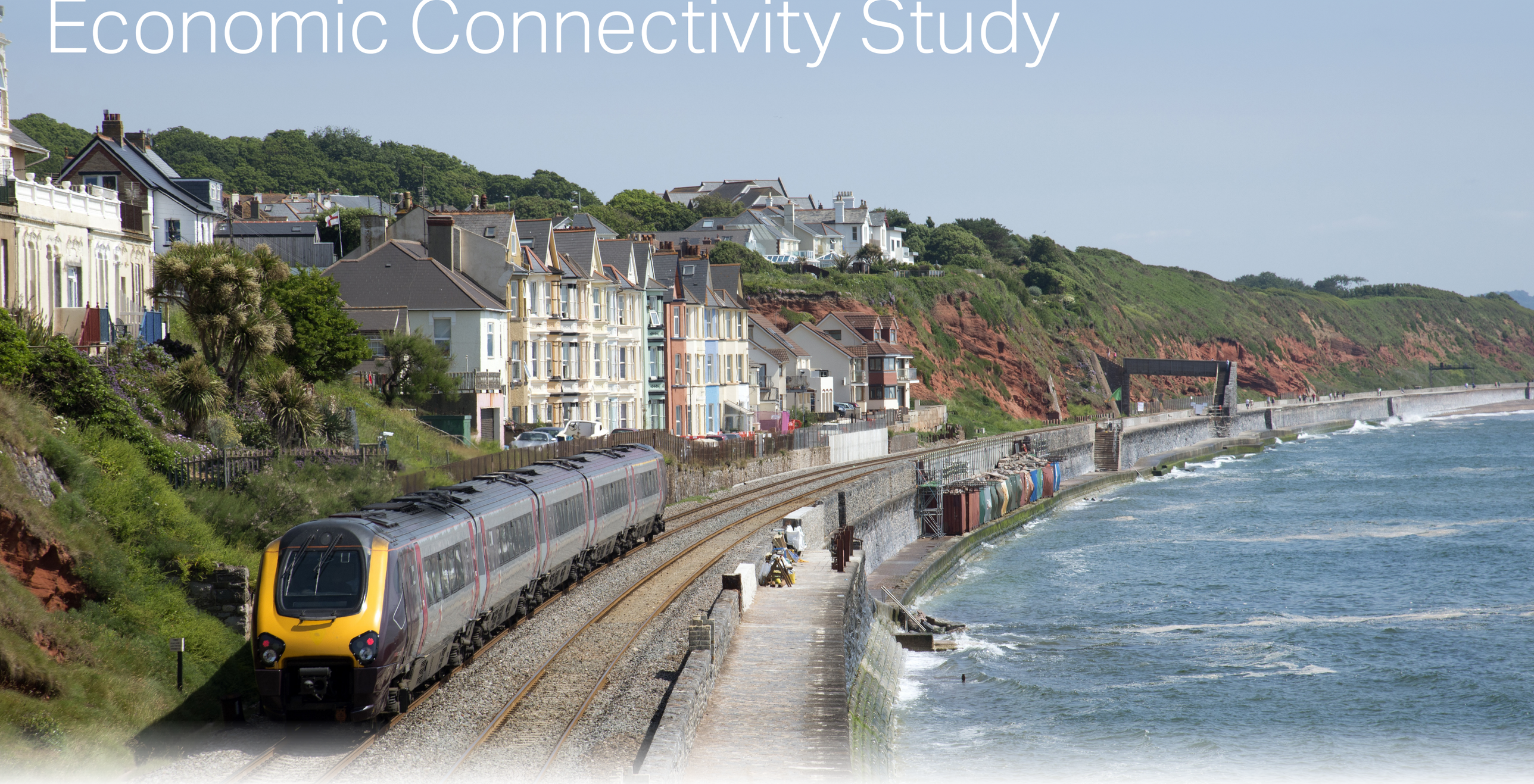
Peninsula Transport
Economic Connectivity Study



Peninsula Transport
Transforming the economic performance of the South West

For more information visit:

www.peninsulatransport.org.uk

To read the accompanying Technical Report, visit:

www.peninsulatransport.org.uk/strategy/economic-connectivity/

Quality information

Document name	Prepared for	Prepared by	Checked by	Verified by
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Revision history

Revision	Revision date	Authorised by
First Draft	December 2019	Nick Woollett
Second Draft	February 2020	Nick Woollett
Final Version	July 2020	Nick Woollett

Peninsula Transport is the shadow sub national transport body for the South West Peninsula with a vision of transforming the economic potential of the South West.

Peninsula Transport is working collaboratively with its partners and stakeholders to improve the strategic corridors which form the backbone of our transport network.

This Economic Connectivity Study highlights the importance of these connections in bringing people together, facilitating trade and supporting clean growth in our economy. In this document we will look at what we need to do to ensure that our transport network is fit for the future.

The evidence base and analytical work supporting this report were largely concluded before the end of 2019 and the main findings of the report consequently present movement and economic activity in the Peninsula from that baseline. In the midst of the global COVID-19 pandemic travel patterns and behaviours have changed so that they are unrecognisable from what was considered normal just a few months ago. Peninsula Transport is now engaged in responding to the immediate transport needs arising from circumstances driven by COVID-19 and collecting the data which will help inform decision making following the lockdown.

