Building the case

B. Understanding the UK transport system

Like housing, employment, and education, **transport is one of the fundamental building blocks of health**. Transport can make a major contribution towards health, happiness and equity.

Transport as a PH issue: Connections to health care

Affordable, reliable, and equitable transport systems give people access to health care services.

Access to health care

- Missed NHS appointments are associated with poor health outcomes, and [transportation difficulties are amongst the most common for non-attendance](#).
- As a significant proportion of people in the UK [do not have access to private transport](#) (22% of households do not own a car), public transport is their only means of accessing essential health services. Without an equitable transport system, we can't ensure equity of access to the NHS.
- Improving access to public transport has been shown to reduce missed medical appointments and hospital admissions – particularly for [older people and disabled people](#).



Transport as a PH issue: Connections to health promoting services

Affordable, reliable, and equitable transport systems give people access to health care services, and other services – which are essential for health, happiness, and equality.



- Affordable, accessible, and appropriate transport connects people to health-promoting activities and places, from leisure centres to supermarkets stocking cheap, healthy food.
- People who rate their local public transport as 'good' are nearly three times (2.8 times) more likely to be able to access services (such as food shops and learning facilities) than those rating local public transport as 'poor'.

Transport as a PH issue: A bridge to opportunity

High quality transport systems help people access education and employment – which contribute to health, happiness, and equality.

- Employment can increase income, financial stability, security and provide a greater sense of purpose. These changes can, in turn, [lead to healthier diets and exercise, higher living standards, and better mental health.](#)
- Transport is an important factor affecting access to employment opportunities, and education. For example, [in 2018, 19% of unemployed people in England either turned down a job or decided not to apply for a job due to transport-related problems.](#)
- Young people, who are [more likely to be reliant on public transport,](#) (especially buses), are more likely to have employment opportunities affected by transport.



Transport as a PH issue: Connecting people

High quality transport systems enable social connections and thus contribute to mental wellbeing.

- There is consistent evidence [linking social isolation and loneliness to worse cardiovascular and mental health outcomes](#).
- Transport can be an important facilitator (or barrier) to community. There is a [strong association between inadequate transport and loneliness](#).
- At their worst, transport systems can actively generate isolation and break up natural communities. This is especially an issue where large roads create physical barriers between communities (known as community severance).
- People without a car, people on low-incomes, people living on isolated housing estates or in deprived areas, people with physical or sensory impairments, older people, children and young people, and people living in remote areas are [most at risk for being socially excluded due to a lack of access to public transport](#).



Credit: Age Without Limits

Transport as a PH issue: Facilitating physical activity

The relative ease and accessibility of different transport modes facilitates or acts as a barrier to physical activity – with many associated health consequences.

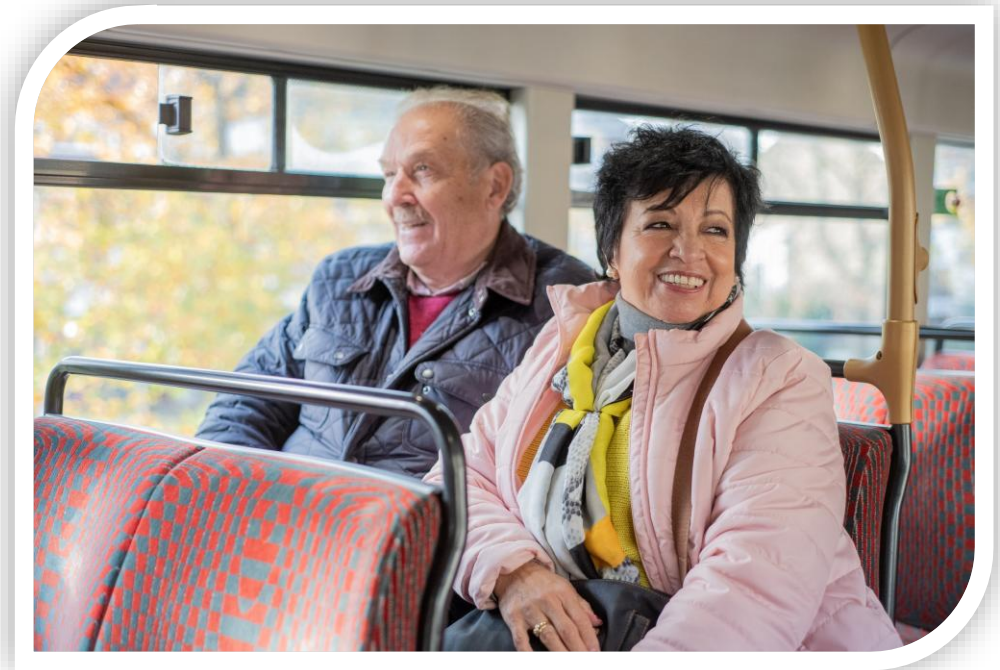
- Increasing physical activity and minimising time spent sitting down [helps maintain](#) a healthy weight and reduces the risk of cardiovascular disease, type 2 diabetes, cancer, and depression.
- Walking and cycling as part of routine travel – whether for an entire journey, part of one, or to access public transport – can help meet [Chief Medical Officer targets for physical activity](#).
- Analysis suggests that increasing the amount of walking and cycling in all regions of England to that of regions with the highest distance walked or cycled for different age groups (up to age 74) [could prevent 1,189 deaths per year](#).



Transport as a PH issue: Happiness and wellbeing

Access to quality transport determines our access to the people and things we love – which affects wellbeing.

- Individuals who suffer isolation due to transport [are 3 times as likely](#) to have a general health questionnaire score which indicated a risk of depression.
- A 2010 review found that it is not enough for transport to be available and affordable. To positively impact health outcomes, it must also be accessible to everyone and appropriate (e.g. convenient, comfortable and safe).
- Active travel can have mental health benefits, such as [lower risk of depression or stress](#).



