Peninsula Transport

Transforming the economic performance of the south west

Western Gateway

Sub-national Transport Body

South West Freight Strategy

WP09 - July 2022

AECOM

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			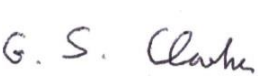
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Revision History

Revision	Revision date	Name	Position
Interim report – Draft	30/08/2021	Scott Millard	Senior Consultant
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Front cover

- **Top left** – The road network of the South West is characterised by twisty, undulating single carriageway roads with slow journey times.
- **Top middle** – The South West has a network of ports offering services to commercial and naval interests. In this case Portland Harbour, Dorset.
- **Top Right** – Bus and Freight Operators specify very short wheelbase vehicles to cater for narrow Cornish roads. In this case a Modern Euro VI First Kernow single deck is heading towards Truro.
- **Bottom Left** – DB Cargo Class 66 diesel locomotive moving china clay hoppers
- **Middle** – Plymouth Dockyard which is a busy commercial port and the largest naval dockyard in Europe
- **Middle Right** – A Pallet Track double-deck vehicle stuck on a congested A Road. The vehicle is used to trunk pallets between the central hub in Wolverhampton and R&R Haulage depot at Redruth, Cornwall.
- **Bottom Middle** – Short wheel-based temperature controlled lorry belonging to Plymouth Trawler Agent collecting fish from a local fishing port to take to market.
- **Bottom Right** – Bournemouth Arcade – deliveries need to be made but lots of double yellow lines.

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Abbreviations

Abbreviation	Full Text	Abbreviation	Full Text
AGR	Advanced Gas Cooled Reactor	LNG	Liquid Natural Gas
APTR	All Purpose Trunk Roads	LRN	Local Road Network
AQMAs	Air Quality Management Areas	MaaS	Mobility as a Service
BCP	Bournemouth, Christchurch and Poole	MEC-A	Marginal External Cost of Accidents
BEVs	Battery Electric Vehicles	MEC-N	Marginal External Cost of Noise
B&NES	Bath & North East Somerset	MSA	Motorway Service Area
CAZs	Clean Air Zones	MSRS	Mode Shift Revenue Support
CCC	Cornwall County Council	NDCs	National Distribution Centres
CNG	Compressed Natural Gas	NUTS3	Nomenclature of Territorial Units for Statistics Zones, Level 3
CPC	Certificate of Professional Competence	OECD	Organisation for Economic Cooperation and Development
CRAFTeD	Co-produced Route-mapping to Accelerate Freight Decarbonisation: A Transdisciplinary Learning and Decision Framework	ONS	Office for National Statistics
CSRGT	Continuous Survey of Road Goods Transport	ORR	Office of Road and Rail
CSRGT GB	Continuous Survey of Road Goods Transport Great Britain	PCN	Penalty Charge Notice
DCMS	Department of Culture, Media and Sport	PERS	Port Environmental Review System
DEFRA	Department for Environment, Food and Rural Affairs	PGI	Protected Geographical Indication
DfT	Department for Transport	PM	Particulate Matter
EMU	Electrical Multiple Unit	PPE	Personal Protective Equipment
ERS	Electric Road System	PSO	Public Service Obligation
ESG	Environment, Social and Governance	RA	Route Availability
EVs	Electric Vehicles	RHA	Road Haulage Association
FOCs	Freight Operating Companies	RIS	Road Investment Strategy
FORS	Fleet Operator Recognition Scheme	ROLs	Restricted Operating Licences
FTZ	Future Transport Zone	Ro-Ro	Roll on-Roll Off
GBR	Great British Railways	SFC	Strategic Freight Corridor
GHG	Greenhouse Gas	SME	Small and medium-sized enterprises
GTL	Gas To Liquid	SOLs	Standard Operating Licences
GVA	Gross Value Added	SRN	Strategic Road Network
GWML	Great Western Main Line	STB	Sub-National Transport Body
HGVs	Heavy Goods Vehicles	SWIP	South West Infrastructure Partnership
HST	High-Speed Train	SWLEP	Swindon and Wiltshire Local Enterprise Partnership
HVO	Hydrotreated Vegetable Oil	TM	Traffic Management
ICE	Internal Combustion Engine	TOCs	Train Operating Companies
JIT	Just in Time	TPH	Train Paths per Hour
LA	Local Authority	TRO	Traffic Regulation Order
LEPs	Local Enterprise Partnerships	UAV	Unmanned Aerial Vehicle Service
LEZs	Low Emission Zones	UKWA	United Kingdom Warehousing Association
LGVs	Light Goods Vehicles	VMS	Variable Messaging Signage

Foreword

Freight is a vital part of the transport sector for the South West region. It is the lifeblood for our communities and businesses – not only bringing in essential goods and commodities, but also moving the products of our many and varied businesses and services. The South West Freight Strategy reflects on the fact that this industry and its supply chains operate across a broad regional, national, and international geography with its own set of unique challenges and opportunities.

We are therefore delighted to present this joint strategy – a collaboration between Peninsula Transport and Western Gateway sub-national transport bodies. It addresses the challenges, opportunities, and priorities for the South West over the next 30 years to 2050, with objectives focussed on the environment, economy, and society. These are aimed at delivering the freight vision as part of the wider strategies and priorities for Peninsula Transport and Western Gateway and will enable the region to address the challenges, opportunities and priorities for freight in the South West.

This strategy is strongly evidence based, both from within the region as well as from good practice and case studies from further afield. It regards freight and logistics as an opportunity and not an afterthought and is centred around three sustainability pillars of environment, economy and society. It contains standalone freight-specific initiatives as well providing supporting evidence for the wider regional transport strategies that both STBs are developing.

We are very grateful for all the contributions from partners across the private and public sector who have given of their time and insights to create the compelling case for the interventions that have been identified as important to improving freight's contribution to our wider objectives. There are many that are unique to the vehicle types and usage patterns of the freight sector in the South West. These often require a bespoke set of approaches and interventions in order to maximise efficiency, but these must be harmonised with the wider transport strategy for the South West as a whole.

Peninsula Transport and Western Gateway will now seek to implement these measures by keeping engaged with those who have expressed a keen interest to be part of this journey with us and who see them as essential to achieve their visions, goals and objectives for their respective areas. Effective partnerships and strong planning are needed to implement these measures with the financial support and guidance of the Department for Transport.

The Freight Strategy supports the key goals of both STBs, seeking as it does to improve connections between people, place and businesses, enhancing resilience in the supply chain networks across all modes, supporting the health and wellbeing of local communities and, importantly, helping us along our path towards a zero emission transport system.

Looking ahead, we aim to use this strong platform and implement the recommendations of the strategy. Working through effective partnerships with all stakeholders and partners, including central government, to ensure that the future success of our communities and businesses are supported by a strong, forward looking and dynamic freight sector.

Peninsula Transport

Councillor Andrea Davies – Chair of Peninsula Transport Sub-national Transport Body

Western Gateway
Sub-national Transport Body

Councillor Mike Greene – Transport Chair of Western Gateway Sub-national Transport Body

1. Executive summary

1.1 Introduction

This project to undertake the development of a Freight Strategy for the Peninsula Transport Sub-National Transport Body (STB) was initially commissioned within the context of the wider production of the regional Transport Strategy. Subsequently the scope of the commission was extended to include the Western Gateway STB area as the spatial interdependencies between the two regions, particularly for freight movement, had significant merit in having a joint approach.

This Freight Strategy is a culmination of the work between the two STBs which reflects the fact that freight and the associated supply chains operate on a more regional, national, and international basis than is the case for passenger movements.

Peninsula Transport and Western Gateway are pleased to collaborate and put forward a Freight Strategy for the South West which aligns the diverse areas of the South West and provides a holistic and joined up approach to freight in the region reflecting the reality of freight movements and their wider supply chains.

The vision and strategy for the Freight Strategy will address the challenges, opportunities, and priorities for the South West over the next 30 years – to 2050. The objectives centre around three sustainability pillars of environment, economy, and society.

1.2 Methodology

A clear methodology was established utilising a number of methods and techniques to establish an understanding of the unique challenges and opportunities present in the South West. As a result, the Freight Strategy development involved a number of phases including bespoke data analysis, case study learnings, stakeholder engagement and freight interventions development. The stakeholder engagement included online workshops in the summer of 2021 to capture issues and opportunities expressed by public authorities, industry and trade bodies with a subsequent event taking place in September to discuss the draft interventions.

1.3 Review of freight strategies

A review of freight strategies from across the UK was undertaken to ensure that learnings from elsewhere could be incorporated into the development of this strategy. The review established that there are several common issues faced by local authorities, which include the climate emergency, poor air quality, high levels of congestion and safety concerns around the impact of freight. There were common initiatives used in response to the identified issues including interest in road infrastructure improvement schemes, better logistics planning, utilisation of technology including alternative fuels, introduction of freight consolidation activities and modal switch. The review categorised these activities to understand whether they took a vehicle, people, or place-based approach to improve the quality of life for residents and the economics for businesses.

1.4 Road freight data analysis

The scale of the transport of goods to, from and within the South West region is outlined in the data analysis. This analysis looks at road freight data for Peninsula Transport and Western Gateway as STB areas before delving deeper into individual local authorities. The following headline statistics are based on an assessment of road freight in 2019 sourced from the Continuous Survey of Road Goods Transport data from the Department for Transport. Multi-modal freight insights are set out in **Section 1.7**.

1.4.1 Road freight Peninsula Transport – key facts

- HGVs completed over 1 billion vehicle kilometres in, out and around the Peninsula region (2019).
- Estimated 3.6 million trips completed by Heavy Goods Vehicles (HGVs) related to the Peninsula region
- 68.7 million tonnes of goods were lifted in, out and around the Peninsula region (2019)
- 46 per cent of the goods lifted was internal within local authority areas
- The Peninsula region is a net importer of goods
- “Food and drink” is the largest commodity category with over 13 million tonnes (20 per cent of volume on HGVs) moved to, from and in the Peninsula Transport region. This illustrates the significance of the industry to the region given its strong agricultural sector, food producers and tourism sector.
- Over 7.6 million tonnes of Mining and quarrying goods were lifted internally within local authorities in 2019, equating to 163,600 trips and 22.4 million vehicle kilometres.

CO_2 emissions and the impact of empty running:

- 22 per cent (around a fifth) of the vehicle kilometres completed during 2019 were by empty vehicles. There is a significant number of vehicle kilometres which effectively are not serving a purpose – large quantities of CO_2 being emitted and emphasises the need for consolidation, backloading and modal shift, particularly towards the rail sector.
- Transport in the South West accounted for approximately 11.4 million tonnes of CO_2 in 2019[2].
- The HGV sector produced around 916,000 tonnes of CO_2 in the Peninsula region during 2019. Of total CO_2 emissions for the South West, it is estimated eight per cent is attributed to HGVs.

1.4.2 Road freight Western Gateway – key facts

- HGVs completed over 1.6 billion vehicle kilometres in, out and around the Western Gateway region (2019).
- Estimated five million trips completed by HGVs in Western Gateway
- 100.4 million tonnes of goods were lifted in, out and around the Western Gateway (2019)
- 39 per cent of the goods lifted was outbound
- Western Gateway is a net exporter of goods
- "Food and drink" is the dominant commodity for internal, inbound and outbound movements with 23 million tonnes in 2019 (23 per cent of HGV tonnage lifted). This is slightly higher than the national average (20 per cent) and illustrates the significance of the industry to the region given its strong agricultural sector, food producers and tourism sector.
- Over 4.8 million tonnes of Grouped goods were lifted internally within Western Gateway local authorities in 2019, equating to 322,000 trips and 63.8 million vehicle kilometres.

CO_2 emissions and the impact of empty running:

- Estimated 1.4 million Tonnes of CO_2 of which 20 per cent was accounted for by Food and Drink. Empty vehicles accounted for 22 per cent of total CO_2 in tonnes for Western Gateway (similar figure to Peninsula Transport).
- The top individual commodity category for CO_2 was empty vehicles for internal between LAs, inbound and outbound.
- Out of the total of 1.4 million tonnes of CO_2 for the Western Gateway region, 45 per cent of CO_2 was accounted for by outbound movements.
- 22 per cent of the total vehicle kilometres completed were by empty vehicles, although it is recognised that there are many reasons why empty running occurs for example fuel tankers returning to depot, specialised vehicles with incompatible loads, refuse collection vehicles.

1.5 Freight insights and trends

The project identified a number of freight insights and trends for consideration when formulating the strategy for the South West. These were taken from literature, the knowledge of the project team and research from the 2020 scoping report and considered a number of areas. Freight issues were also highlighted for each Local Authority area. A review of the major roads and connectivity has identified several existing core strategic corridors, e.g. M5, A303, A30, A38, but there is a lack of alternatives routes. Various other factors can be seen in **Chapter 6** covering all modes of transport including coastal shipping.

Warehousing is a key generator and attractor of freight traffic and act as key destinations in inter-region freight traffic. The current trend is for an increase in both the size and number of warehouses being used as distribution or fulfilment facilities in response to the acceleration of e-commerce, online retailing and home delivery. This itself has been accelerated by the global pandemic, the decline of traditional high streets and changing consumer expectations. The growth in warehousing has, however, led to a critical skills shortage in the warehousing industry and places further demand on the road freight industry which is also experiencing an acute driver shortage.

The transport sector is a major contributor to climate change and within that road freight is the greatest (alongside air freight) contributor of Carbon Dioxide emissions. The lead strategic document to decarbonise transport has been set out through the Transport Decarbonisation Plan published by the Department for Transport in July 2021.There are a number of ongoing projects to bring the South West of England to a more self-sufficient point in power generation through using a whole range of sustainable power sources including nuclear, solar and wind. The region is a prime location for renewable energy as it experiences some of the highest sunshine hours and windy conditions in the UK. Therefore, the vast natural resources and landscape is resulting in the location being able to reap the benefits from sustainable renewable sources.

The development of the freight strategy also recognises the work being undertaken on electric vehicles and technology. Development in new technology continues at pace and the strategy will take into account the switch to electric vehicles, alternative fuels and how commercial fleets can be supported to take advantage of these, in the transition to net zero by 2050.

COVID-19 has accelerated the existing trend towards online shopping due to restrictions on visiting physical stores. This growth has required an increase of freight transport to facilitate this growth. In particular this has shown growth in “the last mile” delivery, contributing to more vans on the roads (4.6 million at the time of writing) and this trend is likely to continue.

There is also an increasing focus on the role gateways can play on a pan regional and national scale for moving goods and supporting the growth of the freight and logistics industry. More specifically, ports such as Plymouth and Bristol and airports such as Exeter and Bristol airports are increasingly viewed as multifunctional hubs serving as local economic drivers and hosting clusters of industrial activity, alongside fuelling options for vessels, aircraft and HGVs. The repercussions of leaving the European Union on customs checks combined with unlocking new market opportunities for facilitating offshore windfarms and moving aggregate goods for the burgeoning construction industry are key factors shaping future scenarios across the region. Regional freight centres for road and rail freight such as Network Rail’s regional distribution centre for the South West and Wales regions at More+, Central Park, Avonmouth, are also important economic drivers bringing new jobs and investment to the region.

The Freight Strategy is taking account of the significant innovation in technology within the freight sector, with notable enhancements in communication and data, vehicle-based technology, real-time information to allow operational efficiency, as well as managing people and productivity. There are also a number of new concept innovations, which could all impact how freight is managed and moved in the future.

1.6 Case studies – freight best practice

A series of case studies have been produced to showcase examples of best practice in the freight and logistics sector both outside and within the South West region. These case studies demonstrate interventions which may be transferable to other companies in the South West. These have been collated together in the main report but shown in full in the appendix to this report.

1.7 Multimodal review

1.7.1 Rail freight

It is clear from the work undertaken that there is a significant potential for mode shift to rail freight in the region. It will be important for the South West region to build on the current success of bulk movement (China Clay & Aggregates) in the region and to unlock opportunities for rail freight across market segments that are growing in other parts of the UK but not the South West. It is recognised that rail freight is a commercial sector and if it makes financial sense to move goods by rail then the goods would move that way but it does require suitable infrastructure to support this. Currently, the rail network lacks access to inland and port terminals. Stakeholder were concerned there might be limited opportunities for weaving in additional freight paths amongst current (passenger) operations and service patterns to key destinations in the Midlands and London. It is not a lack of paths in the South West itself but on the approaches to Birmingham and London. Network resilience is also a primary objective to ensure the efficient and timely movement of goods in the event of incidences and events which hinder access to the region along core rail corridors. It can be that the type of goods moved, lack of volume or pattern of origins and destinations can make rail uneconomic however as has been demonstrated in Scotland where there is a logistics operator willing to consolidate the volume and establish a freight terminal services can start.

Rail freight can be part of the solution to reduce the reliance on road transport for the movement of goods. Rail freight emits 76 per cent less carbon than the equivalent journey by road[1], and hence additional use of rail can help to address air quality issues and carbon reduction targets. The analysis outlines the key addressable markets that rail freight can serve across a range of sectors, including the growth sectors of bulk commodities and intermodal which have been expanding by three per cent per annum in other parts of the UK[2]. Although it should be noted that none of the top five largest British container ports in terms of tonnage (Ports of Felixstowe, Southampton, London, Immingham and Liverpool) fall within the South West region. In addition to this, the Williams-Shapps ‘Plan for Rail’ can be seen as a significant opportunity including the duty on Great British Railways to formally promote rail freight and to develop a rail freight growth target.

Several key themes emerged from various rounds of engagement with stakeholders with an interest in rail freight:

[1] Written evidence submitted by Rail Freight Group (TFF0010). Available from: http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/transport-committee/trains-fit-for-the-future/written/102386.pdf
[2] Network Rail (2020) Rail freight forecasts: Scenarios for 2023/2024. Final Report. Available from: https://www.networkrail.co.uk/wp-content/uploads/2020/08/Rail-freight-forecasts-Scenarios-for-2023-24.pdf

Lack of active rail freight terminals	There are relatively few rail freight terminals in the South West and this is particularly the case relating to those that could handle intermodal trains. Stakeholders reported that the only terminal capable of handling boxes was in Bristol but this site was mothballed.
Rail Connectivity into the region's ports	There used to be rail lines into most of region's ports but many of these have been removed such as at Weymouth. There were calls to explore demand and the potential for ports to reinstate rail lines where feasible to stimulate mode shift and build local network resilience around port access points. Examples of Dartmouth, Poole and Plymouth were discussed.
Technical issues relating to the rail network	The rail network is gauge constrained meaning that high cube containers would not have clearance on much of the South West network without either a technical wagon solution or gauge enhancement. Also there are various speed and weight restrictions due to the topography of several parts of the rail network, meaning some freight trains cannot operate at their optimum length or payload.
Sector Competitiveness & Potential Markets	The six million people that live in the South West are spread over quite a diverse area, with many living in rural or coastal areas. Obtaining critical mass to operate freight trains is more of a challenge than in more densely populated areas. However, it is not unsurmountable as demonstrated by intermodal services to Inverness and Aberdeen where road hauliers provide the last leg of the journey. Part of the issue is being able to group demand.
Lack of knowledge of what rail freight can offer industry	There is a whole generation of logisticians where many have never used and perhaps seldom thought about using rail freight. There is a need for education on the benefits of using rail and help in building a business case to make the transition. Clearly every business needs to make informed commercial decisions and without the availability of good information a rail freight alternative may not be considered. With issues such as a shortage of lorry drivers, increasing fuel prices and worsening road congestion, rail freight can offer an alternative.
Network Resilience	Supply chain customers like to build resilience into their logistics so that if something happens an alternative is available. In some parts of the South West there are no alternative rail lines available if something happens, such as sea wall damage at Dawlish. Rail needs to offer a contingency even if it is using road transport as a last resort. This happens in the passenger business.
Decarbonisation and Environmental Factors	Rail freight is reported to be much more efficient than road freight on environmental matters as one locomotive is moving the equivalent of between 30 and 80 HGV loads depending on the route and commodity. There is a need for all freight sectors to decarbonise and it is important that rail freight keeps its competitive advantage in this area. One way of doing this is through use of electric locomotives as they are more efficient and have better traction capabilities. Rail freight operators are considering their future options for replacing standard diesels and this might include bi and tri-mode locomotives, with diesel, electric and battery power is available. Hydrogen trains are also being introduced for passenger services in rural parts of France and Germany and Hydrogen freight locomotives are being trialled in Canada.

1.7.2 Maritime freight

Maritime freight, coastal shipping and ports will all play a key role in shifting the reliance of goods movements away from road freight, especially for long distance haulage, whilst ports are emerging as key economic drivers across the region. This is driven by the carbon efficiency of maritime freight in comparison to road freight. Typically an HGV will produce on average 137g of CO_2e per tonne kilometre compared with maritime shipping of 7g of CO_2e per tonne kilometre[3]. There is also a need to free up congestion on the road network improve the efficiency of HGVs on the network and alleviate the network pressures. New sailings are starting to include a service for mainly foodstuffs from Morocco to the Port of Poole which hints at the role that all ports, of varying sizes, are likely to play in supplying goods domestically.

There is a role to play for STBs working in partnership with local ports and public authorities, alongside the freight industry more broadly, to enhance the transparency of commercial opportunities and unlock future markets alongside identifying capital investment to steer port centric developments as well as incentivising mode shift. The STBs can organise meetings to bring together partners in a joined-up approach towards planning and investment decisions. The Freight Steering Group is one of the

[3] European Environment Agency (2021) Rail and waterborne — best for low-carbon motorised transport. Available from; https://www.eea.europa.eu/publications/rail-and-waterborne-transport

ways of prompting discussion and potentially organising small working groups and studies to gather information, report back and build into business cases for change.

Six key themes emerged from various rounds of engagement with stakeholders with an interest in maritime freight:

Warehousing, Storage & Transhipment Facilities	The need to futureproof and invest in new provision, safeguard facilities and designate strategic land (sympathetic to local area) to cater for future forecast demand.
Port Connectivity & Mode Shift Potential	Exploring the demand and potential for ports to reinstate rail lines where feasible to stimulate mode shift and build local network resilience around port access points.
Port Centric Logistics, Business Clusters & Maximise the Potential of Freeport Status	Maximising the designation of enterprise zones and freeports and continuing to facilitate business clustering and added value services at Falmouth/Plymouth.
Sector Competitiveness & Potential Markets	Balancing diversification with port infrastructure capacity and helping (financially and legislatively) to transition away from road freight dependency.
Quality & Availability of Freight Data	Developing a more comprehensive datahub and increasing the transparency of information available to make informed commercial decisions.
Future Role of STBs	Requesting STBs source investment and funding opportunities for enhancing port connectivity and incentivising the switch to cleaner technologies.

All stakeholders remarked on the value of establishing a Freight Steering Group to help steer future recommendations and unlock opportunities for maritime and coastal shipping to play a more prominent role in the freight mix; providing this platform could help deliver tangible, meaningful change.

1.7.3 Air freight

There is some uncertainty about the future role of aviation and the level of interest in scaling up operations to move goods; but there is a niche role to play in delivering high value goods in smaller quantities in response to supply chain inefficiencies and disruptions. The negative environmental impacts of air freight are higher than other modes of freight transport. Air freight produces higher levels of CO_2 equivalent emissions per tonne kilometre than either rail or maritime freight. Dedicated cargo planes tend to be the older, more polluting and noisier planes than passenger planes. There is scope to dovetail planned passenger services and serve domestic and international freight markets, although it should be noted that airports in the South West will be starting from a very low base in terms of current airfreight tonnage.

In summary, the key themes to emerge were:

Tailored Market	There is a niche, specific role aviation can play in facilitating the movement of goods and potential growth markets. Hence air freight can include urgent pharmaceutical and PPE supplies, perishable goods, expensive electronics and automotive parts. The airports in the South West can serve customers across the whole of the south, e.g. recent cargo developments at Bournemouth, perhaps reducing the dominance of London Airports for cargo.
Airport Centric Developments	Running parallel to port centric logistics; the capacity and opportunity for airports to go beyond conventional land uses to incorporate added value services. Several airports such as Exeter and Bournemouth have available land for warehousing and related business activity, and this is attractive to potential investors. At the time of writing, there is a current major application in progress for Bournemouth Airport Aviation Business park for 30,000sqm B1 offices, 98,000sqm B2 industrial, 70,000sqm B8 storage and distribution and 700sqm retail. This development will support a cluster of advanced manufacturing in south east Dorset. The innovation, ambition and level of diversification involved in developing an economic cluster in Newquay, driven by the Cornwall Spaceport, or across Airpark (Exeter Airport) may offer a blueprint for other airports.

Due to the uncertainty surrounding air freight linked to its negative environmental impacts, competition from other transport modes, increasing fuel prices and security concerns, the development of a Freight Steering Group would be a useful platform for drawing together airport operator and fleet operators, alongside public authorities and key business sectors, to develop a stronger narrative for the sectors future.

1.8 Stakeholder engagement – issues

Wide ranging stakeholder engagement was undertaken from May to September 2021 to collate together opinions of the issues, challenges and potential opportunities for the freight and logistics industry across the region. This required liaising with contacts across public authorities, the freight industry and trade bodies and discerning the role of STBs in delivering an effective, deliverable strategy and unlocking future growth and prosperity. The feedback obtained throughout the engagement process forms a vital component of future policy development and the identification of future, prioritised interventions.

1.9 Freight issues in the South West

The emerging freight issues in the South West have been captured via a combination of sources including through stakeholder feedback (both direct and workshops), conversations with client officers and an extensive review of literature sources. There are a number of issues that freight faces in the South West which have been categorised into different themes.

Ports and Maritime	Maritime freight is increasingly viewed as a viable alternative to road-based freight transport and long-distance haulage as part of efforts to decarbonise the freight industry and improve supply chain efficiency. Whilst the sector has the opportunity to explore and unlock new economic opportunities and investments through a focus on 'port centricity', there are challenges to these ambitions of stimulating mode shift away from road to maritime freight movements. As coastal ships can carry the equivalent of 100 or more lorries there are economies of scale providing the origin and destinations are reasonably accessible to nearby ports.
Aviation	The airports situated across the South West are predominantly centred around passenger traffic with air freight carrying minimal tonnage. This also includes helipads and a proposed spaceport; both of which play niche roles in the shipment of consignments. The widespread use of drones and pilotless technologies is uncertain, as many of these operations are still in their trial phases.
Rail	Rail can be cost effective especially if either the customer or supplier is rail connected or there are efficient short haul options. The lack of operating terminals is an immediate direct barrier to existing and new firms moving products by rail – the South West is poorly served by rail terminals, particularly with respect to those in the growth sectors of intermodal (both domestic and deep sea), express freight and construction. This is the single biggest barrier to modal shift of freight in the South West. Additionally, terminals have been lost over the years (for example Ports of Falmouth and Weymouth). Inappropriate development near to potential sites may impede the development of rail freight modal transfer facilities and their operation in the future. Better integration between land use and transport planning is key.
Market Issues	Poor industry image – The transport industry remains challenging for recruiting (and retaining) staff (most notably HGV drivers) within the profession. All across Europe there are more lorry drivers retiring than there are wanting to join the industry. This is leading to a skewed driver demographic (average age is around 50 years old) and risk of not being able to recruit sufficient staff. Part of the problem is based on perceptions of the haulage industry, which is seen as long hours, poor pay, sometimes dirty and possibly away from home a lot. Also, there are concerns that although there are plenty of driving jobs available now, should widespread automation occur there may be fewer driving jobs by 2040. The STBs can play a support role helping to bring together various parties.
Road Freight Flows	Lack of data – There is limited data transparency to aid with making informed commercial decisions and stimulating, for example, a shift from road freight to rail and coastal shipping (covering commodities moved/empty running/journey requirements). It is important to understand freight flows and the types of goods as they move through the supply chain at a more granular level in order to investigate potential solutions.
Highway Issues	The road network in the South West is not as developed as in many other parts of England – The Strategic Road Network (SRN) is fairly limited in the region and there are pinch points on the network. If incidents happen congestion tends to occur as there are few alternative routes. This can be problematic

	particularly around larger conurbations, such as Bristol, Exeter, Bournemouth and Plymouth and in other locations particularly during the peak holiday season in July and August.
Rural and Urban Deliveries	A challenge with delivering to remote settlements is that the journey time between customer drops is often long partly due to the need to use smaller rural roads (this is further impacted by seasonality) and there can be a lack of roadside maintenance. Additionally, some suppliers operate a restricted coverage so that for example they do not offer a service to remote locations. This is often related to a lack of commercial viability of serving parts of rural Devon, Cornwall and the Isles of Scilly and this diminishes consumer choice.
Freight Decarbonisation	The availability of charging infrastructure required to transition towards alternative fuel technologies (for HGVs, trains, ships and aeroplanes) represents a major challenge to alternative fuel uptake. In general, charging infrastructure will be required at depots/terminals to enable charging when vehicles are not in use (for example, overnight), at destinations (within logistics centres while loading/unloading for example) and at public charging hubs. Building a supporting infrastructure will require investments and, potentially, incentives/subsidy/grants for freight and logistics operators. Alongside the potential to switch to electric/hydrogen, the move to other low carbon fuels such as hydrogenated vegetable oil (HVO) and a reduction in the amount of empty running will support decarbonisation of the freight sector.
General Issues	A key question, raised during the engagement, was the role of Peninsula Transport, Western Gateway and STBs in addressing the issues outlined and shaping future priorities with different stakeholders. This includes being able to harness and demonstrate the relationship with the private sector and how the Freight Strategy can be delivered practically. This could be manifested in different ways; with Peninsula Transport / Western Gateway taking on ownership and responsibility for facilitating and delivering schemes and projects, working in partnership with the private sector to facilitate and leverage industry aspirations or playing a liaison role in respect to its relationship to central government.

1.10 Freight Strategy interventions

A draft list of 79 interventions was created on the basis of collating together desktop research, Freight Strategy reviews and stakeholder engagement. These were then taken forward to the stakeholder workshop to which the stakeholders provided their feedback and ranked the interventions through a questionnaire. A number of interventions were reformatted and combined to produce a consolidated list of 46 interventions across the various modes of transport. From the interventions that were ranked during the questionnaire, a total of 13 prioritised interventions received very strong levels of support as described in the following table.

Intervention packages	Prioritised interventions	Owner of the Intervention
Modal shift rail	RL4: Support and signpost businesses and local authorities to transition to rail freight.	STBs
	RL7: Encourage the establishment of rail freight intermodal sites in the South West. There are various possible locations to give regional coverage for example Bodmin/Burngullow, Bridgewater, Bristol, Exeter/Newton Abbot, Plymouth, Poole and Westbury.	Network Rail/FOCs
	RL9: Allocate sufficient freight train paths on the main line and diversionary routes.	Network Rail
Modal shift coastal shipping	M3: Awareness campaign of coastal shipping opportunities for supply chains.	Port Authorities
	M6: Review of ports in the South West. (NB. Western Gateway has already done this)	STBs
Decarbonisation	M2: Explore opportunities to diversify ports into renewable energy production and usage.	Port Authorities
	RD1: Strategically plan network of alternative fuel stations and promote existing sites. Development of new sites by private sector	Private Sector
Operational efficiency	RD3: Promote solutions to driver shortages.	Logistics UK/RHA
	RD6: Support for infrastructure improvements and investment where suitable.	National Highways

	RD14: Review suitability of technologies from trials and their potential for the South West.	National Highways
	RD15: Promote a trial of the use of a load and vehicle matching exchange to reduce empty running for 10 hauliers for a year.	STBs
Freight Steering Group	O1: Develop engagement on logistics schemes and partnerships.	STBs
	O3: Establish and promote a South West Freight Steering Group.	STBs

For higher level reporting these strongly supported interventions can be categorised into five intervention work packages. They are;

- Modal shift to Rail
- Modal Shift to Maritime
- Decarbonisation
- Operational Efficiency
- Establishing a Freight Steering Group to help oversee the implementation of the overall Freight Strategy

Having made the recommendation that a Freight Steering Group should be formed in 2022, with a remit covering Freight across the whole of the South West, the interventions can be summarised as just three very high level categories, modal shift, decarbonisation and operational efficiency and it was this that was reported to Member briefings in late 2021. It is likely that the funding and running of this Freight Steering Group is done through the STB, at least initially. It may be over time that private sector funding may be offered but it's important that the group is independent and is not seen to be influenced by unreasonable private sector vested interests.

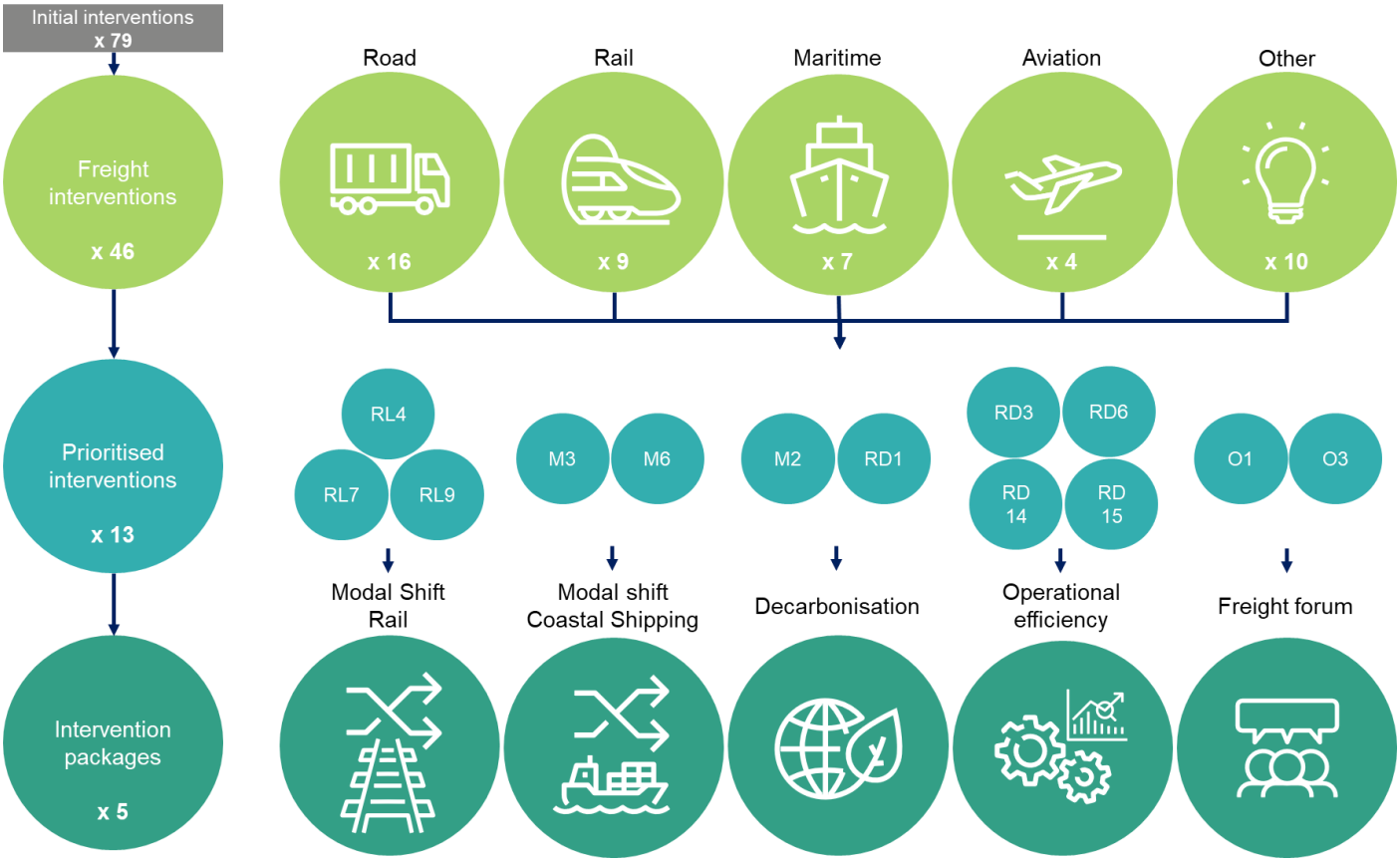


Figure 1-1: Development of the freight interventions for the South West

1.11 Freight Steering Group

One of the key steps for this strategy going forward is to establish a Freight Steering Group with representatives from trade bodies, hauliers, ports, airports, rail freight and shippers to take forward actions discussed as part of the Freight Strategy development. It is important that these stakeholders buy-in to what Peninsula Transport and Western Gateway are aiming to achieve and hence help provide evidence and guidance to the process. It is also important to assemble a group of stakeholders who are a mix of representatives from various public and private sector interests, with a cross section from representative sectors who can aid with future delivery and implementation of interventions.

The overall function of the Freight Steering Group is to not only be a Forum where issues can be discussed but it will be to drive forward the Freight Strategy development by considering, guiding and implementing interventions developed as part of the Freight Strategy. The group will meet regularly throughout the life of the project to drive forward the recommended implementations and consider the practical nature of how measures can be introduced.

The stakeholder engagement process has given a number of opportunities for individuals to indicate whether they may be willing to serve on a Freight Steering Group. This included questions as part of stakeholder interviews and questionnaires, as well as during the stakeholder workshops. It is positive to report that there is an encouraging number of volunteers (60) from a variety of different stakeholder groups. In many cases, the project team have also built meaningful relationships with stakeholders during the stakeholder engagement phase and have continued to engage with some following the questionnaires, interviews and workshops.

It is expected that a Freight Steering Group will be set up in 2022. The group will include representation from both public bodies and private sector freight organisations alongside trade bodies. Following the Freight Strategy development this group will provide an opportunity for Peninsula Transport and Western Gateway to keep track of progress on the implementation of the interventions and an opportunity for organisations to feedback on them. The STBs will benefit from this level of support in promoting uptake of the interventions.

It is also expected that the delivery plan of chosen interventions will be integrated into the respective STB transport strategies. The delivery plan of chosen interventions will be selected based on those that align with the deliver plan of the transport strategy. Access to these will be via the STB websites. It is yet to be determined if there will be separate freight sections as there are a significant number of interventions which are cross boundary and even national in nature which would benefit from an all-STB approach and plan – particularly for the integration with the planning work being undertaken by National Highways / Network Rail for RIS3 / CP7 (2025-2029). Examples of joint national infrastructure planning such as Solent – Midlands Study (Phase 1) are likely to become more common place.

2. Introduction to the South West Freight Strategy

This chapter introduces the vision, key objectives, methodology and structure of the Freight Strategy for the South West region and sets the scene for the value in producing a document of this nature to shape industry activities up to 2050.

2.1 Introduction

Peninsula Transport and Western Gateway are the shadow sub-national transport bodies (STBs) for the South West. Covering a region of 9,200sq miles and a population of around 5.7 million (8.5 per cent of the UK), they represent the local authorities, combined authorities and Local Enterprise Partnership areas located in the South West with a vision of transforming the economic potential of the region.

Peninsula Transport and Western Gateway have set out in their transport strategies their vision, goals and objectives for their respective regions (**Figure 2-1**). For the Freight Strategy, Peninsula Transport and Western Gateway are pleased to collaborate and put forward a Freight Strategy for the South West which aligns the diverse areas of the South West and provides a holistic and joined up approach to freight in the region. They are committed to working collaboratively together to:

- Improve the strategic corridor connections between the major urban centres and key modal gateways; and
- Provide rural mobility solutions for both passenger and freight to support rural communities and businesses.

Peninsula Transport STB			
Vision	***"Transforming transport across the Peninsula, enabling our society and economy to thrive and our unique and outstanding environment to flourish"***	**Goals / Objectives**	• We will improve connections between people, businesses, and places • We will enhance resilience of the transport network • We will deliver affordable, zero-emissions transport for everyone • We will help to improve the health and wellbeing of communities in the Peninsula • We will help the peninsula to be a great place to live and work
Western Gateway STB			
Vision	***"Enable sustainable economic growth by identifying a long-term investment programme designed to deliver a well-connected, reliable and resilient strategic transport system; that closes productivity gaps and makes the Gateway area more competitive, while respecting its world class natural and built environments"***	**Goals / Objectives**	• Ensure effective access of labour markets • Enable greater integration between employment clusters • Enhance business connectivity to international markets • Improve North-South connectivity • Provide a robust regional evidence base in support of the local plan making process which understands different travel markets and use of strategic travel corridors • Decarbonisation of the strategic transport network • Adoption of electrification and/or use alternative fuels to enable fossil-fuel-free transport • Improve air quality • High quality digital connectivity to reduce the need for travel • Influence the sustainable delivery of new homes and employment opportunities • Support multi-modal travel options within travel to work areas • Improve transport & digital connectivity to reduce poverty and deprivation • Embrace the role of technology in supporting strategic travel

Figure 2-1: STB vision, goals and objectives

A combined Freight Strategy has been developed for both Peninsula Transport and Western Gateway as a specific and dedicated workstream within the wider transport strategy programmes for these two STBs. The original intention had been to develop two separate freight strategies. However, it became apparent early on in the process of developing the Peninsula Transport Freight Strategy that the specific spatial relationship between two STBs (i.e. the vast majority of the freight movement to / from the Peninsula Transport area passes through the Western Gateway area) lends itself to a combined Freight Strategy to be developed for the South West.

The freight sector is a substantial contributor to the transport profile of any region, and the South West is no exception. The movement of goods is characterised by distinct profiles and trends across the roads (including the Strategic Road Network and Major Road Network), railways, airports, and ports. While these modes share some similarities with the challenges and opportunities faced by the wider freight industry, there are many that are unique to the vehicle types and usage patterns of the freight sector in the South West. These often require a bespoke set of approaches and interventions in order to maximise efficiency,

but these must be harmonised with the wider transport strategies developed by Western Gateway and Peninsular Transport for the South West as a whole.

Freight has a significantly greater spatial footprint than that of passenger movements, as shown in **Figure 2-2**. In recent decades this spatial footprint has been increasing disproportionately in response to several factors influencing supply chain activities, consumer preferences and industry operations. There are many uncertainties facing the freight and logistics industry with future scenarios difficult to discern especially in response to the repercussions of leaving the European Union, the longer term impact on consumer preferences and expectations from COVID-19, skills shortages and the decarbonisation agenda. These have all coalesced at a similar time to put the limelight on industry to evolve and adapt responsively.

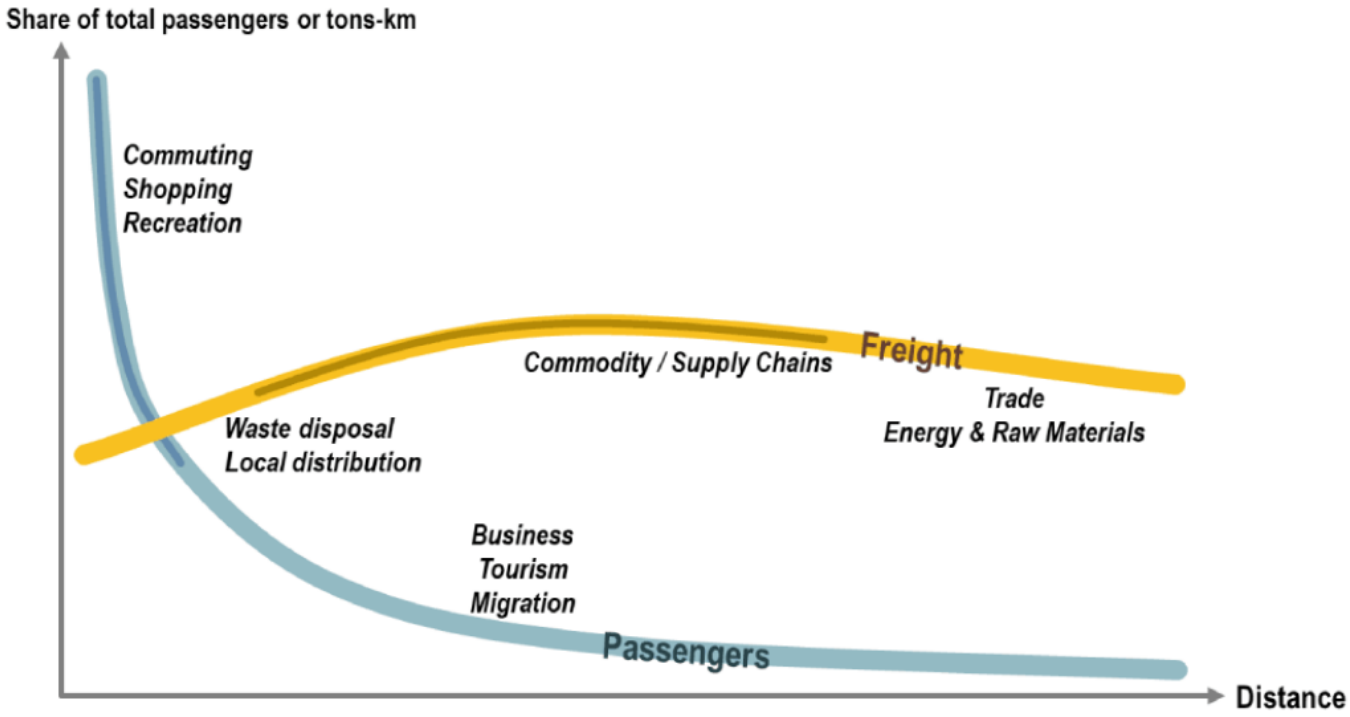


Figure 2-2: Graph showing differences in journey length between passenger and freight trips

There are a number of areas of focus, including the urban centres, the surrounding suburban areas, market and coastal towns and rural areas throughout the region. Identifying freight generators and connections to key freight gateways will form an integral part of the Freight Strategy, such as industrial estates, distribution centres, ports, and airports. This is alongside highlighting alternative approaches towards energy generation, understanding approaches for community (and local) economic resilience and investigating the role of the planning system in coordinating future development that is sympathetic to place.

2.2 Freight Strategy vision

The vision and strategy for the Freight Strategy addresses the challenges, opportunities and priorities for the South West over the next 30 years – to 2050. The objectives are centred around the pillars of sustainability – Environment, Economy and Society. In particular, the Freight Strategy feeds directly into all three pillars of sustainability.

Environment

Goods transport, particularly via road, is a major contributor to the region's carbon and air pollutant emissions. Shifting to lower-carbon transport modes (such as rail or coastal shipping) has the potential to generate significant environmental benefits, while the impacts of highway transport can be mitigated through efficiency-improving infrastructure investments. This includes using engines that run on clean and renewable fuels and investigating operational strategies such as new vehicle and road technologies and consolidation to optimise efficiency and journey time reliability.

Economy

Commerce and industry are dependent on their supply chains, and the freight sector is the backbone and enabler of the economy. The challenging geography, population distribution and seasonal variation in demand for goods in the South West prompts the consideration of unique solutions to reduce costs and improve logistics operations. This requires high levels of co-operation between businesses in the form of aggregation, open access consolidation and shared procurement. The freight and logistics industry is also a

key, burgeoning employment sector that needs skilled workers across various disciplines to maintain regional growth and support local prosperity.

Society

Beyond businesses, individuals are increasingly reliant on home deliveries. Where homes are dispersed widely beyond a typical urban context into rural and coastal settlements, deliveries can be expensive and challenging to meet demanding time windows. The scale of the challenge is likely to have been exacerbated by the individual and business responses to the COVID-19 restrictions. Nevertheless, the freight sector across the region has and needs to continue to adapt to meet changing demands and find creative solutions in response to a new "normal".

2.3 Freight Strategy objectives

The priority scoping objectives for the South West Freight Strategy includes:

Getting a better understanding of data and performance of the freight sector in the South West

Understanding the role and use of ports in the region

Engagement with key stakeholders regarding freight/goods/logistics in the region

Developing and adopting freight best practice amongst businesses and local authorities in the region – including freight action plans and interventions

Considering the role of technology and alternative fuelled vehicle use to achieve savings, e.g. high capacity vehicles ahead of automation (i.e. platooning)

Improving standards of the light goods/commercial vehicles operating in the region

Investigating freight consolidation opportunities for distribution on key/strategic corridors

Decarbonisation of the freight sector

2.4 Methodology

A variety of methods and techniques were used to develop the Freight Strategy to ensure it is holistic to meet the needs of the South West. Information was obtained on the challenges and opportunities faced in the South West which formed a critical part of how the Freight Strategy addresses and supports the future development of freight in the region. This process has been summarised below.

