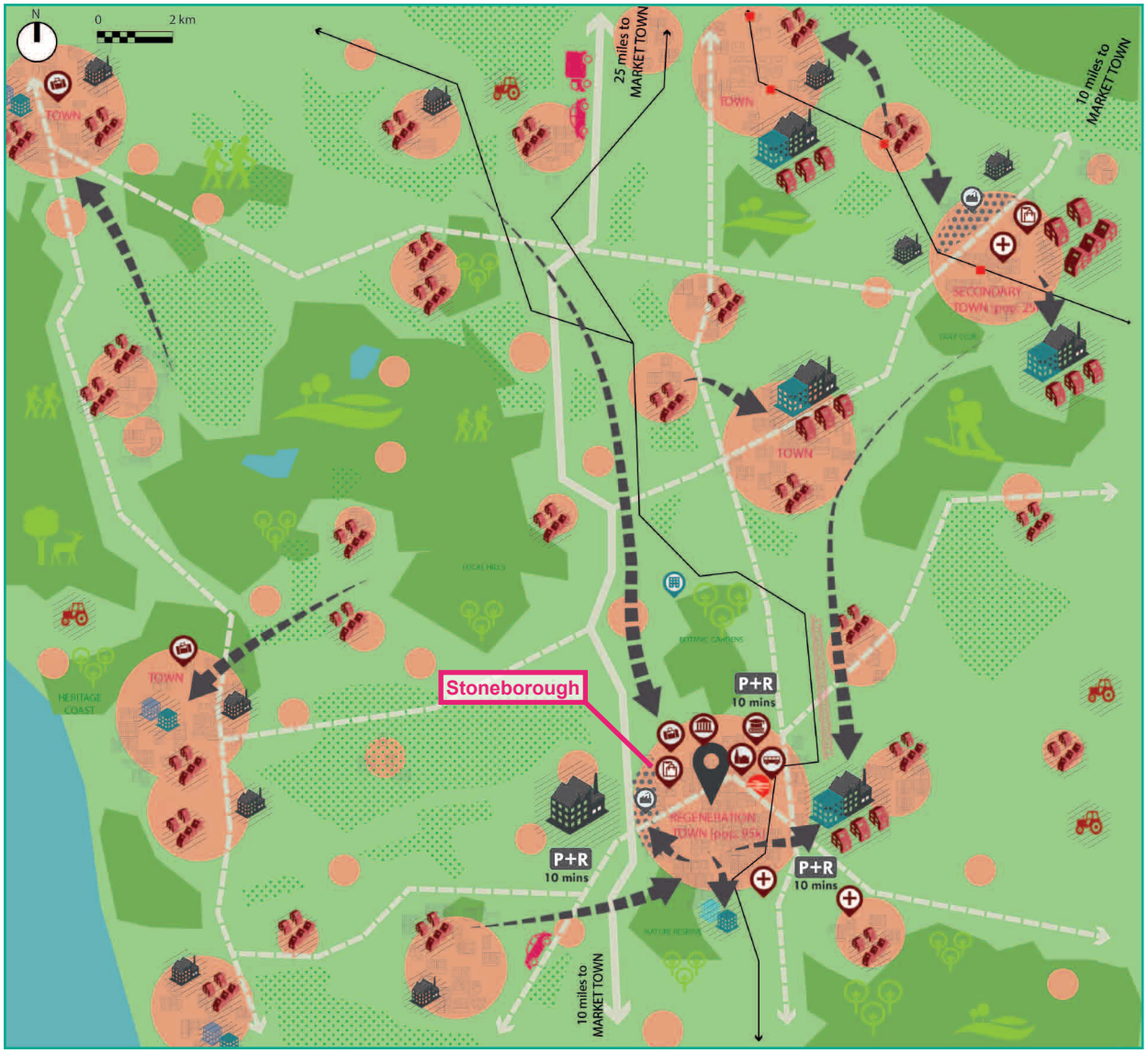
A pathway to reducing surface transport emissions in a regeneration town: Stoneborough



Population and housing: A medium sized town of 25,000 people, set within a post-industrial region of approximately 150,000 people. Extensive land is available to meet projected housing need, but low land values and property prices, and high land remediation costs, present a barrier to growth and development without public sector support.