Credit: Age Without Limits

Transport as a PH issue: Health inequalities

Affordable, accessible and sustainable transport systems have the potential to address health inequalities.

Transport systems have the potential to reduce health inequalities by ensuring that everyone has access to employment opportunities, to education, to essential services, and to community – regardless of whether they can afford to own a car.

Conversely, if transport schemes fail to account for the barriers to transport that disadvantaged communities face, they have the potential to further entrench inequalities by privileging wealthier communities who (already) experience less transport related social exclusion and experience better health.



Credit: Age Without Limits

PART 1: Transport as a Health & Happiness Issue

A. Building the case

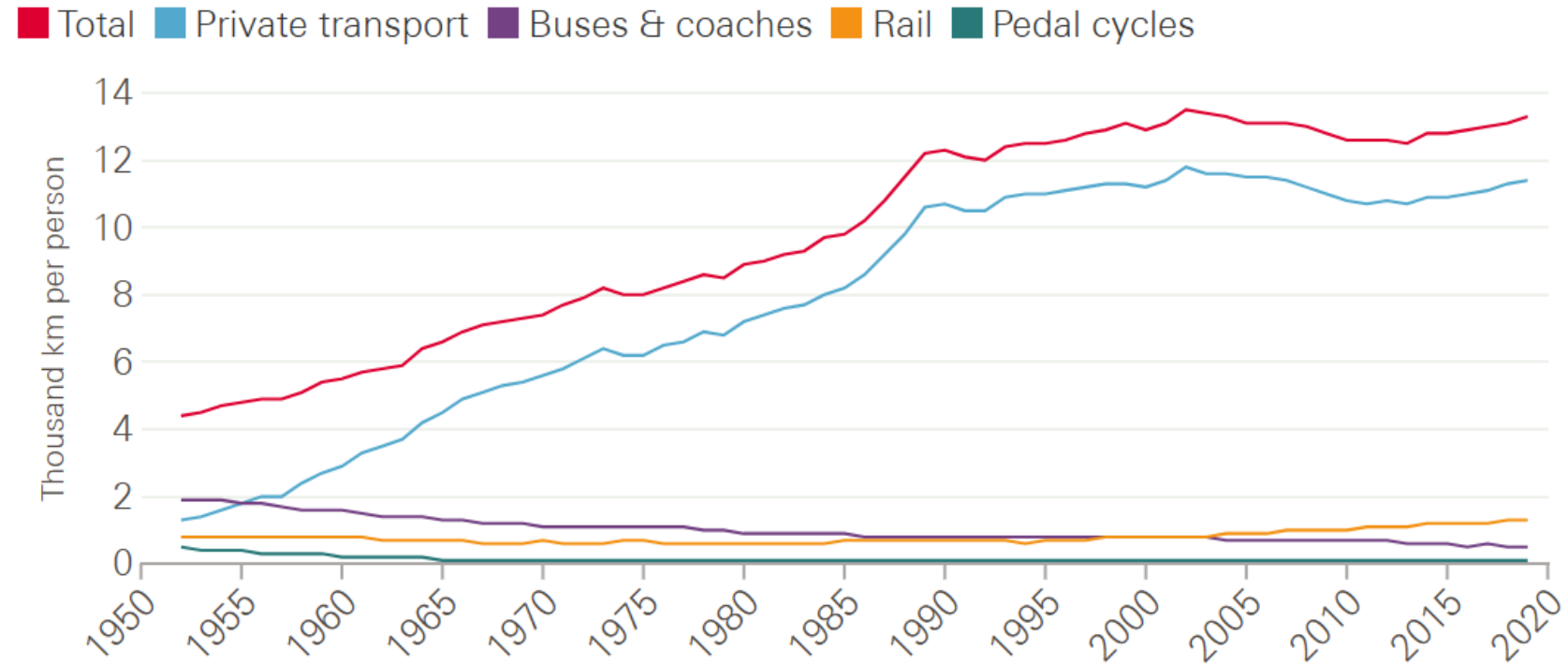
B. Understanding the UK transport system

Understanding the UK Transport System

The UK transport system used to be relatively diverse.

In 1952, nearly three quarters (71%) of passenger kms travelled per person in the UK were by **bike, train, bus, or coach**.

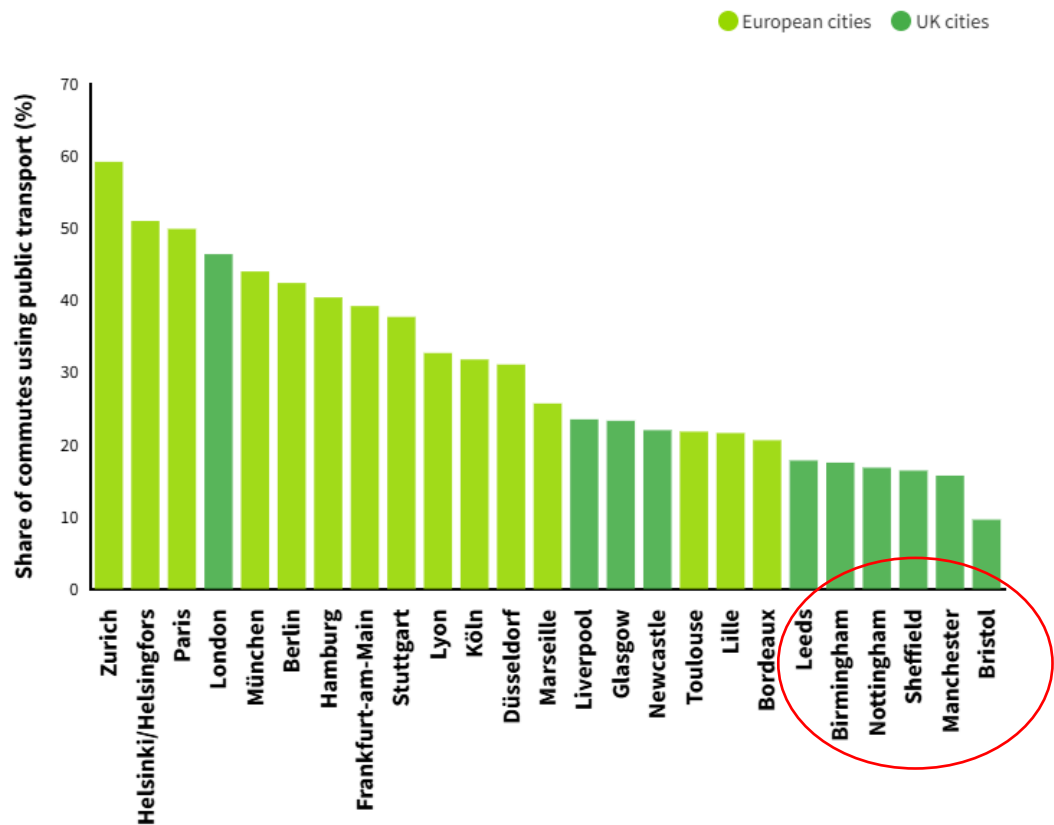
But, in 2019, this had fallen to just **15%**.