Freight Strategy review	A series of national and international Freight Strategy documents were reviewed to establish an understanding of the typical freight issues that are faced, and the initiatives used to resolve them. This overview understanding was taken forward to help develop the interventions for the South West. The freight strategies reviewed are set out in **Appendix A.1**, and include strategies developed by other STBs.
Data analysis	Identifying the amount and type of freight being moved in, out and around the region provides an understanding of the current freight picture. This guided the development of the interventions that could help support industries. The Continuous Survey of Road Goods Transport (CSRGT) data provides a high-level indication of the freight movements.
Case studies – outside the South West	A series of case studies was developed on freight interventions, featured outside of the South West, which have been successfully implemented. The learnings from these case studies fed into the interventions development with the aim to implement something similar or to champion them as part of supporting the freight industry.
Case studies – inside the South West	Similarly, this is focused on understanding the success stories within the South West and the opportunities to promote these as part of the Freight Strategy interventions.
National Highways	The challenges and opportunities for road freight in the South West was discussed with National Highways. This included identifying routes with poor journey time reliability and how future investment in the network can help the freight sector.
Multi-modal options	Rail, maritime and air freight modes were analysed to understand what role they play within the wider freight sector in the South West. This includes their regional context, network connections, their current roles, issues and recommendations.
Stakeholder engagement – issues	Wide-ranging engagement phase took place to build up an understanding of the issues in the South West. This was done through questionnaires, one to one interviews and/or workshop engagements. Engagement with stakeholders included Trade Bodies, hauliers, ports, rail freight stakeholders, airports and shippers. A Peninsula Transport stakeholder workshop was held on the 24 June 2021 and a Western Gateway stakeholder workshop on the 22 July 2021.
Developing the Freight Strategy interventions	This phase brought together all of the learnings from the document reviews, data analysis and comments from the stakeholder engagement phases to build up the initial Freight Strategy interventions. This was in response to the issues identified and has established a number of options to help resolve those issues.
Stakeholder engagement – interventions	The initial Freight Strategy interventions were taken forward for discussion a workshop with stakeholders in September. This was to gain feedback and comments on how effective the interventions may be and if there was any scope for further development.
Freight Strategy development	The initial Freight Strategy interventions were reviewed, adapted and developed to formalise the South West Freight Strategy interventions based on the feedback from the second workshop. Interventions will be prioritised in terms of their cost (low / medium / high) and whether they are near / medium or long term priorities. The Freight Steering Group should be involved in the detailed prioritisation of the interventions.
Freight Steering Group	A Freight Steering Group is to be set up in 2022. This will include representation from both public bodies and private sector freight organisations. This will provide an opportunity for Peninsula Transport and Western Gateway to keep track of progress on the implementation of the interventions and an opportunity for organisations to feedback on them. The STBs will benefit from this level of support in facilitating uptake of the interventions.

2.5 Structure of the strategy document

The table below provides an indication of the structure of the Freight Strategy document.

Chapter 3	A review of Freight Strategies from other locations to ensure learnings from these other places are incorporated into the development of this Freight Strategy
Chapter 4	Explores the data analysis of goods movements using various data sources including the DfT's Continuous Survey of Goods Transport which provides a rich set of data by Local Authority area
Chapter 5	Outlines known freight issues and opportunities by Local Authority
Chapter 6	Outlines insights and trends in not only the freight sector but the wider community and covers for example consumer behaviour and sources of energy
Chapter 7	Covers freight case studies worthy of consideration from outside and inside the region. In each case the reason for including them is illustrated. They are in the **Appendix D** in full.
Chapter 8	Outlines to issues and opportunities for the road network identified by National Highways
Chapter 9	Multimodal issues are discussed including separate sections on rail freight, coastal shipping and ports and air freight and airports. For the purposes of keeping all of these modes together this section also includes engagement related to these modes of transport
Chapter 10	Stakeholder engagement chapter that considers the various comments made by stakeholders from either questionnaires, one to one calls or from the workshops
Chapter 11	Brings together the various issues discussed in earlier chapters all into one place and acts as a summary in order to start developing interventions
Chapter 12	Brings together the learnings from the previous chapters to compose the draft freight interventions for the South West and the response from the stakeholders.
Chapter 13	Lists out the recommended freight interventions for the South West.
Chapter 14	Details the implementation plan along with the primary and secondary owners, indicative timescales and indicative costs.
Chapter 15	Details out the purpose and structure of the freight steering group along with the next steps.
Chapter 16	Next steps and closing remarks

2.6 Summary

In establishing an understanding of the unique challenges and opportunities present in the South West, the Freight Strategy development involves a number of phases including a bespoke data analysis, case study learnings, stakeholder engagement and freight interventions development. The strategy is built on the understanding of the key issues within the South West and proposed solutions, while also ensuring that the full potential benefits of assets throughout the South West and neighbouring regions are achieved.

3. Review of freight strategies

This chapter undertakes high-level review of existing freight strategies across the UK and internationally to gain a comprehensive insight into Freight Strategy themes and best practice. This review has assessed the problems specifically relating to the freight sector and identifies the initiatives used to help resolve them.

3.1 Introduction

A comprehensive desktop research phase identified 24 strategy documents. These were reviewed to provide background information on the questions and issues identified in other freight strategies. This background knowledge helped guide the development of the Freight Strategy in response to its core objectives; environment, economy and society.

Strategies from other STBs including England's Economic Heartland (EEH), Transport for the North (TfN), Transport for the South East (TfSE) and Midlands Connect (MC) were reviewed to identify key issues affecting the area and the resulting initiatives identified as part of the strategies. All four of these STBs quoted issues with congestion and road capacity in their areas. TfN and TfSE also cited air quality, safety, parking and lack of support for the freight industry as key issues. The TfN strategy also identified inappropriate routing of freight vehicles and ignorance of the signage as a key concern. TfSE cited lack of consistency in standards which links to the requirements for delivering to sites where measures such as Fleet Operator Recognition Scheme, Construction Logistics and Community Safety or Direct Vision Standard are mandated. TfSE, TfN and EEH identified the need for initiatives around lorry parking and last mile logistics. TfSE and TfN strategies saw value in establishing Freight Forums and the introduction of consolidation centres and holding areas. **Appendix A.1** presents the documents that were reviewed, **Appendix A.2** sets out the issues identified and **Appendix A.3** sets out the initiative identified.

3.2 Issues

To understand the issues faced by local authorities, it must be understood why the initiatives have been included. The review of freight strategies has revealed a series of common themes in the issues faced by local authorities which include poor air quality, congestion, safety and growing demand.

Poor air quality is a pressing concern for local authorities, given the impact it has on residents and the environment. Road freight is at the forefront of this issue, with the majority of goods being transported by road. Research has shown that in 2016, 90 per cent of UK freight originating from the South West was by road[4].

High levels of congestion where stationary and stop – start moving vehicles emit high levels of harmful emissions to the surrounding environment. This not only contributes to poor air quality and endangers the lives of residents, but also affects the efficiency of the freight sector with more time required to deliver goods. This ultimately increases the cost of operations e.g., time and fuel.

Safety concerns around the impacts of freight vehicle interaction with residents, vulnerable road users and the environment. A common concern arising is road safety and what can be done to improve it. The freight strategies recognise in one form or another that more could be done to support the industry through improvements in safety. These range from the use of vehicle safety equipment to improve the safety standards of vehicles, e.g. use of cameras, sensors and blind-spot monitoring, to better driver training to make drivers more aware of vulnerable road users and the road design itself such as low bridges.

Growing demand for goods and services. With the increase in population and a rapidly changing pattern of consumer behaviour, there is growing pressure on the freight industry to keep up with the demand for online shopping and next day delivery expectations. This is linked to the significant growth in van traffic which saw a two per cent increase in van miles from 2018 to 2019. In 2019, vans covered 55.5 billion vehicle miles of which 26 per cent of these was for delivery and collection of goods[5]. This will have accelerated further as a result of COVID-19 and online purchases. This in turn has increases demands for warehousing and distribution space. These additional demands will generate multiple issues including congestion, poor air quality, demands for logistics space and lack of skilled workers to fulfil logistics demands. The freight industry needs to ensure that these growing demands can continue to be met.

[4] MDS Transmodal (2019) Understanding the UK freight transport system – Future of mobility: Evidence review. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/777781/fom_understanding_freight_transport_system.pdf (MDS Transmodal, 2019)
[5] Department for Transport (2019) Road Traffic Estimates: Great Britain 2019. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/916749/road-traffic-estimates-in-great-britain-2019.pdf

Appendix A.2 provides a summary table of the freight issues identified across each freight strategies as part of this review, including the most reoccurring issues. Included are the associated initiatives that are linked to resolving these issues. The numbers displayed within in the blue boxes are the initiative numbers featured in initiatives table, also found in **Appendix A.3**, which are identified from the freight strategies.

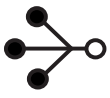
3.3 Initiatives

The review of freight strategies identified several initiatives that have been used multiple times in response to freight issues. The top four reoccurring freight initiatives identified were:

Road infrastructure - Road improvement scheme / access improvement scheme / port access improvements / designated load bays. This solution appeared 15 times. This is in response to the challenges of increased congestion and a rise in demand for road space. This is particularly relevant to South West given the limited number of freight access corridors to / from the region and the challenging carriageway vertical and horizontal alignments particularly off the SRN. The notorious issue of congestion on the A303 / A358 / A35 corridors are such example in a region which does not have many motorway routes. It is recognised that building your way out of problems is expensive and not always the best way forward where alternatives exist. Instead, better management of existing infrastructure to understand how it can be optimised to ensure better flow and network management. This includes establishing an understanding of how, when and where the network is used.

Better Logistics Planning - Sustainable Urban Logistics Plans / Construction Logistics Plans / Delivery & Servicing Plans / Area Freight Management Plans / Urban logistics toolkit. This group of solutions appeared 13 times and looks to improve the efficiency of logistics to ensure that time slots and vehicles are fully utilised. These tools are used by the public sector to help create an efficient operating environment. This allows the industry to make improvements through enhanced performance allowing optimised vehicle utilisation. This also ensures that operators are using the correct routes, that avoids congestion and avoids inappropriate roads with restrictions, such as low bridges. This also includes ensuring that logistics plans are sensitive to the community, ensuring that the impact of the movement of goods is minimised. The public and private sector can play a role in contributing to better logistics planning and both can play a leading role.

Technology - Safety equipment, clean/electric/low emission vehicles, remote delivery, innovation. This type of solution appeared 13 times and includes upgrading vehicle safety equipment through to improved air quality using cleaner and more efficient vehicles. Technology has the potential to reduce the externalities on the surrounding community with less exposure to harmful emissions and the impacts of noise and visual pollution. This can also look to improve the efficiency of the logistics industry through technology such as better utilisation of freight vehicles by using online systems and apps to fulfil often empty back loads.



Freight Consolidation - Consolidation centres / holding areas / multi-modal distribution parks. This solution featured 13 times and looks at reducing the number of sub-optimally loaded vehicles routing into central areas and consolidating them at sites on the outskirts. Aggregation of part-loads leads to reduced vehicle trips in the urban centre from better load space utilisation (weight, volume, deck length), ensuring that unnecessary journeys are avoided. The concept of micro-consolidation has emerged, and this tends to involve a full load of parcels taken into the urban area and then the last mile is done by electric van/cargo bike or walking porter. This not only helps to reduce congestion but improves the local environment with better air quality and leading to improvements community wellbeing.

Other initiatives that were featured in the freight strategies include:

Quiet deliveries. This initiative only appeared once. Although quiet deliveries help reduce congestion by pushing deliveries from peak times to out of hours, it is often met with resistance and complaints for example from residents who live nearby retail premises that are receiving goods at night. Nevertheless, numerous trials have been undertaken (London 2012 Olympics) and have proven potential benefits of activity outside of peak periods and it can be a suitable solution in the right environment. Fuel savings of 4-5 per cent can be secured by relatively marginal changes to timings to out of core hour deliveries matched with the deployment of specific low noise equipment, driver and store staff guidance.

Positively highlighting responsible operators. This initiative appeared twice. Freight strategies typically focus on solving issues rather than the promotion of responsible operators. However, this shows a shift towards focusing on people-based approaches and how operators can influence each other to help improve the freight industry in the area.

Road safety and safety initiative scheme. This initiative appeared six times. Safety schemes such as the Fleet Operator Recognition Scheme (FORS) and Vision Zero Action Plan are based around improving the safety elements of vehicles operating on the network and protecting vulnerable road users. The public sector can help encourage operators to join these scheme and actions plan by adopting these as part of their contracts clauses or mandating that operators must reach a level of safety before allowing them access to central urban areas. The impact is that operators become a more considered, efficient and safer organisation.

Appendix A.3 provides a summary table of the freight initiatives identified across each freight strategies as part of this review, including the most reoccurring initiatives.

Many of these initiatives are solutions to specific challenges identified in the freight strategies. Given the diversity of the South West, it is likely to have experienced similar challenges to which these initiatives can help to resolve. **Table 3-1** maps out the freight issues against the initiatives identified throughout the Freight Strategy review.

Table 3-1: Mapping of freight issues to initiatives

	Issues	Initiatives																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		Positively highlighting responsible operators	Consolidation Centres / freight consolidation / holding areas / multi-modal distribution parks	Delivery restrictions / standardise delivery restrictions	Stakeholder engagement / Empowering communities / Collaboration	Improve Freight data collection	Freight Forums / working groups / focus groups / freight lab (innovation platform)	Funding to support industry	Land for urban logistics	Last-mile logistics	Driver training / logistics training and guides / consumer behaviour awareness / sharing knowledge / Key route network awareness	Lorry Parking	Low emission Zone / Ultra Low Emission Zone / Air Quality Management Zone	Quiet deliveries	Rail logistics terminals / rail freight access improvement / rail freight opportunity	Rail network capacity review	Retiming deliveries	Road improvement scheme / access improvement scheme / port access improvements / designated load bays	Road safety programmes	Safety initiative schemes (Direct Vision Standard / FORS / CLOCS)	Sustainable Urban Logistics Plans / Construction Logistics Plans / Delivery Service Plans / Area Freight Management Plans / Urban	Technology (safety equipment, clean/electric/low emission vehicles, remote delivery, innovation)
1	Congestion / road capacity		■							■	■					■	■	■			■	
2	Air quality		■							■			■		■	■	■	■			■	■
3	Safety	■				■					■					■		■	■	■		■
4	Inappropriate freight routing / signage ignorance			■	■						■							■				
5	Parking / loading and unloading								■			■									■	
6	Infrastructure restrictions (weight / height)										■					■		■			■	
7	Rise in demand (population growth)				■		■				■			■			■				■	■
8	Freight hubs (located away from central areas)		■												■			■			■	
9	Consumer behaviour change				■		■	■			■						■					■
10	Lack of support for the industry				■		■	■									■					
11	Lack of consistency in standards										■										■	
12	Lack of information / data				■	■	■	■														

3.4 Analysis

Broadly speaking, each of the freight strategies seeks to achieve similar outcomes. They aim to improve the efficiency of freight, to support and improve the environment, to better use technology and to improve the engagement and support of stakeholders. The variation occurs in how these visions are achieved through the initiatives they promote.

Traditional freight strategies focus on the vehicles and the initiatives are typically geared to getting goods vehicles quickly and efficiently from their origin to their destination. Whilst these vehicle-based initiatives are important and applicable today to ensure freight demands are met, it can get to a point when the network cannot expand any further due to limitations e.g., physical road capacity.

The freight strategies review included all elements of vehicle-based, people-based and place-based initiatives. There is not a single Freight Strategy reviewed where it can say it is a fully place-based strategy, which has a full range of place-based initiatives. However, more and more freight strategies are using people and place-based initiatives over vehicle-based to improve the public realm and quality of life for communities. Examples include the introduction of Low Emission or Clean Air Zones to improve air quality within the Buckinghamshire City Council plan, Birmingham Transport Plan, Liverpool City Region, Transport for Greater Manchester and Transport Scotland freight strategies.

In the context of the freight elements of the strategic transport strategy, it is important for Peninsula Transport and Western Gateway to fully understand the initiatives from these freight strategies that are place-based to align to its wider place-based approach. With regional growth expecting to see approximately 200,000 additional dwellings by 2040[6], freight initiatives need to consider the impact on the local community whilst ensuring the sector can provide a good service to consumers. **Table 3-2** categorises the initiatives identified from the review by vehicle, people and place-based approaches. Some initiatives span across multiple approaches. For example, consolidation centres help to reduce the number of vehicles within the urban areas making it a vehicle-based approach with a secondary benefit of improving air quality and this, in turn, helps to improve the quality of life for residents so the initiative can also be a people-based approach.

Table 3-2: Freight initiatives categorised by Strategic approach

Freight initiatives	Vehicle-based approach	People-based approach	Place-based approach
Positively highlighting responsible operators		✓	
Consolidation Centres / freight consolidation / holding areas / multi-modal distribution parks	✓		✓
Delivery restrictions / standardise delivery restrictions			✓
Stakeholder engagement / Empowering communities / Collaboration		✓	
Improve Freight data collection	✓		
Freight Forums / working groups / focus groups / freight lab (innovation platform)		✓	
Funding to support industry		✓	
Land for urban logistics	✓		✓
Last-mile logistics	✓		✓
Driver training / logistics training and guides / consumer behaviour awareness / sharing knowledge / Key route network awareness		✓	
Lorry Parking	✓	✓	✓
Low emission Zone / Ultra Low Emission Zone / Air Quality Management Zone	✓		✓
Quiet deliveries	✓		✓
Rail logistics terminals / rail freight access improvement / rail freight opportunity	✓		✓

[6] Peninsula Transport (2019) Regional Evidence Base. Available from: https://www.peninsulatransport.org.uk/wp-content/uploads/2020/03/Peninsula-Transport-REBaddendum.pdf Regional Evidence Base (Peninsula Transport, July 2019)

Rail network capacity review	✓		
Retiming deliveries	✓		
Road improvement scheme / access improvement scheme / port access improvements / designated loading bays	✓		
Road safety programmes		✓	
Safety initiative schemes (Direct Vision Standard / FORS / CLOCS)	✓	✓	✓
Sustainable Urban Logistics Plans / Construction Logistics Plans / Delivery Service Plans / Area Freight Management Plans / Urban logistics toolkit	✓		✓
Technology (safety equipment, clean/electric/low emission vehicles, remote delivery, innovation)	✓		

3.5 Freight interventions development

This review of other freight strategies identifies best practice and provides the South West with a view on what initiatives have been implemented by other authorities. As some of these initiatives have recently been implemented or have yet to be implemented, it is important to understand the true impact of these initiatives over a longer period to monitor their performance, effectiveness and benefits achieved. Equally it will be important to develop methods of monitoring the effectiveness of the interventions selected as part of the Freight Strategy in the South West to ensure that their impacts contribute to the strategic priorities for the region.

When developing the freight interventions, it should align to the strategic priorities of the region. This should include lessening the reliance on vehicle-based approaches and prioritise people and place-based approaches to help generate a sustainable and community led strategy. The Economic Connectivity Study from Peninsula Transport identified five key themes:

- **Decarbonisation**: getting to zero emissions
- **Digitalisation**: opportunities from technology
- **Flexible lifestyles**: increased choice of location and travel
- **The world of work**: expansion of key sectors
- **Urbanisation**: clean growth in key locations

Table 3-3 aligns these themes to the key initiatives identified in this review.

Table 3-3: Freight initiative aligned to the five themes that will influence the goals for 2050 (Peninsula Transport - Economic Connectivity Study)

	Themes				
Freight initiatives	Decarbonisation	Digitalisation	Flexible lifestyle	The world of work	Urbanisation
Positively highlighting responsible operators				■	
Consolidation Centres / freight consolidation / holding areas / multi-modal distribution parks	■				■
Delivery restrictions / standardise delivery restrictions				■	
Stakeholder engagement / Empowering communities / Collaboration				■	
Improve Freight data collection		■			
Freight Forums / working groups / focus groups / freight lab (innovation platform)				■	
Government funding to support industry				■	■
Land for urban logistics	■				■
Last-mile logistics	■				■
Driver training / logistics training and guides / consumer behaviour awareness / sharing knowledge / Key route network awareness				■	
Lorry Parking	■			■	
Low emission Zone / Ultra Low Emission Zone / Air Quality Management Zone	■				
Quiet deliveries			■		
Rail logistics terminals / rail freight access improvement / rail freight opportunity	■				
Rail network capacity review	■				
Retiming deliveries			■		
Road improvement scheme / access improvement scheme / port access improvements / designated loading bays	■				■
Road safety programmes					■
Safety initiative schemes (Direct Vision Standard / FORS / CLOCS)					■
Sustainable Urban Logistics Plans / Construction Logistics Plans / Delivery Service Plans / Area Freight Management Plans / Urban logistics toolkit	■				■
Technology (safety equipment, clean/electric/low emission vehicles, remote delivery, innovation)	■	■			■

3.6 Summary

The review of 24 other freight strategies has brought to attention the common freight issues faced by local authorities and organisations. There are a number of initiatives that can be implemented in response to the issues, the common ones identified as better infrastructure, better planning, consolidation and technological solutions. Many of these issues and solutions are applicable to the South West given its diversity. When developing the interventions, consideration is needed to align these to the needs of the region, as well the key objectives such as decarbonisation. There must also be a realisation of what funding and grants are available to support the initiatives chosen.

4. Goods movements – data analysis

This chapter provides a high-level analysis of the goods movements in the South West. Road freight data has been analysed to provide an indication of the amount and type of goods that is being moved in, out and around the region. This has enabled an overarching freight narrative to manifest that conveys key facts, trends and current industry scenarios.

There are around 510,100 HGVs registered in the UK, of which around 43,600 are registered at operating centres in the South West, around nine per cent. The movements of goods in the South West will be made up by a combination of these and a significant proportion visiting the region from other areas.

4.1 Road freight data – Continuous Survey of Road Goods Transport (CSRGT)

The Department for Transport (DfT) collects data on the activity of GB-registered HGVs (vehicles weighing 3.5+ tonnes) operating in the UK through its survey, Continuing Survey of Road Goods Transport Great Britain (CSRGT GB). Van data is not included in the data analysis because of lack of availability of journey related van data. The survey is usually based upon a sample of approximately 230 vehicles per week. The operator of the HGV is asked to provide details of all domestic trips undertaken by that vehicle during a one-week period. The survey data is then grossed up to the GB-registered HGV population through grossing factors calculated using data from DVLA licensing records. The database includes the following data fields:

- Year
- Vehicle ID
- Vehicle year of registration
- Artic or Rigid
- Gross vehicle weight
- Business Type
- Journey ID
- Origin
- Destination
- Commodity
- Grossed Goods Lifted
- Grossed Vehicle kms
- Grossed Goods Moved
- Journey Type ID
- Total Collections & Deliveries

2018 and 2019 data was obtained to help establish an understanding of the freight movements that occurred within the South West. The zones within the South West are based on Nomenclature of territorial units for statistics zones, level 3 (NUTS3).

4.2 Assumptions

A number of assumptions have been applied to the analysis of the CSRGT data to help establish the outputs, bring out the key trends and bring out additional data from the original database supplied from the DfT This includes simplifying the commodity types, producing trip generation statistics based on the carrying capacity of vehicles and producing CO_2 estimations based on the distance travelled, typical fuel consumption and vehicle type. **Appendix B** details the assumptions that have been applied.

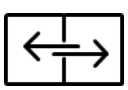
4.2.1 Anomaly – Wiltshire

During the analysis of the Western Gateway region, an anomaly was found with the Wiltshire data due the small amount of data associated to the Local Authority. Linked to this is the appearance of the zone ‘Unknown’ in the dataset. This would suggest a glitch with the data, and it is highly likely the Unknown data is associated to Wiltshire; however this has not been verified. Whilst the A36 does carry some freight traffic, Wiltshire is a rural county with a small population and very few significant freight attractors or generators, therefore this issue is likely to have little impact on the outcome of the data analysis. National Highways is undertaking a project to look at key routes such as the south coast ports to M4 which will provide a more detailed analysis of this route.

4.3 Analysis

The next sections present the overview findings of the analysis for the two STB areas. The data presents the flow of goods, trips, vehicle kilometres and CO_2 by their movement type (internal, inbound and outbound). Analysis has been undertaken to understand the common commodity types involved and the key origin and destinations contributing to the flows.

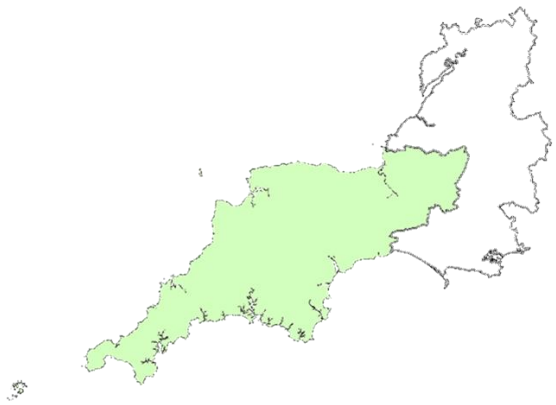
The STB areas have two types of internal movements:

	Movements within the Local Authority (internal within) e.g. Devon to Devon or Bristol to Bristol movements
	Movements between the Local Authority (internal between) e.g. Devon to Somerset or Bristol to Swindon

A breakdown of movements and analysis for each Local Authority within the South West can be found in **Appendix C**.

4.3.1 Peninsula Transport STB region – key facts

- 68.7 million tonnes lifted in total for 2019
- 46 per cent of the goods lifted was internal within local authorities
- 22 per cent of the vehicle kilometres completed were by empty vehicles and accounts for about a fifth of the total HGV CO_2
- Estimated 3.6 million trips completed by HGVs in Peninsula Region
- High levels of empty running reported in the region, 22 per cent of vehicle kilometres was attributed to empty vehicle
- The Peninsula region is a net importer of goods at an average 57 per cent from the various origin regions
- Food and drink are the dominant commodity for internal movements between local authorities, inbound and outbound movements
- Overall total amount of food and drinks increased from 2018 and 2019, seeing an increase from 36 per cent (13.3 million tonnes in total) amount
- Total equated to over 99,000 trips and 41 million vehicle kilometres
- Top internal (within) commodity was mining and quarrying material
- 7.6 million tonnes of mining and quarrying goods were lifted internally within local authorities in 2019 (equating to 163,600 trips and 22.4 million vehicle kilometres)



- Emissions from all modes of transport in the South West accounted for around 11.4 million tonnes CO_2[7]
- 16 per cent is attributed to HGVs and an estimate of CO_2 emissions is 1.84 million tonnes for the South West
- CSRGT data estimates 916,000 tonnes of CO_2 from HGVs in Peninsula
- CO_2 from empty vehicles is the most significant individual category based on internal (between LA), inbound, and outbound movements
- The second highest emissions of CO_2 is from Food and Drink; contributing a total of 161,000 tonnes of CO_2

4.3.2 Peninsula Transport STB region – data outputs

Table 4-1: Outputs from the CSRGT analysis for Peninsula Transport region

		Movement	Goods lifted (tonnes) - 2019	Percentage
		Internal (within LA)	31,503,686	46 per cent
		Internal (between LAs)	4,964,033	7 per cent
		Inbound	17,336,824	25 per cent
		Outbound	14,913,255	22 per cent
2019 – Peninsula		**Total**	**68,717,798**	**100 per cent**
		Movement	**Trips - 2019**	**Percentage**
		Internal (within LA)	2,028,198	56 per cent
		Internal (between LAs)	237,922	6 per cent
		Inbound	727,829	20 per cent
		Outbound	644,424	18 per cent
2019 – Peninsula		**Total**	**3,638,373**	**100 per cent**
		Movement	**Vehicle kilometres - 2019**	**Percentage**
		Internal (within LA)	352,656,927	33 per cent
		Internal (between LAs)	68,722,044	7 per cent
		Inbound	335,136,240	31 per cent
		Outbound	314,227,614	29 per cent
2019 – Peninsula		**Total**	**1,070,742,825**	**100 per cent**
		Movement	**CO_2 (tonnes) – 2019 *estimated**	**Percentage**
		Internal (within LA)	255,397	28 per cent
		Internal (between LAs)	56,874	6 per cent
		Inbound	311,006	34 per cent
		Outbound	293,123	32 per cent
2019 – Peninsula		**Total**	**916,400**	**100 per cent**

[7] [7] Department for Business, Energy & Industrial Strategy (2021) UK local authority carbon dioxide emissions estimates 2019. Available from: [7] https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2019

Table 4-2: Top commodities and origin/destination by movement type - Peninsula region - 2019

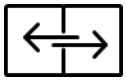
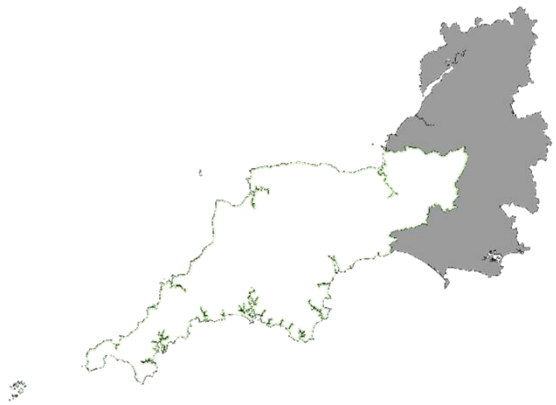
2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Mining and quarrying – 7,694,789	Grouped goods – 45,572	-
	Internal (between LA's)	Food and drink – 1,002,376	Empty vehicles – 21,093	-
	Inbound	Food and drink – 4,672,559	Empty vehicles – 61,533	Gloucestershire, Wiltshire and Bristol/Bath area
	Outbound	Food and drink – 4,585,659	Empty vehicles – 101,547	Gloucestershire, Wiltshire and Bristol/Bath area

Table 4-3: Goods lifted (total) to and from regions - Peninsula region - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Internal (within LA)	31,503,686	46 per cent	-	-
Gloucestershire, Wiltshire, and Bristol/Bath area	9,047,680	13 per cent	51 per cent	49 per cent
West Midlands, England	5,619,180	8 per cent	50 per cent	50 per cent
Internal (between LA's)	4,964,033	7 per cent	-	-
South East, England	4,108,594	6 per cent	43 per cent	57 per cent
Wales	2,531,379	4 per cent	65 per cent	35 per cent
North West, England	2,112,746	3 per cent	46 per cent	54 per cent
East Midlands, England	2,082,670	3 per cent	62 per cent	38 per cent
East of England	1,648,565	2 per cent	60 per cent	40 per cent
Yorkshire and the Humber, England	1,576,793	2 per cent	62 per cent	38 per cent
Dorset CC	1,146,682	2 per cent	63 per cent	37 per cent
London, England	838,869	1 per cent	82 per cent	18 per cent
Bournemouth and Poole	440,781	1 per cent	47 per cent	53 per cent
North East, England	411,720	1 per cent	79 per cent	21 per cent
Northern Ireland	353,221	1 per cent	61 per cent	39 per cent
Scotland	331,200	0 per cent	33 per cent	67 per cent
Total	**68,717,798**	**100 per cent**		

4.3.3 Western Gateway STB region – key facts

- 100 million tonnes lifted in total for 2019.
- 26 per cent of the goods lifted was internal within local authorities.
- The Top internal LA (within) commodity was Food and Drink.
- 22 per cent of the total vehicle kilometres completed were by empty vehicles and hence this accounts for about a fifth of the total HGV CO_2.
- In terms of where the empty vehicles start and finish, the top origin for inbound vehicles is Gloucestershire, Wiltshire, and Bristol/Bath area, at over 17.6 million vehicle kilometres
- Estimated 4.9 million trips completed by HGVs in Western Gateway.
- Estimated 1.3 million Tonnes of CO_2 of which 20 per cent was accounted for by food and drink. Empty vehicles accounted for 22 per cent of total CO_2 in tonnes for Western Gateway.
- Out of the total goods lifted the highest movement category was outbound activities with 39 per cent of goods lifted.
- Out of the total trips completed the highest movement category was outbound activities with 37 per cent of total trips.
- Out of the total vehicle kilometres the highest movement category was outbound activities with 44 per cent of vehicle kilometres.



- Out of the total of 137,538 tonnes of CO_2 tonnes in the Western Gateway region, 45 per cent of CO_2 was accounted for by outbound movements.
- The top commodity category for CO_2 was empty vehicles for internal between LA's, inbound and outbound.
- The top commodity by goods lifted for all four movement types was food and drink.

4.3.4 Western Gateway STB region – data outputs

Table 4-4: Outputs from the CSRGT analysis for Western Gateway region

		Movement	Goods lifted (tonnes) - 2019	Percentage
		Internal (within LA)	26,358,949	26 per cent
		Internal (between LAs)	8,018,257	8 per cent
		Inbound	27,052,375	27 per cent
		Outbound	39,006,167	39 per cent
2019 – Western Gateway		**Total**	**100,435,749**	**100 per cent**
		**Movement**	**Trips - 2019**	**Percentage**
		Internal (within LA)	1,698,271	34 per cent
		Internal (between LAs)	368,585	7 per cent
		Inbound	1,137,076	22 per cent
		Outbound	1,776,503	37 per cent
2019 – Western Gateway		**Total**	**4,980,435**	**100 per cent**
		**Movement**	**Vehicle kilometres - 2019**	**Percentage**
		Internal (within LA)	314,276,353	20 per cent
		Internal (between LAs)	71,116,961	4 per cent
		Inbound	499,657,737	32 per cent
		Outbound	673,337,704	44 per cent
2019 – Western Gateway		**Total**	**1,558,388,755**	**100 per cent**
		**Movement**	**CO_2 (tonnes) – 2019 *estimated**	**Percentage**
		Internal (within LA)	237,300	17 per cent
		Internal (between LAs)	63,330	5 per cent
		Inbound	465,897	33 per cent
		Outbound	611,011	45 per cent
2019 – Western Gateway		**Total**	**1,377,538**	**100 per cent**

Table 4-5: Top commodities and origin/destination by movement type – Western Gateway region - 2019

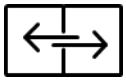
2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Food and drink – 5,022,469	Food and drink – 62,373	-
	Internal (between LA's	Food and drink – 1,887,059	Empty vehicles – 23,860	-
	Inbound	Food and drink – 7,913,132	Empty vehicles – 102,084	West Midlands England
	Outbound	Food and drink – 8,417,567	Empty vehicles – 172,392	South East England

Table 4-6: Goods lifted (total) to and from regions – Western Gateway region - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Internal (within LA)	26,358,949	26%	-	-
South East (England)	9,885,543	10%	36%	64%
UNKNOWN	9,118,992	9%	0%	100%
West Midlands (England)	8,622,415	9%	56%	44%
Internal (between LA)	8,018,257	8%	-	-
Wales	6,764,645	7%	42%	58%
East of England	5,470,786	5%	55%	45%
Somerset	5,052,693	5%	43%	57%
East Midlands (England)	4,466,576	4%	59%	41%
North West (England)	4,443,969	4%	50%	50%
London	2,836,533	3%	40%	60%
Yorkshire and the Humber	2,737,818	3%	62%	38%
Devon	1,864,793	2%	97%	3%
Devon CC	1,819,771	2%	0%	100%
Cornwall and Isles of Scilly	1,198,377	1%	36%	64%
Scotland	980,039	1%	36%	64%
Northern Ireland	436,840	0%	20%	80%
North East (England)	358,752	0%	69%	31%
Total	**100,435,749**	**100%**	**27%**	**39%**

4.4 Overview

The CSRGT data (as illustrated in **Table 4-1** and **Table 4-4**) has shown that out of the total goods lifted across the Peninsula a significant amount is lifted internally within the region (46 per cent) in comparison to Western Gateway which is dominated by the outbound movements (39 per cent). When the two STB areas are combined to create the South West it identifies two key region of importance to the South West. This includes the West Midlands (14.2 million tonnes) and the South East (14 million tonnes) presenting a significant amount of goods flows to and from the South West. It is likely that the M5 and A303 carry a significant volume respectively to/from these regions. These are strategically important flows and present opportunities to how more freight can be moved by other modes, given the rail, port and aviation connections in these regions.

It is noticeable in **Table 4-3** that over 50 per cent of freight movements in the Peninsula area are within the South West only (movements within and between local authorities in the region), whilst in the Western Gateway STB area, the majority of movements are to and from other regions. Noting the importance of movements between the Western Gateway area and the West Midlands and South East Regions, this would suggest that improvements to the M5 and A303 are particularly important.

The data (as illustrated in **Table 4-2** and **Table 4-5**) has shown that the Food and Drink and Quarrying and Mining are the most significant commodity categories imported and exported from the area. This aligns with the national picture for the same period (2019) where food products are the biggest commodity sector in terms of goods lifted, accounting for 261 million tonnes or 18 per cent of all goods lifted across the UK by GB registered trucks[8]. The quarrying industries provide raw materials to other regions across the UK in support of the manufacturing and construction sector. Considering the tonnage of materials lifted for this commodity, there is a case for expanding the role of heavy rail freight and mode shift away from long distance haulage of bulk goods. Indeed during the development of this strategy two potential new flows of bulk materials are being brought to market from Plymouth and Newton Abbot. The benefits this has is less congestion on the roads (or on the other hand more capacity for other road freight movements), a reduction in the environmental damage caused by HGVs and better efficiencies within the freight industry. The food sector is identified as a key commodity that is both imported and exported from the region on a large scale. 36 million tonnes of food and drink was lifted to, from or within the region. This is key in terms of supporting the internationally famous food industry associated with the South West e.g. Cornish pasties, Devon cream and Somerset cider. Conversely, the food industry imports are critical to support the tourism industry which drives the local economies of the South West.

A significant outcome of the analysis is the amount of vehicle kilometres which were reported as empty running – 22 per cent in both the Western Gateway and Peninsular regions. Logistics UK estimate that approximately 25 per cent of vehicle movements nationally are empty. This provides an indication of the inefficiency that is typical within the freight sector of vehicles typically driving back to depots without any loads. While some empty running is inevitable as there is an imbalance between imports and exports in the region, analysis of the CSRGT data identified empty running in both directions on vehicle types that could be backloaded. This is exaggerated further in South West as often vehicles will complete their trip and then route back to depot with little opportunity to undertake multiple drops. This is particularly acute if operators are delivering to the far South West in Cornwall. The inefficiency will contribute significantly to amount of CO_2 that is produced. Empty loads can cause unnecessary congestion on the network and environmental damage as the HGVs travel back to base. This inefficiency means that fuel and maintenance costs is not offset by the carrying load (empty running).

This provides an opportunity to think of ways to make this more efficient through changes in practice and involvement of technology. One such example is Haulage Exchange. This platform allows operators to make businesses aware of empty loads which could be utilised on their return leg to base. A business could book a shipment of goods as part of the vehicles route back to base. This means that the fuel and maintenance cost is offset against the revenue received. This opportunity is shared by businesses and stakeholders who could experience the benefits of returning vehicles at a potentially cheaper rate. Connected freight vehicle trials in the South West is an area that can help to maximise capacity on motorways and increase efficiency.

There are regulatory and legislative changes that could be pursued to incentivise backloading which would require a pan national approach towards vehicle licencing. Standard Operator's Licences (SOLs), which enable hauliers to transport goods for payment (Hire and Reward), require licenced drivers to hold a Certificate of Professional Competence (CPC) and a higher vehicle deposit/insurance threshold to cover maintenance and vehicle repairs or damage. These can be held as national or international licences (the latter particularly relevant for freight forwarder).

In contrast, Restricted Operator's Licences (ROLs) confine hauliers, often small businesses with a fleet or vehicle, to moving their own goods alone without the need to carry a CPC and a sizeable capital deposit; with the aim of removing barriers to entry and protecting smaller businesses with a freight requirement but small capital reserves. However, this situation potentially leads to more freight vehicles taking to the roads and greater levels of empty running and with minimum driving standards in place. There are a number of reasons that operators choose to hold an ROL and only move their own goods rather than hold an SOL. Firstly, the cost of moving third party goods is higher as more expensive insurance policies are needed. Secondly, a fully qualified CPC holder is

[8] AECOM Freight Matters Report 2020. Available from: https://aecom.com/without-limits/wp-content/uploads/2020/12/20258_Freight-Matters_FINAL_lr2-2.pdf

required to hold a Standard Operator's Licence. Thirdly, there are operational constraints and conditions, for example, a haulier moving third party goods will need to incorporate other delivery timescales within their scheduling, or it may simply not be practical due to the vehicle types being used, the different commodities being carried or issues or cross-contamination from one load to another.

4.5 Rail, maritime and aviation data

Data associated to the rail, maritime and aviation sector can be found in the multi-modal chapter (**Chapter 9**).

4.6 Summary

The analysis of the CSRGT data has brought to attention the typical freight movements moved by HGVs in the South West. It has established an understanding of the journeys that take place and the key flows between origin and destinations. For Peninsula, a significant number of goods are lifted internally within the region in comparison to Western Gateway which is dominated by the outbound movements. The more remote the area the higher the cost of taking goods outside the region and hence the more self-sufficient an area becomes. Food and Drink and Mining and Quarrying are the typical commodities which are lifted around the region, in keeping with the natural industries of the region and the importance of the tourism industry. These are slightly higher than most other regions as for example there are some nationally significant food producers in the region. There is a need to understand what can be done about the significant number of empty running journeys which is inefficient, contributes to congestion and environmental damage. Technological solutions to resolve this needs to be explored.

5. Local authority insights

Given the wide-ranging characteristics of areas in the South West, this chapter brings together an overview and the freight issues and opportunities by Local Authority area. This has been complied using literature research, client intelligence, and previous scoping report.

5.1 Somerset

Overview	Somerset is spatially one of the larger English counties, with over 550,000 people, of which 25 per cent are concentrated in Taunton, Bridgwater and Yeovil. The rest of the county is rural and sparsely populated, with some coastal and many rural communities. Many people are involved in the tourism industry in Somerset, which is based on coastal resorts, Wells, Glastonbury and other areas of outstanding natural beauty. Considering all the jobs supported by tourism, this accounts for around 10 per cent of employment and is now a £1 billion sector within the county. Although Somerset is perhaps best known for its food, drink and agriculture with Cheddar cheese and Taunton cider being internationally famous, there are thousands of small and larger business enterprises, private sector led delivery organisations, local authorities and other organisations in; • Advanced Engineering & Aerospace • Creative industry • Renewable Energy & Environmental Technology • New Nuclear (£18billion investment in Somerset discussed later in this chapter)
Issues and opportunities	One of the key challenges facing the county is to seek ways to make freight and services more accessible, while minimising its adverse impact on the quality of life and the natural environment. The county also faces a growth of traffic leading to congestion issues in and around Taunton, Bridgwater and Yeovil, with road transport links centred around the A303 towards London and M5 towards the Midlands. The county carries a lot of “transit” traffic moving to/from the far South West, which often raises the question of the public satisfaction with the routes chosen by HGVs. However, Somerset's proximity to main markets is better in comparison to the other four Peninsula authorities. The county hosts a number of distribution centres serving the South West, such as in Bridgwater. The county has rail lines connecting to the Midlands and London. Although there is no intermodal rail freight to or through the county, there are significant volumes to (9m tonnes) or southbound through the county (13m tonnes) that a proportion might be suitable for rail. Somerset does have the longest and heaviest bulk train starting from the north of the county, the “Jumbo” aggregates train, taking stone from the Mendips to London (circa 10 million tonnes).

5.2 Devon

Overview	Devon is the third largest county in England with a diverse population of 1.2 million, spread between coastal and rural towns with Dartmoor dominating the middle of the county. It is renowned for an assortment of things such as its spectacular coastline, beautiful beaches and Devonshire cream teas. Hence tourism is a big revenue generator. Exeter is a popular historic city with a well-known university and shopping areas, having a significant impact on the economic character of the Devon economy. It is one of the few locations in the country that has some bus lanes that allow freight vehicles to use them. A new transport strategy for Exeter which sets out plans to increase active travel, enhance public transport and improve air quality over the next 10 years was agreed in November 2020. The strategy aligns with the County Council’s declaration of a Climate Emergency and is an important step towards net zero carbon in the city.
Issues and opportunities	Whereas Exeter and the towns on the main road/rail corridor (A38) and the route of the Great Western Railway (from Plymouth to Exeter and on to Bristol, Reading and London) are relatively well connected, north-south roads within the county remain unimproved and significant areas of the county are remote from major centres of population and economic activity. Peripherality and access to key economic markets is therefore an important issue for Devon’s economy. Journey times are likely to be variable especially in the summer when traffic volumes grow and tourists who are unfamiliar with the roads drive slowly or erratically. This leads to freight operators facing considerable variance in inter-drop distance from summer to winter, and hence in the cost per delivery.

	Worthy of note is that some operators/online retailers do not offer a full range of postcode deliveries to the whole of Devon. In terms of railway connectivity, there is renewed interest in reopening the railway line from Okehampton west, so that trains from Exeter could go via Tavistock to Plymouth and thus avoid the Dawlish route that has suffered from temporary closure due to bad weather damage. A regular passenger service between Exeter and Okehampton has recently reopened. This potentially could be of interest to rail freight operators looking to develop the rail freight market to Plymouth and Cornwall. Reopening the route would not be justified on rail freight volumes but it would provide extra capacity and better resilience to the supply chain. Exeter and Tiverton Parkway act as good railway passenger interchanges but there are no terminals in the county suited to rail freight in particular for intermodal traffic (containers / swapbodies) perhaps because it did not prove economic in the past. However times change and with more pressure on corporate social responsibility and new lower rail freight cost models it is worth considering again. With Devon having a strong farming community, there is scope to consider supply chain productivity gains and seek ways to take South West agricultural produce to national markets more efficiently, especially in light of Brexit and the need for the UK to be more self-sufficient in food production. Although the farming community is spread across the whole county an idea might be to establish food hubs where volume is accumulated to trunk by rail. This needs further investigation. Creating an alternative fuel and electric charging/gas refuelling network presents an opportunity for growth, with operators needing confidence that there is a reliable network in the South West. With Devon being geographically the centre of the Peninsula region, it is important to be proactive in this area. It is understood that a separate project has been commissioned, investigating an alternative fuel network along the lines of work done by Cenex for Midlands Connect

5.3 Torbay

Overview	Torbay is a borough in the historic county of Devon, administered by Torbay Council. It is a popular tourist destination with a series of picturesque, south-coast harbour towns including Torquay, Paignton and Brixham. As such tourism is one of the dominant industries, which creates a big variance between summer and winter population. There are around 134,500 people who live in Torbay, but this can be treble in summer, putting strain on local deliveries. Torbay is a popular place to retire and 26 per cent of the population is over 65 compared to a national figure of just 18 per cent. This has a direct impact on the types of products and services required.
Issues and opportunities	The area boasts one of the longest tourist seasons of any UK resort which makes localised congestion a common feature beyond just the summer peak. This means firms servicing the area need to be flexible in their approach. Hotels, restaurants and pubs see a massive spike in deliveries in the summer, which can make finding places to park to unload deliveries tricky in the summer. Although rail is a significant contributor to economic benefits in Torbay with over 1.3 million users in 2020, there is no rail freight associated with the area. With Devon having a strong farming community, there is also scope to consider supply chain productivity gains and seek ways to take South West agricultural produce to national markets more efficiently, especially in light of Brexit and the need for the UK to be more self-sufficient in food production. Creating an alternative fuel and electric charging/gas refuelling network presents an opportunity for growth, with operators needing confidence that there is a reliable network in the South West. With Devon being geographically the centre of the Peninsula region, it is important to be proactive in this area.

