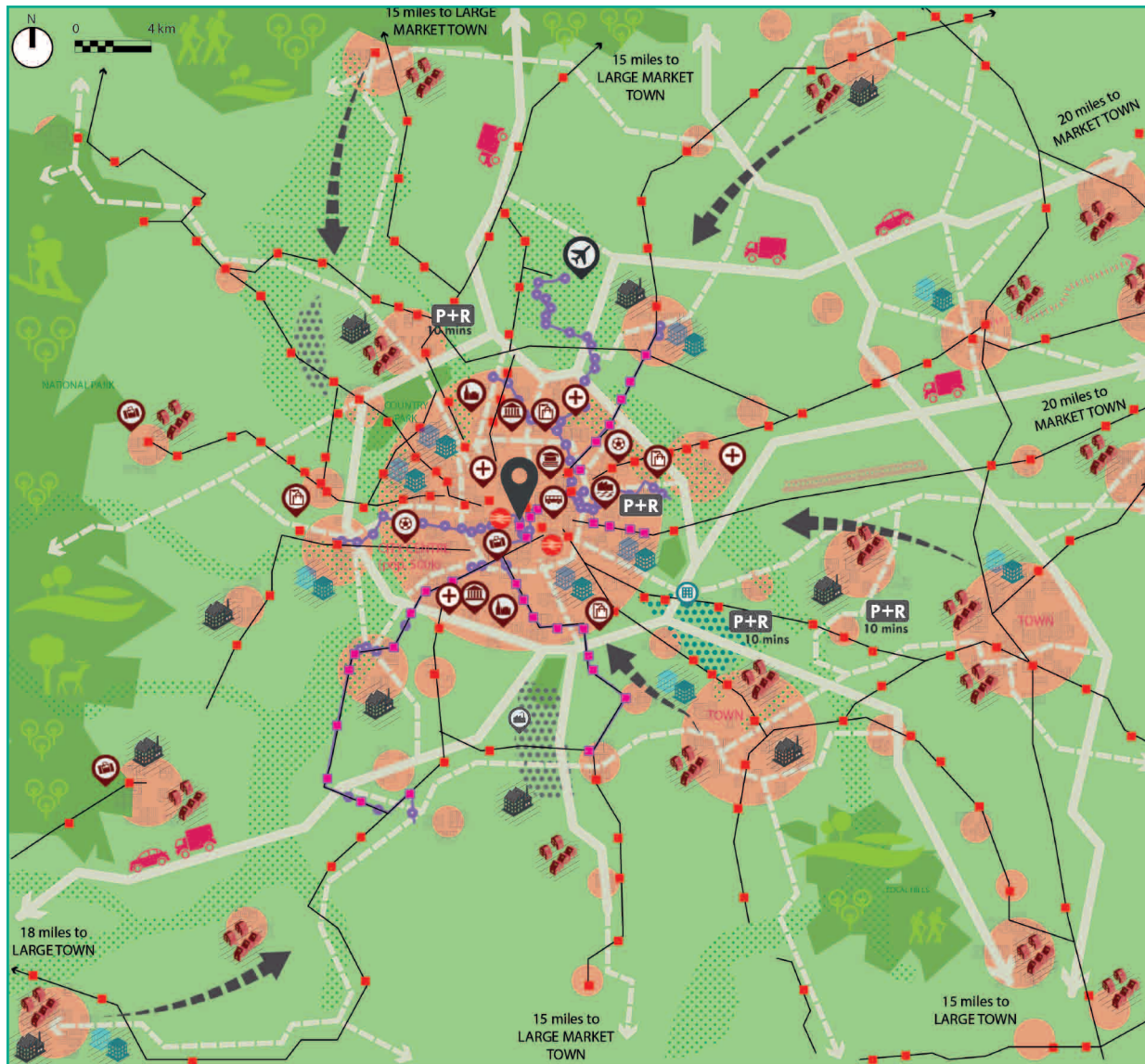


A pathway to reducing surface transport emissions in a polycentric conurbation: the Wotton City-Region