Our peninsula
the benefits and the challenges

The South West Peninsula is unique.

It extends for more than 150 miles from the tip of Cornwall to east Somerset, yet is only 20-30 miles across from north to south in many places. With the additional physical constraints of Dartmoor and Exmoor national parks and the granite moorland of Bodmin Moor, **the Peninsula relies on a few critical transport corridors as economic lifelines**.

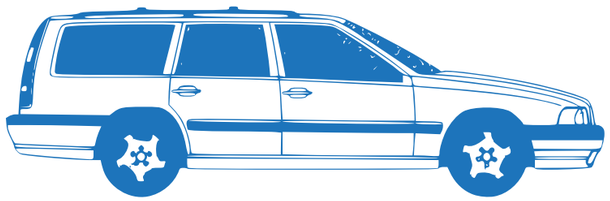
All of the Peninsula's strategic transport corridors **converge at Exeter** from where the M5 provides connectivity north to Bristol, the M4, the Midlands and beyond, and eastbound road routes make their way along the south coast, through the Blackdown Hills, or across the Somerset Levels. Rail options east of Exeter include mainline routes to Bristol, South Wales and Midlands with two routes to London.

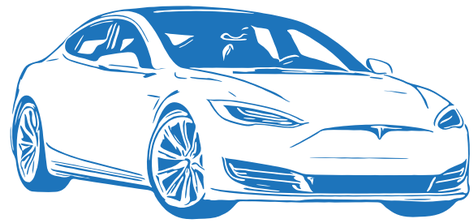
To the west of Exeter, the A30 and A38 facilitate travel through **Devon, Plymouth and Cornwall**. Rail travel becomes much slower but provides good access to Torbay, Plymouth and many of the towns in Cornwall.

Most of the Peninsula's population and economic activity are concentrated on the strategic transport corridors and the impact of **disruption on them ripples through the Peninsula's economy**. Many residents and businesses are vigilant for issues when planning a journey.

Peninsula boundary

30 years ago...





Our assessment of economic connectivity looks forward 30 years. Over this timescale there is the possibility of very significant change.

How much change can happen in 30 years? As an example, here is what the UK, and connectivity in the Peninsula, looked like 30 years ago:

- To set the scene: the Berlin Wall had just fallen, and Margaret Thatcher was prime minister. Sky debuted the first satellite TV service. The first mobile phonecall was just five years before, and nobody used text messages.

- **Dial-up Internet** access was first introduced in the UK in 1992, having been established during 1990.

- In the Peninsula, **the population was twenty percent smaller** and yet three times as many people were employed in agriculture forestry and fishing industries than today.

- In 1990, the core South West Peninsula strategic road network was largely complete. **Journeys through Devon** had just had a big improvement with opening of the Okehampton bypass on the A30 the previous year.

- Most of the Peninsula's dual carriageway network and the M5 through Somerset and Devon were now a little more than 10 years old, having been completed in the late 1970s. However, **journeys through Cornwall** still faced large sections of single carriageway along the A30.

- Tiverton Parkway railway station had been open for four years, and the railway was still in public ownership, but in many other ways **options for rail travel** were similar to today.

...the next 30 years

We can't know what the Peninsula will be like in another thirty years, but there are some trends we know are likely to play a part in shaping its future

- The **older demographic** will grow rapidly. The number of people aged over 65 is likely to grow by close to 50%, while the number of people under 65 is likely to remain relatively static.

- If we get things right, we will have achieved **net zero carbon emissions** within the Peninsula, and have a cleaner and greener environment with more trees and higher air quality.

- Almost all of the vehicles on our roads will be electric and many could be **completely autonomous**. Models of vehicle ownership and mobility are likely to be very different.

- Immersive **virtual and augmented reality** could further transform how we communicate, socialise and do business.

- The way that we plan and build transport systems will change too. The focus is likely to be much more on the **effective use of our existing road and rail assets** through software and smart systems than on constructing new strategic corridors.

Current challenges will not necessarily be future challenges. Peninsula Transport is looking ahead, to help move us towards a transport system fit for the mid-21st century.