5.4 Cornwall and the Isles of Scilly

Overview	Cornwall is the only county in England to only have one bordering county, that being Devon, boasting both the most southerly and westerly points on mainland Britain. It is the 9th largest county in the UK with the coast stretching over 422 miles. Cornwall has mainly rural and coastal communities with small towns. Its administrative centre is Truro, its only city. Due to its geographic position, Cornwall has a low winter population, nearing 570,000, but a much higher summer population due to influx of tourists. Historically, mining, fishing and agriculture were Cornwall's primary industries; mining in particular has left an impact and legacy on the landscape. These traditional industries have, in recent times declined but agriculture, forestry and fishing is still the biggest industry group with 15 per cent of registered businesses (three times bigger than the national average), followed by construction 12 per cent, retail 10 per cent and accommodation and food (10 per cent) according to the business observatory. But there are still pockets of mining activity and renewed interest in potentially exploiting some valuable resources not least being tin and lithium.
Issues and opportunities	Cornwall has some local pockets of poverty and deprivation that affect spending power. Cornwall benefitted from European Union Objective One funding for a number of years due to its GDP being less than 75 per cent of the European average. There is a trade imbalance bringing in more goods than despatching. The county is the furthest to market of any of the Peninsula authorities and is reliant on one main road, the A30, which is still partly single carriageway and is subject to journey time reliability issues on certain days in the summer. It should be noted that upgrades to the A30 have taken place and continue to do, with the upgrade of the A30 single carriageway between Chiverton Cross and Carland Cross roundabouts due to complete in 2024. Due to its coastal position, the county suffers from severe congestion in key summer months around tourist hotspots. The county has an aspiration to be an energy neutral county able to produce power from wind, solar, biomethane and maritime, which may mean the ability to run transport using net-zero carbon locally sourced energy. In terms of rail connectivity, there is only one railway line to the rest of England which is via Dawlish (was shut for two months in 2014 as a consequence of severe inclement weather and damage to the network). There is one regular rail freight line and that for the movement of China Clay. There are no intermodal rail terminals so although a modal switch from road to rail would offer environmental benefits, it would need rail freight hubs for both Cornwall and Devon to connect to the growing number around the UK. Around 3 million tonnes of goods comes inbound to Cornwall annually. Modal switch from road to coastal shipping would offer environmental benefits but the viability would need to be checked. Further use of coastal shipping is worth examining, as there are several local commercial ports. There are important lifeline freight ferry services for the 2,200 residents on the Isles of Scilly. Consolidation Centres could be useful for reducing part-empty running, both on the trunk haul and local delivery around the rural county.

5.5 Plymouth

Overview	Plymouth is the biggest city in Peninsular region with a population of 262,000 and a natural focal point, popular with locals and tourists. It offers a main international gateway with a busy port for both naval and civilian uses. The first UK Marine Enterprise zone has been established at Oceangate which covers 35 hectares and provides deep water access to the English Channel. Three new phases of development are now planned totalling 25,000 sqm of flexible employment space and advanced manufacturing sectors. The port does have capacity to move more water freight including UK coastal movements. Plymouth and South Devon has just been successful in being awarded Freeport status in the budget on March 3rd. This is just one of eight schemes announced across England.
Issues and opportunities	In terms of road connectivity, Plymouth relies heavily on one major road, the A38, and journey time reliability can be an issue. Close to the A38 are also freight dependent industries such as Gregory Distribution, Kawasaki and Visprung. The success of Princess Yachts and other marine businesses means there is likely to continue to be traffic growth along the A38 in coming years. The north of the city also contains major manufacturers such as Rittal, Wrigley and Barden.

	Localised congestion is an issue from certain suburbs towards the North West of the city, with the Interchange of the A38 and the A386 acting as a constraint. Additionally, the city centre suffers from the usual "last mile" unloading and servicing issues. Although being an important node on the passenger railway, Plymouth does not have an equivalent modern rail freight terminal. The only rail route to Exeter and the rest of the UK is a coastal route subject to bad weather disruption. The rail route has some sharp inclines (using rail standards).

5.6 Bath and North East Somerset Council

Overview	Bath and North East Somerset (B&NES) was formed in 1996 after the county of Avon, it was divided between Somerset and Gloucestershire. B&NES is approximately 135.2 square miles and has a population of approximately 193,282[9]. Bath is the largest urban settlement in the Bath and Somerset area, and it forms the main urban centre acting as the main commercial and recreational centre of the district, it is a UNESCO World Heritage Site. B&NES Council is the Local Highways Authority that is responsible for the maintenance of some 1,150km of adopted highways within the area. B&NES collaborate closely with the West of England Combined Authority (WECA) and neighbouring authorities on strategic projects. B&NES have a low emission zone which started in March; Bath's £23 million scheme to cut air pollution, charges not compliant vans and taxis £9 a day and HGVs £100 if not Euro 6 to enter the city centre's clean air zone[10]. B&NES Council aims to bring down nitrogen dioxide levels within the legal limit by the end of the year without charging private cars. To access B&NES by air, Bristol Airport is located on the border of North East Somerset area. The B&NES area include rolling hills and valleys, a section of the River Avon and the southernmost of the limestone hills of the Cotswolds in the north. There are historical villages of Calverton, Freshford and Monkton Combe. East of Bath have numerous buildings that are constructed of locally quarried limestone, which is used for modern road construction. In the area, the following are grown; Dairy and some beef cattle graze the fertile valley pasturelands; cereals and fodder crops. B&NES previously operated a Freight Consolidation centre located at Avonmouth, and this is now commercially run by DHL.
Issues and opportunities	Some of B&NES main concerns include the following: air quality, carbon emissions, noise and vibration, congestion, amenity, and safety of vulnerable road users. For air quality, 29 per cent of B&NES carbon emissions come from transport. It is estimated that 92 per cent of nitrogen oxide emissions in B&NES is caused by road traffic emissions. There are around 9,000 light goods vehicles and heavy goods vehicles that leave and enter the area per day[11].

5.7 BCP Council (Bournemouth, Christchurch & Poole)

Overview	The region has a population of circa 400,000 and is now the eighth largest non-mayoral local authority in England. BCP has a workday population of 480,000 and growth plans up to 2026 for 20,000 new jobs and 29,400 new homes. The Bournemouth, Christchurch and Poole city region has a countryside, coastal and urban environment with many environmental designations with proximity to the Jurassic Coast and New forest. It is internationally connected by sea and air through Bournemouth Airport and the Port of Poole and it benefits from close road and rail connections to London, the Solent region and BCP's position as a gateway to the South West. Bournemouth Airport has a 2,200-metre-long runway and is in a rural setting, resulting in the airport having 24-hour operational capabilities. Strong internationally recognised economic sectors which include finance, digital, creative, tourism, engineering including advanced manufacturing, and good universities. Bournemouth has economic strengths and is a thriving centre with significant growth opportunities. Poole has maritime history and has a strong port heritage.
Issues and opportunities	Due to a lack of strategic road infrastructure and no defined single centre, many local roads accommodate strategic levels of traffic unsuitable for such high volumes. BCP has high traffic congestion and is 3rd most congested city region in the UK. There are local congestion spots affecting road and rail

[9] B&NES Council (2021) Bath and North East Somerset - an introduction. Available from: https://www.bathnes.gov.uk/services/your-council-and-democracy/local-research-and-statistics/wiki/councillor-induction-key
[10] Somerset Live (2021) Bath's Clean Air Zone: All you need to know. Available from: https://www.somersetlive.co.uk/news/baths-clean-air-zone-you-5068856
[11] B&NES Council (2021) Transport Fast Facts. Available from: https://beta.bathnes.gov.uk/transport-fast-facts

	e.g., the Poole level crossing. The A338 experiences severe congestion due to BCP's seasonal incoming traffic which causes impact to business and freight operators. Bournemouth has issues with local road infrastructure around Bournemouth, A338 and then a long way round via Southampton the M27/M3/A34 and onto M4. There is only one rail line east/west and freight traffic is quite limited in volume. There are limited river crossings to the north and the sea to the south, the area therefore lacks, and orbital route and network resilience is poor. Lorries from the Port of Poole take lengthy detours due to congestion and lack of a quality north/south route. The BCP region suffers from traffic congestion, with Bournemouth being the third most congested place in the UK. Moreover, there are issues with the travel infrastructure that exists within the region, with over-reliance with cars, resulting in slower journey times and worse air quality. To overcome such challenges a transport strategy in the local plan will focus on providing a safe, connected, accessible and low carbon transport network. As a result, there are opportunities that need to be considered such as with improving; bus and rail services, cycling and walking routes, increasing rail freight transport, exploring park and ride options and impact on air quality[12]. In terms of transport infrastructure, there could be issues with adding pressure from the new development on already existing infrastructure. To reduce this early planning applications for new development and any significant impacts or highway safety should be mitigated. Following this the implementation of transport infrastructure such as Electric charging points, bike and other vehicle storage, safety for users and making greener vehicle technology available for members of the BCP region.

5.8 Bristol City Council

Overview	Bristol is the largest city in the South West of England and is situated on the River Frome and River Avon. Bristol has a rich cultural heritage, a prosperous economy and world-class universities. Bristol has a population estimated to be around 465,000. The city has two major watercourses flowing through it, this brings constraints in the movement from one side of the city to the other because of limitations with crossings. Bristol has major transport corridors that stretch from beyond the city boundary to the city centre and has invested £800m in transport infrastructure including the first three routes of a MetroBus Rapid Transport network linking to the North Fringe and South Bristol. Furthermore, there has been investment in the MetroWest suburban rail schemes include the introduction of several new cross-city services and better timings. Bristol Port is a major economic driver for the South West region and contributes more than £1 billion to UK GDP. It has rail connectivity direct from both Avonmouth and Royal Portbury Docks. Key features of the port included: • 27 per cent of all UK aviation fuel imports handled • Over three million tonnes of dry bulk goods • UK's most centrally located deep seaport Bristol is an area of innovation and is at the heart of the South West aerospace cluster. The Bristol and Bath region has 14 of the top global aerospace companies in the region. Furthermore, Bristol is a hub of the UK's nuclear renaissance and low carbon energy generation and supply. Nuclear new build, nuclear generation, nuclear decommissioning, defence and academic research make the South West a focal point for nuclear capability in the UK. The region also has exemplar waste-to-energy and biomass projects from GENeco, Viridor and Suez Environment's Severnside plant. There is investment in biogas and electric buses and infrastructure around the region. Junction 21 Enterprise area is 72 ha and is strategically located alongside the M5 corridor and is located 20 minutes from the south of Bristol whilst being in close proximity to the airport and ports.
Issues and opportunities	There is a very high demand on the corridors in Bristol, which transport thousands of people and goods travelling from the wider area daily. Common issues include having appropriate road infrastructure and the issues around congestion and air quality. The level of congestion causes issues for many people's journeys and decreases the level of attractiveness of Bristol as an area to travel to work, hence damaging

[12] BCP Council (2021) A Local Plan for Bournemouth, Christchurch and Poole. Issues and Options Consultation. Available from: https://democracy.bcpcouncil.gov.uk/documents/s27469/Appendix%201%20-%20Local%20Plan%20Issues%20and%20Options%20Consultation.pdf

	the economy within the region[13]. In the Bristol region the negative impact from the motorised traffic results in poor air quality and increased road collisions. There are different access requirements for members of the community, hence planning is required to consider the needs of various citizens in Bristol. Although the city has various functions it can become better with improvements to infrastructure. To alleviate issues related to congestion, building more roads could be considered a short-term solution. However, to in the long-term there should be more focus in encouraging people to use more Sustainable Freight in Bristol. This could include walking or cycling couriers and members of the public using public transport instead of cars.

5.9 Dorset Council

Overview	Dorset is located in Southern England, bordering the four counties of Somerset, Devon, Wiltshire, and Hampshire. Almost the entire coastline of Dorset is part of the Jurassic Coast World Heritage Site. The population of Dorset is around 750,000 and is a largely rural area. The main centres of the population being in the Weymouth/Dorchester area and the market towns within the rural hinterland of the South East Dorset conurbation of Bournemouth Christchurch and Poole. Dorset's primary industry today is tourism with recent estimations putting the number employed in the industry in Dorset at 37,500. The region attracts over three million British tourists each year with a further 300,000 foreign visitors. Though a largely rural county, Dorset has a number of key routes carrying freight and HGV traffic to access important destinations e.g. access via the A354 to Portland Port, access via the A350 to the Port of Poole in the BCP Council area. Dorset has several A roads that branch off the A303 allowing easy access to towns and villages across the county. The A31 is a regionally important road allowing people coming to the county from the M27 to bypass towns in the south of the county. Road is the most dominant mode for transporting freight in the Dorset area. In terms of airports, there is only one passenger/cargo airport in the county, in Bournemouth.
Issues and opportunities	Dorset has no motorway and has limited SRN coverage within its borders but the A303 from London to Devon and Cornwall briefly passes through the county. There are few dual carriageways and the trunk road network (e.g. A31, A35 and A303) is heavily congested during peak times, especially the seasonal summer peak. This can cause significant delays for freight traffic travelling across Dorset. Several key routes e.g. A350, A35 transect villages and impact on local communities through severance, congestion, poor air quality and often pinch points for larger vehicles due to physical constraints of the narrow highway and the hilly topography of West and North Dorset. There are some upgrades that are taking place and also a strategic study during the RIS2 period. Dorset has been known to also have problems with congestion which have been highlighted in responses as part of a previous Dorset Council Report[14]. The A31 and the A338 were also considered to be heavily congested. Furthermore, poor management of road management and infrastructure affects residents in Dorset. According to respondents there was consensus that the A31 cannot cope with the current volume going through Ferndown, Wimborne and Ringwood. However, there is work to begin on a new cycle and walking route on Ringwood and Ferndown in November 2021. This will begin as new sustainable travel facilities along Ringwood road between Longham roundabouts and Tricketts Cross Roundabout[15]. Phase one of this route is set to be complete late April 2022.

5.10 Gloucestershire County Council

Overview	Gloucestershire has a residential population of over 600,000 and a business population of approximately 30,000. Gloucestershire is split into three areas, major part of the Cotswolds, the Royal Forest of Dean, and the Severn Vale. Gloucester is located between the Cotswolds and the Forest of Dean and is Britain's most inland port, rich with history dating back to Roman times. Gloucestershire has a strong shipping heritage; this is demonstrated by the extensive Gloucester Docks complex and the Gloucester

[13] Bristol City Council (2019) Bristol Transport Strategy. Available from: https://www.bristol.gov.uk/documents/20182/3641895/Bristol+Transport+Strategy+-+adopted+2019.pdf/383a996e-2219-dbbb-dc75-3a270bfce26c
[14] Atkins (2012) South East Dorset Multi-Modal Transport Study. Available from: https://www.dorsetcouncil.gov.uk/documents/35024/288596/South+East+Dorset+Multi-Modal+Transport+Study.pdf/1c40d941-ae9c-66a2-578c-b0efc93e67f5
[15] Dorset Council (2021) Work to begin on new cycle and walking route on Ringwood Road, Ferndown next month. Available from: https://news.dorsetcouncil.gov.uk/2021/10/20/work-to-begin-on-new-cycle-and-walking-route-on-ringwood-road-ferndown-next-month/

	and Sharpness Canal linking to the Severn estuary. Gloucestershire connects via strategic rail and road networks to major cities such as Birmingham, Bristol, Cardiff, and London. Gloucestershire is ambitious for economic growth, located at the Northern edge of South West of England. Gloucestershire has a primary freight network in place, with the main function to get traffic from A to B effectively and efficiently. The routes align with the Cotswold Lorry Management zones. Freight routes in Gloucestershire include the Motorway and A417 Trunk Road.
Issues and opportunities	Although there are not any commercial rail freight terminals in Gloucestershire, infrastructure such as sidings exist which could be used as a small-scale terminal for specific types of freight, such as a pop-up aggregate terminal. The A429 link serves as a primary function to accommodate freight traffic. Although the A429 has pinch points such as the Unicorn Junction at Stow on the Wold[16]. Double mini-roundabouts and railway bridge in Moreton-in-Marsh. As a result, the allocation of these pinch points, has resulted in there being increased congestion which also leads to emission due to the delay from vehicles. This has a negative impact on the health of the population in Gloucestershire. Gloucestershire could overcome these challenges through addressing the concerns with pinch points. This enables opportunity for improved access to areas of external growth and unlocking the potential development land that can be used for supporting housing demands and increasing the employment rate. Furthermore, implantation of freight distribution centres will also help to minimise unnecessary trips in Gloucestershire and result in there being a reduction in emissions from vehicles.

5.11 North Somerset Council

Overview	There are four main towns in North Somerset: Clevedon, Nailsea, Portishead and Weston-super Mare, along with numerous villages. North Somerset has a population of approximately 215,600 and predicted to rise by 17 per cent by 2026. Average annual growth of 4.1 per cent over the last five years – above West of England average. Economy worth £4,129m as measured by Gross Value Added (GVA). North Somerset is home to over 8,000 businesses from Small Medium Enterprises (SMEs) scaling up to nationally recognised brands across diverse sectors including Yeo Valley, Costain, Smurfit Kappa, Oxford Instruments, Plasma Technology, Bristol Port, Bristol International Airport. Labour productivity improved at an impressive rate of more than four per cent per year since 2004. However, 14,000 people commute out of the area to work than commute in. The unemployment rate for North Somerset is 3.6 per cent which compares very favourably with the national average of 5.1 per cent and there are comparatively low levels of young people 'Not in Education, Employment or Training' (NEET). Clevedon is a coastal town with views across the Bristol Channel to Wales. It has a population of over 21,000 and is located close to Junction 20 of the M5 motorway. Nailsea has benefited from its broad industrial base with several manufacturing and distribution businesses relocating to the town, including companies such as GE Oil and Gas. Weston-super Mare is the largest town in North Somerset with a population of over 77,000. The town is undergoing a major transformation with a range of regeneration projects and exciting developments. The visitor economy is important with 540,000 staying visitor trips and 7.4m day visitor trips in 2016. Tourists are estimated to spend £364m in North Somerset, supporting 6,811 jobs, approximately seven per cent of all employment (South West Research Co. 2016).
Issues and opportunities	At the height of the COVID-19 crisis activity at Bristol Airport dropped by 98 per cent but activity in the aviation sector and supply chain is increasing although it is unclear how long full recovery will take. There are several challenges in the North Somerset Region including growth in housing and employment, congestion, encouraging public transport use, public health issues and the climate change. Currently the impact of congestion in the West of England is costing approximately £300 million a year and is forecast to increase to £800 million by 2036[17]. This highlights the need for action to be taken to prevent poor air quality in the region and impacting the health of the population. There is high level of traffic flow on roads connecting towns and rural areas, this lack of alternative routes contributes towards the congestion. For example, the issues on the strategic road network with road closures on the M5 due to incidents and high levels of traffic is often diverted to local roads. As a result, this impacts the health of local area from increased emissions and causes further

[16] Gloucestershire County Council (2020) Local Transport Plan (2020-2041). Available from: https://www.gloucestershire.gov.uk/media/2108466/ltp-policy-document-final-v132.pdf
[17] North Somerset Council (2018) Local Plan 2036: Issues and Options Stage. Available from: https://n-somerset-pp.inconsult.uk/connect.ti/issuesandoptions/viewCompoundDoc?docid=10335732&partId=10336500&sessionid=&voteid=

	delays. There are opportunities to overcome some of these issues from encouraging the transition towards electric vehicles and installation of electric vehicle charging points in the region. Additionally, there could be support from the use of more advanced new technology in the transportation of goods in the North Somerset region. Through investment into technology and innovation there can be several benefits such as improved air quality, more reliable journeys, and road safety from reduced road collisions.

5.12 South Gloucestershire Council

Overview	South Gloucestershire is located between Gloucester and Bristol, the Severn Estuary and the Cotswolds. South Gloucestershire sits on the edge of the Bristol conurbation and runs through villages and countryside down to the River Severn coastline, a site of special scientific interest South Gloucestershire is a mix of long-established urban communities, market towns, small villages and substantial new development. South Gloucestershire covers an area of 53,664 ha and a population of 282,600. According to the Office of National Statistics (ONS) 2016 subnational population projections, the total population is projected to increase to 335,200 in 2041. In the year April 2018 – March 2019 80.7 per cent of the working-age population were in employment. This is higher than the national rate of 75.6 per cent. South Gloucestershire has a diverse economy ranging from rural and homegrown small and medium-sized enterprises to world-leading companies in key high growth sectors vital to continuing national economic growth. Large amounts of milk are trucked to nearby cities from the small valley dairies in rural parts of the unitary authority; beef cattle are also raised. Some key sectors in the area include aerospace, advanced engineering, defence, microelectronics, and silicon chip design. South Gloucestershire is home to a thriving industrial sector and especially aerospace with companies such as Airbus and Rolls Royce. South Gloucestershire is home to the University of the West of England, which plays a key part in supporting high standards of education and training for key cutting-edge industries.
Issues and opportunities	As mentioned previously in the North Gloucestershire region, there are similar issues in South Gloucestershire such as with poor air quality in urban areas[18]. South Gloucestershire Council identified some of the issues and challenges with the duplication of transport provided by community transport (empty vehicles). Following this a feasibility study was undertaken to improve efficiency and utilisation of the spare capacity. There is opportunity to improve the air quality from the emissions of empty vehicles through providing a booking systems or shared software platform and South Gloucestershire Council proposed including a dedicated helpline to support Freight operators. To enable this further investment in technology such as the booking system would help with the reducing the empty vehicles in the region. Furthermore, air quality action plans would be required to reduce levels of NO_2 emissions from HGVs, this needs to be aligned to the demands from Government to improve air quality.

5.13 Wiltshire

Overview	Created in 2009, It is the successor authority to Wiltshire County Council and the four district councils of Kennet, North Wiltshire, Salisbury, and West Wiltshire. Wiltshire has a population of around 435,000. The county is bordered by Hampshire, Somerset, Dorset, Oxfordshire, Gloucestershire, and is in proximity to many of the South's Airports. Predominately a rural county, the largest town in the county in terms of population is Swindon, and the largest city is Salisbury. Wiltshire boasts both ancient and modern attractions such as Stonehenge, Castle Combe Circuit and Longleat generating significant traffic volumes. The M4 Motorway passes through Wiltshire and the road connects London to South Wales Wiltshire has over 4,500km of roads. 12.6 per cent of the roads are classified as principal roads (A Class), 44.2 per cent as non-principal roads (B and C Class) and 43.2 per cent as non-principal unclassified roads. The largest employment sector in Wiltshire is Wholesale and retail trade, repair of motor vehicles and motorcycles. The recent closure of the Honda car plant has affected the area, but new developments are in plan. Swindon has a hydrogen hub which it is developing as part of the need for new sources of energy. The council passed a motion entitled 'Acknowledging a Climate Emergency and Proposing the

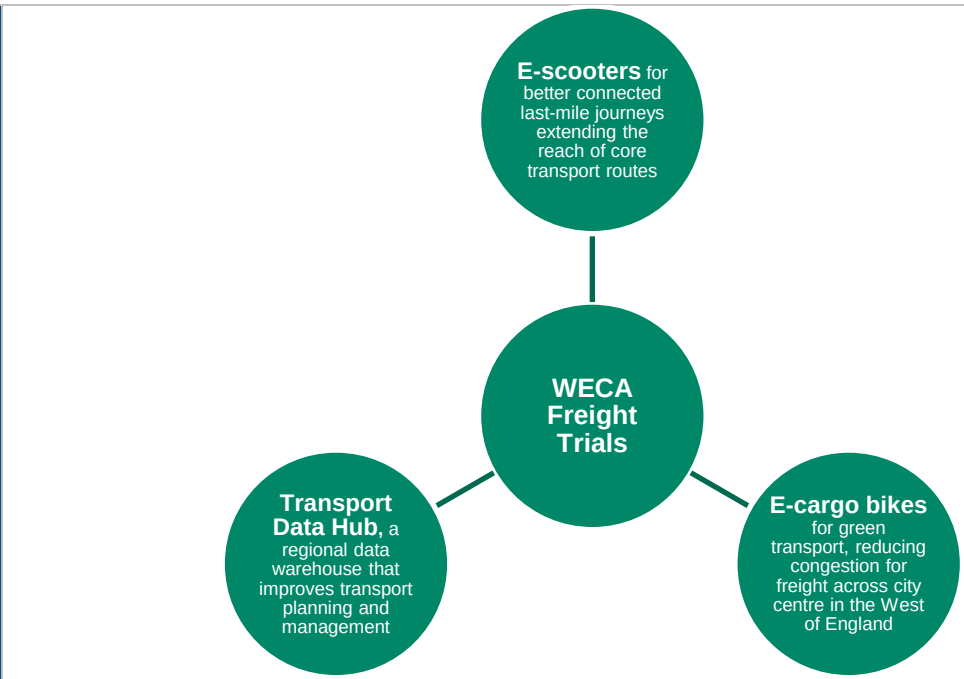
[18] Travelwest (2020) Joint Local Transport Plan 4. Available from: https://travelwest.info/app/uploads/2020/05/JLTP4-Adopted-Joint-Local-Transport-Plan-4.pdf

	Way Forward' on 26 February 2019 that included the ambition to "Seek to make the County of Wiltshire carbon neutral by 2030".
Issues and opportunities	Wiltshire County is of rural nature, the impact from the freight movements has more of noticeable impact on the highway network. Several of the existing roads are used to access businesses and homes, as a result not always suitable for the accommodating HGVs in such areas[19]. Moreover, several of the roads and junctions across the county also suffer from peak-hour congestion. Although road expansion might be an option to reduce this congestion, there is a shift away from this in the Wilshire county and it may be more suitable to maximise the existing network and the management of transport demand.

5.14 West of England Combined Authority

Overview	The West of England combined authority (WECA) is made up of three of the councils of the region, Bath & North Somerset, Bristol, and South Gloucestershire. It was established in early 2017 was formed to champion the region and drive clean and inclusive economic growth. WECA also supports local-enterprise partnerships which are business-led and cover the four West of England councils including North Somerset Council It works to improve the lives of the people who live, work and travel in the West of England. This involves: • bringing partners together to improve transport in the region, • helping residents' access new skills, training, and job opportunities • supporting businesses to succeed • addressing the region's strategic housing, planning and infrastructure needs As a result of devolution, significant powers and funding were transferred to the region through the West of England Combined Authority and the West of England Mayor. The West of England Mayor works together with the Bristol Mayor, who is responsible for the area covered by Bristol City Council, and the leaders of Bath & North East Somerset and South Gloucestershire councils to make decisions to benefit the wider region. The three council are still responsible for most public service delivery (such as waste and highways management, schools, and recreational facilities). The Regional Mayor focuses on wider issues that span across the region, such as transport, skills, housing and economic growth. In 2019/20, WECA agreed its Local Industrial Strategy with Government, the strategy consists of five key ambitions: Rebuilding businesses, getting residents back into jobs, strengthening inclusion, a green recovery, and renewing places.
Issues and opportunities	The transport sector is one the biggest sources of carbon emissions in the south west. It is expected that this would increase to a further 22 per cent by 2035 in the West of England. Additionally, all four of the West of England combined authorities have declared climate emergencies and are committed to achieving net zero carbon by 2030. West of England have opportunities in the tackling some of these challenges through improving the transport options that are available and addressing the poor air quality in the region. Some examples in which WECA are implementing to address the issues with the movement of freight in the region is included in the Future Transport Zone[20]. This has gained the support from the Department for Transport through funding trials in innovation. Trials include:

[19] Wiltshire Council (2011) Wiltshire Local Transport Plan 2011 – 2026. Freight Strategy. Available from: http://pages.wiltshire.gov.uk/ltp3-freight-strategy.pdf
[20] WECA (2021) Future Transport Zone. Available from: https://www.westofengland-ca.gov.uk/what-we-do/transport/future-transport-zone/



5.15 Summary

The South West is a diverse region. It contains many rural and urban areas which all have different needs for freight. The region faces many common issues such as congestion, connectivity and air quality to name a few. There are opportunities to utilise the resources and skills in the region to help combat these issues including the production of alternative fuels. Technology should play a bit part in addressing the decarbonisation agenda.

6. Freight insights and trends

This chapter outlines key freight insights and trends that link to many of the subsequent work packages. These insights and trends are from literature research, existing knowledge of the project team and research from the Regional Evidence Base for both Peninsula Transport and Western Gateway. These were combined with the Freight Strategy reviews from other locations, analysis of new data and stakeholder engagement, establishing an understanding of the underlying issues. These sections inform the formulation of the Freight Strategy for the South West.

6.1 Key industry sectors

The South West is home to several important and specialised industries. This section looks to profile some of these and where possible, estimate the value of goods travelling within the Peninsula and Western Gateway regions. The estimation is based on approximate values per tonne of goods linked to commodities from the CSRGT data. Because of the broad nature of CSRGT categories, often encompassing a wide variety of different types of goods, it is difficult to calculate exact per-tonne values, and therefore best estimates are used to give indicative daily figures. Additionally, where shown these include both internal movements within the South West as well as internal and outbound movements.

This section connects strongly with, and uses information sourced from, **Section 6** of the Peninsula Transport Shadow Sub-National Transport Body Economic Connectivity Study which includes key information on the spatial economy and sector specialisation in this region. Similarly, information is sourced from Section 3 of the Western Gateway Economic Connectivity Study which includes a section on: The Sectoral Strengths of The Western Gateway's Economy. Information is also sourced from Plymouth Council regarding the Plymouth Freeport.

In addition to the sectors listed below, there is an additional profile of the energy sector in **Chapter 6.6** of the report.

Food and Drink	• The Connected Economics analysis of Labour Force Survey and sub regional GVA data shows the 'Accommodation and Food Service' sector as having one of the largest long term annual employment growth rates (1.8 per cent per annum over the last 30 years) in the Peninsula region, as well as being a sector of the economy where the South West is strongly represented in comparison to the rest of the UK. This is especially the case in Torbay and Cornwall and the Isles of Scilly • ONS subregional accounts, showing economic output by business sector in the Peninsula region, shows that 'Accommodation and Food Service' had just over £2,000m of output in 2017, one of the largest economic outputs for the region • The Heart of the South West (HotSW) and Cornwall and Isles of Scilly LEP (CloS) Local Enterprise Partnerships both list 'Agri-Food' as a focus for future growth opportunities in the region as a further demonstration of their importance • Figures calculated using tonnage data from the CSRGT data to show that Food Products, Beverages and Tobacco accounts for approximately £130 million worth of goods travelling daily by road in the Peninsula region and just over £230 million of goods travelling daily by road in the Western Gateway region

Agriculture, Mining, Quarrying and Fishing	• Connected Economics analysis of national statistics regional GVA data shows the Peninsula region is heavily specialised in the agriculture, forestry and fishing; mining and quarrying sector, particularly with the region being a comparatively rural region. This is especially the case in Cornwall and the Isles of Scilly, where the Cornwall and Isles of Scilly LEP (CloS) Local Enterprise Partnership lists 'Mining' as a focus for future growth opportunities • ONS subregional accounts, showing economic output by business sector in the Peninsula region, shows that 'Agriculture, forestry and fishing; mining and quarrying had just over £1,000m of output in 2017 • Fishing is an important sector for Peninsula ports in particular with 39,000 tonnes of fish landed across the ports of Brixham, Newlyn and Plymouth in 2017 • The Connected Economics analysis of Labour Force Survey and sub regional GVA data shows Agriculture, forestry and fishing; mining and quarrying as being a sector where GVA is strongly represented compared to the rest of the UK • Figures calculated using tonnage data from the Continuing Survey of Road Goods Transport (CSRGT) shows that Agricultural Products accounts for just over £2 million worth of goods travelling daily by road in the Peninsula region and approximately £5 million of goods travelling daily by road in the Western Gateway region. The same data shows Mining and Quarrying accounting for approximately £18 million worth of goods travelling daily by road in the Peninsula region and just over £2.5 million of goods travelling daily by road in Western Gateway

Tourism	• Within the various insights offered by local authorities within the South West, tourism was noted as being a key industry and contributor to their local and overall economy of the South West • Based on 2017 data from the Visit Britain database, for example, the total number of trips in the Bristol UA area, Wiltshire, Gloucestershire and Dorset was 1.59 million. Total visitor expenditure in the same year for the same areas was £651.7 million, an increase from the £473.2 million total in 2010 (the 'low point' immediately after the last recession) • The Heart of the South West (HotSW) and Cornwall and Isles of Scilly LEP (CloS) Local Enterprise Partnerships also both list 'Tourism' as a focus for future growth opportunities in the region and hence importance • The Peninsula Transport Shadow Sub-National Transport Body Economic Connectivity Study considers a number of technology changes that are already disrupting the transport market or appear poised for mainstream user adoption over the coming years. These include Virgin Orbit and Spaceport Cornwall collaborating to bring satellite launches to Cornwall from the early 2020s with ambitions to later develop space tourism through Virgin Galactic's White Knight and SpaceShip2 launch system. This may present a shift and an additional component to the regional tourism sector in the future

Creative and Technological Industries	• The Cornwall and Isles of Scilly LEP (CloS) Local Enterprise Partnership lists 'Creative Industries' as a focus for future growth opportunities in the region • Advanced Manufacturing, Engineering and Marine Engineering are all seen as key sectors of strength in the Western Gateway region. Dorset has one of the leading aerospace industries in the UK and employs 15,400 people, worth £800 million to the local economy • The Bristol and WECA area boasts the UK's largest aerospace/defence cluster, giving it one of the largest concentrations of such businesses in Europe. In recent years, Airbus opened a new engineering HQ at Filton in 2014 and the National Composites Centre opened in 2011 as part of the High Value Manufacturing Catapult • The Bristol and WECA area is also one of six European "Science Cities" in the UK and is responsible for the manufacture of technology, computer consultancy and software publishing. Key companies include Hewlett Packard, IBM, Toshiba Research Europe, Graphcore, Ultrahaptics and Five AI • Advanced manufacturing is also a key sector throughout Wiltshire and activities in this sector accounted for 13 per cent of all GVA in the county during 2017. Advanced manufacturing is seen as the sector with the most growth potential in Wiltshire. To illustrate the importance of these sectors in Wiltshire, the proportion of employment in advanced manufacturing is 50 per cent higher than the national average whilst the proportion employed in manufacturing is 20 per cent higher than the national average • As well as those currently in operation, there are further business parks planned, including the Gravity Park site near Bridgwater, Somerset. This is a site of over 600 acres which aims to create 4,000 jobs in the creative and technological sectors including robotics and electric vehicles

Military, Naval	• Falmouth Harbour is home to the largest ship repair complex in the UK and is a centre of excellence for Ministry of Defence work • HMNB Devonport is the largest naval base and dockyard in Western Europe • A unique ICT infrastructure complex has developed near Corsham where the Ministry of Defence (MoD) and the private sector have invested heavily in secure communications and data storage • Corsham is home to a growing cluster of digital industries as well as the most secure cloud data and electrical supply centres in the country • There are also strong links in the Western Gateway region with the "100,000 Whole Genome Project" and secure Government communications. The economic potential of this infrastructure to create a leading digital economy cluster is evident within the area and is one of the key growth sectors that can be supported by enhanced corridor connectivity

Freeports	• Freeports are special areas within the UK's borders where different economic regulations apply. Measures and benefits include tax reliefs, customs, business rates retention, planning, regeneration, innovation, trade and investment support. • Plymouth is to become a freeport including sites at Devonport South Yard, Langage Energy Zone and Sherford Business Park. • 9,000 new jobs are expected to be created over the next 10 years and 50 new apprenticeships and 10 internships every year by 2027 • It is expected that more than 70 businesses in the area will benefit from the scheme, which in the next six years is forecast to bring in over £100m investment

	• The initial bid for freeport status was based on three strategic pillars - marine and defence innovation, manufacturing and light processing, warehousing and staged imports. • Freeport status bids for Bournemouth airport and Poole harbour were submitted but unsuccessful.

6.2 Lorry parking

Lorry parking serves as a location to allow drivers to take their statutory rest periods. This can be in the form of lorry parks, laybys and industrial estates. Having access to lorry parking ensures that drivers comply with the drivers' hours legislations. It also ensures drivers are supported by providing them with access to facilities for them to successfully carry out their role whilst they are out on the road. Improving the number and quality of lorry parking facilities is seen as one of the key drivers for attracting new lorry drivers to the industry. **Figure 6-1** indicates the location of lorry parking facilities throughout the South West. During the national survey of lorry parking, conducted in 2017, 627 parking sites were identified in close proximity to the SRN ranging from official lorry parks to laybys.

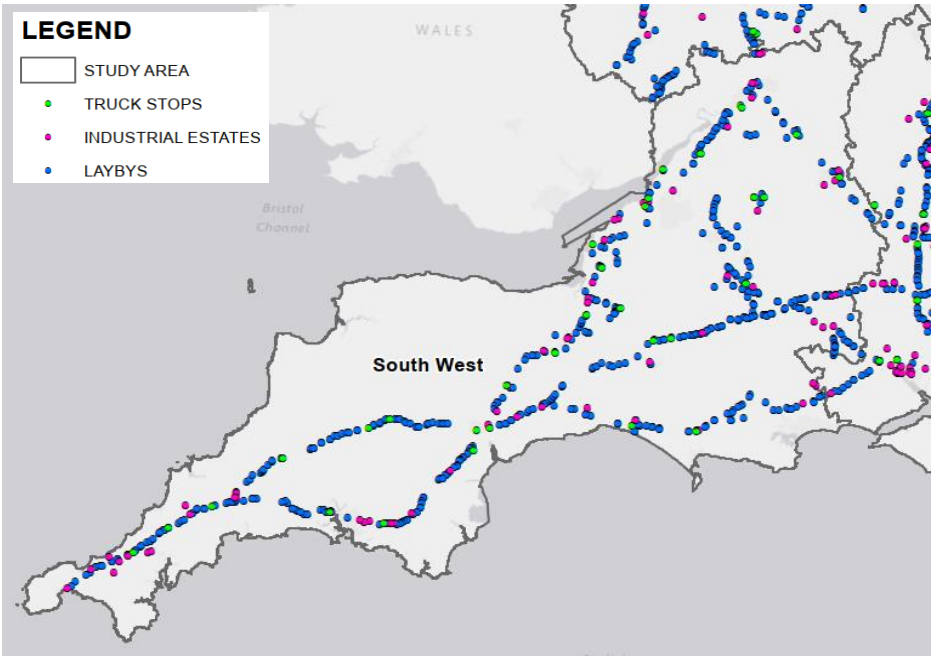


Figure 6-1: Lorry parking sites throughout the South West in proximity to the SRN[21]

It is important that there is a range of facilities available to support drivers. These include toilets, lighting, showers, café, security fences, accommodation and CCTV. The survey identified that 27 per cent of all the on-site parking facilities had safety features including security fences and CCTV. More needs to be done to increase the safety and security of drivers and their loads. National Highways is taking active steps to facilitate better lorry parking provision. A particular focus to improve freight facilities is through the deployment of National Highways Designated Funds, which are available to facility operators, for funding to improve specific locations or for technology trials. A good example of lorry parking can be found at Gloucester Motorway Service Area. A case study on this can be found in **Appendix D**.

The capacity of parking sites identified throughout the South West totalled 1,084 spaces. The average level of utilisation at parking sites in the South West was 72 per cent, with a maximum utilisation of 129 per cent identified at Welcome Break Sedgemoor Services, Northbound. **Figure 6-2** provides an indication of sites which have a critical utilisation status of greater than 85 per cent. Off-site parking in the region is relatively low at 33 per cent. There are hot spot areas for off-site parking on the M5 corridor leading north and east from the Port of Bristol and another issue around Taunton.

It is understood that there is a potential new lorry parking development planned in the Plymouth area.

[21] Department for Transport (2017) National Survey of Lorry Parking https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/723349/national-survey-of-lorry-parking-report.pdf

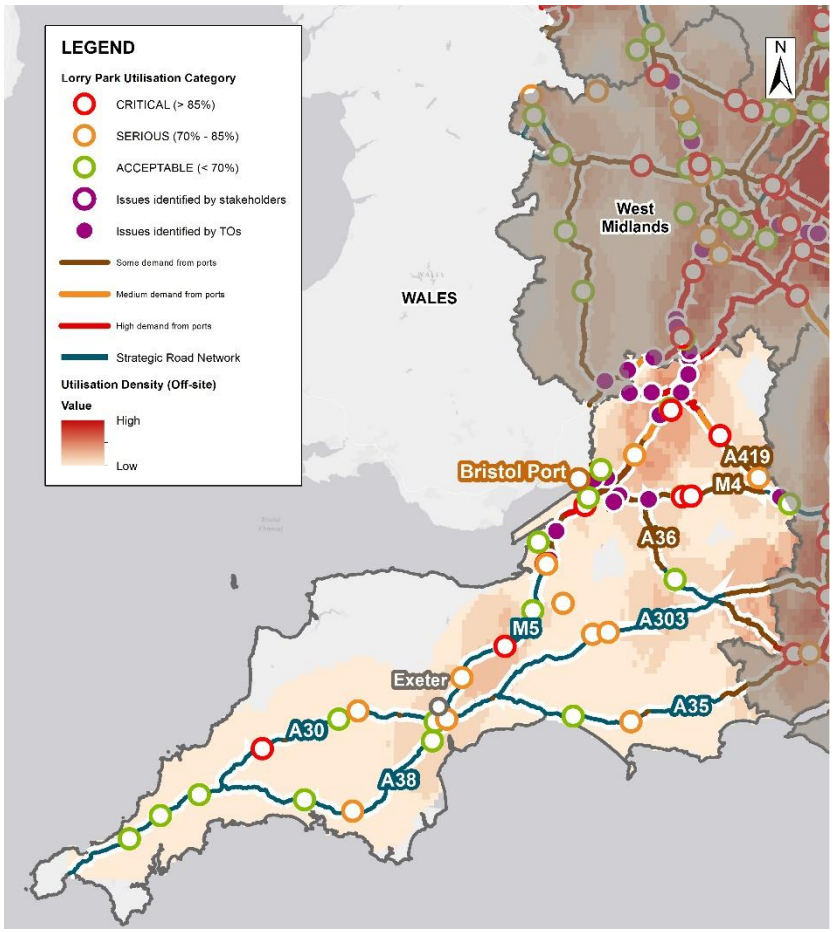


Figure 6-2: Lorry parking utilisation[22]

6.3 Warehousing

Warehouses (also known as 'sheds' in the freight industry) serve as pick-up and drop-off points in all supply networks, and as such they are key generators and attractors of freight traffic. These locations are highly influential in inter-region freight traffic, as the distribution of goods from regions with large quantities of warehouse storage can generate a significant number of trips.

The new report for United Kingdom Warehousing Association (UKWA) from Savills, which compares the latest statistics to data from six years ago, shows a rise of 32 per cent overall in the number of warehousing units, a trend towards bigger warehouses, with an exceptional rise of 242 per cent for units of 1m+ sq. ft and, a radical change in the occupier profile of warehouses. The leading occupier group – which was high street retailers back in 2015 – is now Third Party Logistics (3PLs) providers, with increased occupation levels of 42 per cent and online retailers, who have increased warehouse occupancy by a staggering 614 per cent. This is particularly due to business to consumer (B2C) trends, Brexit and COVID-19, in particular, the massive acceleration of e-commerce and home delivery. These changes in shopping habits are very likely set to stay, so more fulfilment and distribution facilities will be needed to support the move from high street premises to online channels.

Changes to consumer behaviour are influencing the location of warehouses. As demand comes primarily from urban areas, goods need to be close to city centres so that operators and retailers can fulfil next day delivery expectations, a change from the post 1980s trend to fewer and more regional or national locations.

Different regions have seen bigger rises than others. The South West region has seen a 40 per cent increase from 2015. Current supply in the South West is skewed towards smaller size units. The largest unit on the market is the Former Morrison's at Cribbs Causeway Distribution Centre totalling 384,786 sq. ft. In the East Midlands, the region which already had the highest amount of warehouse stock in the UK, the position has been amplified further as the total amount of warehouse space has risen by 45 per cent.

[22] Department for Transport (2017) National Survey of Lorry Parking
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/723349/national-survey-of-lorry-parking-report.pdf

There is a critical skills shortage in the warehousing industry. Applicants with the required technical skills are not gravitating towards warehousing as a career as the industry invests more in technologies to improve efficiency. The running of a warehouse is dependent on a team of employees with the computer literacy and problem-solving skills needed to manage the goods flowing in and out. When vacancies arise however, employers tend to hire applicants that have both the necessary skill sets, as well as prior experience.

6.4 Road freight and Carbon Dioxide

In considering goods movement changes in the future, engine propulsion and the need to decarbonise is an important factor but also the volume and nature of freight as trade patterns, manufacturing technologies and supply chains evolve to reflect technological progress and societal needs. Goods movement is a derived demand from the wider economy and there is a shifting balance of local, national and global supply chain activity. Production moved to the Far East due to cheaper costs but increasingly consumers are becoming interested in where the goods originate and how they are produced. Reducing food miles are symptomatic of the focus on circular economies where 'waste' and 'excess' is minimised.

The transport sector is a major contributor to climate change. In 2018 it accounted for over 24 per cent of global CO_2 emissions from fuel combustion[23] (excludes emissions from agriculture and land use). While individual freight modes, namely rail, air, road and water, have committed to decarbonisation, the sector as a whole is playing catch up with others such as the UK energy sector, which has reduced its reliance on fossil fuels through the adoption of solar, hydro and wind power technologies. This has led to a 68 per cent reduction in CO_2 emissions since 2010[24]. So, what action is the freight industry taking to accelerate progress towards decarbonisation?

In the context of decarbonisation, most people outside the industry correctly assume that the impacts of road freight to be the greatest alongside the aviation sector (air cargo). According to the Organisation for Economic Cooperation and Development's (OECD) International Transport Forum, HGVs are the fastest growing source of global oil demand, accounting for 40 per cent of oil demand growth by 2050 and 15 per cent of the projected increase in global CO_2 emissions[25]. This is largely due to increased demand and usage from countries such as India and China. In the UK, the government is reducing the emissions impact of road freight in urban areas through policies such as Low Emission Zones and Clean Air Zones. In addition, the road freight industry is taking steps to explore the use of alternative fuels such as hydrogen and biodiesel and is investing in the development of electric HGVs and vans. The example of Arrival, the electric vehicle manufacturer, is a case in point. A core proposition is the ability to manufacture efficiently at a much lower minimum efficiency scale. For example, instead of constructing large, 'mega' factories a greater number or smaller factories can be established which when repeated at scale has significant implications for freight flows and network design.

Innovate UK, a non-departmental public body funded by a grant-in-aid from the UK government, has awarded a number of projects geared at decarbonising the industry. This includes trials of Battery Electric Vehicles (BEV), hydrogen, and Electric Road System (ERS) for motorways. These projects are set to change the way the freight industry operates and coincides with the recently published Decarbonisation Transport policy document which sets out the path and plan to achieve net zero transport including commitments to decarbonising rail, zero emission freight and logistics and future transport. However, the pace and scale of decarbonising road freight is posing a challenge to the road haulage industry as the aforementioned technologies are still yet to reach technical and commercial maturity.

6.5 CRAFTeD Freight decarbonisation

Investigation into recent relevant research that would inform the development of the Freight Strategy included liaising with Professor Graham Parkhurst, Director, Centre for Transport and Society which is part of the Department of Geography and Environmental Management Faculty of the University of the West of England, Bristol. Their most relevant Project was a study researching Engagement in Freight Decarbonisation in the South West and as such had the same geographical area as the scope of this strategy.

