

Decarbonisation Strategy Consultation

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Background and Scale of the Challenge

22%

surface transport sector's contribution to total UK emissions in 2019

95%

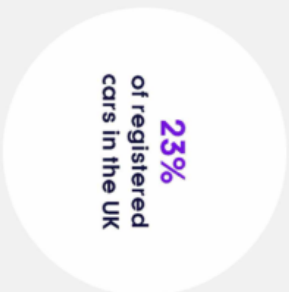
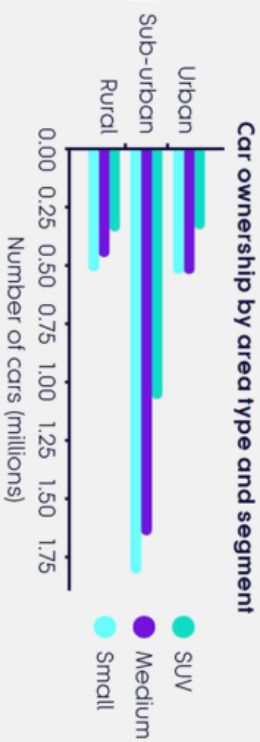
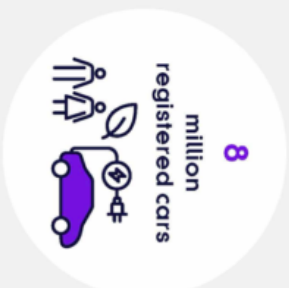
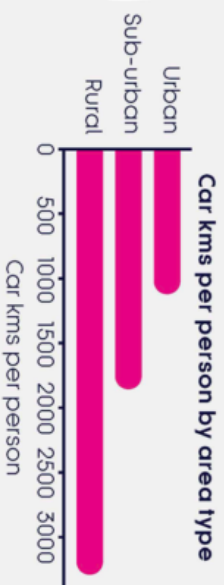
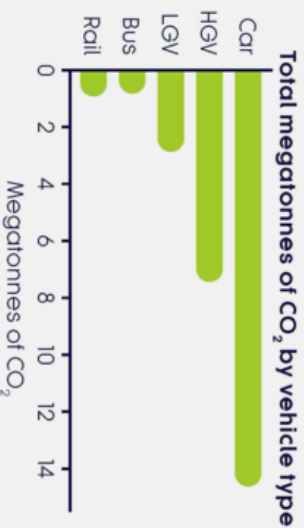
of surface transport emissions come from road transport

— Strategic Transport Plan

— One voice for the North

— Statutory advice

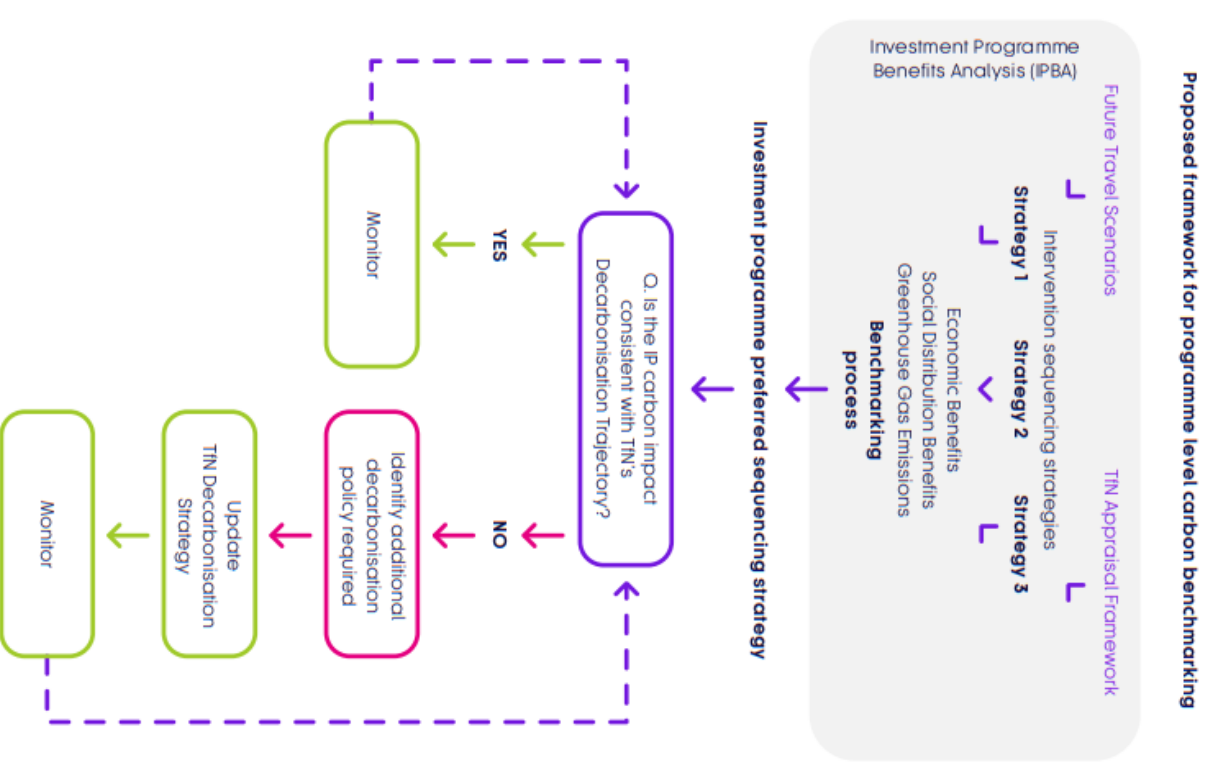
Headline figures related to surface transport emissions in the North in 2018