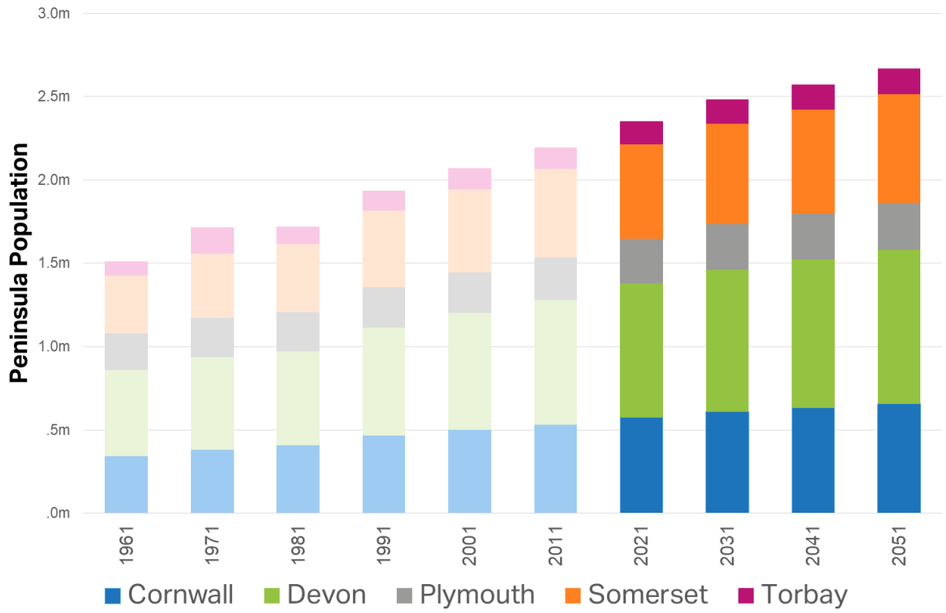
"If I had asked people what they wanted they would have said faster horses."

Dubiously attributed to Henry Ford

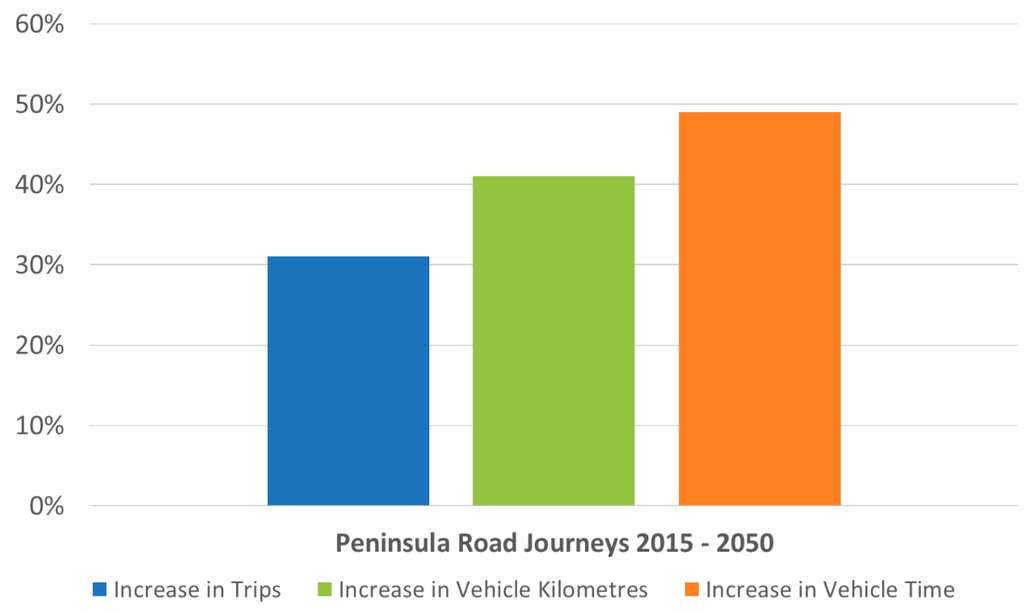
The risks of Business as Usual

The Peninsula's natural environment attracts many people to re-locate here from the rest of the UK – and the population is growing principally because of this. A growing population will generate transport demand and this may be compounded by improvements in productivity achieved through our Local Industrial Strategies, which will generate growth in real incomes.

Without changing our behaviour, by 2050 car trips will grow by 30%, traffic by 40% and congestion by 50%. Railways will get busier. Freight will be slower and journey times will be less reliable.



Past and projected population growth on the Peninsula



Projected traffic and congestion impacts if current trends continue

Unless we work fast to manage growth, accommodate it effectively or mitigate its downsides, **the consequences for the Peninsula could be severe**.

Our precious and outstanding environment will be **degraded by traffic congestion and noise**.

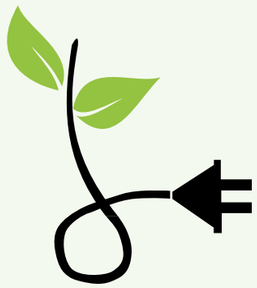
If we don't accelerate the change towards less polluting travel, **the decline in our CO2 emissions will level out** as efficiency improvements are offset by increased transport demand.

Our places could become **increasingly dominated by traffic**, compromising our local quality of life and impacting on local businesses.

"How do we get there?"