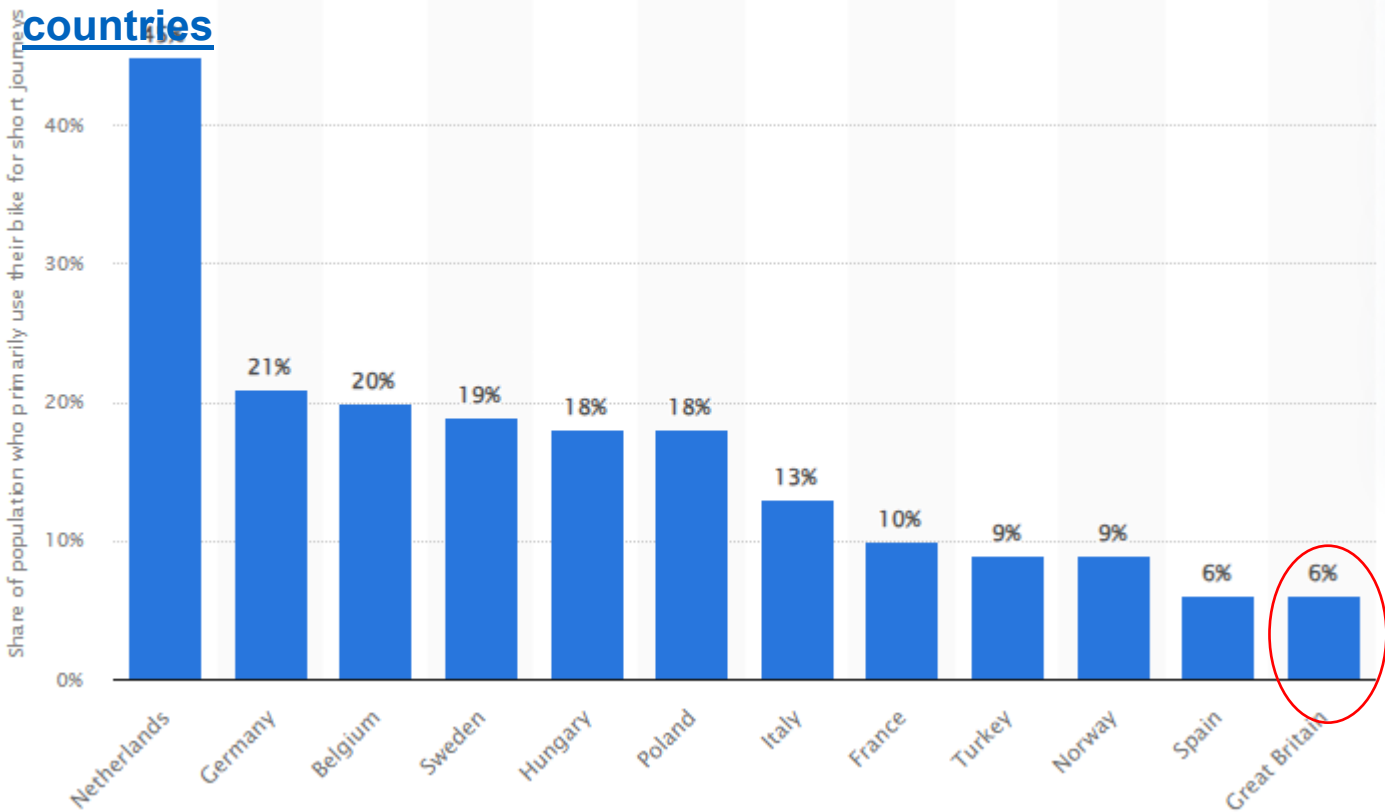
Understanding the UK Transport System

And many countries still have comparatively high rates of active travel and public transport use.

Share of commutes using public transport across UK and European cities with a population of over 600,000 (2023)



Share of population who ride a bicycle as their primary mode of transport for short journeys in Europe in 2022, by selected countries