Welcome to Wotton in 2020

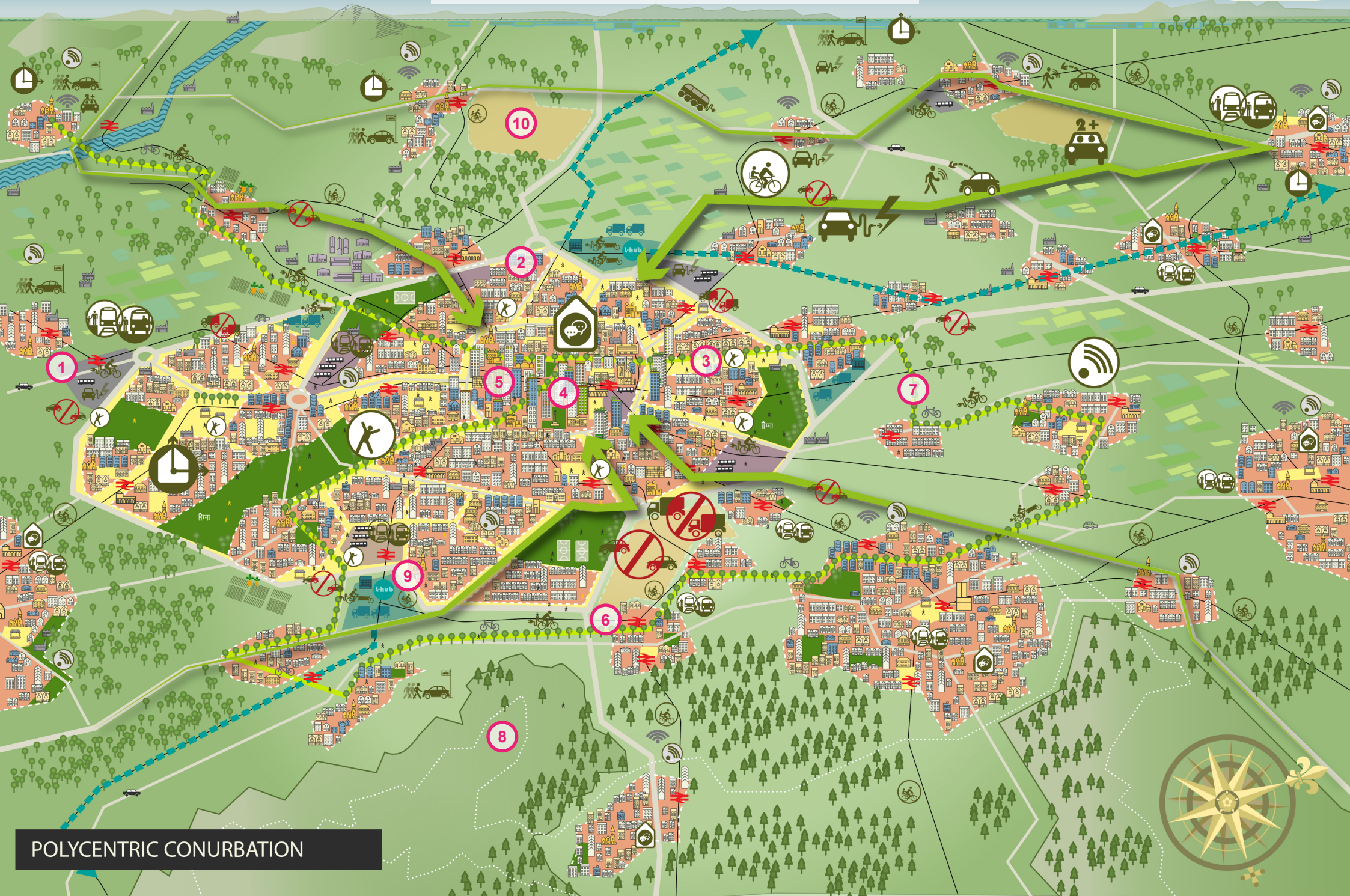
Population and housing: Wotton is a large, nationally important conurbation of approximately 3 million people, with high housing need. Recent and planned growth is focused on brownfield regeneration, densification and the release of Green Belt land.

Economy and employment: The principal city is an economically dynamic hub for education, commerce, leisure and tourism, but surrounding towns have struggled to diversify their economies following the decline of traditional manufacturing industries. There are significant area-based disparities in income, skills, deprivation and environmental quality, with many town centres suffering long term decline. Complex land remediation requirements and viability are a barrier to brownfield development.

Travel and transport: There is significant out-commuting from peripheral towns to the principal city and to employment sites on infrastructure corridors. The public transport network comprised of bus, heavy rail and light rail systems, with plans to create a new walking and cycling network and increase uptake of electric vehicles. Integration of ticketing and networks is limited, and funding is not in place to deliver planned improvements.