Five big themes that will influence how we realise our goals for 2050

The Future of Peninsula Transport

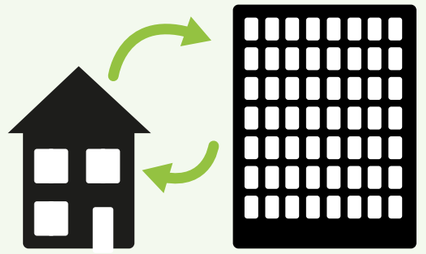


Decarbonisation: getting to zero emissions

Digitalisation: opportunities from technology

Urbanisation: clean growth in key locations

The world of work: expansion of key sectors



Flexible lifestyles: increased choice of location and travel

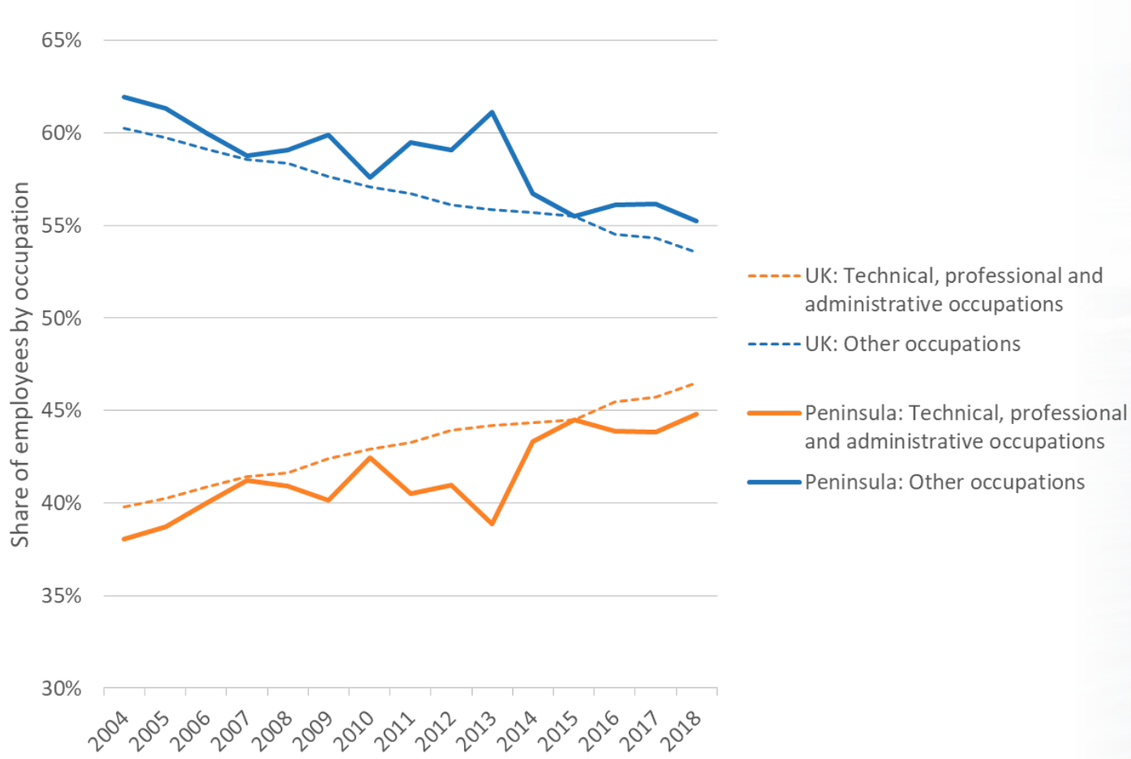
World of Work

The Peninsula is host to a diverse range of businesses with:

- Advanced manufacturing clusters in Somerset and Plymouth
- A photonics and electronics innovation centre in Torbay
- A growing technology, data and analytics sector in Exeter
- Marine hubs in Plymouth and Cornwall
- Expanding aerospace capabilities in Cornwall
- Defence sector services in Plymouth and Somerset
- A successful and widely distributed agri-food sector
- A tourism sector that attracts half a billion pounds of foreign visitor expenditure every year.

The Peninsula's two Local Enterprise Partnerships have identified sectors that have the potential for **transformative growth** (see graph), while recognising existing strengths, such as the visitor economy and health. More generally, the economy of the Peninsula is steadily pivoting towards knowledge-based sectors and service activities. Jobs are shifting towards professional, technical and managerial careers, service and care work.

It is impossible to predict with certainty the location and scale of these trends and the transport challenges that they will bring. Our analysis shows that changing patterns of employment growth could change transport demand in key growth locations. However, changes in transport demand between different employment scenarios a re much less significant than the **transport demand growth** we expect to see as the Peninsula's population expands.



Occupations are steadily changing in the UK and within the Peninsula

With uncertainty about what the economic future will be, we need to provide flexible and efficient transport that supports the business of the tomorrow – whoever they are.

Princess Yachts build luxury yachts that are sold globally. Its first shipyard was founded in 1965 and it now owns and operates more than 80,000 square metres of factory facilities. In 2010, Princess became the first major European yacht manufacturer to be awarded ISO14001 for reducing polluting effects on the environment.

Decarbonisation

We need to do more to address the climate emergency - to be a leader in the field. Road transport in the Peninsula currently emits around five million tonnes of CO2e each year and we need to reduce this to zero as soon as practically possible. While most other sectors have achieved sustained reductions in carbon emissions, transport is lagging behind.