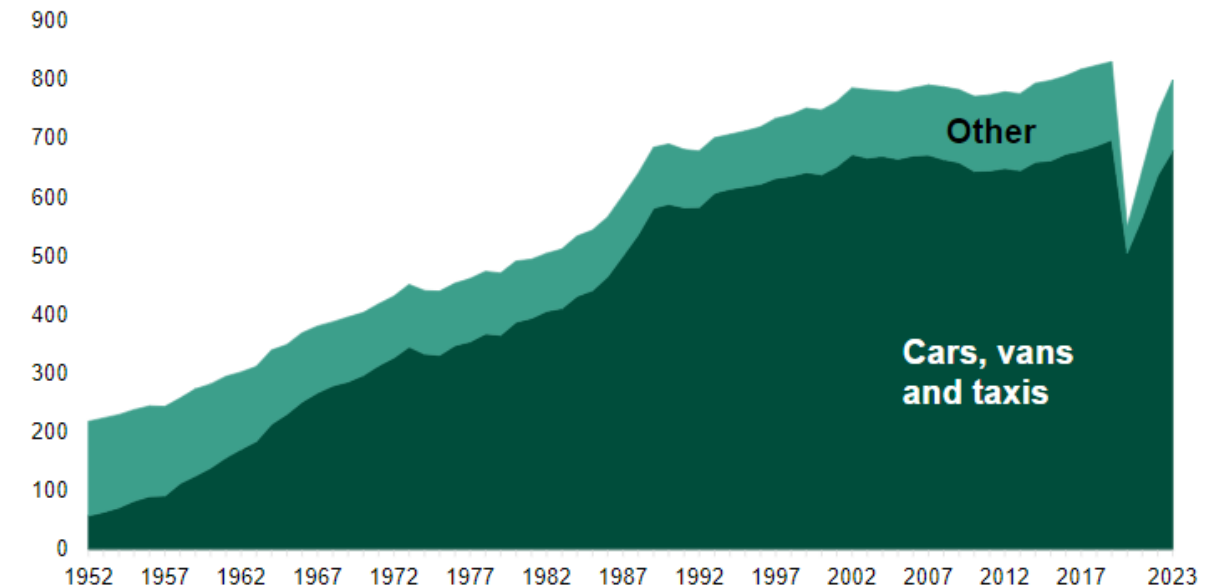


Trends in transport usage in the UK

In the UK, there has been a progressive shift towards car use and a relative decline in other transport modes. Car use is set to steadily increase over the next 30+ years.

- There has been a growth in car use with [85% of the total distance travelled in the UK travelled in private vehicles](#), compared to 27% in 1952 and 79% in 1980.
- The [DfT's national traffic projections](#) say that under all the scenarios tested traffic volume is set to rise – with the *lowest* estimate being an increase of 8% by 2060.
- The proportion of households in Great Britain and England with access to one or more cars has steadily increased, from 52% in 1971 to 78% in 2022. Over this period, the [proportion of households with one car has remained at around 45%](#) and the [proportion with two or more vehicles has increased from 8% to 34%](#).

Chart 2: Passenger transport by car, vans and taxis compared to other modes (billion passenger kilometres): Great Britain, 1952 to 2023





Air Pollution

Car-centric
transport systems
and built
environments
contribute to ill-
health and deepen
health inequalities..

directly...



Road Danger



Inactivity



**Noise
pollution**

Air Pollution

- Road transport accounts for 35% of Nitric Oxide (NOx) emissions in the UK.
- Vehicle emissions linked to heart disease, respiratory conditions and ++ cancers.
- Long-term exposure to air pollution is attributed to 28-36,000 deaths each year in the UK.

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directly...

Road danger

- In Great Britain, 29,643 people were killed or seriously injured in road traffic collisions in 2023.
- More car use is correlated with more deaths
- Cyclists and pedestrians have greater risk of injury than drivers.

Inactivity

- Sedentary behaviour increases risk of all-cause mortality and many non-communicable diseases.
- Children who are driven to school are less likely to meet activity recommendations.
- There's evidence that active travel can improve overall activity rates and have positive direct health benefits.

Noise pollution

- Noise pollution is a risk factor for heart disease, stroke, obesity and diabetes, as well as sleep disturbance
- Estimated 8% increase in risk of heart disease for every 10 decibels increase in daytime traffic noise.

Climate change



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Social Exclusion and Poverty



Access to green space



directly... and
indirectly

Community Severance



Climate Change

- Climate change is the biggest threat to health globally.
- In the UK, [transport is the largest emitting sector of greenhouse gas emissions](#), producing [26% of the UK's total emissions](#) in 2021.
- Of the 128 million tonnes of Co2 emitted from all modes of transport in the UK 2021, [over half \(59%\) came from cars & taxis \(45%\), and vans \(14%\)](#). Just 2% came from buses.
- Emissions from travel are [not generated equally](#). Half of the population in the UK are responsible for a tenth (11%) of transport emissions, and the wealthiest 0.1% emit at least 22 times more from transport than the lowest earners.

Green Space

- The use of public space for storage & movement of cars, limits opportunities for play, exercise, & socialising.
- There is a clear link between access to nature and positive [health outcomes in children](#), - yet in the UK, 1 in 5 people live in areas deprived of green space, and [1 in 9 children have not visited a park or natural environment in the last year](#). Minority ethnic and low-income families are significantly less likely to have access to green areas.
- A study of [land-use in Scottish cities](#) found that 35-41% of space is dedicated to cars (roads, and parking) – compared to around 10% for green spaces.