This information pack is one of four place typologies created by the RTPI to identify and test the impact of interventions to reduce surface transport emissions. To see the other typologies, and read the main report, visit rtpi.org.uk/netzerotransport

Wotton City-Region in 2030



POLYCENTRIC CONURBATION

Legend

Land use	Low carbon renewal zone	
	Carbon negative growth zone	
	Strategic mobility hub	
	Strategic logistics hub	

Landscape	Farmland	
	Open countryside	
	Parks / open space	
	Allotments	

Access	Railway / train station	
	Road network	
	Rail logistics connection	
	Local logistics connections	
	Movement corridors	
	Strategic cycle route	
	Pedestrianised streets	
	Public square	
	EV public transport	
Living lanes		

Buildings	Community work hub	
	Gigafactory	
	Make space	
	Repurposed out of town	
	Local markets	

Substitute trips	Active travel infrastructure	
	Logistics infrastructure	
	Land use planning	
	IT infrastructure	

Shift modes	Shared mobility	
	Modern public transport	
	Street design and access restrictions	

Switch fuels	EV charging infrastructure	
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Cycle friendly	Pedestrian friendly			
e-Cargo bike	Home delivery	Ground drone		
Co-working	Mixed use	15-minute neighbourhood		
Online tasks	Home working	Broadband / 5G		
e-Bikes	Car clubs	Vehicle to grid technology	Mobility hubs	Carpool
DRT	AV EV shuttles	Public / shared modes		
Car-free centres	Drop-off / pick-up priority	Freight restrictions	Last mile connectivity	Segregated cycle highway
EV charging off-street	EV charging on-street	Fast EV charging	EV taxi	

What's changed?

By 2030, the Wotton City-Region is becoming a sustainable urban ecosystem, underpinned by net zero carbon transport and innovative approaches to local living. The hollowing-out effect of the 'city and satellites' model has given way to a relocalisation of jobs, services and amenities. The conurbation of 3 million is becoming a patchwork of thriving '15 minute neighbourhoods', connected by strategic active travel routes and an integrated public transport network that meets demand for commuter and leisure travel across the conurbation and beyond.

Enhancements to bus, train and light-rail services along radial routes have been accompanied by investment in cross city services and new forms of digitally enabled shared transport. Car clubs, demand responsive shuttles and e-scooters facilitate sustainable point to point journeys anywhere in the city at any time where active or public transport cannot be used. Private vehicle movements have been restricted and discouraged through a zonal approach to access. Congestion has been reduced, air quality improved, and new types of development and public space are being created.

Densification is delivering a mix of high quality homes to meet the needs of all demographics, and has provided the critical mass of people needed to support local services, amenities and high frequency public transport in an age of greater home working and digital commerce. Urban renewal is allowing innovative forms of green infrastructure to be retrofitted within the urban environment. Rooftops and building terraces provide secluded spots for nature, streets are designed for people to interact with plants and pollinators on an everyday basis, and vertical farming is a key component of every neighbourhood, reducing food miles and restoring the link between what people eat and grow.

Parks and open spaces have been expanded and connected through new public spaces to create naturalistic green corridors that link the conurbation with the protected landscapes beyond. These provide accessible tranquillity away from the noise of the city, and important space for nature recovery and habitat connectivity.

Planned growth outside existing urban areas has been rescaled and relocated to better support the sustainable growth and regeneration of existing towns and to align with new and enhanced public transport provision.

Key features of the vision

1. Mobility hubs allow for seamless transfer between sustainable modes of transport within the city
2. 15-minute neighbourhoods including local amenities such as shops, doctors and schools to enable local living
3. Car-free city centre and a zonal approach to vehicle restrictions across the urban area to make active and public transport the default option for cross-city journeys
4. Integrated urban agriculture, such as vertical farming and hydroponics to serve local shops and neighbourhood markets
5. Sensitive densification delivers new homes and city centre neighbourhoods with amenities for all demographics, including work hubs, gyms, health centres and play areas
6. Integrated public transport networks both within the city centre and to local towns
7. Strategic green corridors provide urban cooling, space for people and nature and accessible connections to the countryside
8. Protected landscapes managed to support nature recovery, landscape character and sustainable leisure
9. Logistics hubs and rail freight enable more efficient use of road space and facilitate last-mile delivery by more sustainable modes such as e-cargo bike
10. Carbon negative growth zones located on high quality public transport routes and designed around principles of local living and net zero emissions