CRAFTeD (Co-produced Route-mapping to Accelerate Freight Decarbonisation: A Transdisciplinary Learning and Decision Framework) was a collaboration between the University of the West of England and the University of Bristol, supported by public and private sector partners based in South West England. The project, funded under the 'Decarbonising UK Freight' initiative, took place between November 2020 and April 2021 and sought to understand how far stakeholders were already knowledgeable about, and engaged with freight decarbonisation, and the extent to which a regional focus could enhance stakeholder engagement and action towards decarbonisation.

Engagement was found to be relatively strong and established amongst large organisations, which might have specific staff with relevant responsibilities and greater management capacity to participate, along with professionals for whom freight decarbonisation presented a particular personal or corporate concern, or for whom freight matters were their professional focus. Smaller organisations, with some important exceptions, found it harder to engage, and will need more assistance in the future. Some organisations make an important contribution to freight emissions through the nature of their activities but were found to have not yet taken full 'ownership' of those responsibilities, seeing them as 'outsourced' to freight providers. Another method of enhancing engagement will be the empowerment of professionals who may currently lack freight expertise or responsibilities in their roles, perhaps because their primary focus is passenger transport, but for whom freight emissions will become a greater concern as personal travel for goods becomes replaced by deliveries of online purchases.

The regional approach was found to fit well with some aspects of stakeholder networks, particularly for the national surface freight transport functions. Some of these stakeholders are already in regular contact for other purposes, and the region provides a spatial unit over which regular face-to-face meetings within the working day are possible. This close networking potential – both within large organisations and between them - is important given that behavioural-organisational change depends on trust relationships which need building and maintaining over time.

A second factor favouring the regional perspective is the recent inauguration of the STBs (Peninsula Transport; Western Gateway), tasked with developing both subregional transport decarbonisation strategies and subregional freight strategies. However, freight decarbonisation lies at the intersection of these strategies, and must not be lost in the 'gap'. National guidance, and supporting economic and regulatory measures, was also found to be critical to support the emerging regional plans.

Third, the presence of other regionally oriented activities focussing on decarbonisation such as the South West Infrastructure Partnership (SWIP) can provide a source of existing semi-formal or formal stakeholder networks on which to build. Such regional structures will though need be strengthened and supplemented to be effective as a focus of freight decarbonisation. Key stakeholders in the aviation and maritime subsectors in particular tend to be more global or national in focus and regional actors, notably the airport and ports, would be important in bringing in the wider airfreight and shipping perspectives. Similarly, whilst many freight movements are within the region itself, and the decarbonisation of specific terminals and their associated first/last-leg distribution networks can be directly addressed, regional engagement at the national level is also needed for mainline freight haul beyond the region.

It was also found that the regional level, although closer to citizens than the national level, has not been effective, to date, in engaging citizens directly, perhaps reflecting both geographical scale and the absence of elected political and administrative institutions at the regional level since their abolition in 2008. Focussing on the regional level also brings boundary issues, both in the co-ordination between regions, although potentially addressable through networking and collaboration between STBs.

In conclusion, a massive task was identified in the need to engage a wider range of professionals, and indeed citizen consumers, to raise awareness of freight decarbonisation responsibilities and to deliver actions in accordance with a 'route map'. The map itself, rather than being a single, clear and specific route, should be seen as providing a broad direction between a known starting point and a necessary destination, but with the flexibility to adjust the route according to the conditions found along the way and rate of progress. The mission will need to involve the public and third sectors as well as the businesses that commission freight, alongside the companies that deliver it. They will need to develop a culture in which decarbonisation permeates all future freight decisions.

6.6 Energy production in the South West

The South West of England is working on a number of projects to become more self-sufficient in power generation through using a whole range of sustainable power sources. The South West of England is a prime location for renewable energy due to the region experiencing some of the highest sunshine hours and windy conditions in the UK. Furthermore, the vast natural resources and

landscape has resulted in the location being able to reap the benefits from sustainable renewable sources[26]. According to figures from renewable energy provider, Opus Energy, their customers in the South West of England of England, specifically in areas such as Devon and Cornwall are generating enough renewable energy through solar and wind power alone to power nearly 1.2 million LED TVs or 6.5 million LED lights for a year. Customers of Opus Energy South West of England have exported 58,646 MWhs of energy in the past year which equates to powering 17,000 for a whole year, based on the global average for annual energy usage in homes.

The West of England Combined Authority (WECA) in partnership with the South West of England Energy Hub[27] supports organisations across the wider South West to identify, develop and implement energy projects. The aim of the Energy Hub is to encourage investment in energy infrastructure, connect local institutions and share best practice to increase the number, scale, and quality of energy projects. The energy projects range from, home energy retrofitting, street lighting replacement, low carbon electricity, heat generation and energy supply for low carbon vehicles.

[26] BusinessLive (2019) South West generates enough renewable energy to power 17,000 homes for a year. Available from: https://www.business-live.co.uk/economic-development/south-west-generates-enough-renewable-17098912
[27] South West Energy Hub (2020) South West Energy Hub. Available from: https://www.swenergyhub.org.uk/

6.6.1 Hydrogen

The South West of England has the resources and potential to make green hydrogen, with potential sites for solar power, local wind turbines and the abundance of water and desalinated seawater to be used as feedstock for hydrogen production. [28] During the West of England's Aerospace Forum (WEAF) Hydrogen Summit, themes includes supply of hydrogen, potential uses of hydrogen and how to make hydrogen work. The summit discussed how the commercial risks could be reduced by clustering the users. This could result in the encouragement of suppliers of hydrogen to invest in the production, storage, and supply solutions such as a South West of England hydrogen car filling station network. WEAF has recognised the potential of hydrogen as a catalyst for the development of new industrial ecosystem.

Swindon & Wiltshire are a UK leader in hydrogen and fuel cells for local transport and logistics. The SWLEP is the Local Enterprise Partnership for Swindon and Wiltshire, this was established by the central government in 2011. The Swindon and Wiltshire Hydrogen Hub founded in 2014[29], plans and encourage investments and deployment of hydrogen technologies in the area. Swindon is home to some of the leading businesses in the hydrogen sector, giving the area a unique advantage because of its deep and specialised knowledge of hydrogen technologies. Future opportunities for Swindon & Wiltshire consist of enabling large scale renewables integration and power generation through the production of hydrogen from electrolysis using renewable electricity. Following this is the distribution of the energy across sections and regions, acting as a buffer to increase system resilience. As a result, helping with the decarbonisation of; transportation, industrial energy use, building heat and power, and serving as renewable feedstock[30]. Another example of alternative energy in the South West of England is the Langage Solar Farm in Plymouth, this site is being set up in Carlton park with a 10MW electrolyser. The solar farm consists of more than 21,000 solar panels which are being built on a 12 ha site next to the Langage Energy centre, a 910 MW gas-fired power station which has also been developed by Carlton Power and planned to be one of the most efficient power stations in the world.

6.6.2 Biodiesel

Bennamann is undertaking a project that aims to demonstrate a revolutionary new approach to energy independent sustainable farming. This is to maximise the use of on-site renewable energy resources in combination with animal waste such as cow manure to supply all required energy for the farm. As a result, operational costs are reduced and there is efficient delivery of commercially viable net zero energy products such as biogas and liquid biofuel from animal waste for local sale and distribution.

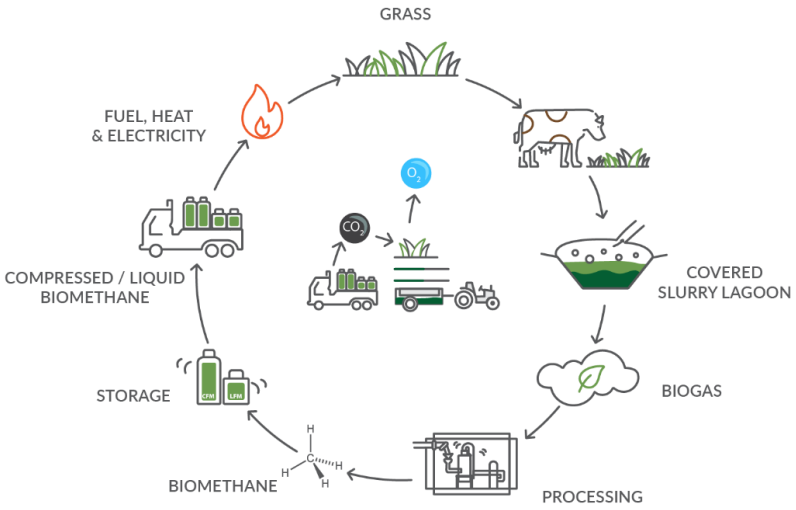


Figure 6-3: Biodiesel – Bennamann Cycle[31]

This shall improve the sustainability of farmland management practices around the South West through the minimisation of artificial inputs such as manufactured fertiliser and lowering the operational costs and reduction of pollutants. This project provides site assessments methods and business models that will enable roll-out scale across Cornwall and the Isles of Scilly, the UK, and the rest of the world.

[28] Business West (2021) Hydrogen - a recipe for a greener 21st century and a buoyant local economy. Available from: https://www.businesswest.co.uk/blog/hydrogen-recipe-greener-21st-century-and-buoyant-local-economy
[29] Swindon & Wiltshire LEP (2021) Swindon & Wiltshire Hydrogen Hub. Available from: https://growthhub.swlep.co.uk/directory/company-detail/swindon-wiltshire-hydrogen-hub-
[30] Hydrogen Hub (2018) Swindon & Wiltshire – Our Place in Hydrogen Technology. Available from: https://static.swlep.co.uk/swlep/docs/default-source/news-events/business-growth-summit-2018/our-place-in-hydrogen-technology.pdf?sfvrsn=d29c3143_2
[31] Bennamann Energy (2020) Energy Independent Farming. Available from: https://bennamann.com/energy-independent-farming/

6.6.3 Nuclear

In the South West of England, nuclear power generation is centred at the Hinkley Point site, which is on a headland on the Bristol Channel coast of Somerset. Construction of the first site, the 'A' plant was a first-generation Magnox unit, of two 250MWe units, commenced construction in 1957 and started generation in 1965. However, Hinkley Point A is now closed and decommissioned. This was then followed by the construction of Hinkley Point B, an Advanced Gas Cooled Reactor (AGR) which started generating in 1976 and provided low carbon generation for 81 million homes and 105.5 Million Tonnes of CO_2 , this site currently has a decommissioning date of July 2022.

Hinkley Point C is now under construction and is the first new nuclear build project in more than 25 years. Hinkley Point C is of the newest European Pressurised Reactor (EPR) design with two 1,630 MWe units, it is estimated that the Hinkley Point C will offset nine million tonnes of carbon dioxide emissions every year of its planned 60-year life (600 million tonnes)[32]. Hinkley Point C[33] in Somerset will provide low-carbon electricity for around 6 million homes and bring lasting benefits to the UK economy.

6.6.4 Windfarm Electric

Over the past few decades, Cornwall and Devon have played a significant role in the UK's renewable energy sector[34]. The South West of England was where the UK's first wind farm was built. Cornwall was considered a pioneer in the renewable energy sector, in 1991 it became home to the first commercial wind farm. The site stands 800 feet above sea level and was regarded as the perfect location for wind turbines. For the first two decades the site operated 10,400 kW Vestas wind turbines but were decommissioned in 2010 to make way for newer technology. These wind turbines were then replaced with newer and three times larger turbines.

England's biggest Windfarm, Fullabrook project saw 22 100-metre turbines located across a farmland between Barnstaple and Ilfracombe in North Devon. According to the owners, ESB energy, Fullabrook can generate enough electricity to power around 42,000 households a year which equals around 30 per cent of Devon. The windfarm is expected to save more than 180,000 tonnes of carbon dioxide. According to a study from the research and innovation centre, the Offshore Renewable Energy Catapult, the Floating wind[35] farms in the Celtic Sea off Cornwall could support 3,200 jobs in the South West and Wales, generating £680 million into the local supply chains by 2030. Floating offshore turbines can be used in deeper offshore waters where the sea has more wind and the seabed is not suitable for fixed wind farms. The study examined the potential for building four wind farms, two off Cornwall and two off the coast of Pembrokeshire over the next decade.

6.6.5 Maritime

The South West is the only region with all offshore renewable energy resources, wave wind, tidal and solar. It is close to major ports and infrastructure[36] and the clusters have several sites to test and deploy wave tidal and wind devices. Maritime UK South West is the leading UK ocean technology cluster, it is a public, business, research partnership which brings together the breadth of ocean economy to create a world leading ocean technology cluster. The cluster has several sites to test and deploy wave, wind and tidal devices in Cornwall and North Devon.

6.6.6 HVO Vegetable Oil

There are a number of HVO (hydrogenated vegetable oil) suppliers in the South West including Heltor, one of the leading suppliers of HVO[37]. HVO is produced by hydrotreatment of vegetable oils and/or animal fats, resulting in premium quality fuel with a chemical structural almost identical to regular diesel and can therefore replace fossil diesel. HVO is manufactured by synthesised process with hydrogen to create a greener renewable fuel. Heltor HVO is a trusted family run fuel supplier with 60 years' experience serving domestic, agricultural, commercial and haulage markets across the South West. The HVO is a diesel replacement and is synthetically made through hydrotreatment process from vegetable oils, grease waste or residual from food industry and agriculture. The renewable materials can be regrown when the stock is needed, this can be used across the South West for sustainable fleets. Although HVO may be slightly dearer at the pump it can be substituted for diesel without detrimental effect on engine performance and vehicle warranty. It is also estimated to be 85 per cent better in terms of Green House Gas emissions.

[32] Arup 2021
[33] EDF Energy (2021) About Hinkley Point C. Available from: https://www.edfenergy.com/energy/nuclear-new-build-projects/hinkley-point-c/about
[34] Monarch Partnership (2021) How Cornwall is leading the UK in its journey to net zero. Available from: https://monarchpartnership.co.uk/how-cornwall-is-leading-the-uk-in-its-journey-to-net-zero/
[35] Cornwall Live (2020) Floating wind farms off Cornish coast could generate 3,000 jobs for the South West. Available from: https://www.cornwalllive.com/news/cornwall-news/floating-wind-farms-cornish-coast-3818053
[36] Maritime UK South West (2021) Offshore Renewables. Available from: https://maritimeuksw.org/offshore-renewables/
[37] Heltor (2021) Heltor HVO Fuel. Available from: https://www.heltor.co.uk/heltor-hvo-fuel/

6.7 Alternative fuels and applicability

The development of the South West Freight Strategy recognises the work being undertaken in Work Package 7 – Electric Vehicles and Technology for Peninsula Transport. Once WP7 is complete, conclusions made as part of the Freight Strategy work will be checked again to ensure alignment. WP7 defines and baselines EV and the key technologies across the region to understand where change is possible and from which leverage can be applied. A visioning process was used to develop plausible "technology scenarios" to understand the potential "scope for change" required to meet regional mobility challenges. These scenarios were then tested by considering the implications and pathways for how technology and EV can influence South West mobility, working from the baseline situation, and how they enable and contribute to the wider strategic objectives across the STB area. Testing will also consider aspects such as air quality, the economy and net zero carbon targets, whilst also identifying alignment with national technology trends.

The UK Government announced that new diesel and petrol cars and vans would no longer be sold from 2030, and that all new cars and vans must be fully zero emission at the tailpipe from 2035. The impact of this for the freight industry is rapid interest in the procurement of EVs and alternative fuelled vehicles. The UK Government are leading the way with a commitment to decarbonise 100 per cent of government car and van fleets to zero emission by 2027[38]. Many of the UK local authorities have followed suit with commitments to take action and decarbonise their fleets through a phased programme of vehicle replacements. With respect to HGV fleets, there is a consultation on ending the sale of all non-zero emission HGVs from 2040, with lighter HGVs from 2035. As a result, the freight industry must adapt and prepare a plan of how it will decarbonise its fleets to meet this target.

Future propulsion systems for vehicles are likely to continue developing at a rapid pace. There are currently a number of technologies on the market that the freight industry can choose from. Transport Managers and other decision makers can use of alternative propulsion/fuels instead of diesel to reduce their carbon footprint. depending on which technology is suitable for the fleet profile and fleet operations. These alternative propulsion/fuels include:

6.7.1 Electric vehicles

A battery electric vehicle (BEV) uses chemical energy stored in a rechargeable battery to propel the vehicle. These are recharged through an electrical connection which, depending on the battery capabilities, technologies onboard the vehicle and the charging infrastructure, will take a period of time to bring the battery to full capacity. The advantage of this is that are no emissions from the vehicle. The disadvantage is that the vehicle can be expensive, and the charging is longer in comparison to filling up a petrol or diesel vehicle.

The charging infrastructure for electric freight vehicles is evolving beyond the provision of static electric charging points. The innovation around electric charging on the SRN via battery electric technology or overhead electricity (gantries) on network routes presents opportunities for decarbonisation. This has the propensity to make recharging cost effective by integrating more renewable energy into the national grid and enabling vehicles to charge whilst in motion. Termed the 'Electric Road System', the aspiration, UK wide, is for overhead cables to extend across 7,500kms of the SRN to power 65 per cent of all HGVs at a cost of £19.3 billion[39]. Pilots being conducted in Lincolnshire (20km section in Scunthorpe), will help to legitimise wider adoption which would bring together delivery bodies to deploy sections at scale and quickly.

The routes and phases can provide a useful proxy by which to determine the perceived core freight routes where long distance haulage is most prominent, 'off road' sections are limited (reliance on battery power) and air quality needs to be addressed. As well as the potential advantages offered through collaborative construction and delivery of a network (and dovetailing existing or proposed road enhancement projects), the use of electric road system would also aid with vehicle taxation and data monitoring.

The Centre for Sustainable Road Freight White Paper outlines aspirations for developing a network across three phases with the M4 being developed in the first phase followed by the A303, and A38 to penetrate deeper into Cornwall and Devon. The phases, delivered within a ten-year period, would who to address the challenge of decarbonising the haulage industry longer term and could be considered as part of the local 'fuel mix' across the UK and the South West region.

[38] Department for Transport (2021) Decarbonising Transport – A better, Greener Britain. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf
[39] P. Walker (2020) Plans revealed to electrify motorways for HGVs. Available from: https://nationaltechnology.co.uk/Plans_Revealed_HGV_Motorway_Overhead_Electric_Cables.php

Figure 6-4: Electric Road System is due to be trialled in the UK (Nordic Road & Transport Research, 2021)

There are a number of externalities which can impact the efficiency of electric vehicles. When introducing new electric vehicles to fleets, suitable training and advice should be provided to ensure the maximum efficiency from the vehicles and longevity of the investment. This should include:

- **Driver behaviour** – efficient driving to maximise range
- **Speed** – limiting speed to reduce energy consumption
- **Temperature and heating** – pre-conditioning vehicle to reduce energy consumption
- **Battery efficiency** – varies by vehicle depending on factors such as vehicle weight
- **Payload** – less weight to reduce energy consumption
- **Tyres** – correct inflation to reduce rolling resistance therefore maximise range
- **Battery degradation** – management of charging regime to maximise battery health
- **Manage the State of Charge (SoC)** – management of charging regime to maximise battery health
- **Rapid charging** – only use when needed and regularly slow charge the vehicle
- **Extreme heat** – initiate measures to protect vehicle in extreme heat when not being used

The charging infrastructure is key to ensure that operators have access to suitable chargers that are powerful enough to charge LGVs and HGVs. National Highways has a technical partner to support a Rapid Charging Programme to deliver a large number of electric charging points across the county, which will support and encourage the growth of electric freight vehicles in the South West and elsewhere across the country. The South West is currently well served in terms of charging capabilities. **Figure 6-5** shows that Cornwall, Dorset, Bournemouth, Christchurch and Poole, Wiltshire, North Somerset, Bristol City and South Gloucestershire are in the top 20 per cent for highest number of rapid chargers.

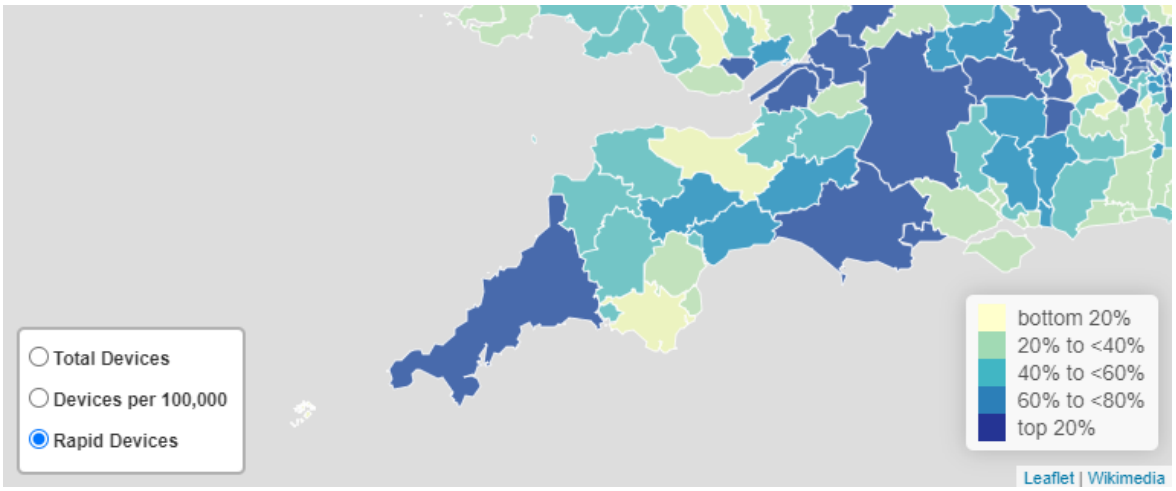


Figure 6-5: Rapid charging devices in the South West produced by Zapmap for the DfT[40]

At this moment in time, EVs are a limited prospect for longer distance freight transport, the rise in LGV usage does present increasing opportunities that must be considered for the future of the South West. Furthermore, mobility technologies such as intelligent traffic control, connected and autonomous vehicles, and increased integration of tracking data have the potential to generate significant benefits for the freight sector.

6.7.2 Hydrogen

Hydrogen is found in compounds such as water and methane and through a process is separated into pure hydrogen.[41] Hydrogen can be produced in several ways, such as natural gas, nuclear power, biomass, and renewable power like solar and wind. The most common way is through natural gas reforming and electrolysis[42] emissions. Hydrogen vehicles are refuelled similarly to petrol and diesel vehicles. The advantage is that hydrogen can provide consistent power and is flexible in its application for different fleet profiles and routing profiles. The disadvantage is it can be expensive and energy intensive to produce with some types of hydrogen extracted using fossil fuels. Green hydrogen can be produced which is generated from renewable sources and the project team learned of a new development near Plymouth which will turn solar power into green hydrogen.

6.7.3 Liquid Natural Gas

Liquid Natural Gas (LNG) and Compressed Natural Gas (CNG) are two similar fuels as they are both produced from natural gas. However, the key difference is that one is made into liquid whilst the other is compressed. One unit of liquid gas energy takes up three times less volume than one unit of compressed gas energy. As a result, LNG gas is denser and therefore more energy can be drawn than CNG. LNG is mostly used for larger vehicles such as HGVs as LNG provides greater range which suits heavier vehicles that cover larger mileages. LNG vehicles are refuelled similarly to petrol and diesel vehicles. The advantage is that LNG is 30 to 40 per cent cheaper than diesel and produces a 25 per cent reduction in carbon dioxide. The disadvantage is that it is not zero emission and does requires specialist storage facilities to keep the fuel at -260°F.

6.7.4 Compressed Natural Gas

Compressed Natural Gas (CNG) is similar to LNG as they both come from natural gas. The difference with CNG is that it is compressed to less than one per cent of its volume and stays in gas form. CNG is odourless, tasteless and non-toxic, and is made up of 93.05 per cent methane, nitrogen, carbon dioxide, propane and traces of ethane. It is an environmentally clean alternative fuel, as its combustion process emits a lower percentage of greenhouse gases when compared to other fuels. CNG can be used cars, vans, light, medium and heavy-duty trucks. CNG vehicles are refuelled similarly to petrol and diesel vehicles. The advantages are similar to LNG except refuelling from gas mains does not require safety equipment to handle in comparison to LNG. Similarly, the disadvantage is it not zero emissions.

[40] Department for Transport (2021) Electric vehicle charging devices by local authority. Available from: http://maps.dft.gov.uk/ev-charging-map/
[41] US Department of Energy (2021) Hydrogen Production and Distribution. Available from: https://afdc.energy.gov/fuels/hydrogen_production.html#:~:text=Hydrogen%20per%20cent20can%20per%20cent20be%20per%20cent20produced%20per%20cent20fromand%20per%20cent20water%20per%20cent20electrolysis%20per%20cent20with%20per%20cent20electricity.&text=The%20per%20cent20resulting%20per%20cent20synthesis%20per%20cent20gas%20per%20cent20contains,team%20per%20cent20to%20per%20cent20separate%20per%20cent20the%20per%20cent20hydrogen
[42] Office of Energy Efficiency & Renewable Energy (2021) Hydrogen Fuel Basics. Available from: https://www.energy.gov/eere/fuelcells/hydrogen-fuel-basics

6.7.5 Hydrotreated Vegetable Oil (HVO)

Hydrotreated Vegetable Oil (HVO) is a bio-based liquid fuel originating from many kinds of vegetable oils, such as rapeseed, sunflower and soyabean. The vegetable oils are synthesised using a specialist hydrotreatment process and its purity allows it to significantly reduce harmful emissions when used in diesel vehicles and machinery through much-improved burning efficiency. HVO vehicles are refuelled as diesel vehicles and it can be mixed with diesel to provide a top up fuel. The advantage is that it is compatible with most diesel engines and most vehicle manufacturers provide full warranty on their engines and drivetrains provided that accredited HVO is used. A further advantage is that compared to diesel, HVO can offer an immediate reduction of up to 90 per cent of net CO_2. The disadvantage is that HVO is more expensive than petrol or diesel and is not fully a zero emission fuel.

6.7.6 Biodiesel

Biodiesel is a renewable, biodegradable alternative fuel made from a mix of modified vegetable oils and diesel fuel. It is made from using vegetable oils and animal fats. It is produced by esterifying a natural oil or fat with methanol to produce biodiesel and glycerol, the glycerol is then removed so biodiesel is left. Biodiesel is blended into different ratios that offer different results in performance and CO_2 emissions. The blends are:

- B100 – 100 per cent biodiesel
- B20 – 20 per cent biodiesel, 80 per cent diesel
- B5 – five per cent biodiesel, 95 per cent diesel
- B2 – two per cent biodiesel, 98 per cent diesel

Biodiesel vehicles are refuelled similarly to diesel vehicles however it needs to be stored in heated tanks and requires dispensing equipment. The advantage is that it is greener alternative to petrol or diesel, however it still produces emissions when burnt and is not suitable for low temperature environments.

Table 6-1: Greenhouse gas savings per fuel type[43]

	High Blend FAME B20-B100	Hydrotreated Vegetable Oil	Biomethane	Bio LPG	Renewable hydrogen
GHG emissions	18-85 per cent	90-92 per cent	82-85 per cent (100 per cent possible)	63-90 per cent	85-90 per cent
Feedstocks	Waste biomass	Waste biomass	Waste biomass – manure avoids methane release – carbon negative	Virgin and waste biomass	Water and renewable electricity (electrolysis)
Deployment	Mainly B20/30, lower adoption of B100 c700 HGVs	100 per cent HVO, GTL blended with HVO c800 HGVs	Compresses & Liquid biomethane 800-1000 HGVs	100 per cent Bio LPG, > 200 forklift trucks	No HFC HGV on the market
Supply Chain	Established market	Early market but expanding	Established market, expanding	Early market, low volume	Market entry for HDV market, v low volume
Refuelling Infrastructure	Back to base, upgrading required for B100	Back-to-back, no changes existing systems	Growing investment in public stations >20	Back to Base	Back to base, no public stations for HGVs
Vehicle Application	Varying OEM positions warranty / compatibility	Direct 'drop in' replacement	CNG/LNG Trucks available, 2nd market required	Forklift trucks	HFC future H2ICE, dual fuel H2ICE
Whole Life Cost v Euro VI Diesel	Same to higher (vehicle, infrastructure B100)	Higher (fuel cost)	Lower, up to 30 per cent fuel savings for high mileage fleets	Equivalent	Much higher – vehicles, fuel & infrastructure

[43] Zemo Partnership

6.8 Trends in online shopping and increases in the number of vans

According to DfT research, 13 per cent of the 4.1 million vans registered in the UK are registered in the South West, i.e. 533,000[44].

In the South West 48 per cent of vans were kept by a private individual and 52 per cent were kept by businesses. The age of the vehicle also impacted the average annual mileage, with older vans having lower mileage. The average mileage was 11,000 miles in the South West which is the lowest in the country. The research found that if the vans were being used for 'Delivery/collection of goods" then their average mileage was higher at around 21,000 with an average number of drops being 18 per day. The South West has the lowest proportion of new vans with just 33 per cent and the highest proportion of vans over 10 years old (41 per cent). This compares to Scotland which has the highest number of new vans at 47 per cent.

Long before the onset of the COVID-19, consumer behaviours in relation to shopping have been changing with analysis by Marsden et al. (2021)[45] indicating that the average adult travelled just over 200 miles less for shopping in 2019 than they did in 2002, due to the rise of online shopping.

COVID-19 has led to an acceleration of this trend with online shopping proliferating due to restrictions on visiting physical stores. **Figure 6-6** demonstrates the extent of this growth, with online retail reaching a record proportion of total retail sales in January 2021 at 35.2 per cent (ONS, 2021)[46].

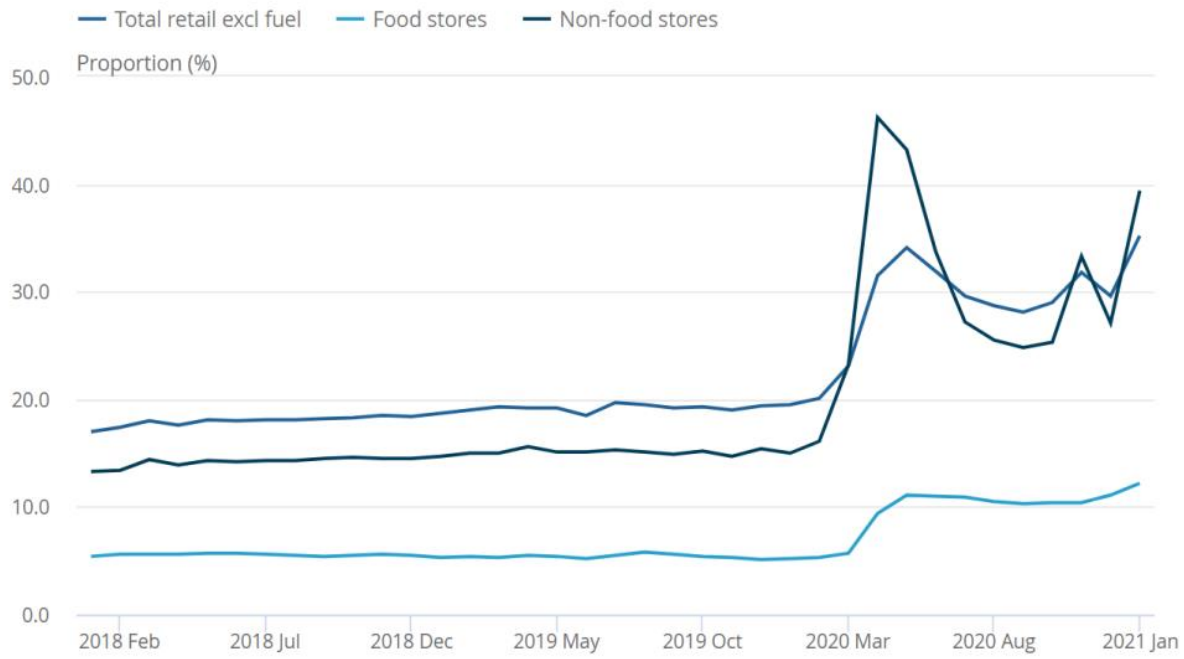


Figure 6-6: Online retail as a percentage of all retail sales

The online retail sector has steadily grown over the years. The impacts of COVID-19 and the effects of store closures, as a result of lockdown, has accelerated this trend further still. According to the ONS, online sales as a percentage of total retail was recorded at 27.9 per cent for 2020, a 45 per cent increase from 2019[47]. Online retail trends suggest that this consumer behaviour is here to stay and as such will have an impact on the demands of the freight sector.

Whilst it is expected that this trend may revert to some extent post-COVID-19 once all restrictions are lifted, it is likely that the COVID-19 will have had long-lasting impacts on consumer habits, including the shift to online shopping.

[44] Department for Transport (April 2021) Final Van Statistics April 2019 - March 2020. Available from;, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065072/van-statistics-2019-to-2020.pdf
[45] Marsden, G. et al (March 2021) Report: At a crossroads – Travel adaptations during Covid-19 restrictions and where next? Available from: https://www.creds.ac.uk/publications/at-a-crossroads-travel-adaptations-during-covid-19-restrictions-and-where-next/
[46] Office for National Statistics (February 2021), Retail sales, Great Britain: January 2021. Available from: https://www.ons.gov.uk/businessindustryandtrade/retailindustry/bulletins/retailsales/january2021
[47] Office for National Statistics (2021) Internet sales as a percentage of total retail sales (ratio) (%). Available from: https://www.ons.gov.uk/businessindustryandtrade/retailindustry/timeseries/j4mc/drsi

6.8.1 Connected Communities

At a more localised level, one of the drivers which could impact upon the extent to which e-commerce continues to grow at the expense of physical travel to stores is the extent to which the different regions / communities are connected online.

The Consumer Data Research Centre has produced a geodemographic classification which provides a typology of neighbourhoods in Great Britain based on indicators of internet use and engagement. The data has been constructed from online retailers, surveys and infrastructure and is updated to 2018[48].

The different neighbourhoods have been classified as shown in **Figure 6-7**.

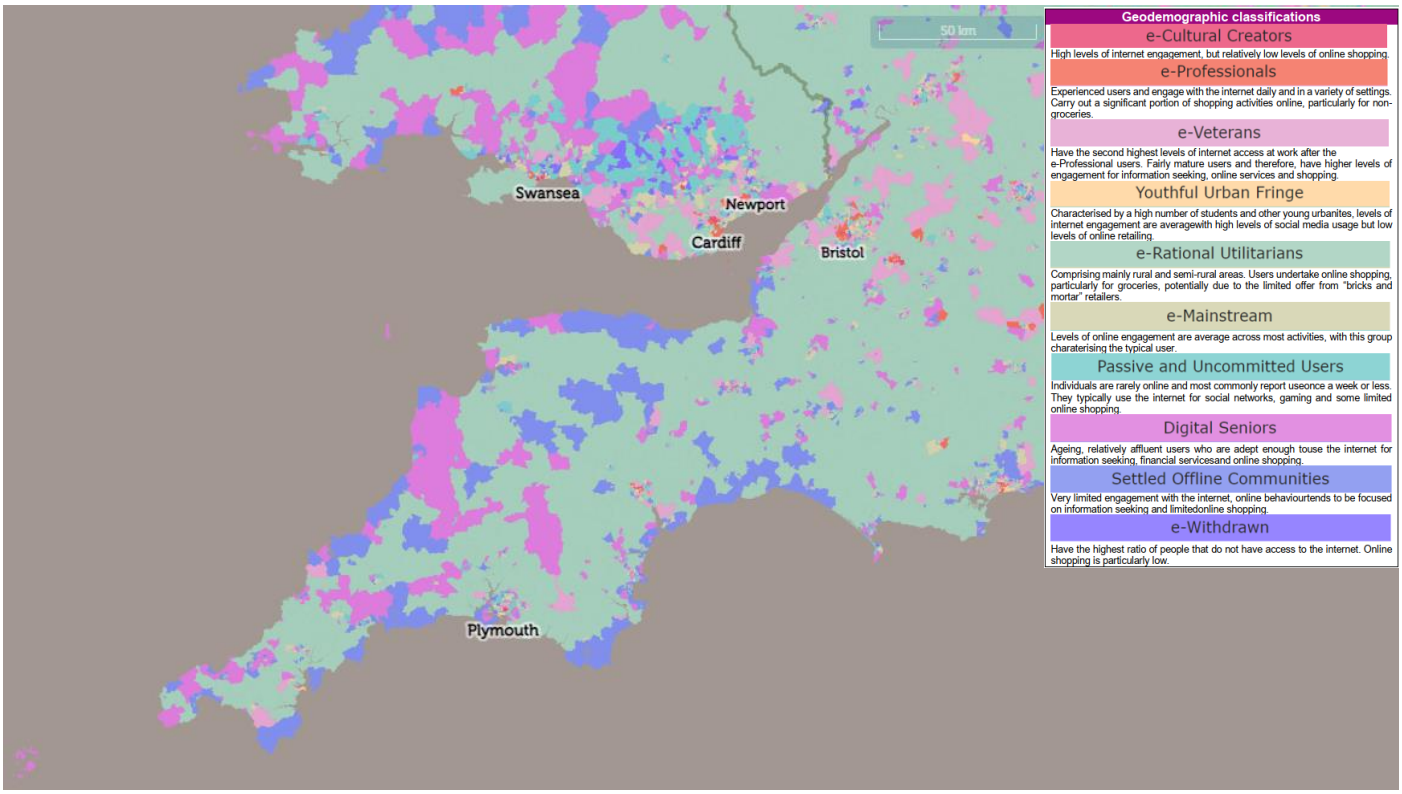


Figure 6-7: Internet user classifications across the South West divided into 10 demographic categories

From **Figure 6-7** it can be seen that large areas of the South West are covered by a category called "e-Rational Utilitarian" users who live in rural or semi-rural areas and use the internet particularly for grocery shopping. There are also patches of "Digital seniors" who are also characterised by higher levels of engagement for online shopping.

Across Bristol, Bournemouth, Exeter and Plymouth, there is a diverse mix of users, with some areas of very high internet engagement and some with very low engagement.

Towards the coastal and some pocket areas, there is a greater presence of Settled Offline Communities. These users have very limited engagement with the internet, with their activities generally focused on information seeking, with limited online shopping. This also maybe caused by connectivity issues where broadband speeds are limited in very rural areas.

Overall, it appears there is a good level of digital engagement, although this becomes more sporadic in certain areas. This means that the shift towards online shopping will be experienced in certain areas where engagement is high, particularly towards the urban areas, with associated reductions in vehicle trips to physical stores. As a result, this will increase the number of parcel and retail delivery vehicles on the network going to customer's homes.

6.8.2 Impact of online shopping on LGVs and HGVs

Based on estimates from the 2019-20 Van Statistics survey[49], the "delivery/collection of goods" accounted for 23 per cent of all van mileage. Whilst this figure is likely to increase as online shopping and the delivery of goods becomes more prevalent, according to

[48] Consumer Data Research Centre (2018) Internet User Classification. Available from: https://data.cdrc.ac.uk/dataset/internet-user-classification
[49] Department for Transport (September 2020), Road Traffic Estimates: Great Britain 2019

Marsden et al. (2021) the trend is not linear, as delivery companies are able to consolidate orders to adjacent homes and businesses more effectively.

This is likely to be indicative of the growth of the “last-mile delivery” within the freight transport industry as the proliferation of online shopping requires smaller but more frequent deliveries to be made to connect “the last-mile” between regional distribution centres and urban retailers and consumers. These are typically on local roads rather than the SRN.

The sites listed in **Table 6-2** often serve a regional and national network, and as the shift towards online shopping continues to accelerate it is likely that the role of these sites will continue to grow. This could lead to localised increases in freight movements in certain areas.

Table 6-2: Examples of distribution centres in the South West

Key warehousing and distribution centres in the South West	
Bristol	Plymouth
Taunton	Poole
Portbury	Bournemouth Airport
Emmerson Green	Bridgwater
Exeter Airport	Swindon

Additionally, Brexit may also lead to an increased demand for warehouse space in the South West, given the uncertainty over supply and shipping that this generates. This could lead to greater stockpiling, with a need for more warehousing space to store the stock. Additionally, some e-suppliers are establishing fulfilment centres on the outskirts of population centres and this may result in an increase in HGV movements to and from these sites.

6.9 Circular economy

An understated trend developing across the UK that could likely manifest across the South West is the emergence and increased prominence of the circular economy. The circular economy presents an alternative to traditional linear processes by which we produce, consume and dispose of resources by seeking to reduce waste and extract the maximum value from products and services. It offers a framework in which to regenerate and renew local 'ecosystems', composing of business, residents and authorities, and is particular pertinent with respect to decarbonisation and creating more resilient, attractive and sustainable communities.

A freight lens can be applied to this economic model whereby the adoption of sustainable practices and changes in consumption activity can lead to a reduction in freight miles and opportunities to reduce overall demand for travel. In many instances the circular economy is a catalyst to applying demand management techniques that can address some of the most pressing social, economic and environmental challenges as well as issues relating to the freight industry. This contrasts to the necessary, yet overwhelming, focus on unlocking supply side constraints to continue propped up a business-as-usual economy. The approach towards the circular economy is not confined to tangible goods but the sharing of data to aid local decision making.

A circular economy approach, which can have direct applications to the South West and can manifest in the following ways:

Community Wealth Building: An approach towards local economic development that brings together major 'anchor institutions', large public and private sector institutions, to foster sustainable procurement practices through local sourcing and budget spend. This approach is tailored towards supporting local SMEs through the development of 'bitesize' contracts with conditions attached, including sustainable delivery and serving requirements and supply chain transparency. Localised procurement can reduce freight miles across a broader geographical area whilst enabling some degree of mode shift for local journeys.

Data Sharing: Fostering a culture across industry and public authorities of sharing best practice that moves away from inter region competitiveness and seeks to deliver a more integrated and efficient freight ecosystem with minimal wasted resources. This seeks to make most effective use of company specialisms in a network approach (e.g. hub and spoke) as opposed to parallel running and operations. Who owns the data is also a key consideration as well as the incentives for collaboration.

Vehicle Cascading: Taking a broader perspective on energy efficiency and the need to speed up the transition towards carbon neutrality by procuring higher value specification vehicles from other parts of the country. To be explicit, this alludes to renewing operator fleets or upgrading rolling stock to higher standards by procuring from places, typically major cities, or companies, such as Train Operating Companies (TOCs) that have recently purchased new vehicles.

Workforce Professionalisation: The practice of developing and harnessing educational programmes, including apprenticeships and geographical 'specialisms' (reflected through universities and industry leaders) to effectively localise career development, reduce 'brain drain' and raise local and regional industry standards across the freight and logistics sector. Investment in training, accreditation and industry-education links can look to aid reinvestment (through tax revenues, higher standards) longer term.

Reverse Logistics: Increasingly popularised in response to the growth of e-commerce and subsequent requirement for returned items to be transported back to the supplier (and manufacturer) of products. Reverse logistics, as implied, is the movement of items, which is typically associated with waste, back down the supply chain to be recycled or reused in some capacity and has huge potential to be embedded within freight networks to reduce energy consumption and resource extraction as part of a broader take on sustainable societies. Freight transport plays an instrumental role in brokering the circular model and can directly benefit from wider adoption of C2B activity.

Alternative Fuels: Supporting the recycling of agricultural waste (an economic sector that is presence and relevant in the south west) to develop biofuels for scaling up the use of hydrogen and HVOs for the road haulage and rail sector respectively (the former pending investment in re-fuelling infrastructure).

Food chains: Developing food chain networks that harness the potential of hydroponics and urban farming (in optimal conditions next to end users), transport produce through zero emission vehicles before lastly collecting waste and recycling to reinvest back into the food chain for growing produce.

Waste/Recycling/Parcels: Traditionally associated with reverse logistics and increasingly applicable to returning parcels on short lead times and is typically build into operational planning. However, potential for localised schemes adopting peer 2 peer practices for material such as packaging and equipment (Library of Things).

The circular economy is an approach that can and should be facilitated through public authorities and can gain political buy in because of the virtues it brings to supporting local economic, social and environmental objectives that transcend the needs of the freight industry. The South West, renowned for its strong regional identity, in part to its more isolated geographical location, and reliance on import traffic, would be an ideal 'living laboratory' for testing new ways of living and working that can shape the type of goods which are consumed as well as the way in which they are moved. More specifically, a circular economy approach can help address the following issues:

- Driver shortage for long distance haulage by reducing travel demand and re-rooting core freight markets, such as food production, across the region (and particularly urban conurbations).
- Improving freight efficiency by incorporating reverse logistics into planning as a new revenue stream for operators and mitigating derived demand for separate collections. Data sharing can also help reduce empty running and parallel running along core freight corridors.
- The need for decarbonising the freight sector quickly and the opportunities presented to develop and harness the skills and existing economic drivers/sectors (e.g. agriculture, marine technology) to deliver carbon neutrality.
- Employment and challenges with seasonality across the south west that impact many sectors, including freight. A circular economy can provide greater year round resilience and stabilise demand – leading to continued employment, tax receipts and local investment.

6.10 Innovation

Technology is not only changing the way we live and work, but also fundamentally transforming the supply chain. With the rise in global sourcing, the effective use of cloud-based Information Technology (IT) provides transparency and efficiency. Notable changes are happening in the following key areas:

Communication and data: IT facilitates the seamless integration of end-to-end transport by enabling quick electronic data transfer between the freight carriers, facility providers and other parties in the supply chain. Paperless information flow saves handling time and provides real-time data transfer, enabling electronic transactions and data analysis, supported by the emergence of 5G Network communications. Price, agility and availability of emerging technologies within cloud platforms contribute to the rapid adoption of electronic data transfer across the globe.

Vehicles and systems: There are various trials of vehicle-based technology, including lorry platooning, and semi-autonomous and autonomous vehicles.

In Sweden, Volvo's first self-driving bin lorry is under trial and should be safer and more environmentally friendly. The lorries follow a programmed route, going from one wheelie-bin to the next, with no driver in the cab. If the trial is successful, the lorries could be among the first unmanned heavy goods vehicles (HGVs) on the road.

Operational efficiency: IT is used to monitor real-time traffic information and provides reliable estimates of arrival times, and thus improves operational efficiency. IT equipment, both in the control centre and on-board, facilitates the monitoring of real time positions by using satellite navigation. If incidents occur or congestion is detected, then intelligent re-routing is performed — leading to time and fuel savings.

IT equipment to help operators advertise their backloads to better utilise empty loads on their return leg. Systems such as Transport Exchange provides opportunity to sell backloads to stakeholders to ensure the load is efficiently utilised instead of running empty.

People and productivity: Companies are reliant on a safe and efficient workforce. On-board diagnostics systems help managers to understand driver behaviour. Sensors record aggressive or poor driving behaviours with on-board cameras that capture the driver's eye view on the road/railway and provide evidence in the event of an incident. IT is used to assess driver skills and inform both the company and drivers of ways to improve their driving habits, saving fuel and money and improving safety.

New concept innovations: Aerial drones, robotic delivery agents, driverless trucks, Hyperloop, maglev (derived from magnetic levitation) trains, solar-powered planes, engineless flight and crewless automated cargo ships are all projects at different stages of testing. Time will tell which of these become mainstream.

At a time of uncertainty and ever-tighter margins for the freight transport sector, the successful implementation and use of new technologies can generate greater operational efficiencies.

Any innovation must be safe, affordable and secure industry and public acceptance to make a real difference. This, in turn, requires good business practice, organisational skill, and planning from across the UK freight industry to fully realise the potential benefits.

6.11 Last mile logistics

Last mile logistics refers to the final stage of the supply chain process, with the goods reaching the end user. It can often be the most difficult stage of the supply chain with issues around accessibility and the cost of delivering, particularly in remote locations. It is estimated that the last mile journey accounts for 53 per cent of the supply chain cost[50], presenting its significant cost implication to the operation. The South West has a wide variety of locations ranging from urban areas to remote areas located on difficult to access roads away from the SRN and major road networks. Some of these roads may be unsuitable for delivery vehicles and therefore additional costs will be incurred.