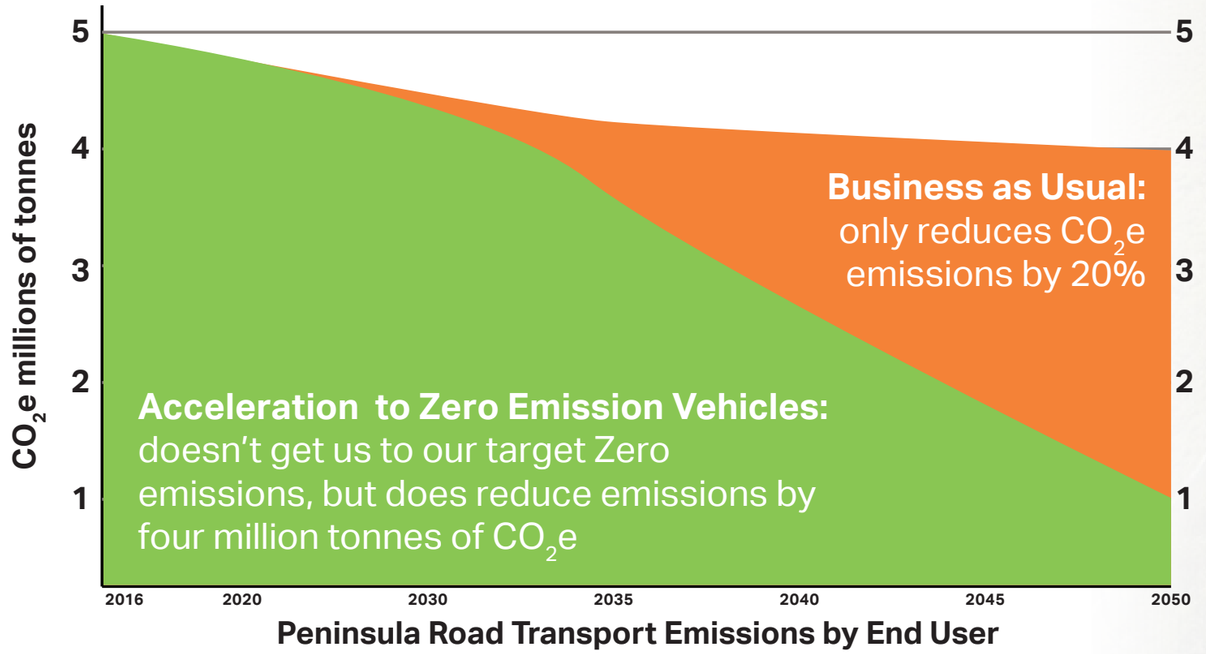
Over the last few decades, progress in making vehicles more efficient has been mostly offset by growth in population and trip making, as well as people buying larger vehicles.

We must

- Reduce the CO_2 emissions of each vehicle trip by making the vehicle more efficient, driving it more efficiently or increasing the number of passengers; and
- Reduce the number of vehicle trips that people make or the distances they travel.
- Encourage modal shift to reduce reliance on private vehicles

In the short term, switching trips from car to walking, cycling, bus or train will make a big contribution to reducing emissions. Buses and trains need to have lots of people on them to maximise their impact.

In the longer term, we expect trains, cars, vans, buses and lorries to switch to electric or other zero emissions propulsion, but **without a concerted and sustained effort by everyone this will take too long**, as shown in the graph below.



Moving to net zero emissions and rapidly switching to electric vehicles will need coordinated action at a Peninsula level and will challenge current approaches to transport planning.

Our rail task force is seeking to be at the forefront of change, making the case for discrete electrification in the Peninsula and seeking zero emission solutions for rail in the longer term.

This needs to be tackled with urgency and ambition, or we risk curbing mobility, endangering prosperity and continuing to contribute to global climate change.

Switzerland's first 'solar highway' will initially cover at least 1.6 kilometres, with 37,000 solar panel to produce enough for the electricity consumption of 20,000 people - before being expanded to a potential total of 750km

Digitalisation

Digital technologies have revolutionised how we live and conduct business. These technologies are impacting transport systems as well.

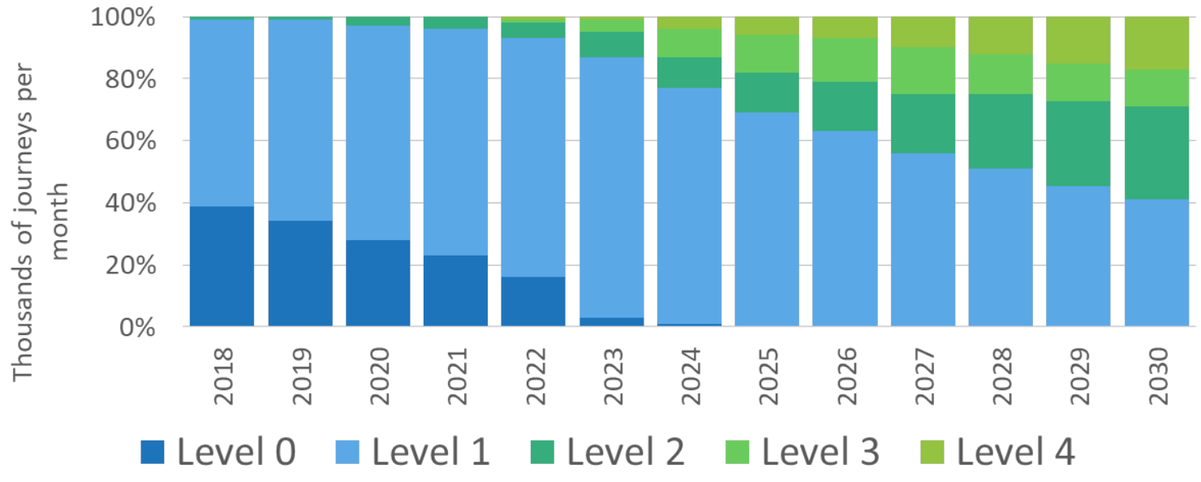
App-based ride-hailing services like Uber are transforming transport behaviour. In London, they have been increasingly disrupting the traditional black cab service over recent years. At the moment, this is mainly in cities and amongst younger people, but adoption is growing and services are spreading fast.