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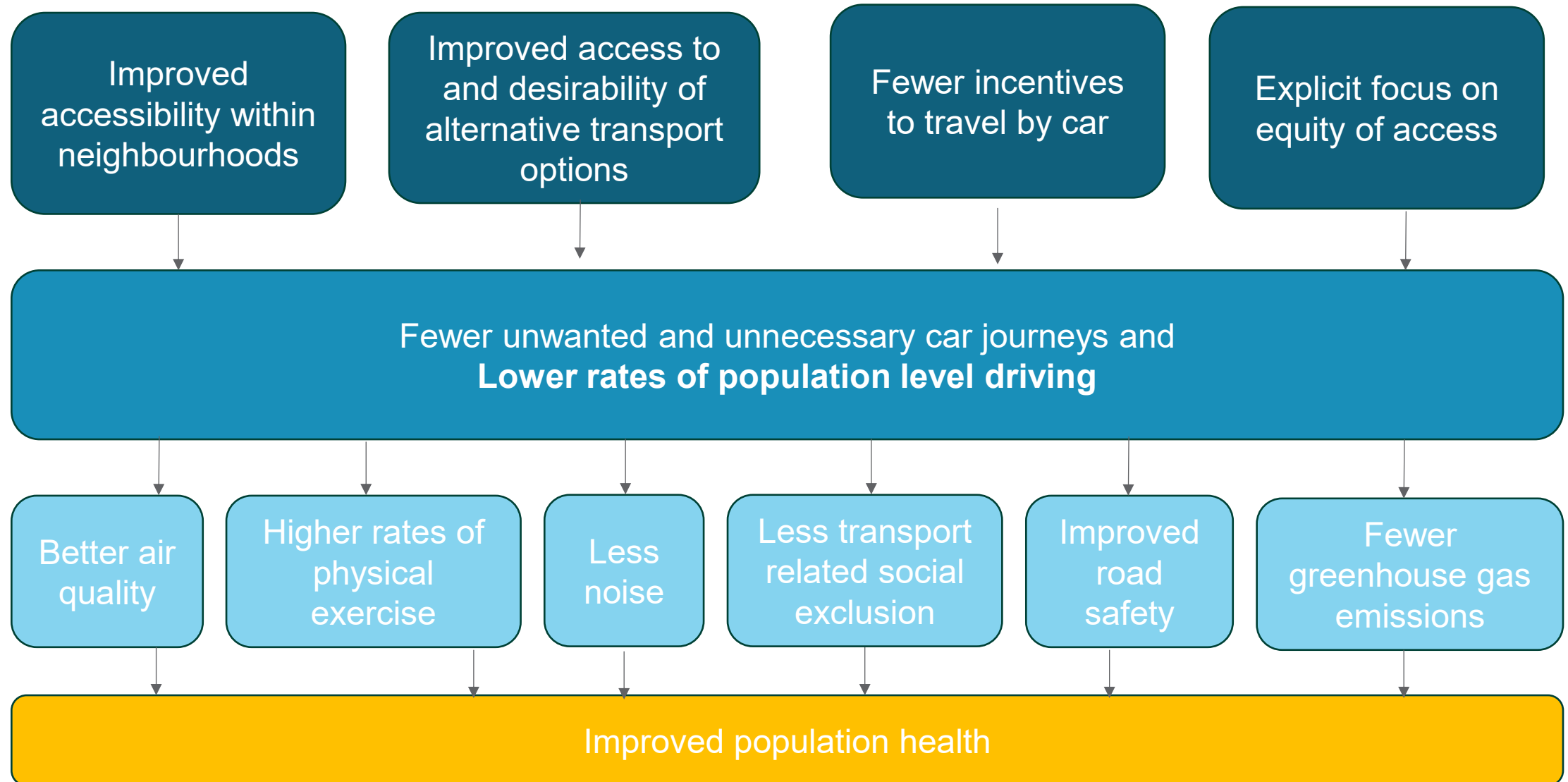
directly ... and
indirectly

Social Exclusion and Poverty

- [11.2 million people across England face a high risk of social exclusion](#) because of poorly performing, inaccessible, and inadequate transport systems.
- People affected by transport related social exclusion (TRSE), risk being pushed further into poverty by transport costs, and having limited access to healthcare and other basic services with the transport options available.
- Forced car ownership can cause financial hardship when people have no other transport options available. [The poorest fifth of households spend an average of 25 per cent of their income on their vehicles, if they own one](#)

- Community severance occurs when transport infrastructure or motorised traffic divides space and people.
- One large UK study found that [people who had the highest levels of perceived community severance had a higher chance of reporting poor health](#), after controlling for confounding factors.
- Barriers to [active living particularly affect children](#), who are denied freedom to explore, play, and travel without adult supervision and older people, whose slower walking speeds limit their ability to crossroads.

A range of approaches can minimise unwanted and / or unnecessary car journeys and reduce population level driving rates



What does good look like?

The [Health Foundation](#) identify four core elements of a healthy and sustainable transport system.



Transport

“Transport is not an end in itself but rather a means allowing people to access what they need: jobs, markets and goods, social interaction, education, and a full range of other services contributing to healthy and fulfilled lives.”

UN
2016

A healthy and sustainable transport system:

Supports safe and community-friendly streets and spaces



‘Well-designed streets and public spaces have the power to make our environment a safe one by reducing vehicle speeds and use’
Design Council

Is accessible and efficient for everyone



Funding for supported bus services was reduced by 25% between 2010 and 2016. This affects people on lower incomes, who take up to 2x more bus trips than those on higher incomes

Minimises harmful impacts on the environment



Our current transport system is one of the biggest sources of air pollution in the UK. Air and noise pollution from transport are the biggest environmental health risk factors in Western Europe