The number of last mile journeys is increasing due to a number of reasons. These include[51]:

- Increase in demand
- Changes in shopping behaviour, namely online shopping and home delivery
- Technological advances requiring installation of equipment and continuous maintenance such as telecommunication and specialist equipment
- Increase in at home services and rapid response services
- Growth in the construction industry
- HGV driver shortage and the less stringent nature of LGV licencing

With COVID-19, it has accelerated the trend for online shopping with online retail reaching a record proportion of total retail sales in January 2021 at 35.2 per cent (ONS, 2021)[52].

Last mile logistics can cause a number of challenges for the road network, operators and the end user. With the increase in demand and the number of vehicles required to complete the last mile journey, it can cause road network issues. This can contribute to congestion and poor air quality. This impacts on the end user with delays to deliveries and an impact on their local environment. The services of offering instant delivery or next day delivery impacts on operators as the freight transport operations becomes less efficient. This is made worse if the end user is not available for the delivery, requiring redelivery. Commodities such as clothing can generate return journeys as stores may not be in close proximity or solely online, increasing transportation movements further[53].

There are a number of initiatives that can help with achieving a more efficient last mile logistics supply chain. These include:

- Cycle logistics
- Consolidation centres, distribution centres and logistics hubs
- Electric vehicles
- Nearby delivery areas
- Supply chain partnerships
- Pedestrian friendly deliveries

[50] Insider, Jan 2021, The challenges of last mile delivery logistics and the tech solutions cutting costs in the final mile , https://www.businessinsider.com/last-mile-delivery-shipping-explained?r=US&IR=T
[51] Foresight, Government Office for Science, February 2019, Last mile urban freight in the UK: how and why is it changing?, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/777682/fom_last_mile_road_freight.pdf
[52] Office for National Statistics (February 2021), Retail sales, Great Britain: January 2021
[53] Allen, J. and Cherrett, T. (March 2020), Last mile delivery: the challenge for logistics providers, https://www.theengineer.co.uk/last-mile-delivery-challenge-logistics/

- Intelligent loading bays

Trials of these technologies are useful for local authorities to understand their suitability and applicability to their areas. For example Aberdeen is undertaking a unique engineering and operations trial using hydrogen fuel cell powered eCargo bikes from Electric Assisted Vehicles (EAV) Limited. Some other examples of last mile logistics initiatives can be found below.

Amsterdam's 'shared microhubs' and e-freight bikes (Netherlands)

Since 2017, Amsterdam has turned towards its extensive cycling network to improve inner-city freight logistics and perform more time-effective deliveries using cleaner means of transport. The City has also converted a number of formerly derelict buildings into 'microhubs', or micro consolidation centres, which are shared among different logistics companies for greater cost-effectiveness and to unify previously fragmented last-mile deliveries. Heavy traffic congestion and air quality improvement were the project's 2 driving forces. It was first provided with seven microhubs and 50 to 60 e-freight bikes to substitute part of the already existing fleet of vans.

The project has been widely successful. In total, the fleet of e-freight bikes has handled roughly 2,200 orders per day, capable of delivering all mail to business clients in the morning and emptying public mailboxes and picking up mail and parcels from business clients in the afternoon. Bikes require only a single recharge in between both shifts. Drivers have expressed higher satisfaction thanks to avoidance of traffic congestion and facilitated parking linked to bicycle usage. Prior to project implementation, it was estimated that each delivery driver incurred 26 additional minutes per day and 101 hours per year spent in traffic. Following project implementation, cycling deliveries have shown they could save five van-equivalent trips per day[54].

Figure 6-8: PostNL e-freight bicycles at a microhub facility in Amsterdam[55].

Bristol-Bath Freight Consolidation Centre (BBFCC) (UK)

The Bristol-Bath Freight Consolidation Centre (BBFCC) is a prime example of a well-operating macro-consolidation centre in the UK. Originally opened in 2002 and intended to serve the Bristol area only, it was further expanded to include Bath in 2011 resulting from excellent performances in 2 EU-chaperoned projects[56]. The centre was established strategically, close to two of the city's major thoroughfares and only seven miles away from the inner city. The consolidation centre can receive all sorts of products on a 24/7 basis with several types of retailing and delivery options available. As Bristol's core retail and shopping zone, Broadmead and Cabot Circus has been the project's target procuring area, receiving "over 90,000 deliveries per year[57]".

Initially planned to accommodate 20 Bristol-bound retailers, more than double that number from Bristol and Bath originating from a variety of sectors now participate in the scheme. The BBFCC regularly launches marketing campaigns to attract more retailers. Prior to the scheme's commencement, 75 per cent of retailers indicated service improvement and cost-effective opportunities as primary motivations for opting into the scheme. Satisfaction with the BBFCC has turned out to be relatively high. On a scale of 1-5 with 5 indicating utmost satisfaction, 95 per cent of retailers expressed either satisfaction or high satisfaction with overall service. Using the same scale, 81 per cent of retailers expressed either satisfaction or high satisfaction with delivery frequency. 94 per cent of retailers would recommend the BBFCC to other retailers. Consequently, the Bristol Council has since had plans to offer a greater number of value-added logistical services via the BBFCC. It has also had plans to expand Broadmead, thereby furthering the retail area's overall storage capacity and perhaps encouraging increased flows with the BBFCC.

Creating partnerships is vital to replicate successful consolidation centres from which fast, affordable and sustainable freight flows can emerge. Local authorities in Amsterdam, Bristol and Bath combined with an array of actors within the freight and logistics industry to achieve decarbonisation whilst remaining competitive. Using political commitment helps justify choice in logistics

[54] CityLab. (2018). City deliveries using micro-hubs and innovative freight bikes. Available from: https://www.citylab.soton.ac.uk/180308_Amsterdam.php
[55] Photo source: CityLab b. 2018. CityLab Amsterdam (pp. 1-2). Amsterdam. Available from: https://www.citylab.soton.ac.uk/factsheets/Amsterdam.pdf
[56] Paddeu, D. (2017). The Bristol-Bath Urban freight Consolidation Centre from the perspective of its users. Case Studies on Transport Policy, 5(3), 483-491.
[57] Hapgood, T. Undated. Urban Freight Consolidation – The Bristol VIVALDI Project Experience. Presentation, Bristol, United Kingdom.

partners and enforce low-emissions policies more convincingly upon freight actors reticent to greening their services. Incentivising logistics companies to use hubs of choice is another tool for expanding partnerships.

Edinburgh's fleet of electric minivans (UK)

The City of Edinburgh Council and Heriot-Watt University have recently initiated a £1.6 million wireless charging minivan trial, funded by the UK Government's Office for Low Emission Vehicles and in partnership with Vauxhall[58]. The undersides of minivans are each equipped with "slim charging pads", requiring that the vehicles are parked above electric pads[59].

Several benefits are recognisable in this scheme. First, charging pads require less than an hour to attain full capacity charge. Low recharging time leads to greater delivery frequencies, decreasing the need for space for transported goods. It also presents the long-term opportunity of creating shared electrical hubs that could be accessible to a wide range of electric vehicles, according to Edinburgh Council's fleet manager Scott Millar. Second, the wireless feature of the project favours Edinburgh's drive towards implementing autonomous technology in the logistics process given that no middleman is needed for recharging vehicles. Hence, the cost of fleet electrification is further diminished whilst freight-sourced pollution continues to be eliminated within the city.

Whilst the Edinburgh case highlights an efficient and fluid charging system as well as a path towards leveraging greater technological autonomy, it is essential to consider its possible drawbacks such as implementation costs and commercial trade-offs. This includes the potential cost for commissioning a reasonably sized fleet of electrified minivans and the financial setback of discontinuing partnerships with current logistical fleet provider(s).

Figure 6-9: An electric pad in Edinburgh[60]

Bordeaux's Nearby Delivery Areas (France)

In 2003, the French city of Bordeaux thought up the idea of 'nearby delivery areas' or ELP ('espace de livraison de proximité') to facilitate last mile deliveries amidst ongoing public works in an area of the city. Operating from 09:00am to 05:00pm Monday-Friday and on Saturday mornings, the ELP became the focal delivery point for all goods destined for shops in the immediate vicinity. Independent staff are hired to provide freight vehicle drivers with parking vehicles, the unloading and handling goods as well as keeping the ELP secure. The ELP was implemented by a coalition of actors involving the Bordeaux Chamber of Commerce, the metropolitan authority and freight transport companies.

The 2003 experiment became an exemplary model for urban inner city freight. Within four years, roughly 50,000 packages were delivered as a result of 10,000 stopovers from freight drivers. ELPs have proven to be very popular with freight transport companies because they provide three guarantees: availability, safety and proximity to commercial areas located in urban centres.

Given that the city has been undergoing new public works since 2017, a new ELP has been opened on the same operational model used in 2003. The French national postal service has provided the area for the ELP. Two additional services are now provided by ELPs: home delivery, ensured by postal service staff using suitable electric vehicles and e-bikes for the journey's final leg, and the collection of packaging materials to help the city ensure proper recycling. Home delivery is particularly astute since traffic and public works in the city have often rendered package pick-up more difficult in the past. Given the transhipment model operating between pollutant vehicles, temporary storage and electric vehicles, ELPs have contributed to noise and CO_2 reductions within Bordeaux[61].

[58] Tindall, C. (2021). Vauxhall vans in Edinburgh wireless charging trial. *MotorTransport.* Available from: https://motortransport.co.uk/blog/2021/08/27/vauxhall-vans-in-edinburgh-wireless-charging-trial/
[59] Van News (2021). Wireless electric van charging trial launched in Edinburgh. *Commercial Fleet.* Available from: https://www.commercialfleet.org/news/van-news/2021/08/26/wireless-electric-van-charging-trial-launched-in-edinburgh
[60] Photo source: Van News. 2021.
[61] Ibid

Business owned Urban Consolidation Centre (UCC) serving Paris (France)

Initially trialled in 2004, La Petite Reine's UCC stands out owing to its business owned and operated model whose single main mission has been to serve central Paris sustainably all the while remaining competitive. Nonetheless, the French Environment and Energy Management Agency (ADEME) funded the company significantly during its trial stage, covering 50 per cent of feasibility studies and evaluation reports as well as 15 per cent of the cost of company tricycle fleet deployment. The micro UCC relies upon its central location to remain the platform of choice for freight operators supplying inner Paris. At first, the UCC delivered to four Parisian boroughs ('arrondissements') proposing consolidation of goods entering Paris, last-mile distribution, ad hoc b2c deliveries as well as welcoming driver and tricycle dedicated shop based service.

The experiment has yielded positive results. In the first two years since the trial began, 112 tonnes of CO_2 were avoided as the company's tricycle fleet expanded from 7 to 19 units. The number of monthly deliveries operated from the micro UCC increased substantially from 796 to 14,631. Parcel freight has by far become the most handled sort of freight with its share of all items handled increasing from 51 per cent to 97 per cent after two years. La Petite Reine has also developed similar services in Bordeaux, Lyon, more minor French cities and Geneva (Switzerland)[62].

Berlin's KoMoDo trial (Germany)

A trial system aimed at reducing delivery sourced traffic, KoMoDo was born out of a cooperation between five large parcel delivery companies – Deutsche Post DHL, DPD, GLS, Hermes and UPS. The principle behind KoMoDo was to agglomerate all delivery destined to inner city Berlin from a joint logistics area. The inclusion of a body of the German state (BEHALA) as a stakeholder was comprehensible. It served to provide the model with a moderator between the competing parcel delivery companies with depot section assignments optimally. 11 e-cargo bikes were employed for covering last mile distances within a 3km radius[63].

In total, 160,000 parcels were delivered and 38,000 km were covered thereby sparing the local area home to the joint hub 11 tonnes in CO_2 emissions. Until 2019, the project was funded by the German Federal Environment Ministry. BEHALA and the Senate Department for the Environment, Transport & Climate Protection have since been collaborating to find further suitable locations within Berlin for the establishment of more micro depots given the success of the trial. The natural scarcity of public spaces in dense cities such as Berlin has led KoMoDo to view said spaces as commodities that need to have an effective use. Hence, the German public authorities involved in the project are prioritising public spaces for the establishment of new joint micro depots[64].

Dublin's pedestrian friendly deliveries (Ireland)

In 2018, a joint tender composed of Dublin City Council, Belfast Council and Enterprise Ireland sought to fund last mile companies able to bring innovative, zero emissions and scalable solutions to market. Fernhay-UPS's joint venture eventually secured funding. Micro distribution centres take in consignments which are subsequently redistributed for delivery through removable cubic containers. According to UPS, the construction of 2 mini distribution centres has yielded a removal of five diesel vehicles from Dublin's inner city roads[65].

Fernhay introduced the e-quads and e-walkers utilised by UPS to deliver an array of goods such as groceries, medicine and parcels. Both are equipped with cubic containers whose standard, narrow size is convenient enough for both innovations to navigate inside city centres, sharing space on roads and pavements with pedestrians and cyclists. The eQuad's low load capability and high seat means operators and cyclists can look around and/or over it[66]. The eWalker is equipped with an electric motor meaning that the operator doesn't feel the weight of the e-walker's load when orienting it to perform deliveries[67].

[62] Allen, J., Thorne, G. and Browne, M. (2007). BESTUFS good practice guide on urban freight transport. BESTUFS.
[63] BEHALA. Undated. KoMoDo – the sustainable delivery traffic solution. Retrieved from https://www.behala.de/en/komodo-the-sustainable-delivery-traffic-solution/
[64] Smart City Berlin. Undated. KoMoDo - cooperative use of micro-depots. Available from: https://smart-city-berlin.de/en/projects-list/project-detail?tx_news_pi1%5Bnews%5D=464&cHash=03122da787fa6b055c4e09132ccdfe82
[65] Wray, S. (2020). Dublin pilots van-free city centre deliveries with UPS. *Cities Today*. Available from: https://cities-today.com/dublin-pilots-van-free-city-centre-deliveries-with-ups/
[66] Fernhay. Undated. The Fernhay eQuad. Retrieved from https://fernhay.com/our-products/eQuad
[67] Fernhay. Undated. eWalker. Retrieved from https://fernhay.com/our-products/eWalker

Figure 6-10: The Fernhay eQuad[68]

London's cream of the crop logistics hub (UK)

In December 2020, London local council planners gave Amazon Logistics the nod to run City of London's first last mile logistics hub. The hub will be the result of a reconversion of 39 parking spots belonging to the London Wall Car Park, located in Barbican. Amazon plans to undertake parcel deliveries using e-cargo bikes and by foot within a 2km radius of the hub, thereby covering the City of London fully and additional areas in central London. According to Alastair Moss, chair of the planning and transportation committee at the City of London Corporation, transfer of all goods destined to the City of London through the future hub will result a decrease of 23,000 vehicle journeys in central London per year. The project is key to the City Corporation fulfilling its net zero carbon emission goal by 2040[69].

Conversion of carparks into logistics hubs is an emerging trend which has previously appeared in Paris. The French capital's inclusion of logistics into its zoning plans has prompted the allocation of four underground carparks, measuring anywhere from 500m^2 to 5000m^2, to logistical activities[70]. Increased efforts by cities to remove cars from roads means that the time is increasingly ripe for rethinking the transformation of carparks. Thus, carparks are being made increasingly redundant and the often substantial amount of space which they occupy could be put to more effective use.

The challenge for the South West is understanding where these interventions could be implemented on such a diverse region. Careful consideration will be required as not all the interventions will be suitable given the rurality of some areas. Cycle logistics, for example, will primarily be a solution fitting for urban areas. For remote, difficult to access locations, the idea around having delivery areas, that serves a series of areas, has the potential for providing a consistent and reliable supply chain service.

Virtual loading bays – Westminster, London.

Kerb space in urban areas are often competed for by a range of stakeholders. A lack of kerb space can cause drivers to unsuccessfully complete delivers or cause traffic network issues. Where kerb space issues occur, it can cause stress on the road network with congestion which impacts on the local emissions. Virtual loading bays enable kerb spaces to be better utilised and allow drivers to reserve spaces in close proximity to their delivery point.

A proof of concept was conducted by Westminster Council in 2011, which looked at the impact virtual loading bays on enforcement and useability by freight operators. It is estimated that the economic benefit of virtual loading bays is around £1.7 million per year. The key benefits that were identified include[71]:

- Savings for operators both in time and fuel normally required to find a suitable space. This contributes to improved air quality
- Preventing illegal parking and then reducing unnecessary PCNs
- Facilitating rapid loading and unloading, increasing efficiency for freight operators
- Increases in residential parking bays
- Road network kept free flowing

[68] Photo source: Fernhay. Undated. The Fernhay eQuad. Available from: https://fernhay.com/our-products/eQuad
[69] Helps, L. 2020. Amazon Logistics chosen to run City of London's first last mile logistics hub. *Logistics Manager*. Available from: https://www.logisticsmanager.com/amazon-logistics-chosen-to-run-city-of-londons-first-last-mile-logistics-hub/
[70] Diziain, D., Ripert, C., & Dablanc, L. 2012. How can we bring logistics back into cities? The case of Paris metropolitan area. Procedia-Social and Behavioral Sciences, 39, pp. 273&276.
[71] Grid Smarter Cities. 2018. Using virtual loading bays to intelligently manage restricted kerb space. Available from: https://www.theiet.org/media/2325/ssd1471-la-guide-to-ett-case-study-v111.pdf

- Better management of multidrop operations

6.12 Summary

The economy of the South West is still heavily reliant on agriculture, fishing and the wider food and drink sectors. Mining and quarrying are still important as is tourism. There are other important sectors such as maritime, naval, military and MOD related activities. Aerospace and creative technologies have positive growth prospects. There are changing trends around shopping behaviours and the need to decarbonise the freight industry presents opportunities surrounding innovation and alternative fuels. The South West has many opportunities to support the freight sector through clean energy production which can in turn help with applicability and accessibility for alternative fuels. It offers a framework in which to regenerate and renew local 'ecosystems' to create a circular economy. This can act as a catalyst to applying demand management techniques that can address some of the most pressing social, economic and environmental challenges as well as issues relating to the freight industry.

7. Case studies – freight best practice

This chapter lists out a series of case studies that have been produced to showcase examples of best practice within the freight and logistics sector from outside and inside the South West region. The aim of this is to demonstrate interventions that are working well within the freight sector and use their learnings to develop them further for the South West.

The full case studies can be found in **Appendix D**.

7.1 Case studies outside the South West

Table 7-1 shows a summary of the case studies listed including the case study name, mode and an example implication for the South West.

Table 7-1: Summary of case studies from the rest of the UK and beyond

Case Study	Mode	Example Implication for South West
Port to Inland Rail Services	Rail	Develop a strategic network of terminals across the UK with a customer catchment area of an hours travel time. This presents a potential opportunity to utilise parts of the rail network in the South West that are currently not used for rail freight movements
Cricklewood Freight Terminal	Rail	With the existing plans for growth and development in urban areas, it is good to move at least a proportion of these goods by rail. This might include bulk materials such as cement, timber, steel and aggregates
Stockholm Norvik Port	Rail	This could serve as a broad 'blueprint' that port developments should aim to connect to modern rail facilities onto an existing port, highlighting expected opportunities, challenges, costs and timeframes
Tesco Supermarket Materials by Rail Freight	Rail	Several of the major supermarkets are moving goods by rail. This may provide a new avenue of adoption by Local Authorities in the South West favouring rail freight due to its environmental benefits, without requiring significant commitments to long-term support for freight services from either businesses or the authorities. This can also be suitable in areas with a Clean Air Zone or Low Emission Zone where rail transportation can help targets to be met
Doncaster iPort rail	Rail	A similar set-up in the South West located within easy reach of ports can also have direct services to Europe to help firms in the region to export to a greater extent
New Express Parcels	Rail	If New Express Parcel trials are successful and these services can be implemented, they will offer a competitive solution for the South West against road freight to enable faster deliveries and greater consolidation of goods being transported
Yara Birkeland	Maritime	Coastal shipping using alternatively fuelled vessels can assist with modal shift by taking vehicles off the road as well as helping reduce the carbon footprint of freight transportation. This new Norwegian ship designed to move fertiliser around the coast of Norway aims to be an automated ship meaning efficiencies in staffing and operation
Coastal shipping of logs and aggregates in the western UK	Maritime	South West ports can build on the current success of coastal shipping at Plymouth and look to involve other commercial ports in the region to increase the proportion of coastal shipping in the South West
Shoreham Eco Port	Maritime	South West ports can explore the possibilities of they can achieve zero emissions through alternative fuel infrastructure to support sustainable port vehicles and port centric logistics to support the local economy and community.
Drone transport of medical supplies to the Isle of Wight	Air	The South West is generally a highly rural area with insufficient highway capacity in many locations, meaning drones could be part of an offer for a more reliable transport method for time-critical deliveries, especially to support life-line services to islands and remote locations where the terrain is inaccessible

Zeem Manchester Cycle Logistics	Road	Cargo bikes can help ease congestion in urban areas in the South West by improving space-efficiency and lessening the need for cars and vans. Electric and fixed gear bikes also enable a form of cleaner transport, and help the South West's aims with regards to decarbonisation
Use of backloading and load matching services	Road	There is a significant amount of empty running of HGVs. Backloading schemes can help to improve capacity on the roads of the South West as well as potentially reduce costs for businesses and hauliers. Reducing lorry journeys will also help to cut pollution in the South West and help the region to decarbonise
Alternatively fuelled vehicles	Road	Embracing alternatively fuelled vehicles can help the South West achieve a route to net-zero. Initiatives could also complement other measures such as encouraging modal shift and retiming of deliveries
National Highways Agreed Diversion Routes	Road	Appropriate routing can ease congestion caused by vehicles taking inappropriate routes and needing to turn back or getting stuck and causing blockages to the road network. Bridge strikes by high sided vehicles is an ongoing problem despite the availability of technology which alerts drivers of low bridges
Quieter Waste Collections	Road	The use of low and zero-emission waste collection vehicles can help the South West region to work towards their clean air targets. Reducing traffic noise and pollutants creates a more pleasant urban environment in which to live.

7.2 Case studies inside the South West

Table 7-2 shows a summary of the case studies listed including the case study name, mode and an example implication for the South West.

Table 7-2: Summary of case studies from inside the South West

Case Study	Mode	Example Implication for South West
China Clay Movement	Rail	Rail represents a reliable and environmentally friendly means of moving bulk cargo throughout the South West. These services also help support regional ports such as Fowey, and demonstrate the importance of implementing rail connections to ports
Aggregates Movement	Rail	Jumbo trains operating in the South West region means more material can be carried per train, which can help to free up additional train paths and increase the carbon savings per train. Bulk rail freight operations such as these also help take trucks off the road and help the local economy by exporting out of the South West region into other areas of the UK
Timber Movement	Rail	Despite not currently running, the past reopening of the Heathfield branch has both helped to facilitate shorter journeys fully within the region, but also longer journeys from outside the region helping firms operating in the South West region
Drone Deliveries (to Isles of Scilly)	Air	The current postal boat running between the Cornish mainland and the Isles of Scilly is weather dependent, however the drone is able to operate even in bad weather, increasing reliability of deliveries. The drone deliveries are particularly useful for time-sensitive parcels, such as medication and special deliveries
Lifeline ferry services to the Isles of Scilly	Maritime	Along with flights to Land's End Airport and helicopter transfers, these transport links ensure that communities are not cut-off and can get access to essential services to benefit themselves and local economies
Zoom! Deliveries	Road	Due to narrowness of roads, many areas in the South West area are hard to reach for conventional deliveries, especially those using vehicles weighing 7.5 tonnes or over. The use of smaller vehicles therefore helps reduce congestion in and around Falmouth, especially during the peak summer season

Somerset County Council Traffic Choices	Road	Communities working with local councils have often said information about traffic schemes, including those for HGVs, is not easily available. Interventions such as those identified as part of Traffic Choices can help with better routing for HGVs at a local level in the South West region, and help mitigate issues associated with poor HGV routing in the region
Ginsters Food Products Logistics	Road	The location of the Ginsters factory also helps local farmers and producers, with potatoes being transported from only 12 miles away. The factory incorporates 500 jobs on site, in addition to supporting other operations such as distribution and logistics, therefore helping to support the local economy and provide employment for a number of other local companies
Wincanton ESG Strategy	Road	Environmental, social, and governance (ESG) criteria are a set of standards for a company's operations that socially conscious investors/users want to see. Initiatives such as these set an example to other businesses in the South West looking to decarbonise and collaborate, as well as the steps that logistics firms can take to become more socially responsible
DHL logistics consolidation	Road	Consolidation in logistics benefits freight carriers as it makes shipments cheaper from their end, whilst shippers do not need to pay for a full container if it is not required for the delivery. Consolidation therefore means businesses in the South West are able to export in more cost-effective ways enabling their businesses to be operate more efficiently
Crest Medical PPE supplies through Bournemouth	Air	These cargo flights have helped establish Bournemouth as a key freight base during the pandemic which it can build on going forward. These flights have generated significant positive publicity for Bournemouth and the South West, especially as part of wider positive publicity for the freight and logistics sector and the NHS. Due to streamlined operations some customers can be served quicker than through London Airports
Morocco to Poole ferry services	Maritime	These services help to offer a direct service into the South West via Poole, as opposed to needing to pass through ports located further away such as Southampton or London Gateway. These services also help improve the environment as they lessen the requirement for road transport, up through Spain and France
Gloucester Motorway Service Area	Road	Due to the location of the South West, many lorry drivers will have driven a significant distance to reach the region, therefore provision of good facilities is important for wellbeing and sustenance plus enabling drivers to comply with driver's hours requirements
ForFarmers consolidation	Road	Investment such as that at the ForFarmers plant in Exeter is an example of businesses looking to expand and increase their productivity. It is also a benefit to have a mix of multi-national firms and small firms to increase collaboration and contribute to a healthy economy mix
Bennamann Energy	Road	Bennamann are producing 'better than net-zero' fuel in the South West, making a significant contribution to the decarbonisation throughout the region as well as positioning the South West at the heart of transport decarbonisation
EXO-Cell	Road	Plymouth City Bus and Plymouth City Council are trialling technology known as an EXO cell developed by Atmos-Clear Limited (www.atmos-clear.com) on 5 vehicles each, with the aim of reducing the production of toxic emissions from engines. This trial shows how Plymouth is at the forefront of the development of these new technologies to help Plymouth and the wider region to develop a route to net-zero.

7.3 Summary

The case studies provide a series of success stories and this strategy has assessed which initiatives are best suited to be repeated in the South West to help achieve the freight sector's aims and objectives. There is a clear theme towards operational efficiency and decarbonisation. These fit well into the agenda of this strategy and therefore will be taken into consideration when developing the Freight Strategy interventions for the South West.

8. Strategic Road Network – National Highways

This chapter outlines the key challenges and solutions for the South West that have been identified by National Highways. National Highways operates and maintains the SRN in England and helps enable the movement of goods and people across the country. The SRN represents three per cent of England's road network but handles 34 per cent of all road traffic and 68 per cent of all freight journeys by distance. Understanding the key concerns from National Highways plays a vital role in developing the Freight Strategy for the South West. Peninsula Transport and Western Gateway share a number of the same challenges to freight and the potential solutions. These have been discussed separately in both Section 8.1 and 8.2 to ensure these are equally brought to attention in establishing an understanding of the strategic road network challenges and solutions.

8.1 Peninsula Transport

The following sections details National Highways questionnaire response to the freight study with the key challenges and opportunities for the Peninsula Transport area.

8.1.1 Challenges

Capacity

Road freight operators are the main movement of goods in and out of the Peninsula Transport area. The strategic routes from the south coast ports to the motorway network are evolved and, in some cases, limited as is the A35. This is being considered as part of the National Highways Route Strategy process that could define or identify alternatives for consideration. The recently granted Plymouth Freeport Status has the potential to increase freight movements from Freeport to Freeport, particularly for the A38/M5/A303 corridors, as well as locally on the A38 in the Plymouth urban area. Significant commercial development at the M5 J23 (Gravity Park) may also see freight movements to and from the region increase. Additionally, whilst it is outside the Peninsula area, proposed developments at Ports of Poole and Southampton have the potential to increase freight movements along the A35/A30 corridor into the Peninsula. The A30/A35 has long sections of the unimproved single carriageway and challenging environments, running through several sensitive villages/ towns. There are concerns regarding resilience and the high dependency of the M5 route. Operators want to see capacity improvements and information to be better provided regarding scheduled road works and unplanned live events.

There is limited capacity on the single carriageway sections of the All Purpose Trunk Roads (APTR) A30/A303/A35, which are also more sensitive to unplanned incidents causing closure and Traffic Management (TM) for works. Furthermore, there are challenges with significant developments within and outside the Peninsula area on maintenance of capacity/ journey time reliability on parts of the SRN from increased movements from these developments. Exeter box (M5/A30) is likely to be sensitive to additional movements as it's a single link between four routes and is under a significant amount of development pressure e.g. the aspiration of Cullompton GV is 9,000 homes and there is not yet a clear employment strategy. There is a significant risk that it will be a commuter town for Exeter, adding to the stress on a sensitive and (pre-pandemic) peak time/seasonally stressed section of the network.

Journey reliability

Routes can be very sensitive to severe weather, such as the impacts of severe winter weather on high ground, for example; A38 Holden Hill and A30 Bodmin Moor. Summer seasonal traffic is also a key constraint in terms of impeding freight movements across the region. There is also particular sensitivity to incidents with the large numbers of recreational trips, which causes impacts on capacity/ safety due to significant seasonal increases in traffic flow. The freight operators tend to avoid the seasonal weekend peaks where possible because the network demand exceeds available highway capacity. Peak-time congestion at junctions/ links is principally around main conurbations and strategic interchanges (e.g M5/A30).

Incidents (collisions) involving HGVs can have very significant impacts on the SRN by way of length (time) of closures and cost/time to safely re-open roads for a variety of reasons, e.g. diesel spillage/ spillage goods/ repairs to surface/ barriers and clearing of spilled loads off the road. Further issues can occur due to the length of some diversion routes following the impacts of works/ incidents on Local Road Networks (LRN), availability for diversion routes during planned or unplanned SRN road closures/TM. Unsuitable diversions with access issues, such as height and weight restrictions, can cause further delays and damage to infrastructure. Additionally, communities along some strategic routes (A35/A46) etc, or diversion routes are impacted by the trunk roads. There can be a risk to the programme of scheme delivery and associated costs (if say a scheme must be halted with very short notice if a diversion route is not available).

The food industry has a high dependency on road freight. Products have very short and limited shelf life and often of high value (wholesale and retail) – journey planning and journey time reliability are therefore critical to the success of this industry and in particular those with live commodities in transit.

Lorry parking

There is an ongoing requirement for safe and secure lorry parking to be part of strategic planning of facilities for the freight sector. There are very limited and generally poor facilities for freight drivers to take statutory breaks, in particular on the A38 and A30 routes. It is not unusual to see all the laybys full of large vehicles overnight. Consideration should be given to future needs with the potential for vehicle electrification and their needs and improvements to variable messaging for vehicles on the route.

These challenges can cause delays to road users and have reputational impacts. For example, congestion is detrimental to both safety, journey time reliability/cost of travel, and environmental considerations, such as carbon, air quality and noise.

8.1.2 Opportunities

National Highways are looking to develop packages of works that will improve safety, capacity and reduce congestion. This includes mitigating noise hotspots via the use of quieter surfacing or barriers, and work with local authorities and other key stakeholders in air quality and cultural heritage.

National Highways have made considerable investment in cycling infrastructure in recent years and are working with public transport operators to see what opportunities there are around integration between modes across the network in terms of both local and more strategic bus and coach journeys.

Examples of how National Highways counter network issues include;

- Very careful road space booking and traffic management planning.
- Strong & proactive winter resilience planning.
- Proactive event resilience planning (e.g pandemic, summer tourism, G7, etc).
- Close engagement/ operational planning with Local Highways Authorities and emergency services.
- Review of traffic management planning for works on and off the network that might affect flow/ journey time reliability.
- Provision of services to minimise impacts when required (e.g. free breakdown cover, extended Traffic Officer Service).
- Deliver commitments in RIS for major improvement schemes in the Peninsula Transport area e.g dualling sections of the A303 and A30 and developing a safety scheme on A38 between Trerulefoot and Carkeel.

Route Strategies are a key element of the evidence base for informing the Government's Road Investment Strategy (RIS). The 2025 RIS launched in December 2021. RIS1 and RIS2 set out a number of commitments for major improvement schemes, studies and long-term aspirations for several SRN routes in the Peninsula area (e.g. A303).

National Highways is fully engaged in the spatial planning process and work with developers, local and combined authorities and seek to influence that growth is located sustainably and that appropriate infrastructure is delivered at the right time to accommodate the resulting impact. They engage with Local Planning Authorities to minimise developer impacts of growth on traffic using the SRN and plan for mitigation to accommodate impacts. They also engage with Local Highways Authorities on their planning of local road improvements, regarding potential impacts on the SRN, including their proposals for the Large Local Majors and Major Road Network programmes.

National Highways also collaborates with other strategic transport providers to consider the potential for trip transfer to other modes. Nationally, the proportion of HGV traffic on the SRN is relatively low, circa 11 per cent. Shift of HGV movements from road to other modes has the potential to release some capacity on the SRN and is worth exploring. However, the realistic potential for significant change may be limited due to the nature of those freight movements and the capacity of the rail network. Modal shift of LGVs, vans and cars could support improved journeys for HGVs. Small modal shifts on more sensitive routes such as single carriageway all-purpose trunk roads that run through small communities and towns may deliver greatest capacity improvements as well as social and environmental benefits for communities. A focus from the STB on modal shift could be helpful to freight and also fit with the decarbonisation agenda. National Highways could support this, building on their work with Network Rail. Further work from the STB on freight would usefully add to the collective understanding of volumes of movements, their respective reliance on roads, any associated time dependencies, and relationships with wider national economic assets and supply chains.

Potential opportunities include National Highways North West Regional investment program, which worked to track vehicle movements on the M6 and looked at types of goods they were likely to carry. The types of vehicles were monitored along key NW routes that could be referred to, but these are not linked to the Peninsular or Western Gateway regions. This included vehicle counting and road surface data, which provided interesting insight.

There is innovative work underway this financial year at a national level to study ways to integrate alternative fuels for freight vehicles on the SRN. Segmentation exercises were carried out to prioritise what were the main goods being moved and the time of day or night they were moved. Modal shift studies are being considered but nothing relating to the Peninsular area.

8.2 Western Gateway

The following sections details National Highways questionnaire response to the freight study with the key challenges and opportunities for the Western Gateway area.

8.2.1 Challenges

Capacity

Road freight operators are the main movement of goods in and out of the Western Gateway area. The strategic routes from the south coast ports to the motorway network are evolved and, in some cases, limited as is the A35. This is being considered as part of the National Highways M4 to Dorset Coast strategic study and the Route Strategy process that could define or identify alternatives for consideration. The recently granted Plymouth Freeport Status has the potential to increase freight movements from Freeport to Freeport, particularly for the A38/M5/A303 corridors. Significant commercial development at M5 J23 (Gravity) may also see freight movements to and from the region increased. Additionally, proposed developments at Ports of Poole and Southampton have the potential to increase freight movements along the A35 corridor. Although Southampton is just outside Western Gateway's region it does serve customers across the South West. The A35 has long sections of the unimproved single carriageway and challenging environments, running through several sensitive villages/ towns.

Operators are very supportive of the major SRN improvements, however, are concerned about the resilience and reliability of the SRN. Freight operators would like to see further capacity improvements, such as along the A303 and National Highways are working to provide better information to them regarding scheduled road works and unplanned live events. Furthermore to improve access to key trip generator locations such as ports and airports where vehicle restrictions can cause diversions and delays.

Some of the key network issues in Western Gateway include:

Journey reliability

Congestion is not a major problem for most of the year but there is the summer peak with tourist traffic and of course some extra freight vehicles to serve these holidaymakers. The freight operators tend to avoid the seasonal weekend peaks where possible because the network demand during certain hours of the day exceeds available highway capacity. Furthermore, there are

challenges with significant developments within and outside the Western Gateway area on maintenance of capacity and journey time reliability on parts of the SRN from increased movements from these developments.

Routes can be very sensitive to severe weather, such as the impacts of severe winter weather on high ground. Summer seasonal traffic is also a key constraint in terms of impeding freight movements across the region. For example, there are constraints at the Avonmouth bridge and Gordano Valley on the M5. There is also particular sensitivity to incidents with the large numbers of recreational trips attracted to the SW region, which causes impacts on capacity/ safety due to significant seasonal increases of traffic flow.

Incidents (collisions) involving HGVs can have very significant impacts on the SRN by way of length (time) of closures and cost/time to safely re-open roads for a variety of reasons, e.g. diesel spillage/ spillage goods/ repairs to surface/ barriers and clearing of spilled loads off the road. Further issues can occur due to the length of some diversion routes following the impacts of works/ incidents on LRN, availability for diversion routes during planned or unplanned SRN road closures/TM.

Delays to customers can have reputational impacts. For example, congestion is detrimental to both safety, journey time reliability/cost of travel, and environmental considerations, such as carbon, air quality and noise. Additionally, communities along some strategic routes (A35/A36/A46) etc, or diversion routes are impacted by the trunk roads. There can be a risk to the programme of scheme delivery and associated costs (if say a scheme must be halted with very short notice if a diversion route is not available)

The food industry in the South West region has a high dependency on road freight and products have very short and limited shelf life and often of high value (wholesale and retail) – journey planning and journey time reliability are therefore critical to the success of this industry and in particular those with live commodities in transit. Challenging recruitment issues within the sector have added extra pressure that once resolved could lead to greater levels of congestion at peak times. Increase in haulier demand and multi-modal operations, alongside better infrastructure that enables easier access into Western Gateway for all could not only see heightened economic activity but increased demand on the network.

Lorry parking

There is an ongoing requirement for safe and secure lorry parking to be part of strategic planning of facilities for freight sector. There are very limited and generally poor facilities for freight drivers to take statutory breaks. This aligns to the national picture of issues around insecure and overpriced parking facilities[72]. It is not unusual to see all the laybys full of large vehicles overnight. Consideration should be given to future needs with the potential for vehicle electrification and their needs and improvements to variable messaging for vehicles on the route.

8.2.2 Opportunities

In terms of gateway growth, the Plymouth freeport, Bristol port, and Bristol and Exeter airports are all likely to grow and provide a marked opportunity for freight operators in the future. The Port of Poole has the potential to become more significant for freight movements, and Southampton Port is also looking to expand. Both of these could bring an increase in freight movements along the A35.

Other strategically significant development sites that have the potential to grow include locations such as east of Swindon (Honda redevelopment). In addition to provisions of rail/ freight interchanges. National Highways has input to Network Rail strategic studies to support the case for investment in rail as an alternative to road transportation with the aim of improving transport integration and encouraging some modal shift to rail.

National Highways have also supported trials of new technology for connected HGVs which has the potential to make freight transportation more efficient and lower carbon. Additionally, the use of digital technology can be used for a better understanding of freight movements by lorry, train, ship and plane. However, this is a national issue that's likely to pivot from DfT's Freight Strategy.

National Highways expects there will be growth in larger ports and those with specialisms in growing markets, such as offshore wind. Aviation is more challenging, especially for domestic freight regarding the belly-hold of passenger flights. Reliance on major airports for freight seems likely to continue (e.g. Heathrow, East Midlands). International and national gateways have been shown to benefit from SRN investment many kilometres away from the first and last mile. So, as well as the improvements in and around port and airport gates, investments further afield are just as likely to be impactful for the South West.

[72] Transport Focus. 2020-21, Logistics and Coach Survey: Strategic Roads. Available from: https://d3cez36w5wymxj.cloudfront.net/wp-content/uploads/2021/05/26094707/Strategic-Roads-Logistics-and-Coach-Survey_May-21.pdf

8.3 Overview

The road network plays a crucial role in the movement of goods. The proportion of goods moved by road is significant. For the national average, around 79 per cent[73] of domestic freight is moved by road. For the South West, given its reliance on the road network due to lack of alternatives, between 90[74] to 94[75] per cent of freight is moved by road.

The flow of traffic throughout the South West by HGVs has an impact on the performance of the road network. **Figure 8-1** identifies a number of count sites throughout the South West that were used by the 'Delivering a Better Service' project for National Highways. It identified that on average, 18 per cent of the flows on the Strategic Road Freight Network was related to HGV traffic. National Highways would encourage modal shift for freight, where possible, to help reduce the proportion HGV traffic and provide more road capacity for other users.

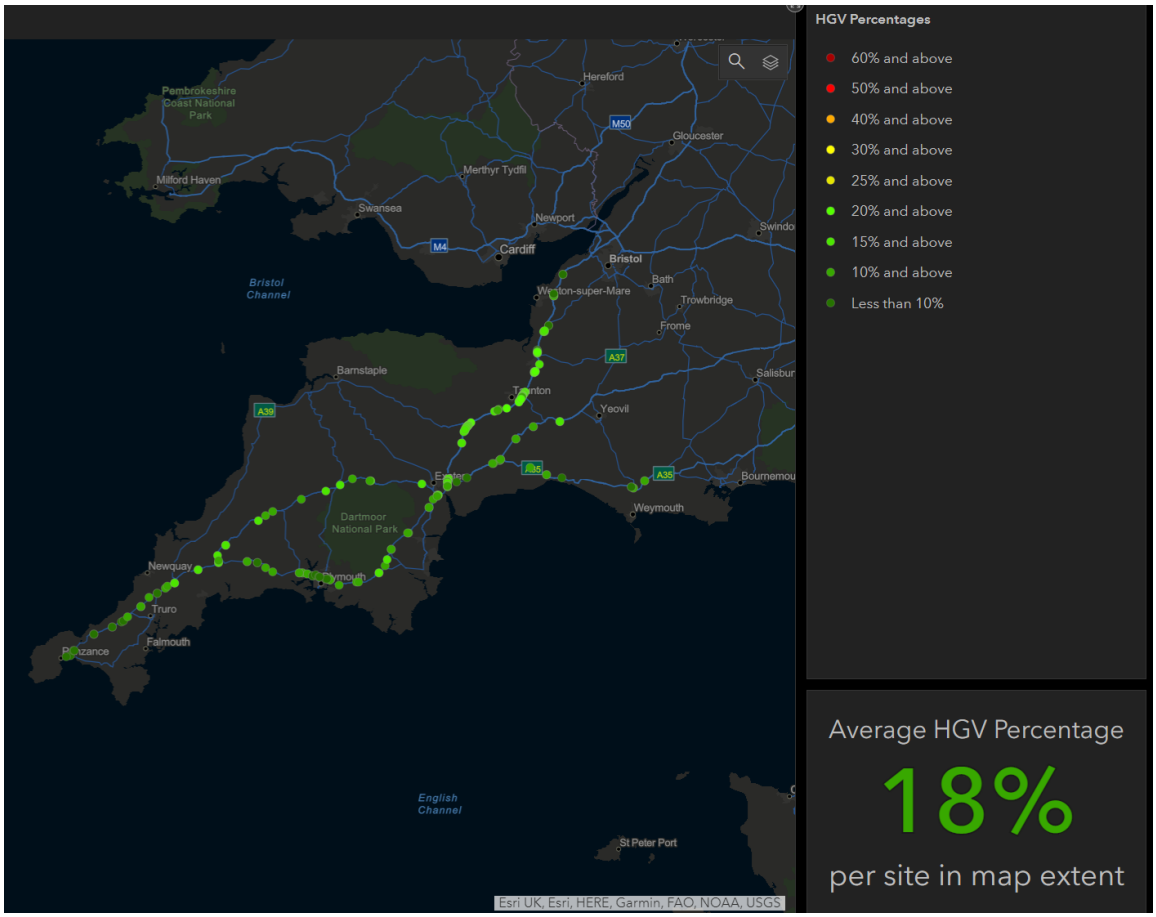


Figure 8-1: Average proportion of traffic accounted for HGVs[76]

Roads in the future will continue to be a crucial part of moving goods along a supply chain, but the nature of freight movement over them will adapt as society, economy and environment change for the pressing issues of the day such as the climate emergency. There will be implications for the South West.

The South West is somewhat isolated from the rest of the country, including national and regional distribution centres. In addition, the region has poor north-south routes, limited route choice and poor journey time reliability, necessitating a strategic-level understanding of the region's traffic profile and the impact of these issues on both freight and passenger traffic.

The core strategic corridors are the M5 / A38 Corridor (including A380) London / Bristol / Penzance mainline and Newton Abbott / Torquay Line. Secondly the A303 / A30 / A35 Corridor – Waterloo Line to Exeter and thirdly the A361 Atlantic Highway / Exeter to Barnstaple.

[73] Department for Transport (2019) Transport Statistics Great Britain 2020. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945829/tsgb-2020.pdf
[74] Peninsula Transport (2020) Peninsula Transport Shadow Sub-National Transport Body. Economic Connectivity Study. Available from: https://www.peninsulatransport.org.uk/wp-content/uploads/2020/07/Peninsula-Transport-ECS-Tech-Report-Final-Version-080720.pdf
[75] MDS Transmodal (2019) Understanding the UK freight transport system – Future of mobility: Evidence review. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/777781/fom_understanding_freight_transport_system.pdf (MDS Transmodal, 2019)
[76] National Highways: Delivering A Better Service study

Although according to National Highways around two thirds of the distance covered by HGVs in England is on the SRN, the freight industry does have to deliver to customers wherever they are. This includes needing to use rural and minor roads if necessary. **Figure 8-2**, provided by market leading vehicle telematics company Microlise, shows the array of freight vehicle movements for 6,000 of their customer's vehicles for just one week in March 2019. It is possible the see the M5, the major conurbations such as Bristol and Plymouth and the black space which represents moorlands without a road network. It shows the importance of maintaining the whole road network to ensure essential goods can be delivered in an efficient manner.

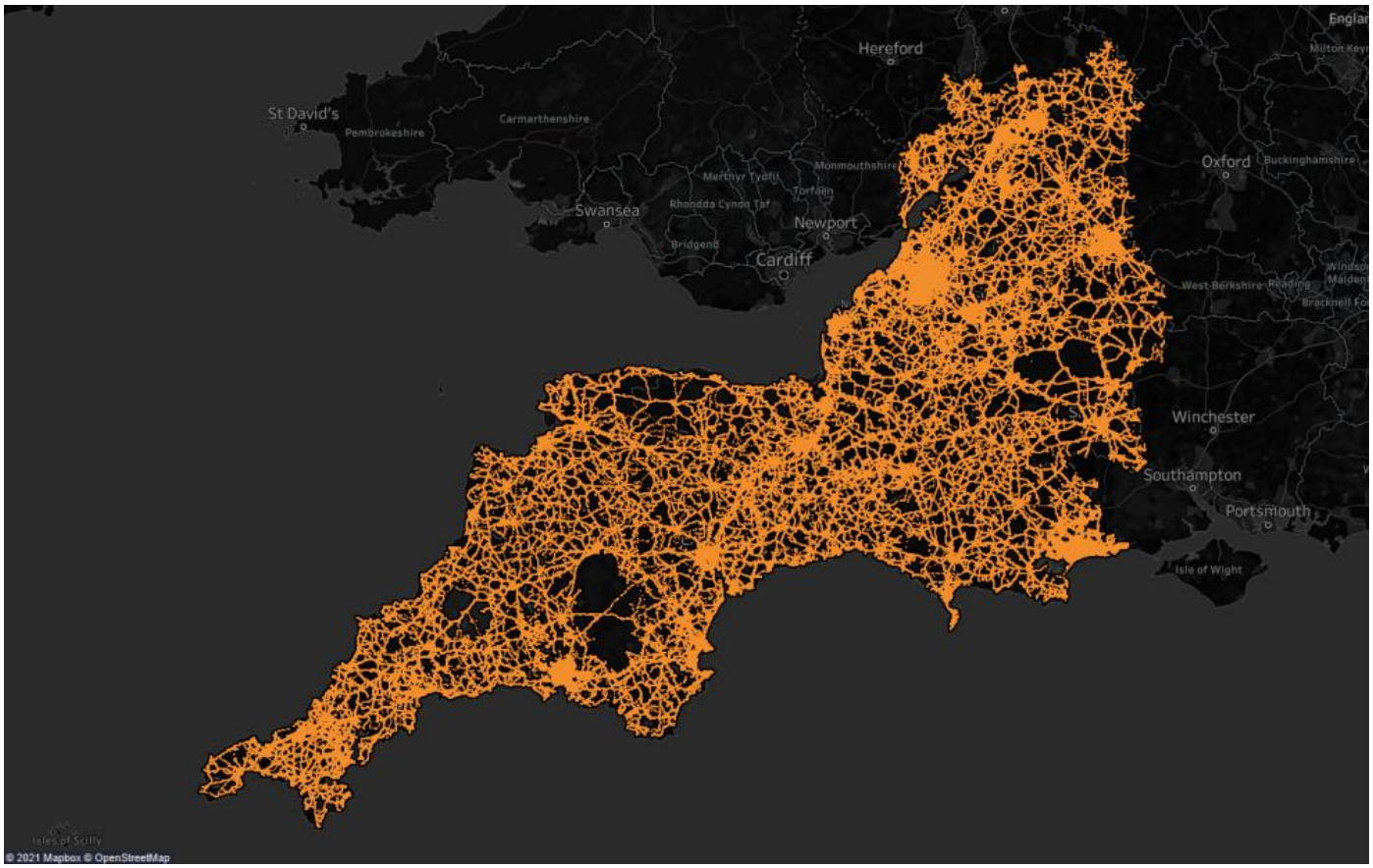


Figure 8-2: Routes used throughout the South West by hauliers

Investment in road infrastructure will play a key role for freight. Infrastructure improvements will need to be balanced with investigations into improvements in logistics planning and information provisions to ensure all other techniques for improving SRN capacity is exhausted. The interventions developed also need to be outcome-focussed and based on evidence and need to ensure appropriate solutions are developed.