Lower transport costs will increase demand while more efficient network use could reduce congestion. **Digital signalling** and other technologies on the rail network have the potential to increase capacity.

Autonomous vehicles have the potential to provide productivity savings for business, to free up our leisure time, and to make our roads more efficient. Technology is developing fast and, in some places, it is already here. In Phoenix, Arizona Waymo already has a fleet of hundreds of autonomous taxis which can take you anywhere in the metropolitan area.

Wide broadband penetration and digital literacy have enabled online retail to swell to around 20% of all shopping. It continues to grow strongly and affect travel patterns and trip making.

Digital connectivity also affects where we choose to live and work, and is driving an explosion of small businesses. **The Peninsula could be a major beneficiary from digital technologies** as productivity increases and business practices evolve.



By 2030, many vehicles could have at least 'level 3' autonomy where they can drive themselves in limited circumstances (able to drive themselves in some circumstances, but with the expectation the driver is ready to intervene)

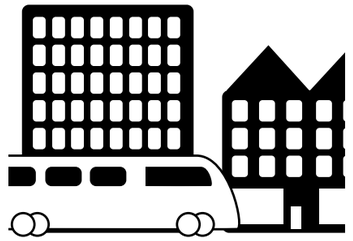
Vehicle technologies could radically affect how people travel. The effect is complex.

Lower transport costs will increase demand while more efficient network use could reduce congestion.

Net impacts on transport costs and demand remain unknown but are probably small.

CAPRI - Connected and Autonomous POD on-Road Implementation - is a pilot scheme for the use of autonomous vehicles to move people around airports, hospitals, business parks, shopping and tourist areas. It is being tested in on-road public trials at London's Queen Elizabeth Olympic Park.

Urbanisation



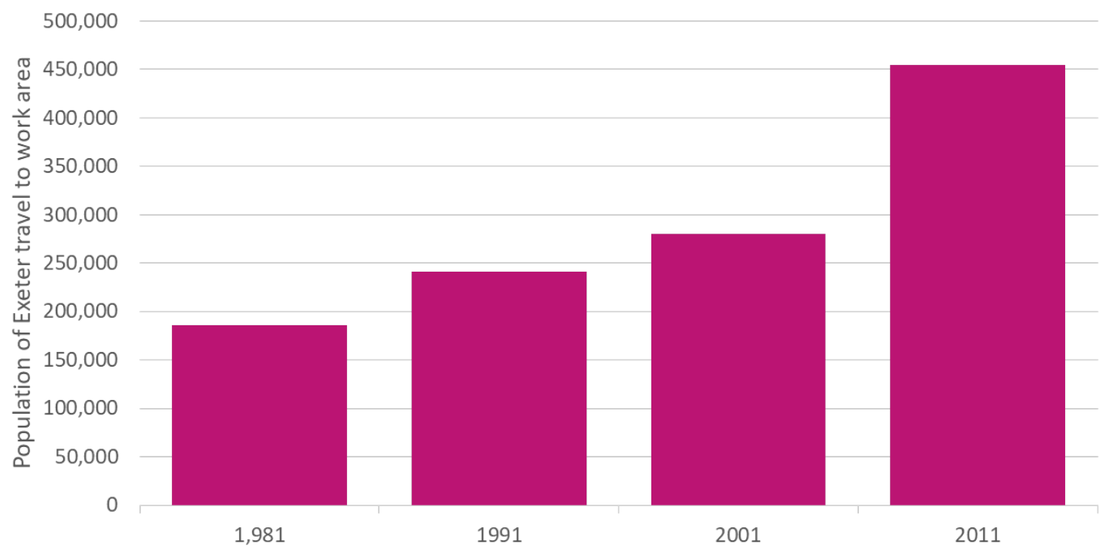
Across the world, cities are growing and urbanisation has been a global megatrend for over a century.

Cities attract businesses because they provide the scale to support pools of skilled workers, specialised supply chains and expensive shared infrastructure such as airports. People are attracted by higher wages, and opportunities for leisure and culture.

Recent spatial development in the Peninsula has mostly followed this pattern. The cities of Exeter, Plymouth and Truro have grown, as have other urban areas. Other development has taken place along the main transport corridors, particularly the M5.

We don't know how this will play out in future. **Technology is starting to break the link between employees and physical workplaces** – particularly in the fast-growing knowledge economy. The average firm is getting smaller and may start to operate without a physical base. More and more people are working from home.