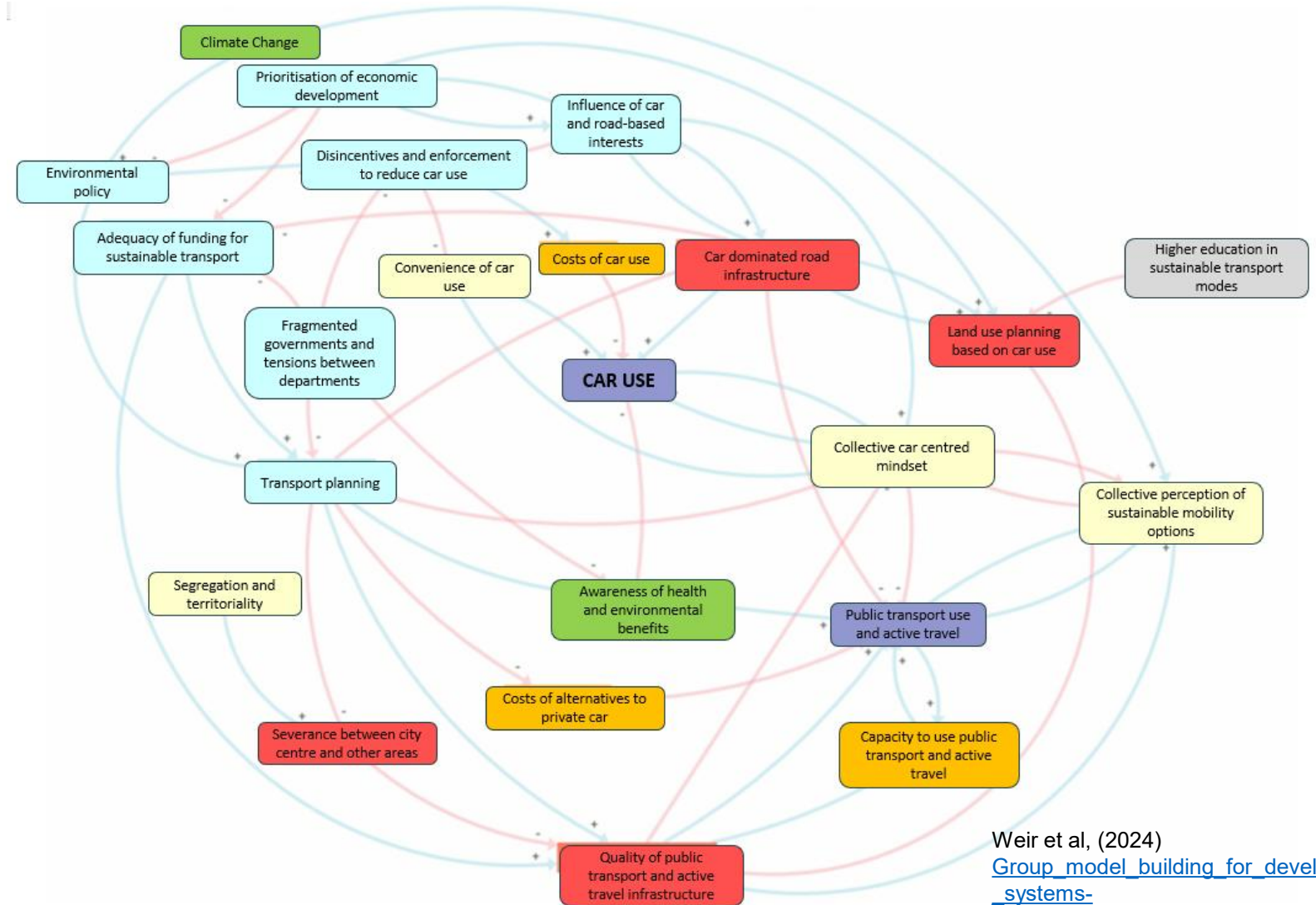
Enables walking, cycling and public transport use



While the perception that roads are too dangerous for cyclists is falling, 59% of people still agree that ‘it is too dangerous to cycle on the roads’

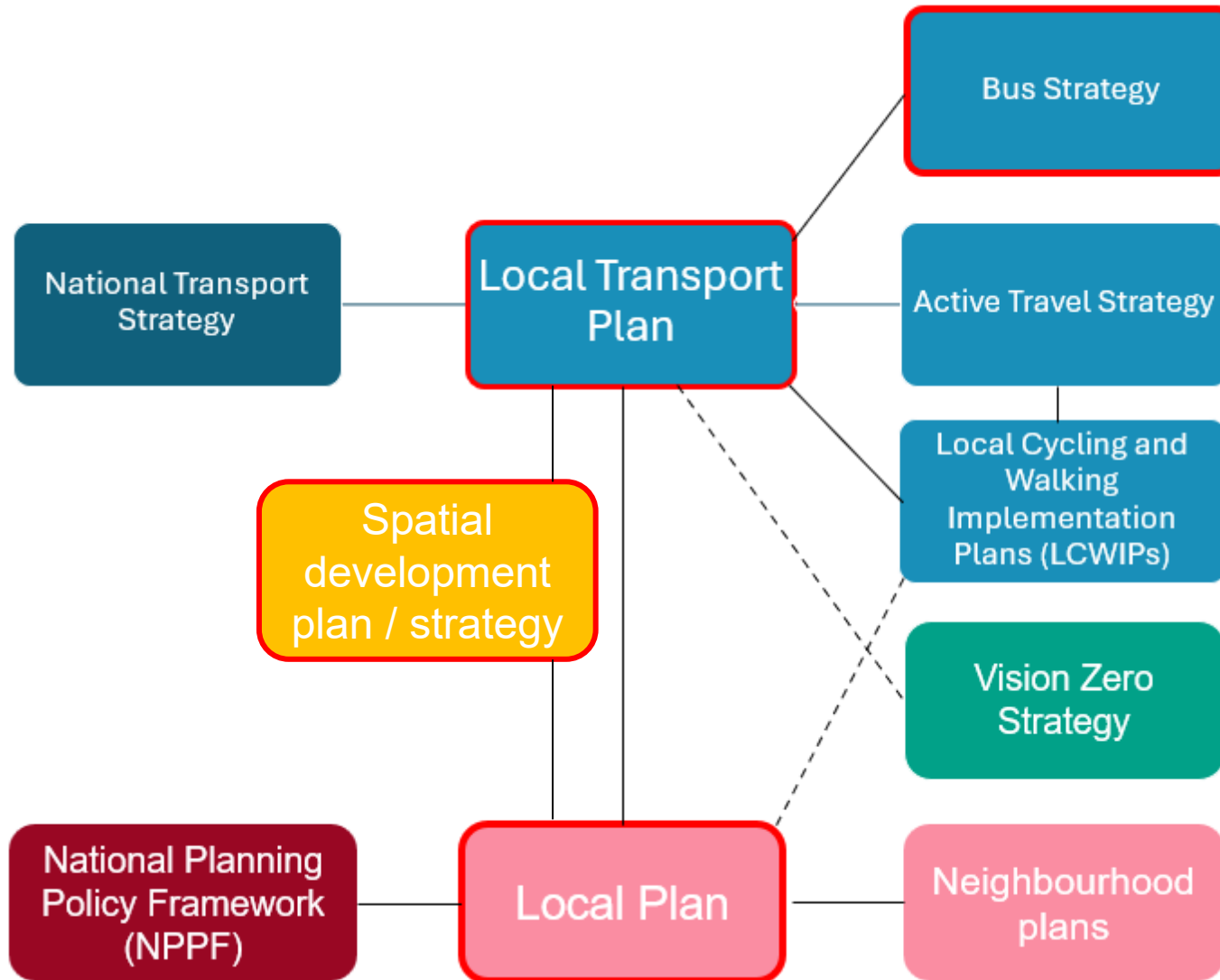
Multiple policy areas influence transport systems and travel behaviours.