The DfT have recently published their report, 'Planning ahead for the Strategic Road Network', which looks ahead to RIS3. This covers the period of April 2025 to March 2030.The aim of RIS3 is to improve safety, environmental protection, network performance, support the economy, ongoing management and maintenance of the SRN and developing a technology-enabled network.

There has been improvement work being done on the A303 and there are additional schemes for this route. There is a strategic study considering routes from Dorset up to the M4. The development of RIS3 has been supported by the STBs. This is to help provide freight operators with the most efficient way of transporting road goods and improve air quality by improving the flow of goods. National Highways have projects in the pipeline for the South West to help support freight operators. These include[77]:

A38 Trerulefoot to Carkeel safety package	Developing safety improvements along the A38 between Carkeel and Trerulefoot in Cornwall.
Severn resilience package	Developing a package of possible improvements to sections of the M4, M5 and M32 motorways on the eastern side of the Severn Crossings near Bristol to tackle current and future congestion levels following the 2018 removal of the tolls to cross the Severn bridges.

[77] National Highways (undated) Pipeline of possible future schemes. Available from: https://nationalhighways.co.uk/our-work/pipeline-of-possible-future-schemes/

Planning for the future for long life infrastructure is a challenge but what is almost certain is that it is unlikely to just be a zero emission goods movement replica of today's movement. A broad approach to improving the SRN is important, ensuring that improvements in information provision and logistics planning are implemented, alongside measures to encourage modal shift. These can be done alongside providing additional SRN capacity and the removal of pinch points. National Highways More likely is a wider goods movement planning approach alongside passenger mobility is essential. The two are inter-related especially in relation to the economy. Further still, future planning needs to take into account communities in close proximity to road networks. They require support and protection to ensure they are not unduly impacted by the effects of road freight through air quality and noise, often experienced most in areas of deprivation.

8.4 Summary

The SRN plays a vital role in the movement of goods in the South West. However, as evident by the telematics data, freight operators use a substantial amount of the local road network to deliver goods. For the Freight Strategy it is important the entire network is considered. National Highways have identified a number of key challenges that the SRN faces including congestion and journey time reliability. Some of the routes which face challenges include the A30, A303, M5, A38 and A35 to name a few. There are opportunities to help support the industry ranging from encouraging modal shift, continued investment on the network through RIS3, use of technology and data to inform decisions and better communications with freight operators on disruptions and maintenance plans.

9. Multimodal review

This chapter provides a multimodal review of the rail, maritime and aviation operations and the infrastructure to support the movement of goods in the South West, not forgetting the need for good road infrastructure to these transport nodes.

9.1 Rail

9.1.1 Introduction

This section is informing the separate rail Work Package WP08 which is mainly a rail passenger strategy for Peninsula Transport.

At the outset it is relevant to say that the current volume of freight that moves by rail in the Peninsula Transport area is relatively low, both historically and relative to the size of the addressable market. The principal issues behind this will be discussed later in the chapter. The main exception to this is the nationally significant movement of aggregates from the Merehead and Whatley Quarries, Frome, Somerset (just on the Peninsula Transport / Western Gateway border) principally to the London Area to service the requirements of the construction sector.

Across the Western Gateway, rail freight volumes are higher due to the significant transit of aggregates to the Greater London area and the significant steel movements and intermodal services between South Wales and the West Midlands.

Rail and the movement of freight should form part of the overall plan to help to decarbonise freight in the South West and to facilitate the movement of goods over strategic journeys working with the road haulage industry. However, in order to do this, there is a requirement for several elements to be in place, including, but not exclusively, the following;

- Sufficient aggregated volumes of goods between origin and destination
- Suitable quality freight paths on the rail network which meet customers' requirements and asset productivity
- Quality freight train paths which match the performance profiles of the different types of freight traffic (Class 1 – Express Parcels, Class 4 – Intermodal and Class 6 – Bulks). All trains have a class number, and this specifies various attributes including maximum speed. These are needed to calculate what type of train path is required on each part of the rail network
- Suitable terminals to load and unload the cargo – enhanced if warehousing facilities are on site as well
- Ensuring for intermodal (container / swap body) traffic that suitable loading gauge / wagon combinations exist across the network. Ideally for maximum flexibility, a loading gauge for intermodal traffic is W10 / W12 – however there may be cases where a technical solution of lower height wagons may be more appropriate
- Suitable Route Availability (RA) – this covers the system by which the permanent way (track, bridges, embankments and other structures) can handle locomotives and wagons. The RA is primarily related, but not exclusively, to the axle load of the vehicle concerned
- Market interest by Freight Operating Companies (FOCs) in running services
- Assistance provided by the forthcoming Great British Railways (GBR) which will have a statutory duty to promote rail freight and develop a rail freight target
- The availability of financial help through the Mode Shift Revenue Support
- The carbon benefit of running freight trains even with conventional diesel (including bio-fuels) during the transition to alternative power propulsion methods including electricity and hydrogen. On average a diesel freight train is 76 per cent better on carbon dioxide emissions than using the equivalent number of diesel HGVs and an electric train is 90 per cent better where these can be run

9.1.2 Baseline of current network

This section provides a baseline of the spatial scope of the network, including gauge, line speed, route availability, forecast freight flows and the study area. These maps are adapted from the Network Rail Western Network Specification[78] and the Network Rail Western Route Study[79], as well as equivalent studies for Wales.

This section sets out the loading gauge requirements for the South West of England, which is relevant for the conveyance of intermodal containers and swapbodies on the railway. The only intermodal trains that run through the study area are the Wentloog

[78] Network Rail (2018) Delivering a better railway for a better Britain. Network Specification 2018 Western. Available from: https://www.networkrail.co.uk/wp-content/uploads/2016/12/Western-Network-Specification-2018-v9.pdf
[79] Network Rail (2015) Western Route Study. Long Term Planning Process. Available from: https://www.networkrail.co.uk/wp-content/uploads/2016/11/Western-Route-Study-Final-1.pdf

(Cardiff East) to Daventry 'Tesco' Intermodal train and Freightliner container trains from the Port of Southampton to Cardiff and from Felixstowe to Cardiff.

- **Figure 9-1** and **Figure 9-2** show the gauges in South West England, made up of sections of the Network Rail Western Route Specification and the Wessex Route (South Coast Mainline) Specification, which makes up the Peninsula and Western Gateway regions. It is worth noting that, since the Route Specification was published, the Great Western Main Line has been electrified from Cardiff to Paddington (via Bristol Parkway) and provides for W10 loading gauge to Wentloog Intermodal Freight Terminal (not the Relief Line Tunnels at Newport). Elsewhere, much of the gauge in these regions is W6, W7 or W8 gauge. This is an issue as 9'6" Deep Sea Containers need W10 or W12 if conveyed on a standard 1000mm deck height Intermodal wagon. It would not be possible to move a standard 9'6" high deep-sea box beyond Bridgwater, as the gauge is too small. This is even taking into account the specialist low-floor wagons that some operators have access to (IDA, FKA, IKA). Smaller 8'6" boxes could theoretically be moved as far as Taunton but, again, would require specialist wagons that are in short supply. However, there are technical wagon solutions which in the interim could address this barrier for routes down the South West spine railway from Bristol to the far South West.

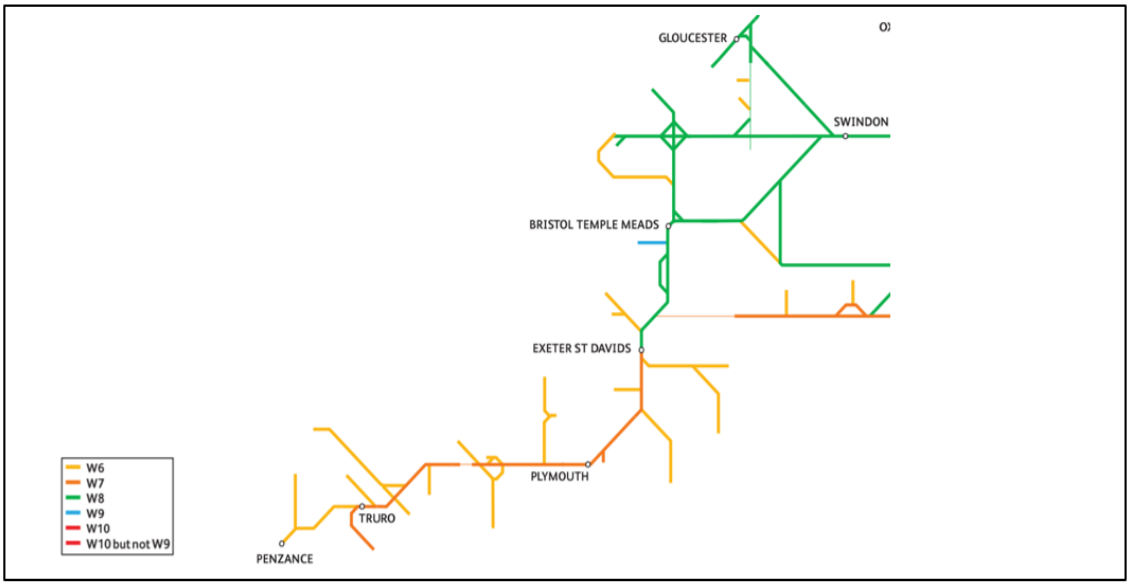


Figure 9-1: Gauge in the South West (Covering Peninsula and Western Gateway STB Regions) (Adapted from Network Rail, 2016)

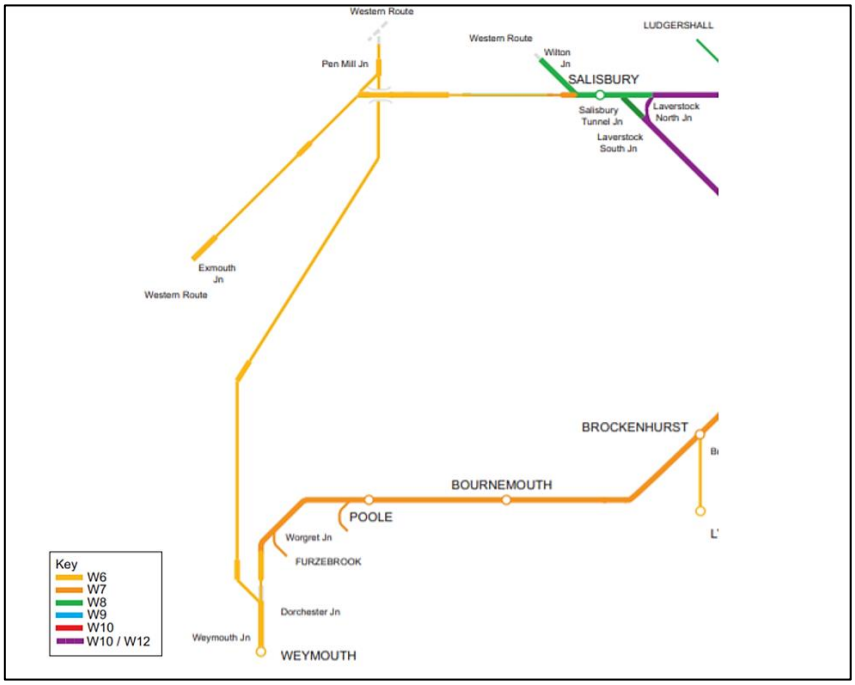


Figure 9-2: Gauge in the South West (Covering Peninsula and Western Gateway STB Regions) (Adapted from Network Rail, 2016)

Figure 9-3 and **Figure 9-4** shows an indication of line speed in South West England made up of sections of the Network Rail Western Route Specification and the Wessex Route Specification which makes up the Peninsula and Western Gateway regions. This shows that most lines beyond Exeter St David's are 40-75 miles/hour (commonly 'mph') or, in the case of most of the branch lines throughout the Peninsula and Western Gateway regions, 0-35mph.

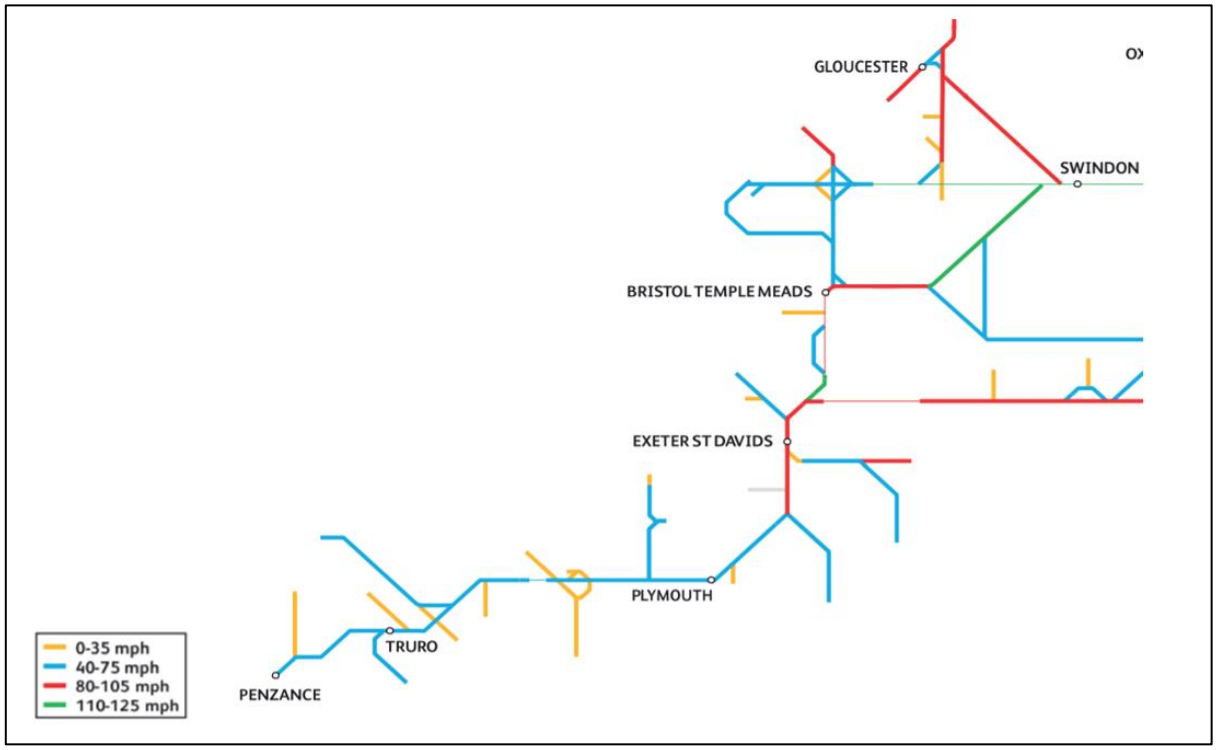


Figure 9-3: Line speed in the South West and south Wales regions (Covering Peninsula and Western Gateway STB Regions) (Adapted from Network Rail, 2016)

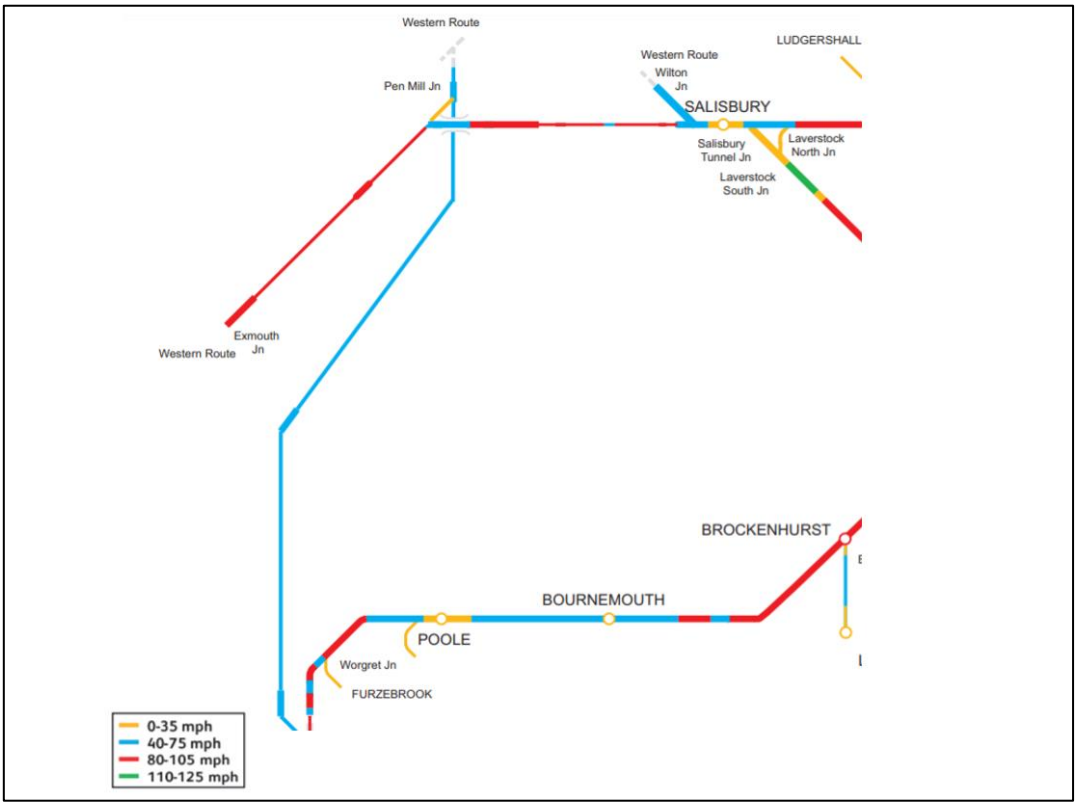


Figure 9-4: Line speed in the South West and south Wales regions (Covering Peninsula and Western Gateway STB Regions) (Adapted from Network Rail, 2016)

Additionally, **Figure 9-5** and **Figure 9-6** shows the route availability for South West England made up of sections of the Network Rail Western Route Specification and the Wessex Route Specification which make up the Peninsula and Western Gateway regions. This shows that, in general, the main lines have an RA score of between seven and nine, whereas the branch lines have an RA score of between 1 and 6 which prohibit diesel locomotives except in certain circumstances.

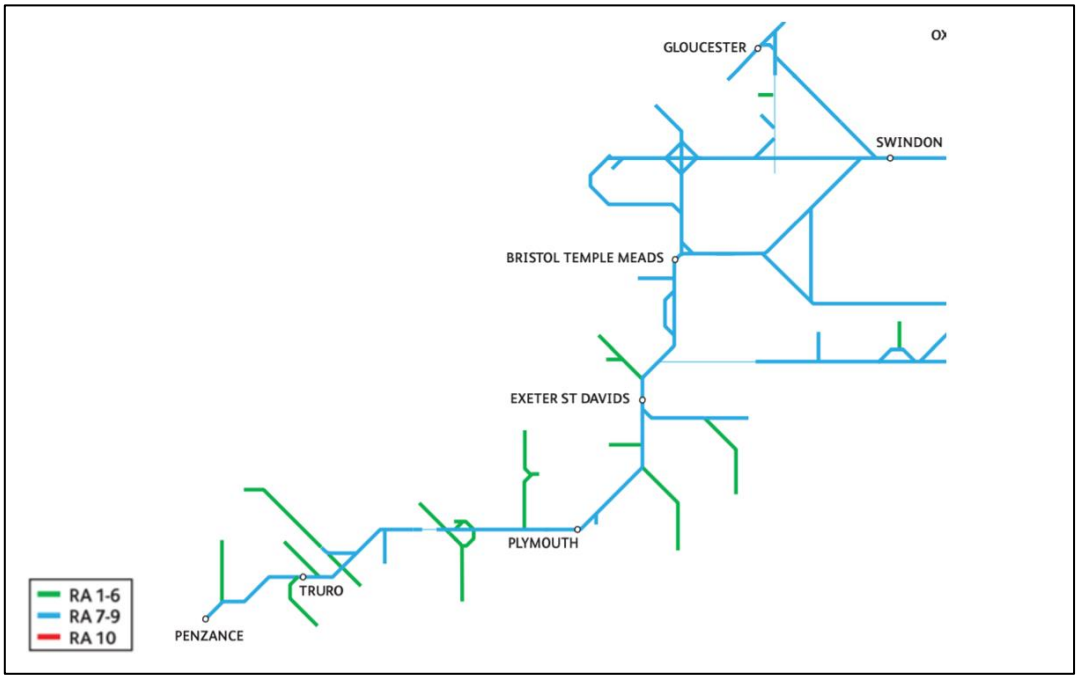


Figure 9-5: Route Availability for the South West (Covering Peninsula and Western Gateway STB Regions) (Adapted from Network Rail, 2016)

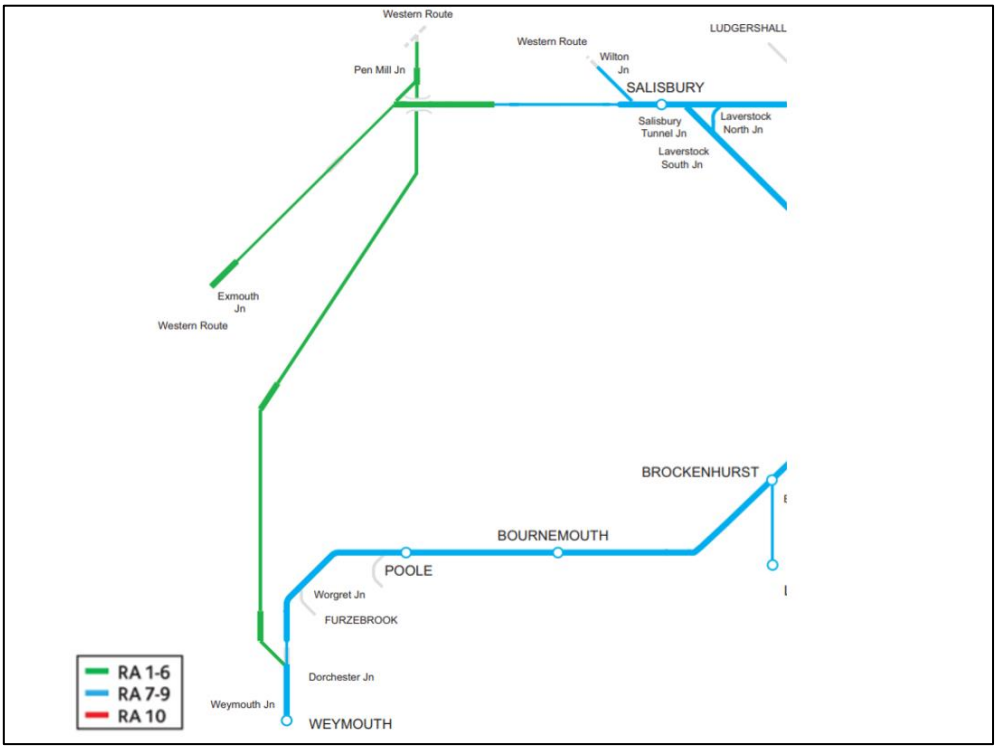


Figure 9-6: Route Availability for the South West (Covering Peninsula and Western Gateway STB Regions) (Adapted from Network Rail, 2016)

Figure 9-7 shows the forecast freight flows as shown in the 2015 Network Rail Western Route study. An equivalent map was not produced for the Wessex Route Study. This shows Aggregates (including China Clay) as being most prevalent within the Peninsula region. The black line refers to no freight (bar Network Rail's own trains).

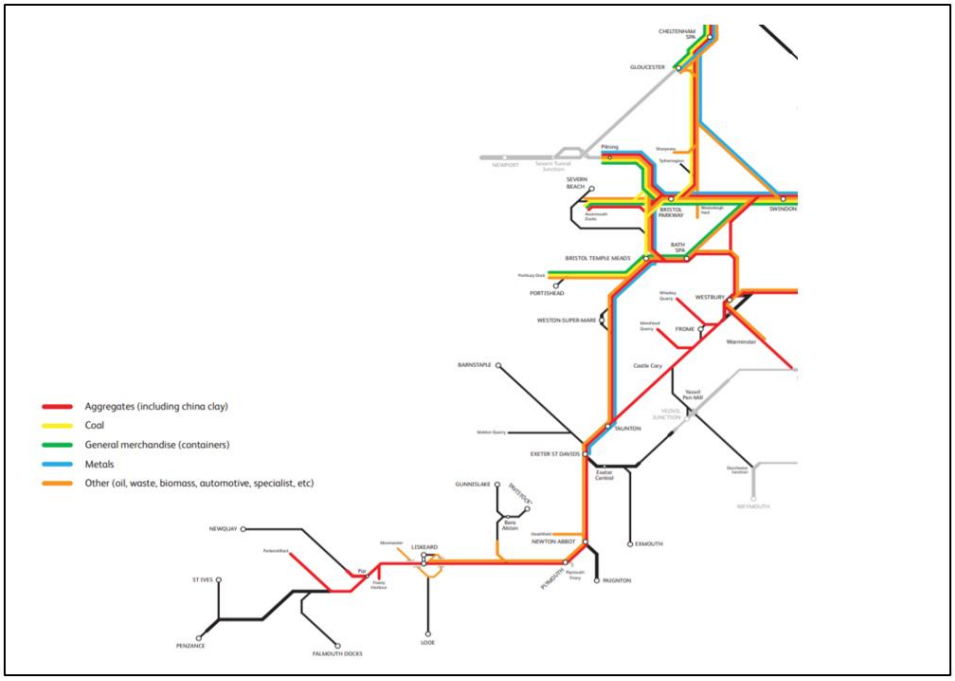


Figure 9-7: Forecast freight information for the South West region (Covering Peninsula and Western Gateway STB Regions) (Adapted from Network Rail, 2016)

Figure 9-8 shows an overview of the Peninsula and Western of England regional working group areas and broadly represent the locations of the respective Sub National Transport Bodies (STBs) within England. **Figure 9-8** also shows where these link to the Thames Valley regional working group area.

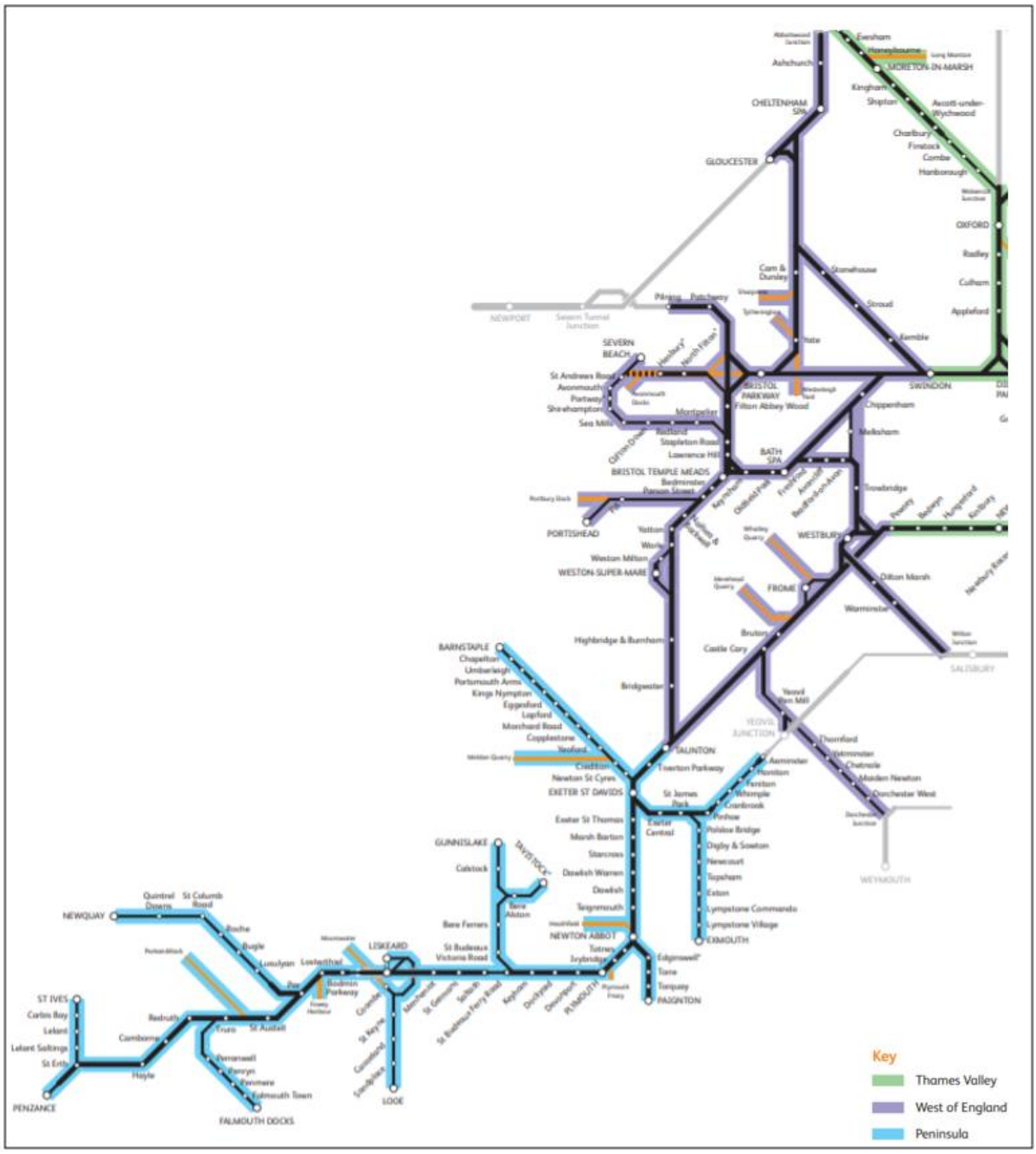


Figure 9-8: Locations of Peninsula and West of England Regional Working Group Areas (Adapted from Network Rail, 2016)

An often-neglected issue is that of Bridge Strikes which cause disruption to rail and road users alike and are costly to repair and avoidable. The South West has two of the twenty most struck bridges in Britain according to Network Rail statistics. These are located at:

- Warminster Road, Wilton, Wiltshire on the A36 (10 strikes in 2019/2020)
- Jews Lane, Twerton, Bath, Somerset (9 strikes in 2019/2020). The bridge over Jews Lane was hit nine times up from four in the previous year - at a cost of £29,000, six of the times it was HGVs involved.

9.1.3 Baseline of present operations and service patterns

AECOM has accessed Network Rail data to give a greater picture of present rail services. This is data from 2019, before the effects of the COVID-19 pandemic. The below tables give some examples of key origins and destinations for freight as well as data for some of the key freight yards.

Table 9-1: Examples of key origins and destinations in the South

Location	Movements	Arriving/Leaving?	Notes
Mendip Quarries	3389	Leaving	Incorporates movements from either Whatley Quarry (1677 movements) or Merehead Quarry (1712 movements). This shows between 9 and 10 trains leaving these quarries combined per day, including empty movements. There is around 1.5 million tonnes of uplift from the Mendip quarries, as noted from the stakeholder engagement.
Westbury Down TC	978	Leaving	An additional 75 leaving the Tarmac plant
Moorswater	39	Leaving	All heading for Aberthaw in south Wales. These operated mostly weekly on a Thursday, with some gaps such as in April as well as at the end of December. These serviced ceased with the closure of the plant in December 2020
Goonbarrow Junction	220	Leaving	209 running to Fowey Dock and 11 running to St Blazey. This represents a movement around every 2 days. This is china clay going for export.
Burngullow	303	Leaving	Running within the Peninsula region to Exeter Riverside and Westbury in Somerset, as well as to London. This represents a service just under one a day
Parkandillack	135	Leaving	Running to St Blazey, Fowey Dock, Burngullow and Exeter Riverside, representing a service around every 3 days. The train is split initially and re-joins at Exeter Riverside because of the trailing weight restriction for a Class 66 between Plymouth and Exeter. (Electrification of the line would enable a higher payload to be moved with a single locomotive).
Portbury Coal Terminal	98	Leaving	Running to Fiddlers Ferry Power Station near Warrington. This power station was decommissioned in March 2020.
Fowey Dock	282	Arriving	Includes services from St Blazey, Parkandillack and Goonbarrow, representing a service arriving at the dock nearly every day
Westerleigh, South Gloucestershire	414	Arriving	Most of these came from sidings at Robeston whilst some origins and destinations were the Lindsey refinery in Immingham. 410 trains were also shown leaving
Avonmouth	238	Arriving	Incorporating locations including the West Wharves (for GBRF and Freightliner Heavy Haul), coal silos and Hansons. Origins for these included quarries as well as destinations in London, Wales and the North West. Avonmouth was also an origin for 234 trains

Table 9-2: Examples of key freight yards in the South West

Location	Movements	Arriving/Leaving?	Notes
St Blazey	295	Both Directions	Destination for 120 services and was the origin for 175 services, including empty services. Key origins and destinations for these included Parkandillack, Goonbarrow and Exeter Riverside within Peninsula and Bescot, Bow (London) and Westbury outside the Peninsula region.
Exeter Riverside	534	Both Directions	Destination for 360 services and was the origin for 174 services, including empty services. Key origins and destinations for these included Burngullow, Parkandillack and St Blazey within Peninsula and Westbury and Bow (London) outside the region.
Bristol Freightliner terminal	338	Both Directions	Origin for 170 services and a destination for 168 services. Most of these ran between Bristol and London Gateway.

9.1.3.1 Examples of key freight yards in the South West region

Information for freight yards has been included in both directions, as these yards operate as terminals for goods.

Summarised below are the indicative Peninsula Transport area freight movements (excluding the Merehead / Whatley Aggregates movements) at Taunton taken from August 2021 data, confirming the backbone of the rail freight movements is China Clay / China Clay Sand (Bulk commodities).

Table 9-3: 2021 Freight Movements: Taunton

Origin	Destination	Operator	Cargo Type	Frequency
Aberthaw Tarmac	Moorswater Tarmac Westbury Tarmac	Colas Rail	Aggregates	Not Used
Chirk Kronospan	Exeter Riverside	Colas Rail	Timber	Irregular
Ernsettle MOD	Kineton MOD Bicester MOD	GB Railfreight	Military	Irregular
Exeter Riverside	Westbury Tarmac Whatley Quarry	Freightliner	Aggregates	Irregular
Parkandillack	Bescot Down Side	DB Cargo UK	China Clay	Daily
Burngullow ECC	Bow East	DB Cargo UK	Sand	Weekly
Fairwater Yard	Various	Freightliner	Railway	Irregular

Figure 9-9 demonstrates the key commodities for services with an origin within the South West in 2019. This shows how construction materials dominates the commodities moved by rail.

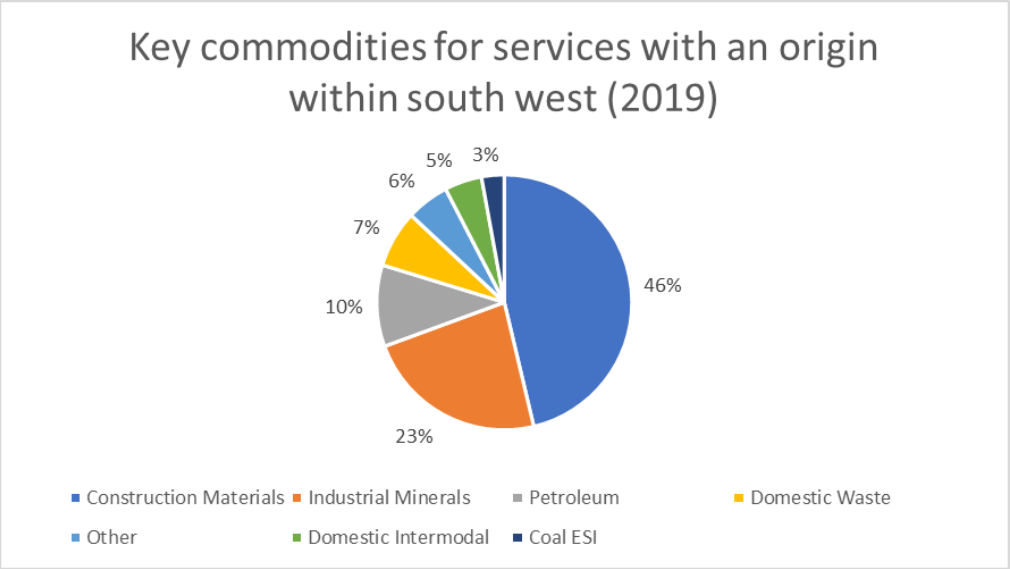


Figure 9-9: Key commodities for services with an origin within South West (Network Rail Data, 2019)

Figure 9-10 and **Figure 9-11** show the split of freight trains with journeys operating fully within the South West region and those that operate in and out of the region. These show that the majority of journeys (65 per cent) run from origins or to destinations outside the region. The waste flows are mainly a movement from Southall to Avonmouth for energy generation.

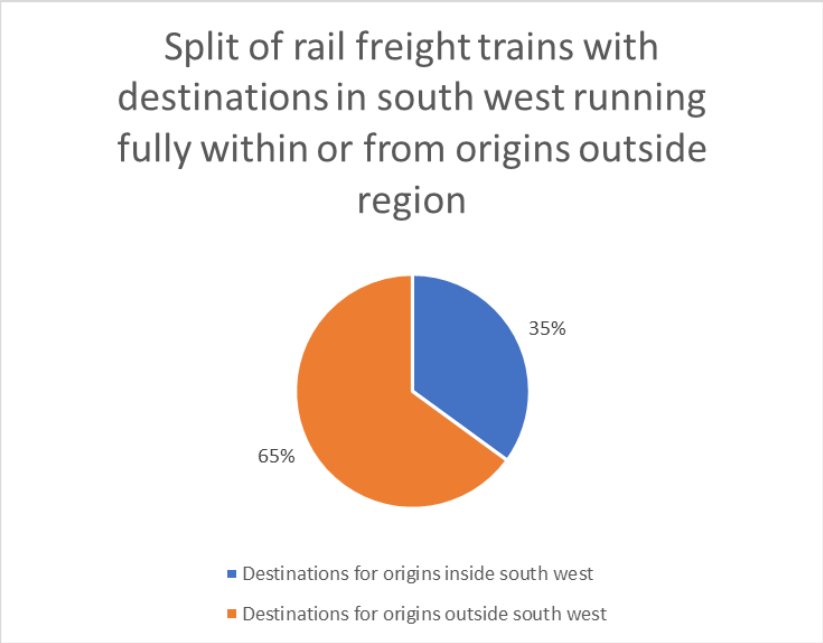


Figure 9-10: Split of rail freight trains running within and outside South West (Destinations within South West) (Network Rail Data, 2019)

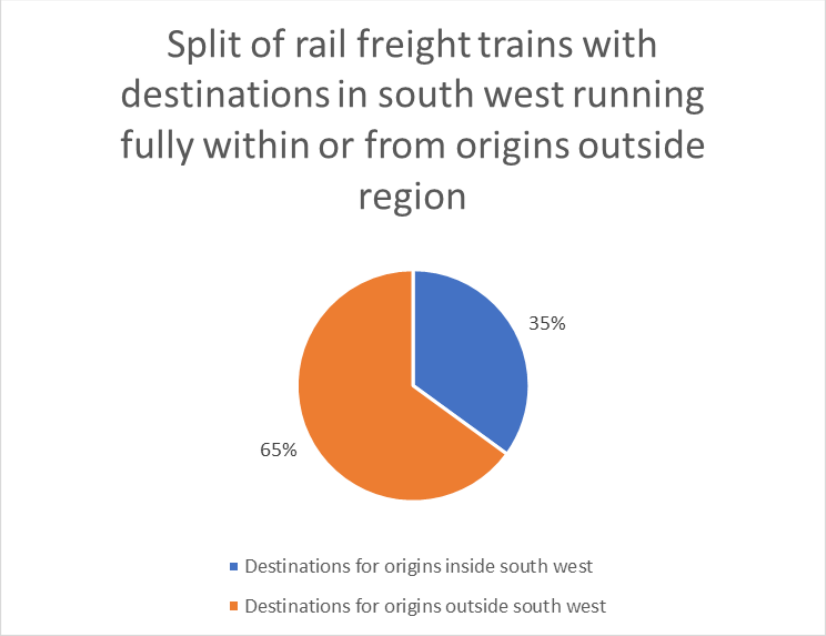


Figure 9-11: Split of rail freight trains running within and outside South West (origins within South West) (Network Rail Data, 2019)

Figure 9-12 shows origins and destinations of services travelling through the South West by Strategic Freight Corridor (SFC). This shows that most services are travelling to/from London. Mendip Quarries is listed in the data as its own SFC, whilst the rest of the South West is under the 'West' or 'Somerset' SFC.

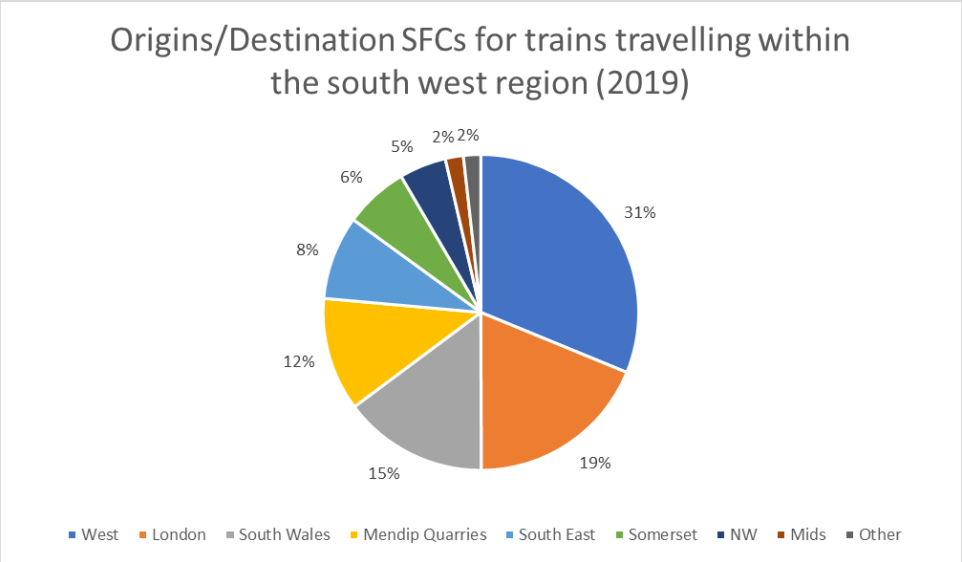


Figure 9-12: Origins/Destinations SFCs for rail freight trains travelling within the South West region (Network Rail Data, 2019)

In addition, case studies demonstrating best practice in the rail industry can be seen in **Chapter 7** and the **Appendix D** of this document. These include china clay, timber and aggregate movements.

9.1.3.2 New rail services

During the time period of this study there have been several new flows of material by rail either as permanent contracts or as trials and this provides confidence that aspirations for modal switch are genuine.

GRS expects to process secondary aggregate volumes at the reopened Hemerdon Tungsten mine in Devon and distribute more than a million tonnes each year for the next decade and beyond. After a short lorry journey from Hemerdon, the aggregate will be taken to nearby Marsh Mills (between Plymouth and Plympton) where it can be loaded onto trains for onward distribution via the rail network.

Network Rail has partnered with Colas Rail in a pilot project to run a timber freight train 92 miles from Hackney Yard near Newton Abbot to a sawmill in Abergavenny. The customer was keen to explore the practicalities of moving timber by rail and the train carried a total of 320 tonnes of timber in eight wagons but it is hoped that this capacity can be doubled in the future to 720 tonnes across 18 wagons.

A new intermodal service, named Humber Express, is connecting continental European customers using the Port of Immingham with new inland terminal facilities at iPort Rail in Doncaster. This service is notable for several reasons, not only is it the first intermodal service from this port but it is only 80 kms in distance and this breaks the mould that says rail has to be long distance. It has been the result of good collaboration with a number of interested parties.

Furthermore, a new aggregate train from the Port of Lowestoft to Stoke started in March after a long period of planning to get the site into operation. Aggregates delivered by sea are then transferred to rail to be delivered potentially all around the UK. This addresses the growing demand for construction materials as well as

9.1.4 Rail freight modal share and modal switch

In this section it is essential to consider the reasons why modal shift to rail is important as well as some barriers in the region. In particular, we will consider themes explored in the Peninsula Transport Economic Connectivity study, which helps provide a baseline of current characteristics of the Peninsula network. This section will also consider reports from the Western Gateway STB, such as the Regional Evidence Base and Economic Connectivity study, as well as the Western Gateway economic partnership, such as their Economic Position Statement and their Spring 2020 Prospectus.

For the Peninsula region, **Table 9-4** demonstrates an estimate of freight tonnage by mode as an indication of Peninsula's reliance on road transport, as presented in the Economic Connectivity Review. There are several assumptions underpinning these calculations which mean they should not be relied upon as precise measures of demand, but the figures are presented to provide a reasonable indication of the share of demand across modes and journey types.

Table 9-4: Estimate of freight tonnage by mode for Peninsula region[80]

Freight (millions tonnes)	Intra-Regional	Inter-Regional	International	Total (per cent of total)
Road	163.6	60.9	-	224.5 (94 per cent)
Rail	12.2		-	12.2 (5 per cent)
Port	2.9			2.9 (1 per cent)
Airport	-	-	-	-
Total				**239.6**

Analysis conducted assumes that if a five per cent modal shift occurs it could be sufficient to generate eight intermodal services inbound to Peninsula Transport terminals and nine services to Western Gateway locations. The most likely locations are Bristol, Bridgewater and a suitable Devon location such as Exeter or Newton Abbot. There is a need to consider Plymouth tonnage in conjunction with Cornwall. The distances and journey times are long to these locations and this is more suited to rail if sufficient volume can be obtained. The figures suggest there is sufficient for a train a day. Further details around this can be found in **Appendix H**.