Economy and employment: Traditional mining and heavy industries have declined, leaving manufacturing, skilled trades, health, social services and elementary occupations as the main sources of employment. There is significant deprivation in skills, earnings and health, with many neighbourhoods among the most deprived in England. Regeneration efforts focus on trying to reposition the town as a regional tourism destination, drawing on its industrial heritage, landscape and investment in culture.

Travel and transport: There are high levels of out-commuting to employment sites on the periphery of the town, which attract in-commuting from the wider area. The public transport network is mainly comprised of buses, with a rail station providing connections to nearby towns and a mainline station within 30 minutes, but with poor integration between train and bus services. The surrounding countryside is heavily modified by industrial activity and not subject to landscape or ecological designations, but has comparatively good access through restoration schemes.

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**

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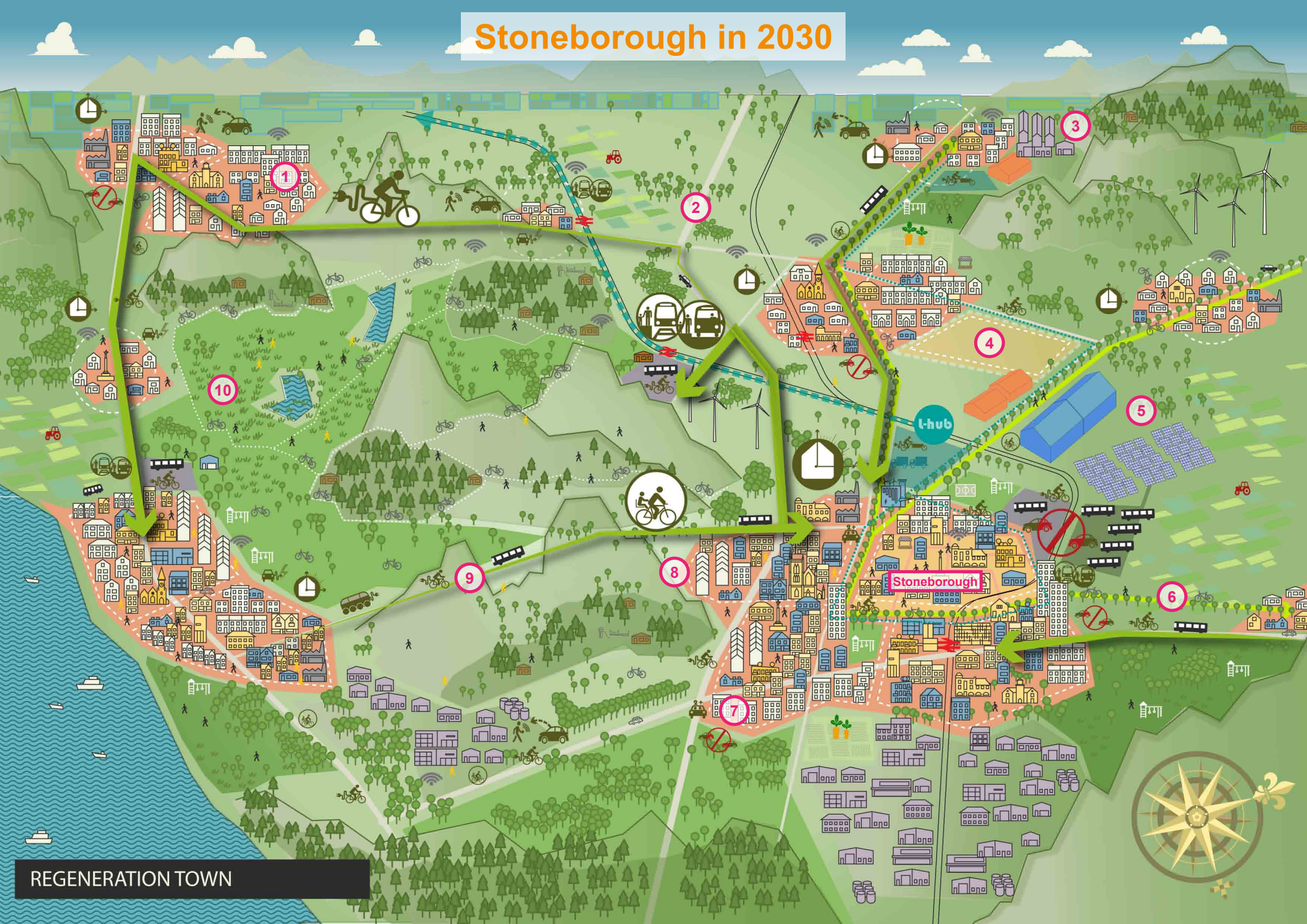
Stoneborough in 2030
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i-hub
Stoneborough
REGENERATION TOWN