Decarbonisation Trajectory

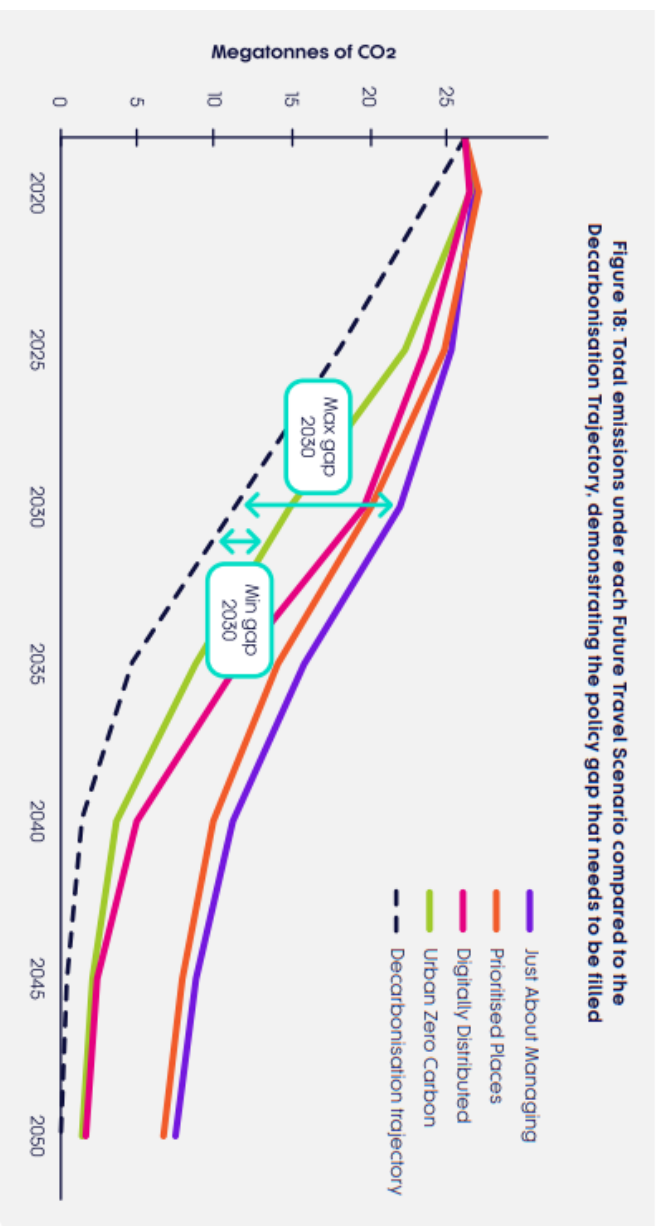
Our agreed Decarbonisation Trajectory headlines:

- A **55% reduction** in emissions from 2018 to 2030, achieved mostly through mode-shift and demand reduction given the lower proportion of zero-emissions vehicles in the vehicle fleet.
- A **95% reduction** in emissions from 2018 to 2040, reflecting longer-term decarbonisation measures, such as a high ZEV uptake.
- A **close to zero date of 2045** for carbon emissions from surface transport in the North. This is a challenging benchmark reflecting the ambition of our partners and their desire to push further and faster than current national policy.