9.1.4.1 Levels of carbon emissions of road and rail

As noted in the Peninsula Transport Economic Connectivity Review, nationally, rail emissions represent about 1.7 per cent of road transport emissions and applying this percentage to the Peninsula produces a rail emission estimate of around 85,000 tonnes of CO_2e by end user in 2016. However, all current rail operations in the Peninsula rely on diesel power and so it is likely the level of emissions are higher than this figure and applying simple adjustments to the national emissions estimates produces a higher figure of 99,000 tonnes. Both these estimates are based on limited data and so should be treated with caution; however, they represent an indication of the order of magnitude of rail emissions compared to the 22m tonnes of emissions from road transport. It is also important to note that these figures cover both passenger and freight, however, still represent an effective demonstration of the need for the freight sector to decarbonise.

9.1.4.2 Air Quality

Modal shift can offer the opportunity for greater societal benefits including improving air quality. The Department for Environment, Food and Rural Affairs (DEFRA) UK Air Information Resource shows current Air Quality Management Areas (AQMAs) in a number of areas such as Cornwall, South Hams, Torbay, Mid-Devon and North Devon as well as the Cities of Plymouth and Exeter. In Western Gateway, these are also present in areas such as South Gloucestershire, Wiltshire, Bath and North East Somerset as well as the cities of Bristol, Cheltenham and Gloucester. Vehicle standards have improved significantly in recent years, however modal shift to rail will help to reduce PM_{10} and NO_x along key routes.

9.1.4.3 Noise

The noise for rail freight overall is significantly less than for road freight. This is recognised as for safety, in the appraisal process with respect to mode shift from road to rail through the Mode Shift Revenue Support Scheme. The values for the Marginal External Costs – Noise (MEC-N) were increased in 2020 following a revision to the methodology and subsequent monetised values for the sensitive lorry miles.

Marginal external cost of noise (MEC-N) is the extra cost imposed by the noise impact of an additional HGV vehicle entering the road network. Two major impacts are usually considered when assessing noise impacts: annoyance and health impact. Marginal noise costs are highly dependent on local factors. Three key drivers for marginal noise costs are identified as population density close to the emission source, existing noise levels and time of the day. Other relevant cost drivers include vehicle age, the slope of the road, the type of the road surface and the presence of noise barriers. **Figure 9-13** shows the rates per vKM are much higher for other roads[81].

[80] Peninsula Transport (2020) Peninsula Transport Shadow Sub-National Transport Body. Economic Connectivity Study. Available from: https://www.peninsulatransport.org.uk/wp-content/uploads/2020/07/Peninsula-Transport-ECS-Tech-Report-Final-Version-080720.pdf
[81] Atkins/Jacobs (2019) Updating Marginal External Costs of Road Freight. Executive Summary Report. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/865550/marginal-external-costs-executive-summary-report.pdf

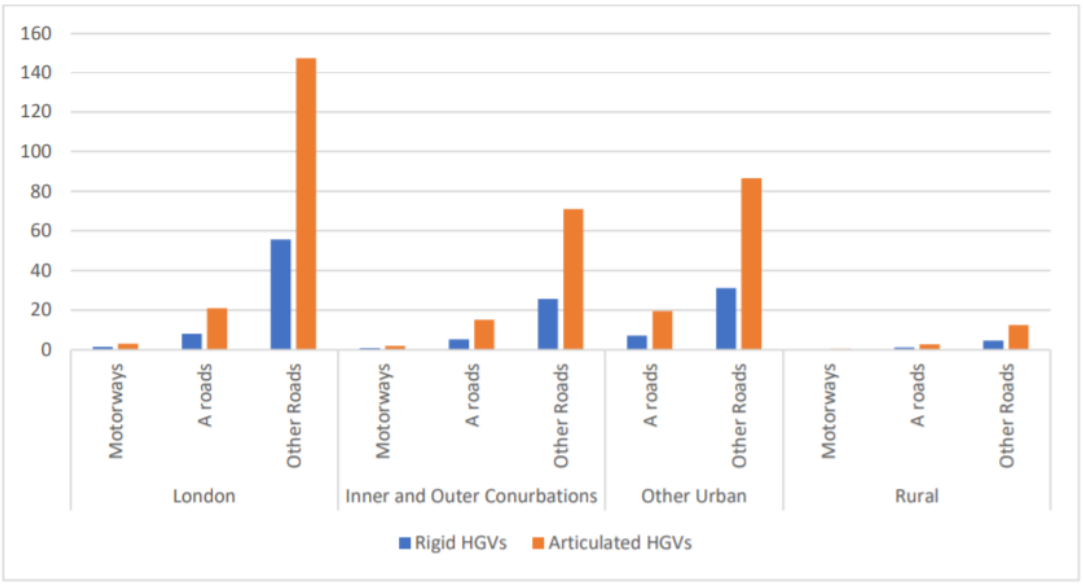


Figure 9-13: MEC-N values, pence per vkm, 2025 impact, 2020 prices, by HGV type

9.1.4.4 Safety

Transport activities give rise to effects, such as environmental impacts and accidents, the costs of which are generally not borne by the transport users – these are known as transport externalities. These are captured for appraisal purposes with respect to mode shift from road to rail through the Mode Shift Revenue Support Scheme. The impact of mode shift from road to rail is recognised through Marginal External Cost – Accidents (MEC-A) which provides a monetised value for the sensitive lorry miles.

Marginal external cost of accidents (MEC-A) are the extra cost imposed by an accident involving a freight vehicle on all other road users and the general public. The external costs of accidents in TAG and also the values applied for the mode shift grants, are calculated based on marginal cost approach as presented by Sansom et al[82].

This method provides accident costs that are dependent on traffic volumes. MEC-A values are calculated by taking the risk elasticity multiplied by accident costs and the accident risk rate, where the risk elasticity is the increase in the accident rate per vehicle kilometre for all transport users[83]. **Figure 9-14** shows that 'Motorways' generally have the lowest marginal external cost.

[82] Sansom et al (2001) 'Surface Transport Costs & Charges: Great Britain 1998'. Available from: http://www.its.leeds.ac.uk/fileadmin/user_upload/Surface_Transport_Costs_and_Charges_Great_Britain_2001.pdf
[83] Atkins/Jacobs (2019) Updating Marginal External Costs of Road Freight. Executive Summary Report. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/865550/marginal-external-costs-executive-summary-report.pdf

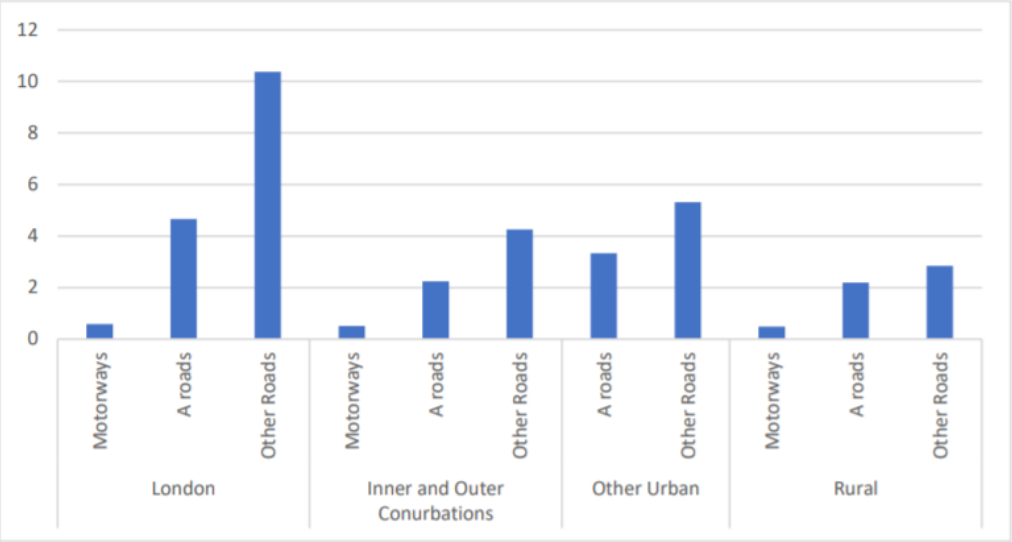


Figure 9-14: MEC-A values, pence per vkm, 2025 impact, 2020 prices, rigid and articulated HGVs

9.1.4.5 Reducing Congestion

Another benefit of modal shift is helping to ease congestion on the road network which is a particular problem during the summer months across the South West region. The Peninsula Transport Economic Connectivity Review notes that there are 23 billion vehicle kilometres travelled on Peninsula roads with nearly half of these on strategic routes. Forecasts suggest that traffic will grow by around 30 per cent over the next 30 years, with the fastest growth expected to be in cars and LGVs on the primary routes.

For Western Gateway, congestion is also a significant issue, particularly in the major urban conurbations. The Western Gateway Regional Evidence Base notes that the Bournemouth Area is the 6th most congested in the country, with this congestion estimated to cost £276m per annum. Both Royal Portbury Dock and Avonmouth Docks are reported in this document as being impacted by the congestion at major junctions. Similarly, the Western Gateway Economic Connectivity Study notes that congestion is prevalent on many of the key corridors that were analysed, and in many cases will worsen over time given the new housing and employment developments planned.

9.1.4.6 Journey Time Reliability

Figure 9-15 shows journey time reliability for the Peninsula Road Network in 2018. Full details of how this data is compiled can be found in section 3.5 of the Economic Connectivity Review. The plot shows a consistent pattern of reducing speeds during the day (from an overnight average of around 90 km/h to a value a little less than 70 km/h) reflecting the higher levels of demand and congestion present on routes during the daytime. This strengthens the case for modal shift from road to rail to lessen this demand and congestion, not only for freight but also for passenger traffic.

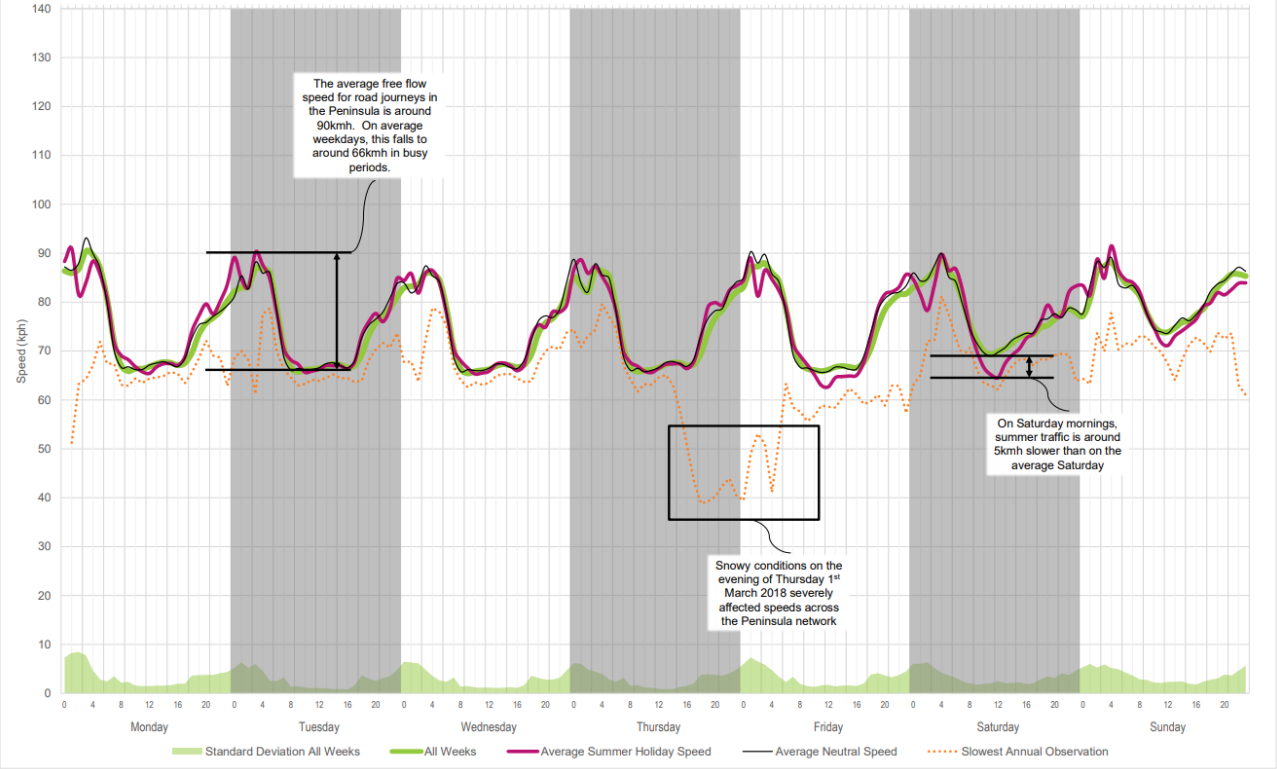


Figure 9-15: Journey time reliability for the Peninsula Road Network in 2018 (Adapted from AECOM, 2020)

9.1.5 Market Segment Analysis

Building on the stakeholder engagement process, as well as considerations of key trends in the sector, this section considers some of the key future markets that rail freight can serve. Information is shown as part of **Table 9-5**.

Table 9-5: Market Segment Analysis

• Sector and Likely Potential	• Explanation
• **Intermodal – Deep Sea** • Real Potential • This rail freight market segment is growing at between 3 per cent and five per cent per annum in other parts of the UK, but is not currently happening in the South West partly due to a lack of terminals. Other factors such as short distances combined with lower volumes make rail economically unattractive.	• Although there are currently no intermodal terminals located within the Peninsula region or Western Gateway, there are former terminals at Bristol and Swindon. There may be scope for strategically placed terminals to facilitate this market. Although just outside the South West region, Southampton acts as a local/regional port for areas such as Bournemouth, Christchurch and Poole, being only one-hour drive away. Stakeholders in a Freight Strategy workshop believed that there would be scope for considering Southampton to Exeter, Plymouth or Bristol, for deep-sea container in the future. If a rail link to Poole Port via Hamworthy is reinstated, this could also facilitate local movements, as well as more strategic routes. Consultation is currently underway on the reopening of this connection. Most Peninsula movements flow through Western Gateway to get to the region. London Gateway and Felixstowe are also strategic deep seaports with connection to the whole South West. Greater detail is provided in the Key Interventions section.
• **Intermodal – Domestic** • Real Potential • There are several new intermodal terminals being built in the Midlands and the North. Several retailers and manufacturers are using rail between pairs of UK terminals to facilitate domestic rail movements. This sector is predicted to continue growing strongly	• New terminals in the South West could provide links to strategic locations such as rail terminals in the Midlands, London and the North. A useful model for the South West is in the Highlands of Scotland where Tesco run their trains to Inverness which then services stores across the Far North using a local haulier. Stakeholders believed that these were likely to incorporate swap body trailers rather than just deep sea container wagons. In the Western Gateway region, the deep-sea intermodal terminal at Avonmouth is shut however this has the potential to be reopened in the future to provide greater rail freight capacity.

• **Oil and Petroleum** • Limited Potential, fairly static market	• There is limited scope for these products to be transported by rail within the Peninsula region due to lack of provision of these substances within the Peninsula. In general, the demand for this is forecast to fall in the coming years. At the moment petrol and diesel is sent by road tankers down to the South West as well as via coastal shipping to locations such as Plymouth. For Western Gateway, Petroleum flows at Westerleigh near Bristol comes in from locations such as Immingham and Milford Haven. This is a slowly declining sector that might get a bit of extra volume but ultimately will decline towards 2050. However, the movements of hydrogen or other gases/chemicals by rail is a possibility.
• **Construction** • Real Potential • Rail movement of construction materials is growing strongly at about 3 per cent per annum. Several of the major construction material producers are looking to make more use of rail if possible.	• Construction materials is already the most transported commodity by rail freight in the Peninsula region, taking an 83 per cent share at present. This is a key growth area with aggregates such as China Clay Sand, which is explained in greater detail in the Key Interventions section. There is significant scope to further develop the existing rail transportation of china clay materials, both within the Peninsula region as well as the rest of the country. For Western Gateway, locations such as Westbury Down, Hamworthy (near Poole) and Avonmouth/Bristol port offer aggregates potential for rail freight. In addition, there may be future provision for construction materials to be transported by train both into and within the Peninsula and Western Gateway regions. Examples include Whatley to Exeter Riverside traffic (2022) and the new Aggregates flow from Marsh Mills (Plymouth East). Additionally, 'temporary terminals' can act as a shorter-term solution throughout the South West where construction of a larger one would not be viable – such as the use of Exeter Riverside which is currently receiving supplies from Whatley and Marsh Mills for a new flow of aggregates by sea and rail from Marsh Mills as a by-product of Tungsten mining production (at Hemerdon).
• **Metals** • Limited Potential, fairly static market	• The Peninsula region, especially Cornwall, has a strong heritage of metals mining, although there is no present rail freight provision for this sector. However, with significant exploration currently taking place for key metals such as lithium (an integral component to help facilitate new technologies such as car batteries) there may be future potential for transportation of these commodities by train both within and for exporting out of the Peninsula region. For Western Gateway, the main potential is offered through the continuation of flows through the region from Newport and Cardiff to destinations such as the Channel Tunnel and the West Midlands. This also reinforces the fact that there is generally more transit traffic through Western Gateway compared to Peninsula, particularly traffic connecting Wales with the Channel Tunnel and the Midlands.
• **Coal** • No Potential, declining market	• Coal is not identified as a key market for future rail freight provision in the Peninsula area, both because of the lack of coal reserves as well as the gradual phasing out of the use of coal in the UK, with a greater focus on power generation from renewable sources. The Western Gateway Rail Strategy Technical Report also notes a general shift away from 'heavy haul' goods such as coal, partly due to a fall in coal power plant usage and the general targets for net-zero carbon. In Western Gateway, this is reinforced by recent plant shutdowns such as that at Aberthaw, which is not in the Western Gateway area but was transit traffic through the region.
• **Express Parcels** • Real Potential • Small beginnings but may grow especially with new entrants to the market	• Express Parcels have been identified as a key potential growth area for freight within both the Peninsula and Western Gateway regions. This involves parcels being transported quickly both within the Peninsula region as well as to key strategic locations, such as sorting hubs in the Midlands. This is similar to the 'New Express Parcels Case Study as part of Task 8 and is also listed as a key intervention. • There are also a number of companies such as Intercity Railfreight, Orion and Varamis which have launched services or are looking to launch in the near future and it may be worth considering how these can benefit the Peninsula and Western Gateway regions.

9.1.6 Williams-Shapps Plan for Rail – Implications for Freight

Published on 20 May 2021, the Williams-Shapps 'Plan for Rail' was warmly received by the sector, with the Rail Freight Group in particular seeing it as an opportunity to accelerate the growth of rail freight, helping to decarbonise UK freight transport and meet the needs of freight customers.

Within the Plan there are several freight actions which are of particular interest to Peninsula Transport and Western Gateway. The first of these will be a Statutory Duty requirement on the new organisation, Great British Railways (GBR), to promote rail freight, strengthening its current operating licence requirements from the Office of Road and Rail (ORR). While short of a specific 'guiding mind' requirement, this is a step forward in ensuring that freight users' access to the network has long term security. There is an intention to embed freight into strategic decision making within the 30-year strategic plan. The implication for Peninsula Transport and Western Gateway is that these bodies should consider mirroring this in their own internal decision making to align with the wider response to the Williams-Shapps Plan for Rail.

A second action from the plan is that GBR will establish a national freight co-ordination team to improve the freight customer experience for the users of the railway. This is of particular importance as relative to passenger, freight is much more national. It is crucial that the priorities of freight at the national network level are considered. For Peninsula Transport and Western Gateway this in many ways presents multiple opportunities both for its own patch and on the other Sub National Transport Bodies, Wales, and Scotland.

Thirdly, the UK Government will set a growth target for rail freight as is the case in Scotland. This is very much linked to the previous point in ensuring that rail freight investments in both the South West and adjacent areas such as Midlands Connect, Transport for the South East and Transport East in particular contribute to this on a whole route basis for the regions key flows.

The fourth area of interest is that GBR will issue guidance on its priorities for rail freight periodically. Although at the time of writing it is not clear how in practice this will be implemented.

On further specifics Peninsula Transport and Western Gateway will need to note that a new rules-based track access regime underpinned by legislation will be established, to be designed in partnership with the market as part of a wider track access framework consultation. As ORR will act as an appeals body for operators or applicants it will be relevant for Peninsula Transport and Western Gateway to feed into this process, in conjunction with its freight sector partners, to ensure the previous rail freight targets and statutory duty to promote are met.

Of note is the Williams-Shapps action on introducing a methodology to better assess the value of rail freight will help to support decision making along with the availability of more open data.

As previously set out, Peninsula Transport does not have an intermodal freight terminal and Western Gateway has terminals that are non-operational such as Bristol. GBR will also explore ways to enable future Strategic Rail Freight Interchanges to be located more appropriately around the country. It will be crucial for Peninsula Transport in particular to actively engage with GBR to ensure that any intermodal freight terminal(s) which doesn't meet the Strategic Rail Freight Interchanges (SRFI) specification can still be brought forward as part of a wider intermodal freight terminal network.

Interim arrangements for Great Britain Railways came into place in December 2021 ahead of full implementation in 2023/24. It is thus crucial that Peninsula Transport and Western Gateway considers and incorporates and engages with the forthcoming transitional arrangements as part of the delivery of its freight and transport strategy.

9.1.7 Key Issues

As part of this project, there has been a comprehensive stakeholder engagement process during the summer and autumn months of 2021. This has included the distribution of a stakeholder questionnaire, pre-arranged phone interviews and a series of virtual workshops. More information on this can be found as part of **Chapter 10**.

In addition to the general stakeholder engagement, a number of calls have been made with stakeholders specific to the rail industry, in particular the South West. These included calls with:

- Several different managers within Network Rail
- Rail Freight Group
- Chartered Institute of Logistics and Transport (Rail Freight Forum)
- Freightliner (Freight Operating Company)
- Direct Rail Services (Freight Operating Company)

The process included calls with each of these bodies to discuss rail freight operations as well as key challenges and what they see as priorities for freight movement going forward. For Western Gateway, these interventions also link to, and should be considered in conjunction with, those included in the Western Gateway Rail Strategy Technical Reports. Following this process, and also considering the market segment analysis, a number of key interventions have been considered.

Lack of Strategically placed terminals

The South West in general has a lack of rail freight terminals in particular within the Peninsula Transport area. This is particularly acute for the Intermodal market segment for which there are currently no active terminals within the combined study area.

One area which may benefit the Peninsula region is in the development of rail freight terminals. Peninsula currently has no intermodal terminals within the STB boundary, with the nearest including Western Gateway terminals located at Wentloog (Cardiff East) and a former site at Bristol which could be potentially brought back into use.

During the stakeholder engagement phase, the lack of Terminals in locations such as Taunton, Exeter and in Cornwall were identified as a direct barrier to certain firms moving products by rail, and development of terminals in these locations would help firms in the future. This also applied to locations in Western Gateway such as Swindon and Cheltenham/Gloucester and the aforementioned Bristol terminal which can be brought back into use, potentially as a Rail Freight Interchange (RFI) at Avonmouth. The planned new Enterprise Zone known as Gravity Energy Park can also be rail connected as a significant RFI serving Somerset as part of any plans as could the Port of Falmouth and Plymouth as good trimodal terminals.

Proposed sites do not in the initial stages need to have significant investments to prove the feasibility of an intermodal operation to the South West for domestic / deep sea intermodal. A number of sites were identified by stakeholders, such as Burngallow and Marsh Mills, where a relatively modest investment could enable a trial operation to commence. These could be achieved within a relatively short time frame (<18 months).

> 'A lack of intermodal freight terminals is the main obstacle to modal shift in the South West. An SRFI is needed in the Regional Distribution Centre cluster at Avonmouth, along with simple modal transfer terminals in the main centres of population, notably Plymouth and Mid Cornwall. These would also provide a decarbonised route to market for producers in the South West'
>
> **- Chair CILT Rail Freight Forum**

Lack of understanding of needs between logistics industry and local authorities

This is an important issue which arose during the stakeholder conversations, that the lack of understanding the needs of the other particularly at a strategic level is hindering development. In recent times there have been positive developments in this area especially in the last 18 months or so as the role and value of logistics have risen in the eyes of the general public and wider stakeholders more generally.

The lack of dialogue and connection between Local Authorities and the logistics sector was acknowledged as stemming the growth and development of the rail freight industry. This is particularly important because of how comparatively new South West STBs are and the role they need to play in bringing together different partners and unlocking new opportunities. A Freight Steering Group will enable the Local Authorities and private business to better understand the role of the STBs and their general priorities regarding rail-specific and general freight, both for Peninsula and Western Gateway

Insufficient capacity on the rail network for freight

The responsibility for the delivery and maintenance of sufficient freight capacity sits with GBR and is formally regulated by the Office of Road and Rail (ORR). Questions of capacity concern both the infrastructure operator and that of the Train Operating Companies (TOCs). It also potentially limits the potential modal shift from road is there isn't sufficient capacity for rail freight.

As passenger services resume to closer to normal levels after the COVID-19 pandemic, the preservation of train paths for freight will be very important in helping to grow freight provision in the South West. This is particularly important given the single track running of some lines in the South West, and even with double track there are limited freight train overtaking opportunities, especially to pass slower stopping services. Other hot spots which in the future potentially could limit freight growth include the Great Western Main Line (especially between Bristol Parkway and Westerleigh Junction and the line from Bristol – Birmingham and v.v.

'Intermodal services would be of benefit (e.g. for Southampton). Cornwall not best placed for European hauliers. Often European hauliers come into UK, make a delivery, come down M4/M5 corridor to Cornwall, pick up a backload for Europe. Most Imerys freight to Europe is in these backloads.

- **Jeremy Morcom, Imerys**

Lack of Electrification on key routes in the South West

With the exception of the Great Western Main Line (GWML) from Didcot to Cardiff, the rest of the rail network across Peninsula Transport and Western Gateway remains unelectrified. As set out in the Network Rail Decarbonisation Network Study, the following map sets out the summary deployment technologies at the Interim Report stage. **Figure 9-16** shows a snapshot of this including the Peninsula and Western Gateway area and looks to "outline what would be required in order to achieve net-zero emissions from rail traction based on known technological capability".

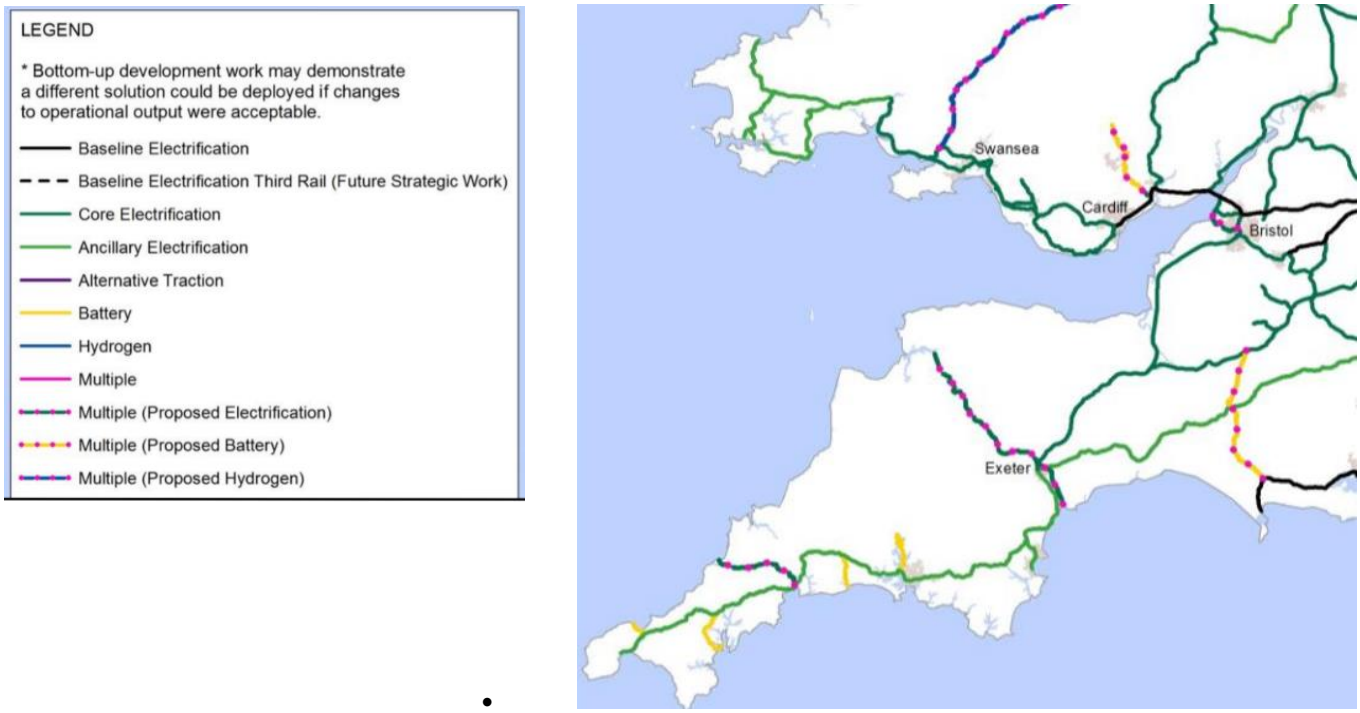


Figure 9-16: Snapshot from Network Rail Traction Decarbonisation Network Strategy Interim Programme Business Case (Adapted from Network Rail, 2020)

Lack of Diversification of minerals operations over Rail

China Clay sand derived from the region, could be an attractive proposition for markets across west London as an alternative to using Thames gravel. China Clay sand also does not carry an aggregates tax which would offset a significant costs from the journey between Cornwall up to London. This could also offer an opportunity to prolong the life of quarries which may be exhausting their supplies of conventional china clay if sourced strategically. For both Peninsula and Western Gateway, rail movements of aggregates can help to support large infrastructure projects and provide local employment for a growing population

Rail freight needs to decarbonise e.g. explore alternatives to diesel fuels such as Hydrotreated Vegetable Oil (HVO)

It is also worth noting that, even if electrification does not prove viable, any modal shift, even to Class 66 or other diesel locomotives would still be an important intervention in enabling modal shift. One way of making these diesel locomotives cleaner is to use Hydrotreated Vegetable Oil (HVO). Previous trials by DB Cargo UK have estimated that as much as 90 per cent of a train's carbon emissions can be eliminated by using HVO fuel compared to traditional red diesel. Tarmac have already committed to power their Mountsorrel-Birmingham services, operated by DB Cargo UK, using 100 per cent renewable fuel and, with DB Cargo also operating services such as China Clay within the Peninsula region, it would be worth exploring this going forward. Despite the onset electrification, diesel locomotives are likely to continue to be the most prevalent type in the Peninsula in the coming couple of decades. However, the provision of greener fuels will help Peninsula and Western Gateway to achieve decarbonisation objectives.

Previously used freight infrastructure deteriorating

There are a number of commodities and services that have operated previously and could be potentially reinstated if circumstances are favourable. Fairly recently, these included timber trains from Newton Abbot to Chirk, ceasing due to lack of demand, and lobsters being carried on High-Speed Train (HST) passenger services, which ceased when HSTs were replaced by Class 800 Trains as part of the Intercity Express Programme.

This is also applicable to the China Clay paper market which has all but disappeared – this was considered a very good service, but the business was lost through a structural shift in the market. In the case of the timber trains, a significant effort was made to reopen the Newton-Abbot to Heathfield line, and it is therefore important that where services are not presently operational that an ad-hoc loading capability is maintained to ensure that it can be used again in the future if purchasing decisions change.

Lack of insight into potential new markets

There are a number of industries such as aggregates and the mining of valuable elements such as tin, lithium and china clay sand for which rail freight could be used. It is therefore important to capitalise on these industries and ensure that effective provision is put in place. It will be of significant benefit if provision of rail can be an integral part of these industries, as opposed to acting as an 'afterthought'.

Lack of Gauge Enhancement

During the stakeholder engagement process, the issue of the restrictive loading gauge (with the exception of the GWML / Hants & Berks Line) was raised as an area of concern for the establishment of viable intermodal traffic flows across the South West region. It is recognised that the extension of electrification of the main line spine to Penzance may not proceed at pace whilst there are interim technical solutions that should be considered as the next step, including the use of alternative 'transitional' and 'drop in' fuels or traction hybridisation.

Protection of weight limits on bridges and gradients

The Royal Albert bridge has a weight restriction (1,000 tonnes gross weight per train) as well as an axle load limit of 22.5 tonnes currently in place (around 11 wagons), with certain trains (such as china clay) required to run in two strings and then combine at Exeter if the total train length is longer than this 11-wagon limit. Whilst it is unlikely to be practicable to increase the limit for the bridge, it will be important to ensure that bridges and other limiting factors are maintained such that any limits do not decrease over time.

This is also applicable to areas of significant gradient, such as the 1/37 gradient between Exeter St David's and Exeter Central. In time, electrification would help with this, with a current 1,000 tonne limit using diesel locomotives however an electric locomotive could pull 1,500 tonnes (as noted from the stakeholder engagement). The Network Rail Bristol to Exeter Corridor Strategic Study Final Report also recommends updated Sectional Running Times for the Wellington Bank, to ensure the most efficient and effective freight operation.

Express Parcels used to be a regular area of business for rail but not in the last two decades

Express Parcels used to be a revenue stream for the railways until its decline in the late part of the 20th century. However it has been identified as a key potential growth area for freight within the Peninsula region and Western Gateway. Locations such as Newton Abbot, Plymouth and Totnes, with their easy links to the road, offer the opportunity for 'parcel side' operations at stations. They also offer potential from urban areas in Western Gateway, such as Bristol Temple Meads and Bournemouth. This is similar to the 'New Express Parcels' Case Study as part of **Chapter 7**. There are several key sorting hubs in the Midlands and therefore a faster network will be important. This offers a premium market for parcels which rail freight can help to facilitate in the South West. Opportunities for feeder traffic on the South West's extensive community rail network should also be investigated as part of this network utilising existing capacity.

9.1.8 Draft Recommendations / Interventions

This section was written to inform the emerging rail work package for the South West Transport Strategy and delves into greater details on potential rail freight related interventions to address aforementioned issues and opportunities across the region.

- **Consider opening strategically placed terminals**

The option of shorter intra-regional services to connect ports to inland rail services should be explored across the region and could potentially be facilitated through opening a string of linked terminals. In the short term, one in central Cornwall and one in Greater Plymouth area would enable a strong start to be made to implementing terminals in the Peninsula region with a second terminal being opened longer term at additional locations in East Devon, such as Tiverton Junction, or Somerset to provide a strong support for rail freight in the Peninsula region. Similarly, terminals in Gloucestershire and Bristol could facilitate these shorter movements in Western Gateway. terminals

Previous work has been commissioned which explored appropriate terminal provision in the Peninsula area. As noted in a land disposal decision paper for Cornwall Farmers Depot Cornwall, "land to the east of the land proposed for disposal [adjacent to Truro station] has the potential to provide some rail freight access, as well as car parking, with sites at Parkandillack and Burngullow having significant potential as rail freight interchanges"[84]. Additionally, if land was sold off, it was noted that "there will still remain sufficient land for rail uses including passenger car parking and potential new freight use". A balance approach between providing parking, which will encourage modal switch, and land for freight terminals is required. Careful consideration is needed on the capital cost of these initiatives and the return on investment.

Any terminals and associated infrastructure would also act as a key source of jobs for both the Peninsula and Western Gateway regions. Local authorities have the potential to help fill any skills gaps, with the opportunity for jobs to be high skilled in looking to run the supply chain. Terminals could also offer up the opportunity for local haulier, who knows the area and logistics, to operate these commercially. There could be a public sector infrastructure provision with private sector running would likely be an option for terminals in the Peninsula and Western Gateway regions.

For Peninsula, terminals would also use the opportunity to base HGV drivers in the South West rather than running them to (for example) Bristol. This can also offer better utilisation of HGV drivers in both the Peninsula and Western Gateway regions, especially considering the shortage that the industry is currently facing. Terminals could also link up to pre-existing china clay operations. Imerys send around 20-30ft china clay boxes to Southampton, so significant scope to do supermarket products / Deepsea Containers into Cornwall the other way. If any terminals in the Peninsula link as part of a 'hub and spoke' model (to eventually get to Southampton and Europe for China Clay exports) then may also help terminal operations to prove more cost-effective and efficient.

There is also a need to work more closely with the relevant Local Planning Authority to put protection for these sites against residential or other commercial developments.

> ' Any development sites needs to be adjacent to the railway – key link to land use planning'
>
> - **Phil Smart, Rail Freight Group**

- **Increase dialogue between logistics industry and the local authorities**

It will be important to increase dialogue and connection between Local Authorities and the Logistics sector, possibly through the development of a working group as part of a South West Freight Forum. This is particularly important because of how comparatively new Peninsula Transport is compared to other STBs. A Freight Steering Group will also enable the Local Authorities to understand to a greater extent the role of the STBs and their general priorities regarding rail-specific and general freight, both for Peninsula and Western Gateway.

In return the STBs can share their roles and responsibilities particularly through their highway and planning functions and wider wellbeing / place making powers and responsibilities to the wider sector. It also provides the basis for a structured mechanism for delivery of the Freight Strategy. Such approaches are being adopted by other STBs including TfSE and Midlands Connect.

- **Protection of freight train paths on the core routes and allocate additional paths as required**

The formal process for track access on the railway will be undertaken by GBR and formally regulated by the ORR. However Peninsula Transport and Western Gateway STBs have a formal role on behalf of their constituent local authorities to engage with GBR and the ORR to work with their local businesses, freight operating companies and other STBs with respect to making the case for and evidence gathering for freight access and the required investments to support this. The proposed recommendation / intervention proposed here has been drawn from the recently published Continuous Strategic Modular Planning Documents for Birmingham – Bristol and Bristol to Exeter published in July 2021 by Network Rail.

As a minimum, a Class 6 – 60mph per hour path (bulk train) on the core spine route will help facilitate growth in the Peninsula region. Meanwhile, for some routes travelling through Western Gateway, such as Bristol to Exeter, the Network Rail Bristol to Exeter Corridor Strategic Study Final Report recommends initially 0.5 TPH (Train Paths per Hour) freight paths, possibly one class 6 or class 4 (75mph intermodal train) and another class 1 path for express parcel logistics as a first phase, looking to grow into the future to 1TPH. This is in addition to a 0.5 TPH regular path recommended in the same report between Westbury and Exeter, alternating between Class 6 and Class 4 as a first stage also increasing to 1TPH at later stages.

The Network Rail Bristol to Birmingham Corridor Strategic Study Final Report also recommends 2TPH freight paths in each direction between Bristol and Birmingham, with one a Class 4 and one a Class 6, with proposed paths allowing provision for

[84] Office of Rail and Road (2019) Letter, Network licence Condition 17 (land disposal): Cornwall Farmers depot, Truro, Cornwall, Available at https://www.orr.gov.uk/sites/default/files/om/land-disposal-cornwall-farmers-depot-decision.pdf

express logistics, although the report notes this aspect should be kept under review. The section between Westerleigh Junction and Bristol Parkway in particular remains a concern for capacity for which a scheme is proposed. Further details are provided in these aforementioned reports.

In general, it will be important that both east-west and north-south connectivity is considered and that appropriate freight paths are available. We would also draw attention to the requirement to ensure that sufficient capacity is maintained on the Berks and Hants line to Reading and beyond for the conveyance of aggregates from the Somerset quarries to London (Acton Yard) to support the wider construction sector in London and the South East.

- **Electrification of key routes**

Considering there is an average of 9-10 freight trains leaving Merehead and Whatley quarries (based on 2019 figures), the continuation of electrification from Newbury to the Mendip Quarries would be an ideal intervention – **covering in the region of 10 million tonnes per annum / around 15 per cent of UK Rail Freight Tonnage**. This would help to facilitate the wider decarbonisation of freight and, depending on locomotives used, would offer the potential for higher tonnages / better acceleration to be used compared to a current Class 66 diesel thus improving the ability to improve path efficiency on the route to London (Acton Yard). This recommendation is in line with the core electrification indication shown the Traction Decarbonisation Network Strategy for the Berks and Hants Line from Newbury to Taunton and Exeter.

This report also supports recommendations made in the Traction Decarbonisation Network Strategy and the Network Rail Bristol to Exeter and Bristol to Birmingham Corridor Strategic Study Final Reports regarding electrification of the Bristol to Exeter and Bristol to Birmingham routes, the latter especially because of transit traffic. The electrification of Wootton Bassett Junction to Bristol Temple Meads and to Bristol Parkway also provides for a diversionary route for freight to enhance network resilience

More widely, as a longer-term aim, it is feasible that some locomotives could run on battery or hydrogen power for the unelectrified sections of routes. This may be especially useful where there is a long thin spinal route which may be electrified part of the way and then need to power trains using other means for the less used parts. E.g. the spines past Taunton could be electrified but branch lines and yards may not be done.

The Network Rail Traction Decarbonisation Network Strategy Interim Programme Business Case includes the recommended technology deployment to decarbonise the unelectrified UK railway.

''Rail is the only proven method of decarbonising long haul freight. Across the UK, two thirds of the core freight network is already electrified and wiring around 750 route miles would allow c.95 per cent of freight to be electrically hauled. In the South West, extending electrification from Newbury to the Mendips would allow 10 million tonnes a year of freight to be electrically hauled - around 15 per cent of total UK rail freight'

Chair, CILT Rail Freight Forum

- **Diversification of mineral options**

Peninsula Transport should support market producers to capture new markets for their operations in supporting their end-to-end supply chains such as track access, local last mile / first mile access and skills and training of their workforce.

- **Exploitation of alternative diesel fuels such as Hydro-treated Vegetable Oils (HVO**)

In the interim period, the use of HVO diesel can act as a bridging technology pending the introduction of electrification and the provision of alternative propulsion methods for those lines that aren't electrified,. This is outside of scope of the Freight Strategy and is within the remit of the FOCs. Nonetheless, STBs should aim to promote this change through the interests of the business sector and climate change commitments.

- **Preservation of freight infrastructure and future proofing**

The decision about whether or not to operate and run a freight service is clearly a commercial decision for the customer and FOC. However Peninsula Transport / Western Gateway have a role as a consultee and through their members as local planning authorities to respond to and make the case for the safeguarding and retention of key infrastructure. Although there are processes for consultation, it is important that a wider strategic view from a regional / national perspective is taken particularly to engage with the wider business community through the existing partnership arrangements including the Local Enterprise Partnerships (LEPS).

- **Capitalisation on new markets**

The development of new markets is primarily a private sector led activity however the public sector will have a role through GBR who will have a statutory duty to promote rail freight and to establish a rail freight growth target and the STBs (Peninsula Transport /

Western Gateway) to facilitate GBR in discharging their new and enhanced duties. The STBs as referenced earlier have significant responsibilities through their highway, wellbeing and place making functions whilst the Planning Authority has a duty to promote and facilitate rail freight as part an overall transport system.

> 'Freight commodities starting from a low base needs financial help – lots of fixed costs associated with rail freight'
>
> - **Peter Graham, Freightliner**

- **Loading Gauge Enhancement and Use of Pocket Well Wagons**

In the interim period (pending electrification), the use of pocket well wagons (to accommodate high cube containers), will be able to operate on the main spine routes in the Peninsula and Western Gateway region as they can operate on W6A gauge rail lines. This can help to provide rail freight provision in the short term for the South West during which time no upgrades are scheduled.

This is especially relevant for the far South West beyond Exeter St David's which has the most restrictive loading gauge. In time, the upgrade in gauge can be linked to electrification in the longer term. At time of writing, it has been identified that there are pocket wagons in the Bristol area which are not being utilised. The lease on the wagons is due to conclude around November 2021 and would likely be available for FOCs to utilise from this point.

- **Protection of weight limits on bridges**

Again whilst it is not the responsibility of Peninsula Transport or Western Gateway STBs, both can work with Network Rail to ensure that infrastructure is maintained to agreed standards. It is the role of the STBs to collaborate with Network Rail in the same way as they do with National Highways to assist in providing evidence with the private sector to make the case to improve the network constraints and to strongly resist any diminution in these standards which would further adversely affect the competitiveness of rail freight movement.

- **Explore the opportunities for Express Parcels**

The following locations were identified as being suitable for Express Logistics in the Network Rail Bristol to Exeter Corridor Strategic Study Final Report:

- Bath: Westmoreland Road former freight terminal.
- Bristol: Barrow Road former freight terminal.
- Weston-super-Mare: former bay platform.
- Bridgwater: former freight terminal north of station.
- Tiverton Junction: former freight terminal
- Exeter: Alphington Road former freight terminal or Airport Gateway business park.
- Plymouth: Tavistock Junction or Friary Mill: former freight terminals
- Burngullow: former freight terminal.

An indicative timescale has been applied for the delivery of each recommended rail freight interventions.

Table 9-6: Short, medium or long term interventions

Intervention	0-3 Years	4-9 Years	10+ Years
Strategically Placed Terminals* (Pop Up pilot Terminal)	✔*	✔	
Increased dialogue between logistics industry and local authorities	✔		
Protection of Train Paths on the core routes	✔		
Electrification of key routes (Exeter – Bristol – Birmingham / Newbury – Taunton) as per NR TDNS Report and ancillary electrification for Exeter – Penzance and Exeter to Basingstoke		✔	✔
Diversification of minerals operations	✔		
Exploration of alternative diesel fuels such as Hydrotreated Vegetable Oil (HVO)	✔		
Preservation of freight infrastructure and futureproofing	✔	✔	✔
Capitalisation on new markets	✔		

Utilisation of pocket wagons until updates to gauge can be made	✔		
Protection of weight limits on Royal Albert Bridge	✔	✔	✔
Express Parcels	✔		

9.1.9 Summary

This section has considered all aspects of rail freight in the South West, historically, presently and with a view to planning for the future. It is clear that there is a significant amount of potential for rail freight in the region which is signified by the considerable number of interventions presented in this report chapter. It will be important for the South West region to build on the current successes of rail freight in the region, which provides a solid foundation from which to consolidate existing demand and to diversify into emerging markets.

There are barriers to boosting the role of rail freight namely in relation to network capacity to host additional rail freight paths and the fact that much of the rail route within the far South West is one line. The region also suffers from peripherality with commodity markets being present at locations away from the mainline network although the region can lead by example and take on the challenge of decarbonising the industry. With the ability to potentially have new terminals up and running fairly quickly, introducing an increased rail freight element to both domestic intermodal and deep-sea operations can help decarbonise the South West economy as part of its transition to Net Zero by 2050.

Links to the national picture are also important to consider for the South West. MDS Transmodal has produced forecasts of rail freight in Great Britain for Network Rail for 2033/34 and 2043/44 reflecting increases in the expected tonnages to be moved by rail according to the modelling assumptions. They have also produced the Routeing of rail freight forecasts report, which notes that “growth in rail freight is expected to be predominantly in long distance and intermodal traffic, driven by intermodal port traffic, distribution park development and the increased role of rail connected super quarries in supplying crushed rock”. The Department for Transport also commissioned their Future Potential for Modal Shift in the UK Rail Freight Market report, where modelling noted “the environmental efficiency of rail freight by showing theoretical savings of up to 19 per cent of current greenhouse gas emissions from HGVs assuming modal shift occurs”. By considering the national picture, it helps to put the picture for the South West into context.

9.2 Maritime

This section provides an overview of maritime freight, coastal shipping and (sea) ports across the South West and reflects on issues and opportunities for the sector in the future. This is with a view to understanding the propensity for coastal shipping to play a more prominent role in the local 'freight mix' and ultimately to help inform future decision making around investment priorities, strategic land use planning and the role of STBs going forwards.

Reference is made to the ports and shipping activity across the wider South West region as part of the emerging Freight Strategy. This includes reflecting on the engagement with port authorities/owners; with a view to helping coordinate and align the identification of issues and future shared objectives and interventions.