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
- Cycle friendly
- Pedestrian friendly

Logistics infrastructure
- e-Cargo bike
- Home delivery
- Ground drone

Land use planning
- Co-working
- Mixed use
- 15-minute neighbourhood

IT infrastructure
- Online tasks
- Home working
- Broadband / 5G

Shift modes

Shared mobility
- e-Bikes
- Car clubs
- Vehicle to grid technology
- Mobility hubs
- Carpool

Modern public transport
- DRT
- AV EV shuttles
- Public / shared modes

Street design and access restrictions
- Car-free centres
- Drop-off / pick-up priority
- Freight restrictions
- Last mile connectivity
- Segregated cycle highway

Switch fuels

EV charging infrastructure
- EV charging off-street
- EV charging on-street
- Fast EV charging
- EV taxi

What's changed?

By 2030, regenerative localism is restoring the vibrancy of Stoneborough and creating an equitable relationship between people and place. Gentle densification within existing neighbourhoods is facilitating the renewal of the urban fabric, enhancement of open spaces and creation of liveable streets to encourage greater physical activity and mental wellbeing.

Development of 15 minute neighbourhoods on vacant brownfield sites is reinforcing the role of the town as the locus for growth in the region, and reducing the need for outward expansion. The transformation of out-of-town retail parks into mixed use neighbourhoods, open-access manufacturing spaces and consolidated freight hubs has facilitated the return of commercial activity to the high street.

This has been supported by the creation of a safe, attractive and welcoming town centre environment that people want to spend time in. Historic buildings and spaces take centre stage in a place designed to showcase local culture, history and makers, and attract visitor spend every weekend of the year. New town centre living, education and workspaces designed to benefit local skills and strengths generate activity through the week.

To make space for this transformation, the town centre has become a mostly car-free environment, supported by measures to make it as accessible as possible via active and public transport. Equality of access is a core principle of mobility. A growing network of regional cycle routes converges on the town centre and is accompanied by an affordable, reliable e-Bike hire system, ensuring everybody can benefit from cycling as an everyday mode of transport irrespective of income or their ability to store a bike at home.

Enhancements to the frequency and integration of bus and rail services are making public transport an attractive and credible option for many. New integrated mobility hubs and regional rail stations are enabling multi-modal journeys for work and have opened up the landscape to local residents and visitors who were previously unable to access the countryside for leisure purposes.

The post-industrial landscape has morphed into a 'green deal landscape', with new economic sectors such as outdoor pursuits and adventure activities thriving alongside continued investment in renewable energy, modern manufacturing and sustainable forestry and nature recovery.

Key features of the vision

1. Smaller communities retrofitted along 15 minute neighbourhood principles to increase local living and resilience
2. Regional mobility corridors prioritise affordable, reliable public transport to provide equitable access to services, employment and recreation
3. 'Make Spaces' provide opportunities for local employment and new businesses, reducing the need to travel for work
4. A carbon negative growth zone located on a high quality public transport route and designed around principles of local living and net zero emissions.
5. Large scale renewable energy production and grid upgrades support net zero electric mobility networks and the development of new zero carbon industries and employment
6. Active travel connections provided through high quality green infrastructure to increase physical activity, provide tranquillity for urban residents and habitats to support nature recovery
7. Out of town retail sites redeveloped to accommodate net zero emission growth and to strengthen the town centre
8. Regenerated town centre with new homes, work and education spaces and a high quality public realm to support the visitor economy
9. Integrated public transport networks within and between local towns
10. Post-industrial landscape re-purposed and enhanced for sustainable recreation and tourism, accessible via new active and public transport connections