- The shape of local transport systems and the relative dominance of different travel modes is determined by a wide range of inter-related factors.
- Achieving modal shift away from cars, towards more sustainable transport modes, and in doing so, reducing transport related social exclusion and poor health, is within the power of policy makers.



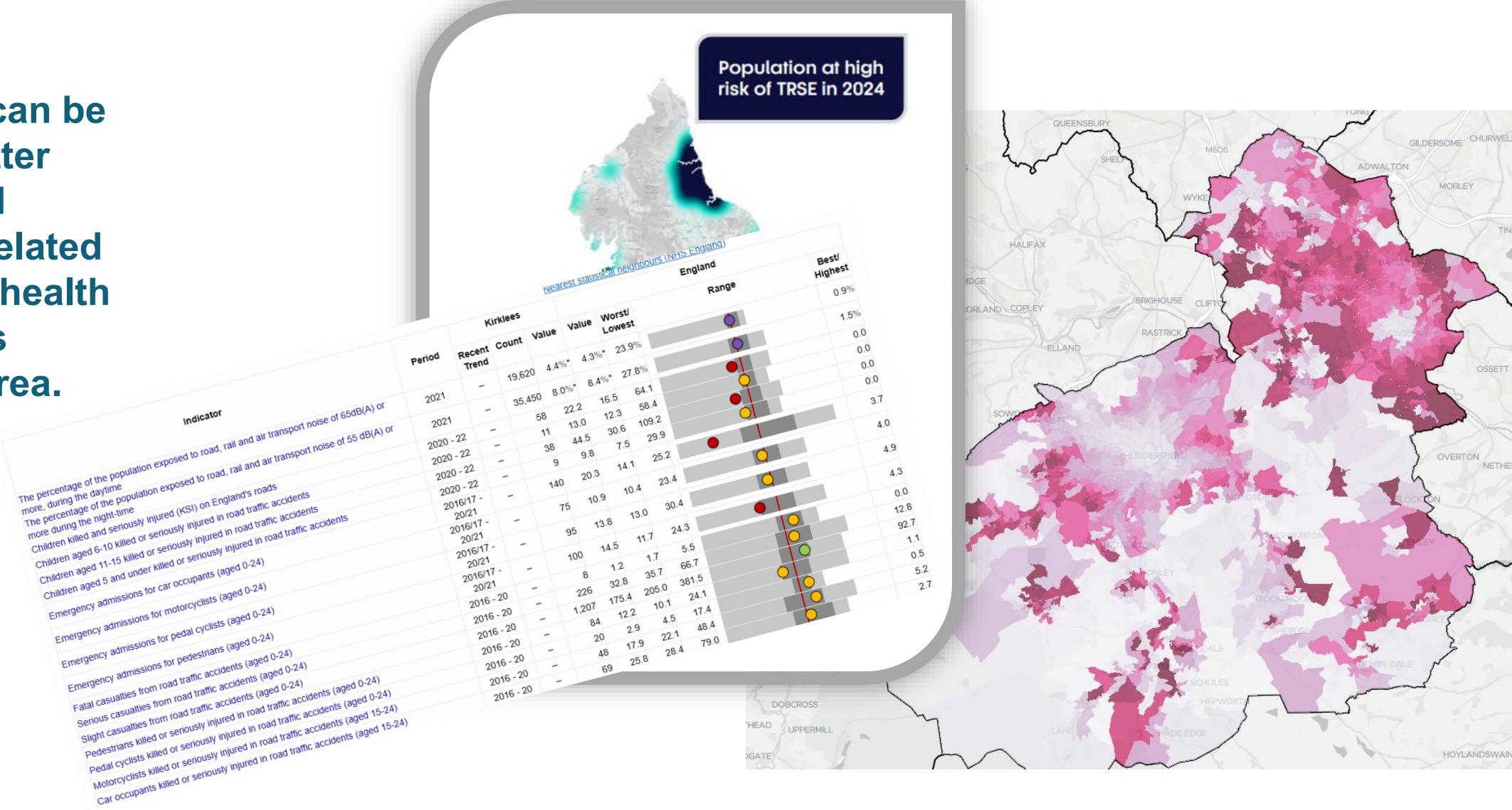
Weir et al, (2024)
[Group model building for developing systems-oriented solutions to reduce car dependency in Belfast United Kingdom](#)
Cities & Health

Transport plans, spatial plans, and local plans all have a major influence on local travel systems, and transport-related health.



PART 2: Measuring transport-related health and health inequalities

A range of measures can be used to better understand transport-related health and health inequalities within an area.