Estimating current and future emissions

Estimating current and future emissions is key to identifying the policy gap between baseline and decarbonisation trajectories



- Future Travel Scenarios
- Modelling Carbon emissions in the North and baseline emissions
- Emissions by trip purpose and distance
- Distribution of emissions

Future Travel Scenarios

Just about managing

What if society keeps developing broadly following existing trends? What if major developments and change are left to be shaped by market forces?

Prioritised Places

What if society becomes focused on quality of life, place-making and community, rather primarily economic growth? What if there is a strong push for a fairer redistribution of economic prosperity?

Digital Distributed

What if Northern Powerhouse ambitions are realised by using technology solutions to create connections and agglomeration across towns and cities?

Urban Zero Carbon

What if society achieves Northern Powerhouse ambitions through string Government policy on decarbonisation, maximising energy efficient city growth and urban densification?

Just About Managing sees the highest emissions overall as public transport use and active travel remains largely unchanged from today's levels and there is a slower uptake of zero-emissions cars and vans in the short-term and HGVs in the long-term.

Prioritised Places sees slightly more ambitious emissions reductions in the short-term compared to Just About Managing through an emphasis on localised activity and use of public transport, though a failure to sufficiently embrace technology sees a high proportion of diesel-run HGVs and similar emissions to Just About Managing in 2050.

Digitally Distributed sees slower progress in the short-term due to more dispersed growth, higher car ownership and longer trips, but high EV uptake means near-zero is reached before 2050.

Urban Zero Carbon sees the lowest emissions in all years and is near-zero before 2050, with high-density living, a rapid uptake of zero-emission vehicles and strong government action on climate change.

Decarbonisation Pathways

Scale of change required

	2025	2030	2035	2040	2045	
Zero-emissions share of sales ²¹	Cars	55%	100%	100%	100%	100%
	Vans	40%	100%	100%	100%	100%
	HGVs	26%	44%	95%	100%	100%
BEV high mileage CO ₂ reduction ²²	Cars	20%	20%	20%	20%	20%
	Bus	15%	40%	70%	90%	100%
Public transport CO ₂ reduction on baseline	Rail	0%	25%	75%	100%	100%
	Cars	1-4%	3-14%	3-14%	3-14%	3-14%
Reduction in distance travelled relative to baseline growth	Vans ²³	5%	10%	10%	10%	10%
	HGVs	3-5%	11-15%	6-15%	6-15%	6-15%
	Cars and vans	3.6%	3.6%	3.6%	3.6%	3.6%
Conventional vehicle efficiency CO ₂ reduction ²⁴	Artic HGVs	22%	22%	22%	22%	22%
	Rigid HGVs	13%	13%	13%	13%	13%
Share of car sales	Large cars ²⁵	27%	22%	17%	10%	10%

Pre-2030, modal shift and demand reduction will be needed to bridge the residual emissions gap.



Policy Analysis

Zero Emission Vehicles

- Electric Vehicle Charging Infrastructure: 2.4 million chargepoints by 2030
- HGVs: Grants/tax incentives for ZEV HGVs until 2030 and £110m investment in refuelling infrastructure by 2030
- HGVs/Buses: Policies to attract pilots/trials and also to draw OEMs to region
- Rail: Significant investment in route electrification and new rolling stock
- Hydrogen: production and refuelling infrastructure
- Last-mile logistics: ZEV vans through to cargo bikes
- Clean maritime: freeports and first mile decarbonisation driven out of our ports
- Rise of micro-mobility



Policy Analysis

Demand Management

- Mode-shift: Improving public transport and active travel infrastructure, developing new infrastructure, increasing flexibility of ticketing systems
- Reducing car travel: Road pricing, supporting home-working
- Shared mobility: Promote alongside traditional public transport, particularly through workplaces
- Freight efficiency: Green shipping options, consolidation centres and data democratisation
- Planning policies: 15/20 minute neighbourhoods, workplace parking levies, car-free zones