An 81% surface transport emission reduction pathway for Stoneborough

2020 transport carbon budget and a 'do nothing' scenario

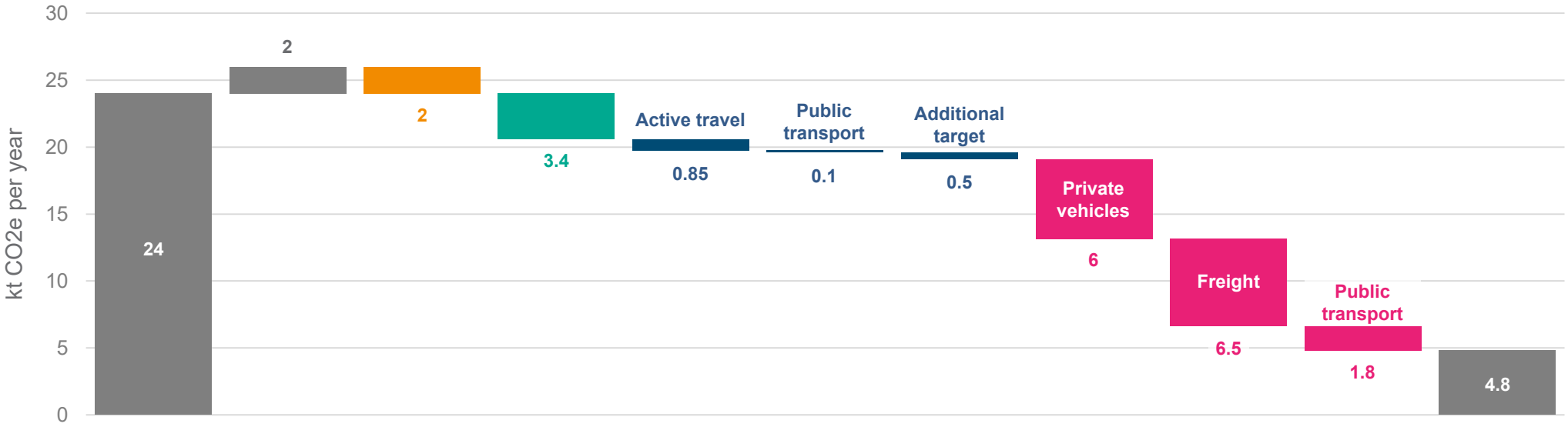
The left hand column shows total surface transport emissions in 2020. Under a 'do nothing' scenario, with no national or local action, emissions in Stoneborough rise by 2 ktCO2e / year, with new development creating additional trip demands.

Step 2: Substitute trips

Trips are substituted through digital, transport and land use planning interventions. These reduce travel demand and associated transport emissions by 3.4 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 14.3 ktCO2e / year.



Step 1: Negative carbon developments

All development in Stoneborough 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.

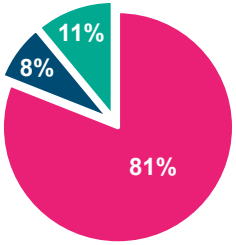
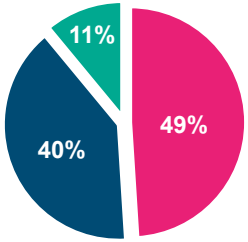
Step 3: Shift modes

Vehicle trips are reduced by switching modes to active and public transport, based on current UK best practice benchmarks. This reduces transport emissions by 1 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 0.5 ktCO2e / year.

2030 transport carbon budget under a 'do everything' scenario

An 81% reduction achieved, with a further 19% reduction needed to achieve net zero 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: 30% Over 5 miles: 5%	Under 5 miles: 50% Over 5 miles: 11%
Average journey length	7.02 miles	6.19 miles

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