There are many uses of public health transport data



There are many types of transport and public health data

Data describing the
transport system



**TRANSPORT
SYSTEM**

Measures of transport-
related **exposures and
behaviors** that impact
health



**TRANSPORT
BEHAVIOURS
AND EXPOSURES**

Measures of **health
outcomes** associated with
transport-related
exposures and behaviors



**TRANSPORT-RELATED
HEALTH
OUTCOMES**

There are many types of transport and public health data

Data describing the **transport system**

Measures of transport-related **exposures and behaviors** that impact health

Measures of **health outcomes** associated with transport-related exposures and behaviors

Area	Example Indicators	
Mode share	% of people aged 16 yrs and over in employment who travel to work by train / bus / taxi / bicycle / on foot / car etc	Census (2021)
	% of trips to and from school by car or van	DfT, National Travel Survey (NTS9908a)
	Average distance travelled by car or van, per person, per year	DfT, National Travel Survey (NTS9904a)
Car ownership	% of households without access to a car	Census (2021)
Car dependency	Average LSOA car dependency index score.	New Economic Forum, Car Dependency Index (2024)
Connectivity	Connectivity tool score	DfT Connectivity Tool

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Exposure	Example indicator	Source (Year)
Road Danger	Proportion of cars exceeding the speed limit in 30mph zones	DfT Vehicle speed compliance statistics for Great Britain (2021)
Noise pollution from road traffic	% of the population exposed to road, rail and air transport noise of 65dB(A) or more during the daytime	OHID based o data from Defra and ONS (2021)
Co2 Emissions	CO2 emissions from transport by local authority	DfT (2021)
Physical inactivity	% of adults walking for travel at least 3 days per week	DfT (2025)

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Outcome	Example Indicators	Sources
Road Danger	KSI on England's Roads (crude rate per billion vehicle miles)	PHOF and Fingertips (Child and Maternal Health) – DfT
	Children KSI on England's Roads (crude rate per 100,000)	
	% of pedal cyclists KSI in road traffic accidents taking place on a 30mph road (<25yrs)	
Noise	Rate of DALYs from Ischemic Heart Disease caused by road-traffic noise	UKHSA
Air pollution	Fraction of mortality attributable to particulate air pollution	Defra, Fingertips
Transport Poverty	Rate of transport poverty per capita	Social Marketing Foundation
Social exclusion	% of residents who live in neighbourhoods with a nationally high risk of transport related social exclusion	Transport for the North

Example of a regional transport and health dashboard using existing routine data (South Yorkshire)

Area	Indicator	Year	England	Yorkshire and the Humber	Barnsley	Doncaster	Rotherham	Sheffield
Data describing the Transport System								
Car ownership	% of households with 1 or more cars	2021	76.5%	75.8%	77.3%	75.6%	77.0%	70.8%
	% of households with no access to a car	2021	24%	24%	22.7%	24%	23%	29%
Car use	Average distance travelled by car or van, per person, per year (miles per person year)	2023	4684	5169				
	% of people aged 16 yrs and over in employment who travel to work by car or van (driving or as a passenger)	2021			65.6%	64.6%	65.6%	49.6%
	% of trips to and from school by car or van	2023	37%	42%				
Car dependency	Average LSOA Car Dependency Index Score	2024	50.0	52.8	64.5	61.3	63.4	37.7
Measures of transport-related Exposures and Behaviours that impact health								
Noise pollution from road traffic	% of population exposed to road, rail and air transport noise of 55dB(A) or more during the night-time	2021	8.4%	6.4%	7.8%	5.5%	6.8%	6.5%
Green house gas emissions	Greenhouse gas emissions from transport (ktCO2e)	2021			416.1	845.6	534.9	572
Transport poverty	Rate of transport poverty per capita	2019	8	-	20	30	20	20
Physical inactivity	% of adults walking for travel at least 3 days per week	2019/20	15.1	14.2	11.4	10.7	13.7	16.5
Measures of Health Outcomes associated with transport								
Noise pollution from road traffic	Rate of disability adjusted life years (DALYs) from Ischemic Heart Disease caused by road-traffic noise	2018	5.2	5.1	5.2	5.4	5.5	5.4
Transport related social exclusion	% of residents who live in neighbourhoods with a nationally high risk of transport related social exclusion	2024	-	-	31.0%	34.4%	22.6%	8.5%
Air pollution	Fraction of mortality attributable to particulate air pollution	2023	-	-	38.8	38.8	40.8	24.3
Road Danger	Killed and seriously injured on England's Roads (crude rate per billion vehicle miles)	2023	91.9*	119.8*	130.3	100.4	100.9	173.4
	Children Killed or Seriously injured on England's Roads (crude rate per 100,000)	2020-2022	16.5	28.2	33.4	49.2	34.3	30.4

Indicators for transport and health – Key considerations

- **Improvements in health are not always immediate and can take longer to crystalise.** Health benefits often accumulate over our lives (e.g. the benefits of being more physically active from participating in more active travel will be felt over many years and reduce the risk of ill-health later in life). It is still possible to look at trends in shorter-term outcomes, such as physical activity and obesity levels, alongside long-term monitoring of health (e.g. healthy life expectancy).
- **Time lag** – many indicators are calculated yearly, but data collection, processing and analysis means indicators are not published immediately, often with a yearly lag.
- **Attributing cause and effect on health from our policies is challenging**, as health is impacted by many factors (e.g. obesity levels are influenced to some extent by transport and active travel, but also by our diets and the availability of affordable, healthy food). There is still value in tracking indicator trends over time and comparing local trends to England and 'similar' regions to benchmark our progress. But interpretation should bear the full picture of the system (wider policies and regional context) in mind. Formal evaluation can be done to estimate the attributable impacts of transport policies – and is important where we want to develop robust evidence of our impact.
- **Don't start from scratch.** It's not necessary to (try to) prove that physical activity lowers the risk of various health conditions, or that clean air is important for lung health. This has already been done via many high-quality studies. For population level interventions, it's generally sufficient to focus on intermediary outcomes (activity levels or air quality).
- **Disaggregation:** Where possible, indicators should be broken down by different groups to assess the differential impact of interventions on inequalities.
- **Ambition.** Always check the numbers and compare targets with other local, national or international targets. Also, check whether targets have already been met by looking at baseline measures...



Acknowledgements

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The Community of Improvement is a network of Y&H Public Health professionals and their partners in planning, transport and other professions who work together to create healthier, more sustainable communities and reduce health inequalities by shaping the places we live and work.

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