Freight Decarbonisation and Ports



- Clean maritime clusters and Freeports (Merseyside, Teesside and Humber)
- Port to port, multi-modal, zero carbon freight corridors
- The relative roles of road and rail freight
- TfN's Freight and Logistics Strategy

Stimulating Clean Growth

Clean Growth Actions	Potential for Beneficial Socio - Economic Impact		
	Jobs	Skills	Health
Action 1: Develop a regional EV Charging Strategy	Strong	Strong	Low
Action 2: Supporting local partners in the development of local EV Charging Infrastructure	Strong	Strong	Medium
Action 3: Undertake or support a pan-northern hydrogen transport refuelling study	Medium	Medium	Medium
Action 4: Supply chain support for future hydrogen infrastructure solutions	Medium	Medium	Medium
Action 5: Supporting a demand management narrative for the North	Medium	Low	Strong
Action 6: Supporting local partners in the development of mobility hubs	Medium	Medium	Medium
Action 7: Developing and supporting partnerships to consider zero carbon, port-to-port freight corridors.	Strong	Medium	Medium
Action 8: Supporting our partners to attract testing and pilots of new low emission train technologies	Strong	Medium	Low

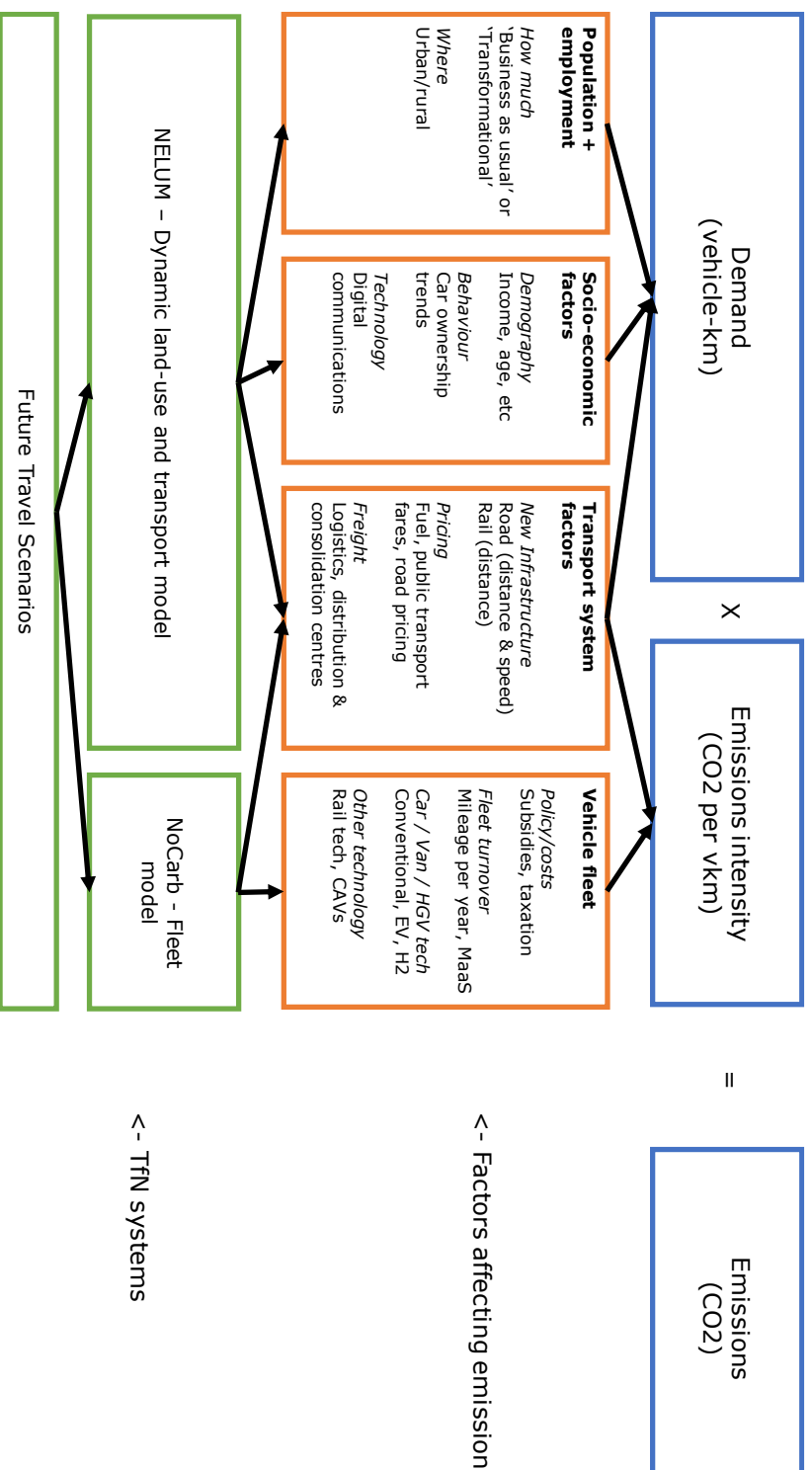


Further important considerations

- Distributional Impact and Transport Related Social Exclusion
- Climate Change Adaption and Resilience
- Embodied Carbon
- Monitoring and Evaluation



Using TfN's Analytical Framework to model carbon



Northern Carbon Model (NoCarb)

Alongside baseline inputs, we use the scenarios in our Northern Carbon Model (NoCarb) to predict vehicular carbon emissions at key years in the Decarbonisation plan.

NoCarb is based around three data sets:

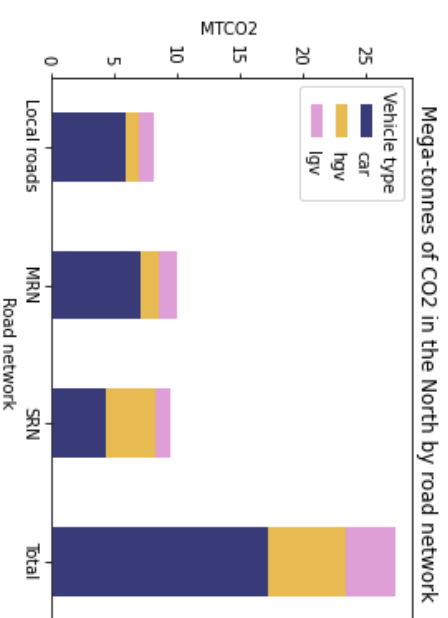
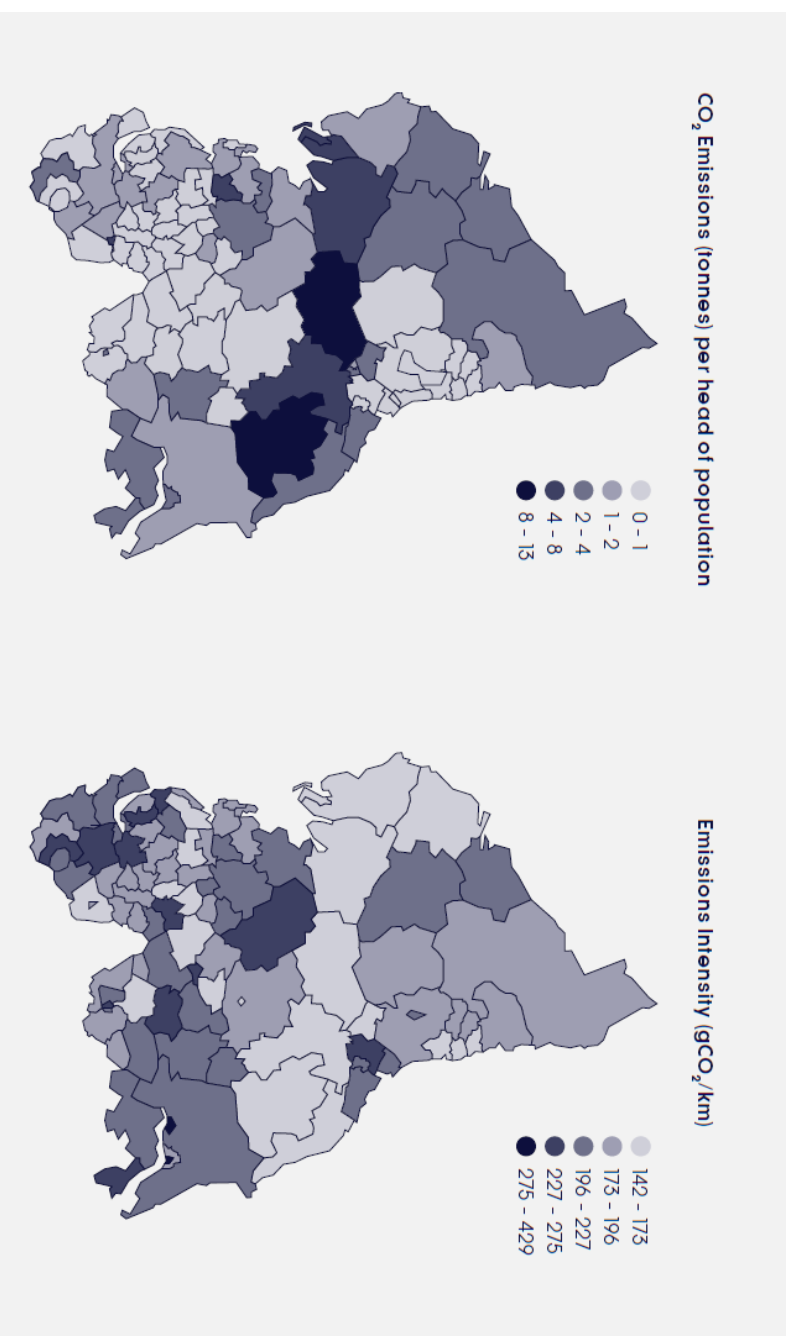
1. Composition of the vehicle fleet
2. Distribution of travel demand
3. Emissions per distance for each distinct type of vehicle