The future of transport in the Peninsula will be influenced by **where people and businesses want to locate**, shaped by our planning policy.

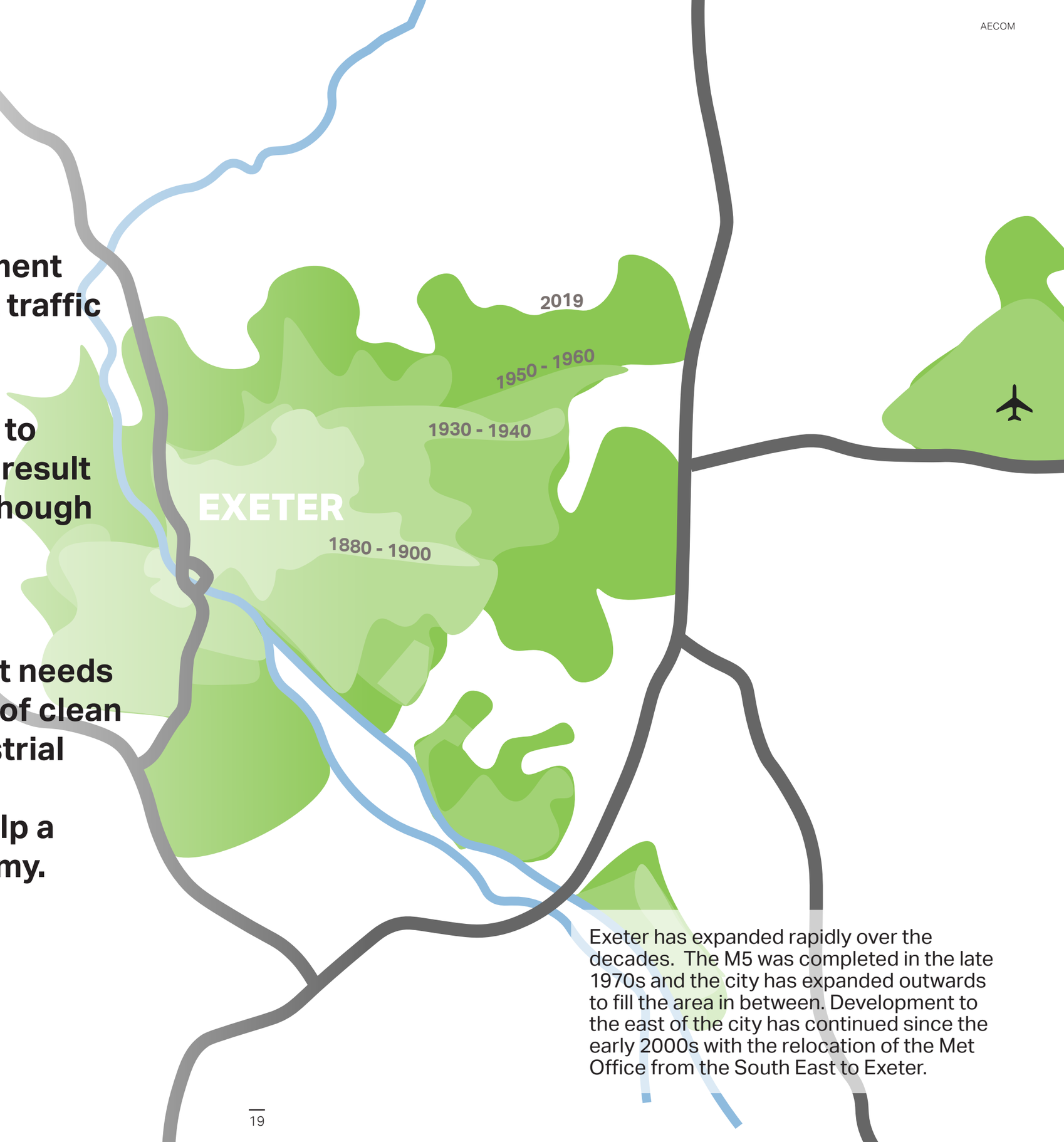


Exeter's travel to work area has expanded rapidly as the city has grown and as commuting distances have increased

Different future spatial development patterns could result in different traffic patterns across the Peninsula.

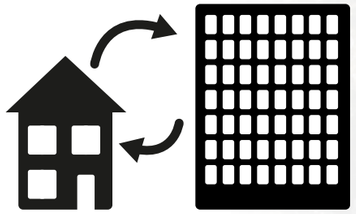
Overall travel demand is unlikely to change substantially purely as a result of spatial planning decisions, although substantial reductions could be achieved in localised areas.

Future employment development needs to be aligned with the principles of clean growth set out in our Local Industrial Strategies, to promote business locations and activities which help a transition to a low carbon economy.



Exeter has expanded rapidly over the decades. The M5 was completed in the late 1970s and the city has expanded outwards to fill the area in between. Development to the east of the city has continued since the early 2000s with the relocation of the Met Office from the South East to Exeter.