An 80% surface transport emission reduction pathway for the Wotton City-Region

2020 transport carbon budget and a 'do nothing' scenario

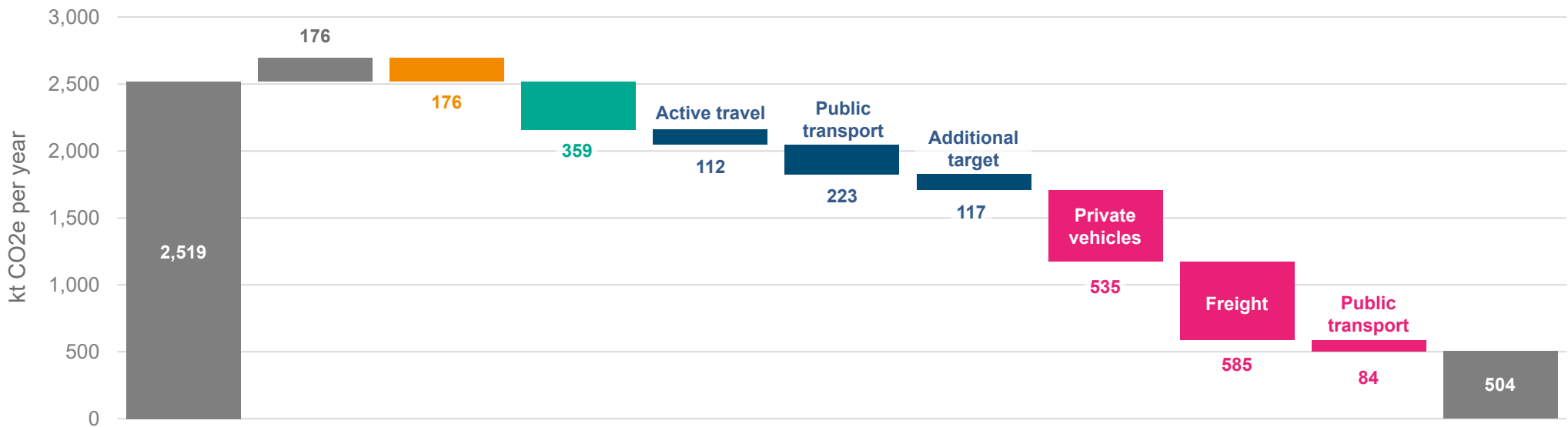
The left hand column shows total surface transport emissions in 2020. Under a 'do nothing' scenario, with no national or local action, emissions in Wotton rise by 176 ktCO₂e / year, with new development creating additional trip demands.

Step 2: Substitute trips

Trips are substituted through digital, transport and land use planning interventions. These reduce travel demand and associated transport emissions by 359 ktCO₂e / year.

Step 4: Switch fuels

Private vehicles, public transport and freight switch to zero carbon fuels in line with the projected UK national pathway up to 2030. This reduces emissions by the remaining 1,204 ktCO₂e / year.



Step 1: Negative carbon developments

All development in Wotton is located and designed to generate zero emissions from transport, and to potentially facilitate the removal of carbon from the wider transport network. This cancels out the emissions growth under the 'do nothing' scenario.

Step 3: Shift modes

Vehicle trips are reduced by switching modes to active and public transport, based on current UK best practice benchmarks. This reduces transport emissions by 335 ktCO₂e / year.

Under the 'additional target', trips are further reduced through increased mode shift to active and public transport, based on more ambitious assumptions that exceed current UK benchmarks. This reduces transport emissions by a further 117 ktCO₂e / year.

2030 transport carbon budget under a 'do everything' scenario

An 80% reduction achieved, with a further 20% reductions needed to achieve zero carbon by 2050.

Travel data

2020

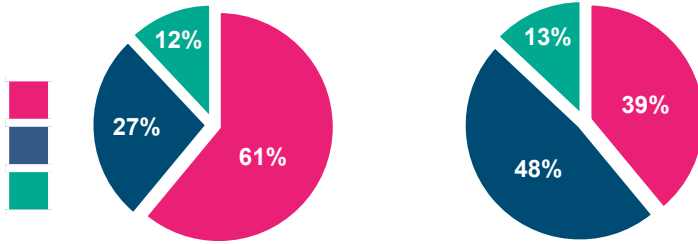
2030

Mode share

Private vehicles

Public transport

Walking and cycling



Proportion of journeys made by walking and cycling

Under 5 miles: 40%

Over 5 miles: 5%

Under 5 miles: 50%

Over 5 miles: 11%

Average journey length

7.55 miles

6.85 miles