Spatial Analysis

NoCarb and other AF tools enable demand and emissions data to be disaggregated into different spatial areas and roads.

This allows variation in circumstances to be considered for different places and insight to be developed into challenges that need to be tackled.

For roads, it is clear that a significant proportion of emissions take place on the regional road network.



Localised Scenarios

Spatially disaggregate data can also be projected forward into the future using TfN modelling tools and Future Travel Scenarios.

This illustrates how tools can be used at a more local level for scenario planning and strategy development, accounting for different local circumstances.

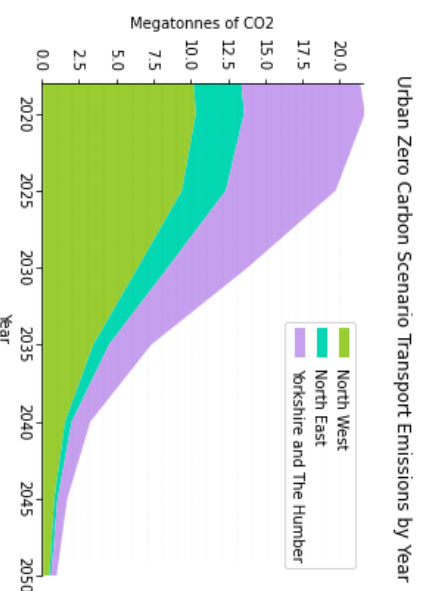
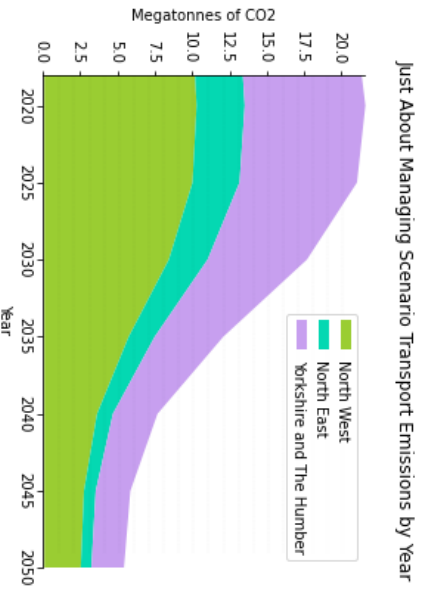
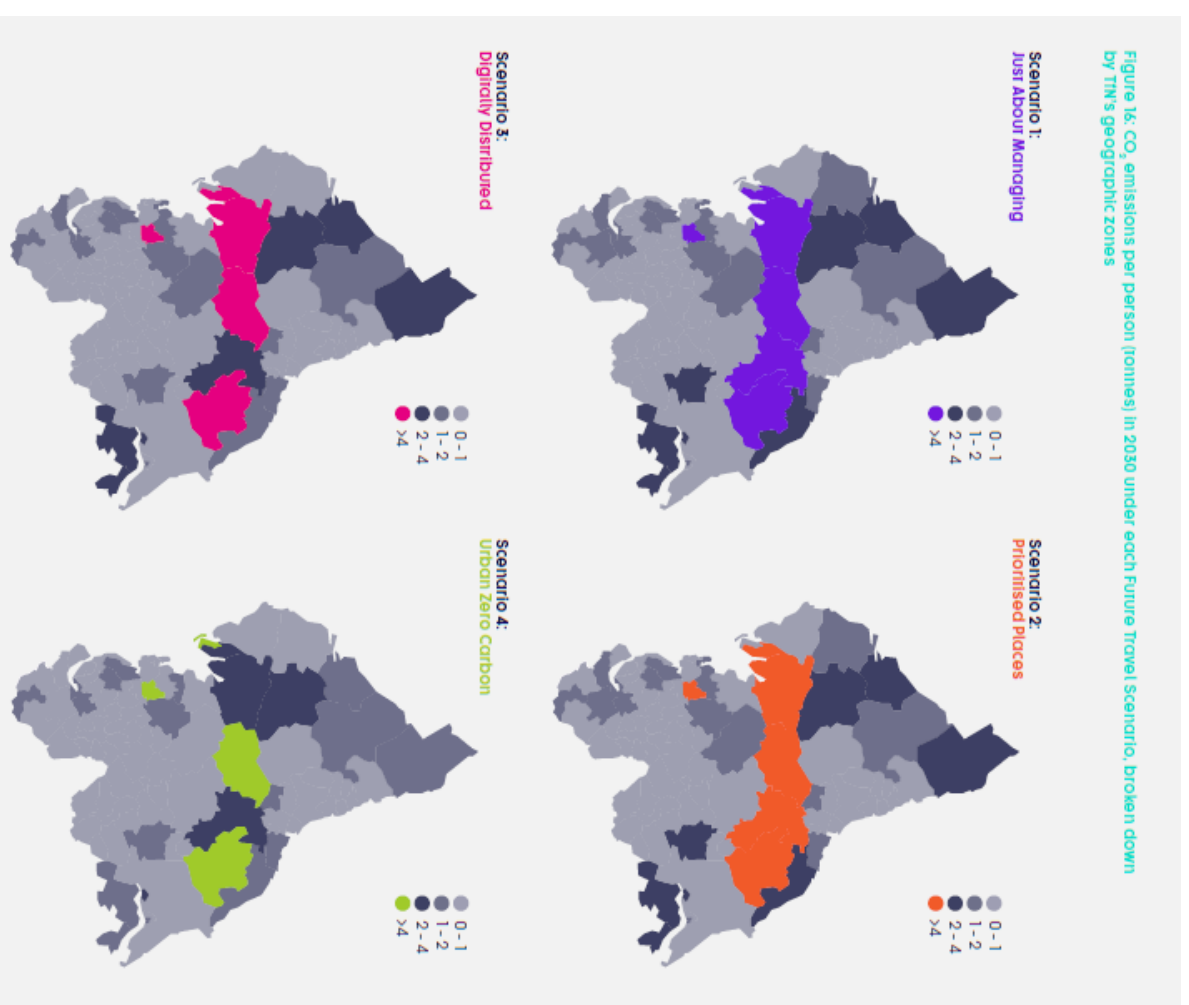


Figure 16: CO₂ emissions per person (tonnes) in 2030 under each Future Travel Scenario, broken down by TfN's geographic zones



Future Analytical Work

Planned improvements to NoCarb:

1. Integration with TfN's new car ownership model
2. Update treatment of hybrids
3. Improve estimates of electricity and hydrogen consumption

EV Charging Infrastructure tool:

1. New analytical tool to be developed for integration within TfN Analytical Framework
2. Estimates scale and distribution of EV Charging Infrastructure required under different scenarios
3. Intend outputs to be relatively localised and include 'on the move' charging requirements for the MRN.

More information and how to respond

Visit:
transportfornorth.com/decarbonisation

Write to:
Decarbonisation Strategy
Freepost: response@tfn.decarbonisationstrategy.com