Flexible Lifestyles



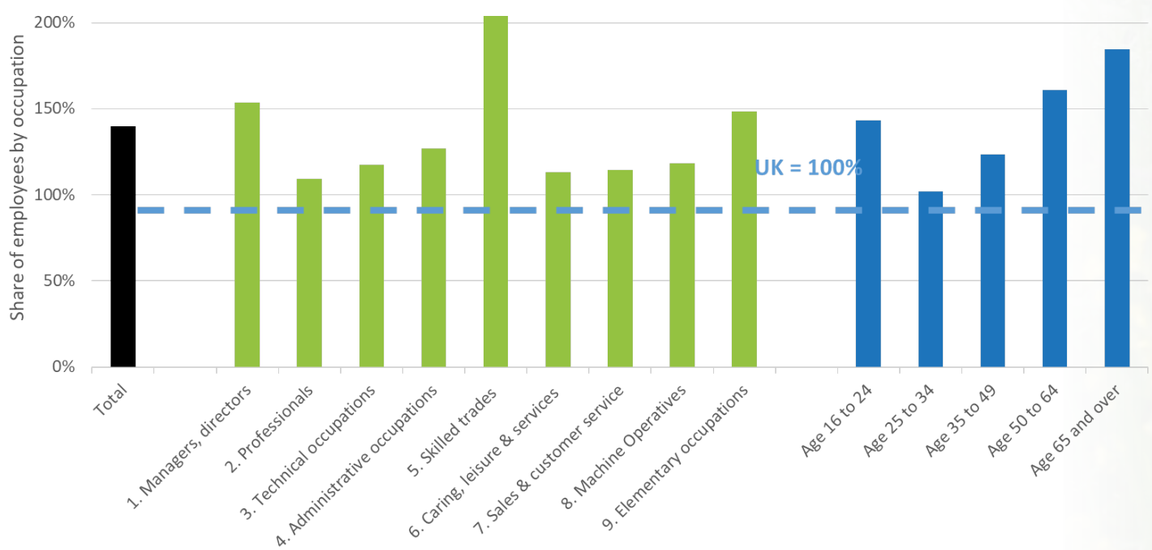
The Peninsula's success is evidenced by the number of people moving here from the rest of the UK. Our unique blend of successful economy and stunning environment enables people to find a lifestyle that they love.

It is no wonder then, that more people work flexibly here. **Over 40,000 more Peninsula residents work from home** than would be proportional to the UK average. This is reflected across the board – higher levels of flexible working show up across all age groups and occupations.

Working from home is not the only way that flexible lifestyles and working arrangements are changing the Peninsula. The 'gig economy' (temporary, flexible jobs) is growing as people and companies are looking for work to fit around their other commitments such as education or child care, and the Peninsula hosts a **rapidly growing stock of micro and small businesses**.

Changing lifestyles and working arrangements in the Peninsula could have an important impact on our future transport needs. However, the travel habits of small business owners and home workers are not well understood. We need to know more about it to plan effectively.

From the perspective of transport demand, flexible working helps to reduce peak time transport demand, taking pressure off the network in its most congested periods. However, our analysis shows that on its own this trend will only go a small way towards offsetting the transport demand challenges we face from a growing population.



Intensity of working from home in the Peninsula compared to UK average

The gig economy, working from home and the growth in small, agile businesses will change the pattern of transport demand, but won't change the 'big picture' of growth pressures.

Around a quarter of workers in the Peninsula either work from home or have a business based at home. This figure has grown steadily over the last 20 years and is around 4% higher than the UK average.

The direction of travel

Protecting the Peninsula's natural environment and reducing transport carbon emissions to net zero are **critical success factors.**

Clean economic growth will help rebalance the UK economy and improve productivity, and relies on businesses committing to playing their part in solving the problems of climate change.

Some changes in travel behaviour can be expected due to the trends explored in this study. But without radical policy measures, the main factors driving demand are unlikely to change. Supporting sustainable growth will need **targeted investment** focused on providing a consistent level of service across strategic networks.

The direction of travel

Decarbonisation

Urgent, ambitious and co-ordinated action is needed to reduce emissions to net zero. We will partner with other STBs and lobby Government to implement the policies required to accelerate the uptake in zero emission vehicles and the decarbonisation of rail. We will ensure strategic road journeys in the Peninsula can be made easily by zero emission vehicles both now and as technologies evolve. We will seek transport investment which helps us to reduce our carbon emissions.

Digitalisation

Peninsula Transport will engage with digital network suppliers to highlight the importance of **wide area digital communications coverage** to enable smart transport services to develop and thrive within the Peninsula.

Urbanisation

Population growth is the **single most significant driver** of future transport challenges within the Peninsula, but the approach to spatial development itself is likely to have a much smaller impact on the overall levels of strategic transport demand. Linking future spatial development plans with the clean growth aspirations of the Local Industrial Strategies is critical.

The World of Work

Improving the **resilience and reliability** of the Peninsula's strategic transport corridors will help provide confidence in the economy and enable businesses to close the productivity gap.

Flexible Lifestyles

Trends in flexible working and home working affect the Peninsula more than most places. These trends present an opportunity to reduce travel demand in peak periods and **improve the efficiency** of the transport network.

Looe, Cornwall