9.2.1 Introduction

The maritime freight sector, in this context, encompasses coastal shipping and ports, which play a pivotal role in supporting local prosperity, addressing environmental challenges and connecting communities across the South West region and beyond. In 2021, the UK had around 9,670 Certificated Officers active at sea[85]. These are critical for the industry however this is a downward trend on previous years, which is male dominated and suffering from an ageing workforce.

Ports are gateways that facilitate the movement of goods and people and the point of access between sea and land-based transport; requiring the transhipment and handling of goods between different transport modes and stages of a supply chain. This could be for imports and exports of construction materials, foodstuffs, waste, agricultural goods and manufacturing/energy equipment, amongst others. The nature of commodities moved is also shifting; with trends suggesting a marked reduction in coal and 'traditional' bulky materials, towards growing demand for construction materials and movement of containerised products.

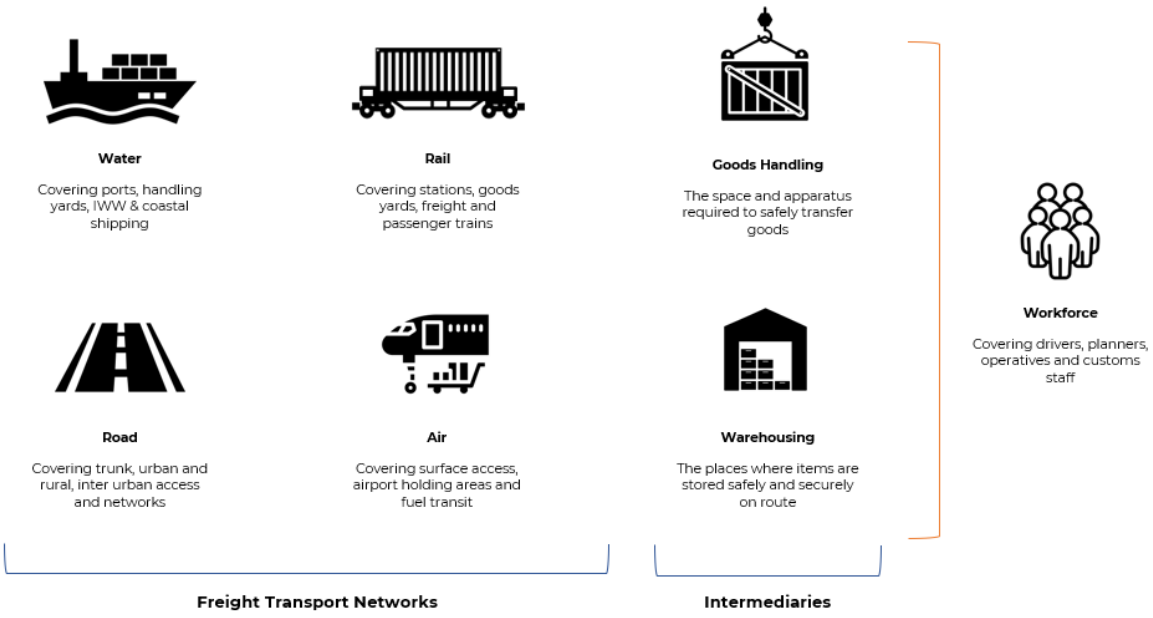


Figure 9-17: Types of freight, including water (maritime) and intermediaries within a supply chain

Maritime freight is increasingly viewed as a viable alternative to road-based freight transport and long-distance haulage as part of efforts to decarbonise the freight industry and improve supply chain efficiency. Typically an HGV will produce on average 137g of CO_2e per tonne kilometre compared with maritime shipping of 7g of CO_2e per tonne kilometre[86]. There is also a need to free up congestion on the road network improve the efficiency of HGVs on the network and alleviate the network pressures. The sector has the opportunity to explore and unlock new business and investments through a focus on 'port centricity'. Historically, freight volumes have been lower in response to demand although upwards trends in urban populations and inward migration are also set to shift the need for ports to play a greater role in the freight mix for fulfilling local expectations.

[85] Department for Transport (2022) Seafarers in the UK Shipping Industry: 2021. Available from:, https://www.gov.uk/government/statistics/seafarers-in-the-uk-shipping-industry-2021/seafarers-in-the-uk-shipping-industry-2021#:~:text=After%20adjusting%20for%20non%2Dresponse,maritime%20training%20and%20maritime%20operations
[86] European Environment Agency (2021) Rail and waterborne — best for low-carbon motorised transport. Available from;, https://www.eea.europa.eu/publications/rail-and-waterborne-transport

There are challenges to these ambitions and stimulating mode shift away from road to maritime freight movements, including the implications of leaving the European Union on customs procedures, globalised supply chains and workforce availability. The economic and social consequences of COVID-19 and the financial aftermath will continue to have repercussions on consumption habits, forecast demands and project timelines.

9.2.2 Regional context

Ports in the South West, including Bristol, contribute £640m towards Gross Value Added for the UK (10 per cent of all UK port activity) and provide 10,100 jobs directly across the industry (13 per cent as a proportion of all UK ports)[87]. Coastal shipping and the movement of freight has and will continue to support daily activities and is a key component of supporting the quality of life for people living and working in the area. However, the nature of commodities shipped and goods handled at ports has also changed since the economic recession of 2008/2009.

Decline in tonnage handled has been largely driven by the fall in dry bulk and coal imports (38 per cent since 2014) concurrently with the rise in container traffic (unitised) and liquid bulk (See **Figure 9-18**). This has facilitated improvements in infrastructure for example to handle automotive traffic in Bristol, fuel at Falmouth and dry bulks at Portland, with berth enhancements also proposed in Plymouth.

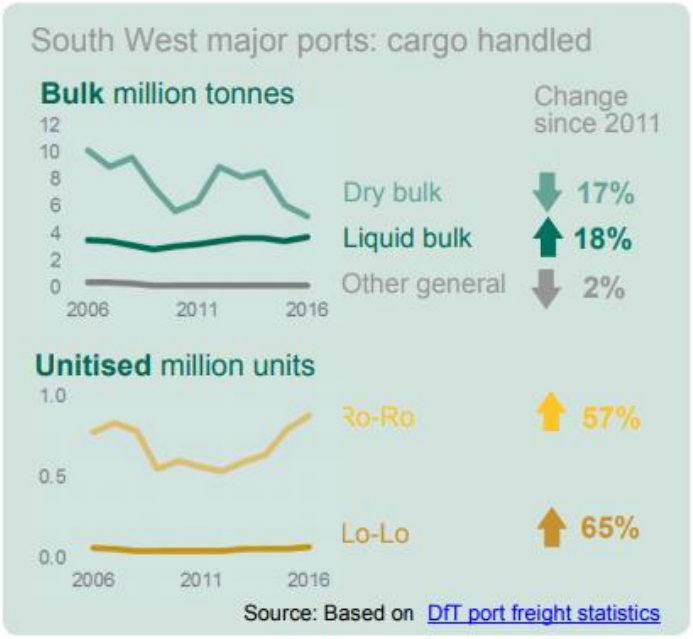


Figure 9-18: Overview of Commodities handled at South West Ports

9.2.3 Port Connections

9.2.3.1 Road

All ports across the study area mainly rely on road for inland freight movements but are only served or connected to A roads (single and dualled) with the motorway network terminating at Exeter for Devon ports, or the New Forest for Dorset ports. There is limited data available to analyse vehicle journey times and delays at a granular level through the study area, although there is an acknowledgement of the congestion issues along key corridors such as the A30, A38 and the M5. These are critical corridors, key to national prosperity, which can be adversely affected by traffic mix for example heavy flows of caravan traffic on summer weekends.

The DfT report 'England's Port Connectivity: The Current Picture'[88] and the Western Gateway report 'Review of Multi-modal Access to Ports and Airports'[89] clearly alludes to the opportunities for enhanced road infrastructure and access to ports in the South West; covering both strategic and local links (**Figure 9-19 and Figure 9-20**). Regular discussions and liaison across a range of public

[87] Department for Transport (2019) England's Port Connectivity: the current picture. Available from:, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/701352/england-port-connectivity-the-current-picture.pdf
[88] Department for Transport (2019) England's Port Connectivity: the current picture. Available from:, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/701352/england-port-connectivity-the-current-picture.pdf
[89] Western Gateway (2020) Review of Multi-modal Access to Ports and Airports. Available from: http://weston.ndm-server.co.uk/wp-content/uploads/2020/09/Port-Access-Study-Report-FINAL.pdf

bodies concerning the local highway network, as in the case of Bristol, has been viewed favourably; with most authorities (8 out of 10) also being aware of port plans and developments.

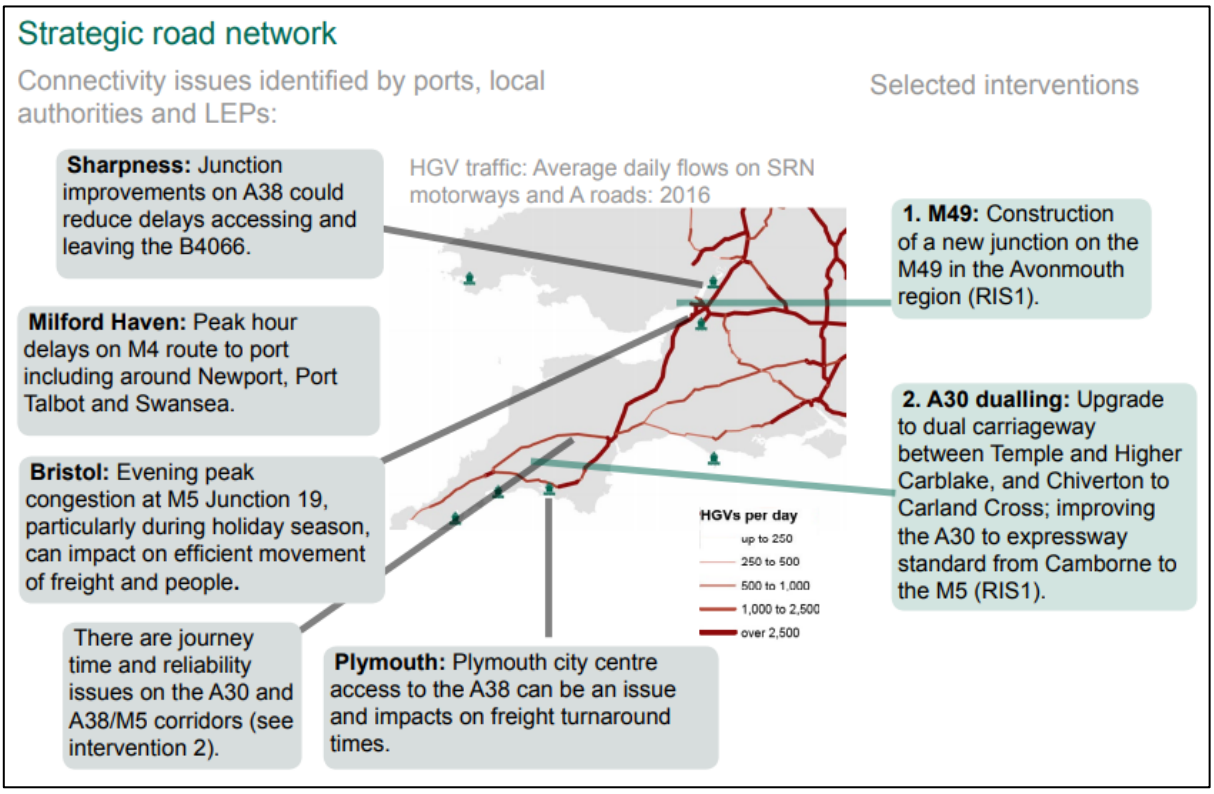


Figure 9-19: Selected interventions for the SRN (South West)

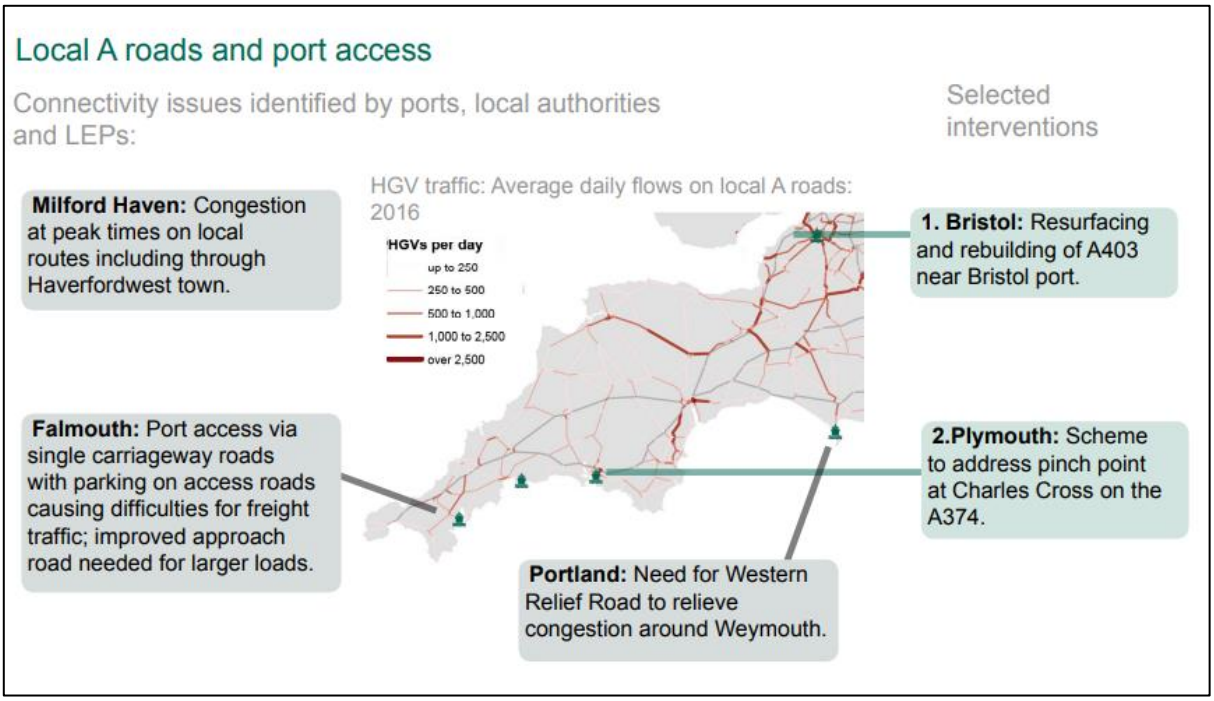


Figure 9-20: Selected interventions for the local road network (South West)

9.2.3.2 Rail

Rail connected ports are also in short supply across the study area; with only Fowey having an operational link in place. Rail connectivity and gauge clearance, especially for deep sea ports, is crucial for hosting forecast growth in containers and the automobile sector and catering for future, aspired rail freight expansion. Previous connections penetrated through to the Port of Falmouth, Port of Poole (via the Hamworthy branch), Sharpness Docks and the Cattedown Branch (Plymouth).

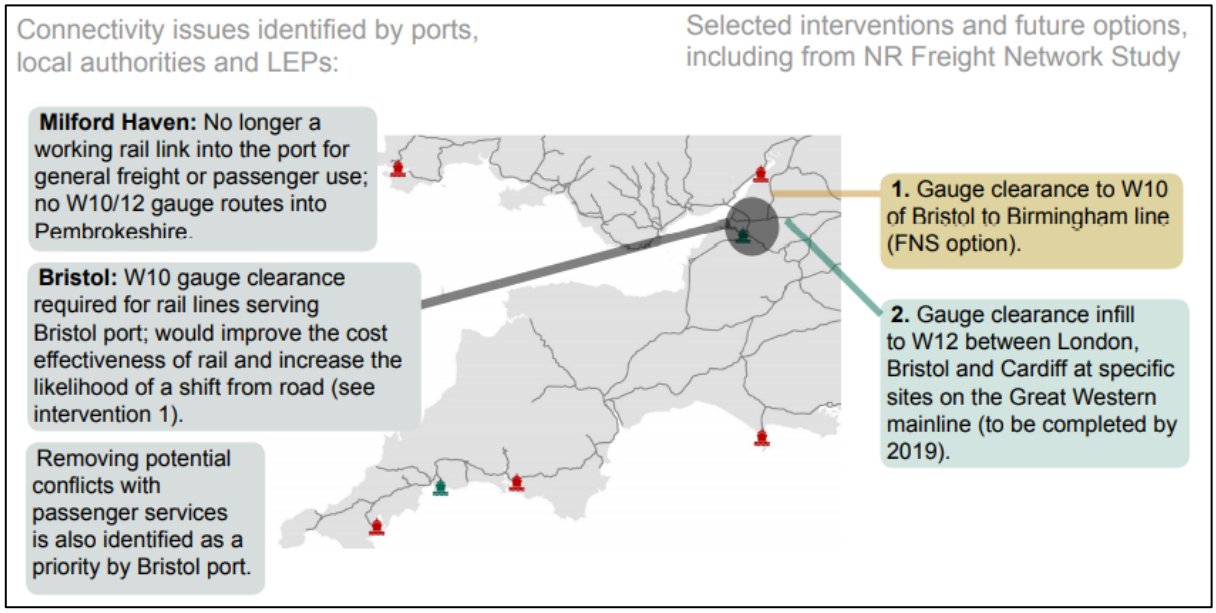


Figure 9-21: Selected interventions (from DfT England's Port Connectivity) for improved rail-port connectivity (South West)

9.2.4 Port Profiles in the Peninsula Transport area

There are several ports scattered along the coastline of the South West which have adapted over time to varying extents to respond to changing market conditions. Those identified below are referenced with respect to their capacity and ongoing role in handling maritime freight and coastal shipping activity across the South West. It should be noted that the South West's international freight capacity is limited, with little or no container capability and hence is mainly reliant on the Port of Southampton for deep-sea traffic.

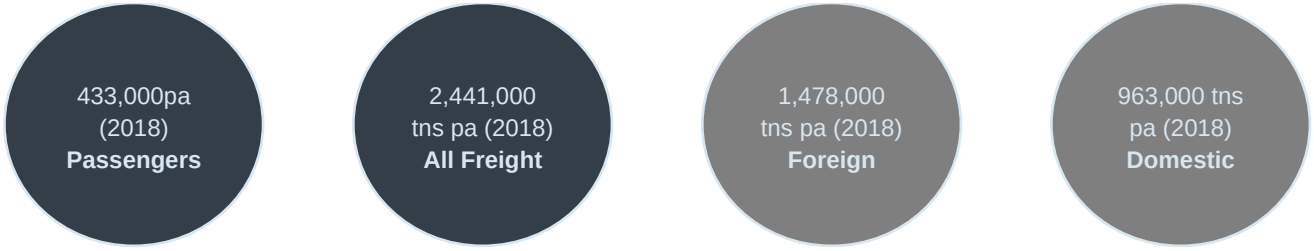
9.2.4.1 Southampton

Southampton Port is a deep-sea maritime terminal, handling Roll on-Roll Off (Ro-Ro) and Load on-Load off (Lo-Lo) traffic with extensive flows of automotive and container traffic serving the Midlands and southern coastal communities. It is the second largest container port in the country with rail services to many inland terminals across Britain but none in the South West. All of the South West is within Southampton's catchment area and hence lorries move containers to and from this port in significant numbers. Bristol plans to expands its container handling capability which may shift regional market dynamics although Southampton is likely to retain its dominance as the main deep sea port for intermodal traffic in the South of England.

In total, the port handled 27.6 million tonnes in 2020, 16 per cent less than in 2019 as a result of the decline in conventional liquid bulk (oil) but is embarking on ambitious expansion plans incorporating on shore power facilities and port centric logistics and warehousing facilities. One of the key commodities handled at the port are agroboxes (fertilisers) with capacity to handle 2.8 million boxes annually. The port also has several terminals serving passenger cruise liners with numbers expected to rise to 2.5 million per annum by 2040.

9.2.4.2 Plymouth

Plymouth is the largest port located within the Peninsula Transport area. The port is owned and operated by Associated British Ports (ABP) and handles Roll on-Roll Off (Ro-Ro) vessels and has up to 5,420 sqm of covered storage, plus 34,000 sqm of uncovered storage. Liquid bulk is the mainstay of cargo transhipments alongside dry bulk and general cargo. It has recently upgraded its lorry handling area to accommodate additional HGV traffic on site to minimise tailbacks on the local road network. The port also operates a passenger/freight ferry services to Roscoff and St Malo in France and Santander in Spain, operated by Brittany Ferries. Up to two services a day go to Roscoff, and up to two a week sail to Santander.



The commercial port is located to the south of the city centre to the east of the Royal Naval docks and commercial/industrial estates at Devonport and mixed-use employment, trading estates and wharves to the west at Cattedown (**Figure 9-22**).

Plymouth naval base is a key generator of freight traffic and set to increase further as significant investment is in place to reconfigure the basins to house the Dreadnought-class submarines. This will involve a significant construction phase where freight traffic will impact on the local road networks around the site. This provides an opportunity to explore alternative modes of transport for the delivery of goods, particularly by coastal shipping. Local industries such as Babcock will be investing further to support this and it is expected there will be an additional 1,000 jobs, as well as the construction employment for the site itself. Particular future industries include advance marine autonomy and modern war technology development.

There are various wharfs around Plymouth port in including Victoria and Cattedown. Victoria wharf brings in fuel to the region and Cattedown brings in agriculture, grains, bulk and concrete. Brittany Ferries operates services from Millbay Docks in Plymouth however this recently stopped due to COVID-19. This presents an opportunity to utilise the capacity of the port to transport freight by coastal shipping.

The city itself is skirted by one strategic road link, the A38 (Devon Expressway), which runs off the end of the M5 and connects Somerset, Devon and Cornwall to the Midlands. The A38 is a two-lane dual carriageway for most of its length, with some three lane sections near to Plymouth. It continues past Plymouth to meet the A30, which terminates in Penzance. Once in Plymouth, the A374 provides a dual carriageway route through the city with the use of some lower grade roads to get to the single port access point. Daily HGV flows into Plymouth via the A38 can be between 2,500-5,000 with double that volume experienced from Exeter onwards via the M5 northbound (towards the Midlands)[90].

The port is not currently directly served by a rail link but there are plans being discussed as part of the Plymouth Eastern Gateway to explore reinstating a direct rail freight link back through to Cattedown which was mothballed in the late 2000s. The nearest other freight only rail link stops short of the city centre adjacent to the B3238 adjacent to Friary Retail Park.

Figure 9-22: Overview of key connections around Plymouth

[90] Department for Transport (2019) England's Port Connectivity: the current picture. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/701352/england-port-connectivity-the-current-picture.pdf

9.2.4.3 Fowey

Fowey, a Trust Port managed by Imerys Ltd, the Fowey Harbour Commissioners, is a deep-water port situated on the south coast in Cornwall. Imerys operates and oversees the port terminals and oversees the four loading berths which primarily handle materials associated with the china clay market alongside rock salt and aggregates. The port is served by a narrow road but has a designated rail connection to the mainline that enables freight volumes to be moved by train to key markets in the Midlands, namely Stoke on Trent. Fowey Harbour also welcomes recreational craft and hosts events but does not operate or cater for commercial services.

Tonnage through the port has declined incrementally over the past two decades[91] from throughput of over one million achieved up until 2008.

9.2.4.4 Teignmouth

Teignmouth is a commercial port owned and managed by ABP located on the south coast and is a key hub for the construction, agriculture (agribulk) and ball clay markets. The port facility compromises of 3,000sqm of transit shed accommodation over 7.5 hectares across two quays and has been the recent recipient of investment in deepened berths to accommodate larger and more frequent vessels to reduce ship turnaround times.

Port tonnage has declined from the 2000s where it peaked at 683,000 in 2006 (a decline of 32 per cent from today's throughput). In terms of freight flows, the port receives furnace slag from South Wales to Teignmouth for local concrete making and is a key gateway for importing animal feeding stuffs (sugar beet residue) from East Anglian ports to serve the agricultural sector across the region. Rape seed meal is also imported from Belgium and Erith (Thames estuary) alongside sunflower pellets from both Amsterdam and Rouen (France, on the River Seine). There is a Teignmouth to Shaldon ferry operation, noted as the oldest in the UK. The port can be accessed via the SRN (M5) and local roads but does not have a direct rail connection from the mainline station in the town.

9.2.4.5 Penzance

The harbour is the mainland terminal for the Isles of Scilly Steamship Company which provides freight and passenger services to and from the Isles of Scilly. There are on site commercial ship repairs from the dry dock alongside specialist marine engineering firm Penwith Marine Services located on the West Quay. This is accompanied by fish landings in the port with the majority of goods handling taking place in the Wet Dock which services local traders and transhipments for the Isles of Scilly.

There is a range of facilities to host recreational craft including a public slipway, parking and up to 240 drying moorings together with visiting yacht berths for a further 50 vessels. Plans for regenerating the harbour seek to expand the freight and passenger facilities available and the capacity for additional recreational crafts.

[91] Department for Transport (2021) All UK major and minor port freight tonnage traffic, by port and year, from 1965. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1001753/port0101.ods

9.2.4.6 Falmouth

The Port of Falmouth, covering over 30 hectares, is owned and managed by Falmouth Docks & Engineering Company (A&P), and is an emerging deep-water dock shipping handling bulk materials, such as fertilizers alongside recycled waste materials such as biomass and glass to continental Europe. Other markets include importing animal feed to serve the agricultural economy alongside providing on site ship maintenance, repairs and cruise operations. The port is a key component of Cornwall's sustainable waste management chain whilst it handles imports and exports of stone/aggregates primarily for road infrastructure projects across the region and the UK more broadly.

The Dock estate also accommodates bunkering facilities and inland distribution services as well as fish landing and processing facilities and operates a 24hr towage service. The harbour caters for passenger cruises with dedicated landing facilities and ship berths within close proximity to the town to serve UK Trans-Atlantic services and short sea trips from Dover and Southampton.

9.2.4.7 Minor Ports

There are a number of smaller ports and harbours scattered along the peninsula who host smaller volumes of freight, service a local catchment area and historically played a more prominent role in supporting local economic prosperity. A number of factors have influenced the subsequent demise of smaller ports and centralisation of facilities and shipping towards larger regional centres, driven by:

- The expanding size of vessels and carrying capacity which in turn demands larger and deeper berths (and potentially on shore bunkering/shoreside power networks)
- Increasing unitisation/containerisation of consignments and requirements for additional/specialist handling equipment, landing space and on site infrastructure
- Demand for exemplary rail and road connectivity and direct access to the SRN to move higher volume goods more efficiently (and avoid local roads)

Change in commodities shipped (decline in conventional bulky goods) and decline in local employment, namely the fishing and paper making industries. These are as follows:

- Appledore, North Devon: Historic port with a tradition in manufacturing and shipbuilding whose freight output reduced to zero from 2018
- Barnstaple, North Devon: Experienced a fluctuation in demand and has reported no freight output in the last two years (tonnage rarely exceeded 50,000 tonnes annually)
- Bideford, North Devon: Situated further downstream along the River Torridge and Appledore with annual tonnage reduced to 8,000 annually, a tenfold decrease two decades previously.
- Dartmouth, South Devon: No recorded tonnage moved through the port/harbour but freight opportunities using regular, daily passenger ferries across the River Dart
- Exmouth: No registered tonnage moving through the port/harbour and primarily used on leisure and recreational grounds
- Hugh Town, St Marys (Isles of Scilly): Small volumes of tonnage registered from 2012 through to present day (11,000 tonnes annually), via Penzance.

- Newlyn, Penzance: No tonnage recognised through DfT statistics with freight likely to be consolidated within Penzance output (whilst recognising the specialist foodstuffs (crab), exported from the town via rail)
- Par, St Austell: Previously a major port for the South West region handling 558,000 tonnes in 2000 declining concurrently with the loss of the paper industry; with all clay shipping now bound for Fowey (St Austell Bay is used for a Mussel Farm).
- Penryn, Falmouth: Annual tonnage peaked in early 2000s (2,000) with traffic stopping in the Port of Falmouth
- Porthoustock, Helston: Remote, yet operational port handling 86,000 tonnes in 2020 having previously hosted 209,000 in 2007. Serves the adjacent aggregates industry and transports goods via coastal shipping channels
- Torquay, South Devon: Recognised as a port but has not received any official freight loads
- Truro, Cornwall: Situated in the capital of Cornwall with limited freight throughput annually (10,000 tonnes), partly due to it being on a tidal inlet

9.2.5 Port Profiles in the Western Gateway area

9.2.5.1 Bristol

The Bristol Port Company (BPC) are the owners and Statutory Harbour Authority with responsibility for short sea shipping and cargo operations around Avonmouth alongside deep sea trade at Royal Portbury Dock (RPD). The ports handle a mix of freight imports and exports; ranging from motor vehicles to petroleum products and from animal feed to forest products and are the designated muster port for EDF's Hinckley C Project. In other words, dry bulk and general cargo make up over half of the port's overall tonnage (2020) followed by liquid bulk and Ro-Ro/Lo-Lo traffic[92]

The port handled 6,479,000 tonnes in 2020, marked decline from the previous year (20 per cent) and just over half of that achieved in 2006 (12,261). Approximately 30 per cent of the cargo handled moves between the UK and the EU with the remainder serving the rest of the world.

The port is well connected to the SRN (M5, J18/J19) with rail connections along the Severn Beach Line (for Avonmouth) and a freight specific link to RPD plugging into the mainline to serve the transportation of automobiles; with a new £20m car handling facility proposed to boost capacity and turnover speeds. This is soon to be upgraded to a mixed-use line serving local coastal communities with a new £800m container terminal also being recently consented to respond to future growth in containers.

9.2.5.2 Portland/Weymouth

Portland Port, a privately owned commercial port in Dorset located on the south coast, is situated on the island of Portland near Weymouth. The port currently handles 200,000 tonnes of animal feed and 100,000 tonnes of powdered cement each year; with future tonnage projected to increase exponentially; driven by the construction industry demand. The port also handles fuel.

Current annual tonnage exceeds 465,000, a 12 per cent decrease from 2019 but a substantial volume uplift from 2000 (462 per cent). The port also hosts an increasing proportion of day cruises with 64 planned in 2022 and additional custom projected in 2025.

9.2.5.3 Poole

The Port of Poole is 'Europe's largest natural harbour', serving Bournemouth, Christchurch & Poole conurbation and Dorset area, close to much of Hampshire. Poole handles a modest volume of freight compared to its deep-sea neighbours (Southampton and Plymouth) having moved 499,000 tonnes in 2020; a decline on previous numbers from the early 2000s. Ships of 220 metres maximum can use the harbour, which accommodates all but the longest classes of vessel.

Ferry Port activity includes a daily freight service to Cherbourg (but this is currently suspended and resuming September), Brittany Ferries freight to Bilbao twice a week, two or three freight sailings a week to Jersey, Guernsey and Alderney, Condor Ferries passenger services to Channel Islands. A new ferry service from Morocco (Tangier) to Poole running once a week will start in the 2nd half of 2021 mainly aimed at the fresh fruit and vegetables market facilitating a near 50 per cent reduction time in transit times versus the road option via Spain and France. Two roll-on roll-off ('ro-ro') landings and a new South Quay often used by cruise ships; mainly cruises layover in Poole as there are passenger and servicing facilities, around 30 cruises a year pre-Covid. In terms of goods moved, Steel, timber, grain, fertilisers, aggregates, project cargo are the major commodities handled. Timber and steel also move through the port on route to the Midlands alongside other bulky goods for the construction industry. Cemex are looking to expand aggregates significantly and want better rail access to the port to proceed with future investment in the area.

Grain is for export as well as import, mainly from SW England whilst fertiliser is also a burgeoning import. There are longer term aspirations to cater for container traffic in the future.

[92] Department for Transport (2021) UK Port Freight Statistics: 2020. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1014546/port-freight-annual-statistics-2020.pdf

9.2.6 Stakeholder Engagement

The stakeholder engagement process, undertaken between April and August 2021, provided valuable oversight of maritime, coastal shipping and port related issues and opportunities across the South West. Virtual meetings were held with several port authorities and other stakeholders; Associated British Ports (ABP), Falmouth Docks and Imerys, alongside the British Ports Association (BPA) who represent the interests of member ports across the UK. This was complemented by contact with local authorities, for example Plymouth and Cornwall, who helped highlight key themes associated with the sector; tied into their experience of strategic land use and transport planning policy decision making. This includes calls that touched upon the role of ports and their component activities as well as air and rail connections (discussed separately).

The subject of maritime and coastal shipping and the current and future role of ports in facilitating the movement of goods, was also prominent in discussions around intermodal freight movements, freight efficiency and future freight markets during virtual workshops conducted in June and July with various industry stakeholders. Feedback from initial roundtable discussions held as part of Transport Forum in November 2019 have also been reviewed.

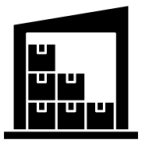
The feedback generated through this process ultimately informed the compilation of a long list of future interventions that would be reviewed and assessed at a later stage in the development of the Freight Strategy. This would include interventions that were suggested and implied by stakeholders alongside possible solutions to the issues, challenges and opportunities highlighted in the research and data insights from previous tasks.

On the basis of these engagements, a number of key themes relating specifically to maritime, coastal shipping and ports have been summarised in this chapter to help convey current issues and opportunities for maritime freight across the area. This is ultimately with a view to informing future decision making around investment priorities and the role of the sub national transport bodies in fulfilling future aspirations. The six key themes have been grouped as follows:

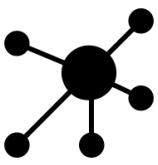
Warehousing, Storage & Transhipment Facilities	This concerns the quality and availability of infrastructure that supports the movement, processing and distribution of goods between modes at the shoreside.
Port Connectivity & Mode Shift Potential	These are the links connecting ports with their immediate surroundings to facilitate import and export movements and the scope for reducing road freight activity
Port Centric Logistics & Business Clusters	This is the added value services and infrastructure provision supporting and driving economic activity, emergence of new technologies and sustainable distribution.
Sector Competitiveness & Potential Markets	The relative role of coastal shipping and port related traffic in the future compared to the market share held by road freight for long distance consignments.
Quality & Availability of Freight Data	The challenges around transparency and informed insight on freight movements to help inform future investment and commercial decision making.
Future Role of STBs	Touching upon the support and steer that a sub national body can provide more broadly to supporting area wide objectives and aspirations.

9.2.6.1 Key Themes

As previously noted, six key themes, as illustrated below, have been extracted from transcripts and materials collated together during the stakeholder engagement period. The remainder of this section presents greater detail on the feedback received under each of the identified themes.



Warehousing, Storage & Transhipment Facilities



Port Connectivity & Mode Shift Potential

Port Centric Logistics & Business Clusters

Sector Competitiveness & Potential Markets

Quality & Availability of Freight Data

Future Role of STBs

Warehousing, Storage & Transhipment Facilities

The availability, quality and capacity of current provision of facilities available at port facilities was raised as a key challenge to address if maritime freight movements are to grow longer term. The desire to expand provision to cater for additional freight volumes, would need to be reconciled with servicing existing customer demands and increasing diversification of freight types which may require specialist conditions (sheltered sheds for keeping animal feed dry) or additional landing space and wharfs for bulky materials (namely aggregates arriving from local quarries).

The latter would be relevant to the Port of Fowey which almost exclusively caters to the china clay market but could explore handling additional commodities; especially as volumes have dropped in recent years. Paper exports have also dropped to 20 per cent of historic export volumes due to industry relocation and deindustrialisation.

However, Burngullow, a non-operational rail terminal with sidings, is subject to development; effectively reducing the land estate available for future proofing additional demand in the longer term. There is also only limited storage and three berths on site. Ports such as Falmouth and Teignmouth, are already operating at close to capacity; both in terms of berths required for cargo transhipments but also because multiple sectors are turning to coastal shipping to move goods (creating new pressures on land and safety requirements).

The need to both upgrade and provide designated port infrastructure, with specific reference to Penzance, was balanced against the desire to safeguard land and existing port assets to facilitate future expansion and growth plans. The efficiency of onsite storage was also questioned. The opportunity for added value services (discussed under port centric logistics) would require port and local authorities to work together to embed designations within local plan and strategic site assessments.

> ‘Once they are gone, they are gone’
>
> - **Drystan Jones, Falmouth Docks and Engineering Company**

Surrounding development land must also be sympathetic to port operations to mitigate concerns around noise pollution (e.g. residential units adjacent to railway shunting yards) with the Port of Falmouth, in particular, opting to explore the electrification of goods handling equipment and surface transport as part of its transition away from red diesel.

On a different subject, the availability of space is also key for HGV drivers to be stationed after dropping off or collecting consignments; which can often be a challenge in ports such as Teignmouth. Whilst bigger ports have lorry holding areas, the increase in freight (HGV) volumes, combined with other vehicle movements through single access points, can also lead to traffic queues. The example in Plymouth where holding capacity was increased, reduces tailbacks but more efficient, quicker turnarounds are required where there are spatial constraints.

Port Connectivity & Mode Shift Potential

A key message running through discussions with key local stakeholders, is the potential to unlock the maritime and coastal shipping market by enhancing port connectivity by road and rail. During the time period of this study there have been several new flows of material by ship and this provides confidence that aspirations for modal switch are genuine. GRS expects to process secondary aggregate volumes at the reopened Hemerdon Tungsten mine in Devon and distribute more than a million tonnes each year for the next decade and beyond. After a short lorry journey from Hemerdon, the aggregate will be loaded onto ships at Plymouth for transportation to other ports around Britain. Coastal shipping tonnage has dropped from 114 million tonnes in 2000 to 69 million in 2020[93]. There are opportunities to reinitiate this more carbon- efficient way to move goods in comparison to road and air.

The BPA were explicit in highlighting that a lack of efficiency on the road network which connects ports leads to financial losses for the local and national economy, as well as the port itself in many cases, with poor access having an impact on sustainability as well as the safety and quality of life for local communities near busy roads.

This was previously stated in roundtable discussions in 2019 with key stakeholders to inform initial thinking around the emerging transport strategy with the ‘resilience’ of the road network being key around international gateways; with delays and congestion leading to a loss in value and having ripple effects through the industry and onto the consumer ultimately.

[93] HR Wallingford (2021) Could a vital spark revive coastal shipping in UK?

'According to analysis by MDS Transmodal on behalf of the BPA, 80-85 per cent of UK port freight enters and leaves ports by road, most of which is carried onto local roads before reaching the MRN and SRN'

British Ports Association (BPA)

There were a number of general issues relating to managing access arrangements and the potential offered by coastal shipping to reduce long distance road freight, namely:

Delays	Issues with HGVs and general port traffic backlogs at selected ports, namely Penzance and smaller ports that inevitably involves traffic mixing (HGVs and cars) on access roads. This is a particularly pertinent issue outside of deep-sea ports when sailing takes place during high tides and delays directly impact vessels load optimisation (impacting on revenue streams and cascading demand to the next sailing). Infrastructure connecting clay pits to ports, specifically Teignmouth, was also raised with the A380/A281 being particular congested and getting progressively worse with increased traffic volume (freight and passenger). Freight routing through Plymouth City Centre was also noted, including the link to Cattedown, which could ultimately impact journey reliability and future business custom. Congestion from passenger and local traffic mixes with freight vehicles when the road transitions from a dual carriageway.
Restrictions & Roadworks	In some instances, port traffic seeking to access Plymouth and Teignmouth, must navigate urban centres where restrictions are in place for wide loads; with few alternative routes in place and limited advanced signage to aid routing and forward planning. This is highly relevant when planned roadworks are taking place and notice is required to help freight generators and supply chains to adapt accordingly. There are also concerns around the impact of HGVs on the urban realm and the negative repercussions of air pollution, vibrations and collisions with listed structures in the tight confinements of smaller streets (e.g. Fowey, St Ives etc).
Rail Potential	The future role of rail freight was strongly referenced throughout the stakeholder engagement process and its potential to be a 'game changer' when it came to connecting into port infrastructure and shifting long distance freight haulage from road to sea and coastal shipping. Whilst the opportunity should be taken to boost freight volumes through ports with existing rail bulk terminals/yards, there are live discussions taking place to help reinstate (in the case of Falmouth and Poole), lines that had been previously removed to provided direct access to the shoreside. Some ports, in this instance Fowey, already utilise rail extensively (80-90 per cent of port traffic according to Imerys, the Port Authority) with the main access road and local network being substandard. This is with specific regards to width restrictions and constrained road environment which includes a 1km HGV only road tunnel which is prone to maintenance issues and has been liable to closure on occasions. However, the railway line is susceptible to inclement weather and subsidence; which may have longer term implications. Gauge clearance is a subject for further discussion for intermodal traffics and whether core and diversionary routes serving ports are in place (W10/W12); with future investment priorities around larger ports across adjacent STBs, namely Southampton, hoping to stimulate the shift from road to rail (alongside plans for electrification). To put this in perspective, the port of Southampton is predicting a 10-15 per cent uplift in rail freight in the future (2040). Equally, the challenge to accommodate future freight trains alongside satisfying passenger demand was alluded to by Bristol Port Company (BPC); which may resonate in the future across the smaller ports with aspirations for increasing or reinstating rail traffic within current and future capacity constraints. The potential for smaller, faster mixed use trains was referenced for carrying both passengers and smaller consignments with minimal retrofitting.

Port Centric Logistics & Business Clusters

Ports, as major local assets, are looking to take on a more prominent role within their respective conurbations and sub regions as burgeoning economic drivers. There was a wider appreciation of the future significance and opportunities that port infrastructure and strategic developments on site could bring to supporting specialist business activity and economic agglomeration. Generally

speaking, port investments tend to be market led and privately financed but rely on investment in modern infrastructure subject to demand.

> 'The UK industry is currently investing in excess of £1.7 billion worth of infrastructure projects'
>
> - **British Ports Association (BPA)**

The co-location and clustering of businesses and supply chains is being discussed in the context of recent freeport designations (Plymouth) and how this could both retain and attract businesses to the area. More specifically, larger organisations, such as Babcock, were seeking to take advantage of special conditions to localise supply chain activities by expanding facilities within Plymouth (alongside other organisations).

Port centric logistic extends to catering for expanded consolidation (and waterborne distribution) of shellfish from Plymouth with coastal shipments arriving from Newlyn/Brixham. Whilst this serves a 'traditional' market, Plymouth is also exploring marine and technology hubs and the latest on-site goods handling equipment (e.g. cranes) and surface transport options (e.g. forklift trucks) to lead the way in sustainability and ensure longer term cost efficiency (and transition towards electrification).

Fowey has a strong commitment to clean technologies on site and generates over 50 per cent of energy requirements on site through solar, wind and water energy with the port's interest expanding into the use of HVO as a straight swap for red diesel (particularly in light of additional fuel duty being applied to the latter in 2021 which will directly impact operational costs and profit margins).

Similarly, smaller ports and local authorities covering Penzance, Falmouth and Truro, are recognising the virtues of port led developments and the strategic benefits of designating land or applying special planning guidance to unlock opportunities. Falmouth, for example, is relishing the designation of the docks as an Enterprise Zone and marine hub and hosts a number of complementary industries such as boat maintenance and fuel bunkering with potential to explore the role of alternative propulsion and shoreside technologies in response to the need for vessels to comply with the Sulphur Emission Control Area (SECA).

Port Centric Logistics also have a broader role to play in confronting deprivation across coastal communities, exacerbated by the impact of the pandemic where a combination of transport infrastructure/connectivity and jobs creation can unlock multiple economic, social and environmental benefits. This extends to the development of energy and broadband/mobile connectivity to aid port-based distribution and port operations conveyed by BPC and in partnership with the West of England Combined Authority (WECA).

Sector Competitiveness & Potential Markets

The general consensus, captured through the stakeholder engagement process, centred around reducing the reliance on road freight transport and the potential to maximise the role of rail freight and maritime transport for long distance goods movements. Despite the natural, geographical advantages of the Peninsula Transport area for coastal shipping, the shortage of interchange infrastructure and relative prioritisation of road freight interventions and its competitive advantages, may be limiting port and coastal shipping activity.

> 'There needs to be more investment in infrastructure and for it to go beyond road modes'
>
> - **Heart of the South West Local Enterprise Partnership**

In terms of future markets, the potential for maritime freight to play an expanded role across the area, still remains uncertain (see section on Freight data) but the feedback from port authorities indicated that there are multiple potential revenue streams that could be explored. This ranged from biomass imports for local projects and floating offshore windfarms to waste and recycling exports and stone ballast (tied into the movements of aggregates for the construction industry).

A suggestion during the engagement was that local policy should seek to condition the movement of materials, namely aggregates, by sea or rail, to take advantage of quarries strategic location to nearby docks/ports. Imerys, the Port Authority at Fowey, referred to their aspirations for expanding aggregate exports to London Tilbury from 150,000 to 450,000 tonnes annually working with GRS Aggregates who are based at the latter and purchase the raw materials. The 'dream' scenario would see exports rise to 900,000 annually. Equally, Truro was identified as a 'hotspot' port for shipping construction aggregates.

Nonetheless, the prospect of enhancing mode shift to coastal shipping is being gradually acknowledged across the freight industry as a necessary step towards reducing congestion and taking pressure off of road networks while supporting UK emissions targets. This may require regulatory changes, facilitated by national government, to foster mode shift to coastal shipping and enhancing its cost effectiveness relative to road haulage. The BPA have been explicit in their support and optimism for coastal shipping as presenting strong value for money using regulatory changes to entice audiences away from road haulage.

'With growing consumer awareness of the importance of sustainable supply chains and with key policy changes, we would expect this to be a key growth area'

- **Phoebe Warneford-Thomson, British Ports Association (BPA)**

The potential to better connect port estates across the UK and moving freight by sea as opposed to road using smaller cargo vessels (with future automation and fleet 'greening') was touched upon by ABP. In contrast, the absence of investment and supply chain connectivity between the mainland and the Isle of Scilly was raised as a concern (with investment being outlined to upgrade ferry fleets and port infrastructure); with residents claiming to be isolated and unable to receive certain goods.

Seasonality was referenced on occasion. Anecdotally, berths tend to be fuller in the winter to undertake ship repairs, whilst seasonal industries, such as tourism, can bring about additional traffic on core access routes (road). The nature of cargo being shipped can also vary between different parts during different times of the year; although most goods are not time sensitive (e.g. except items such as perishable goods). That said, larger multinational businesses with reliance on globalised supply chains, will demand reliable and quick goods movements which are currently satisfied by freight forwarding companies.

The lack of awareness of the DfT Water Freight Grant Scheme, which was designed to help businesses set up new water freight movements, was also acknowledged

Quality & Availability of Freight Data

The availability and quality of freight data was a recurring theme throughout the stakeholder engagement process as this would ultimately influence future decision making and investment priorities for the industry. The desire for a 'data hub' to assess existing commercial activity and explore the potential for mode shift was viewed as a prerequisite to enabling conversations to take place with commercial organisations (to reduce costs and carbon footprint).

Currently, the limited transparency and data sharing within the public domain made it difficult to understand the logistics and the scope for future freight movements by coastal shipping. The collection and visibility of road freight data, for example empty running of freight forwarders along the A30 or live port bound vehicle tracking for optimising vessel load capacity, would help with forward and responsive planning.

Future Role of Sub-National Transport Bodies (STBs)

There is an emerging role for the sub national transport bodies, alongside local authorities, in supporting maritime freight movements. One of the key challenges observed and highlighted by stakeholders, was the need for fiscal support to be released for promoting coastal shipping and modal shift away from road freight for long distance consignments, particularly to other UK ports. This was seen to add resilience to the wider transport network especially if incentives could be provided. Equally, investment in direct rail connections into ports could help unlock future opportunities but require significant investment in on site capacity, potential gauge clearance requirements and prospective customer awareness and demand.

As a general observation, feedback from stakeholders coalesced around STBs role in mediating relationships between public authorities, businesses and the freight industry and the benefit that a Freight Steering Group could bring to delivering tangible changes to unlocking future markets, including maritime freight, as part of the mode shift, decarbonisation and digitisation agendas.

On the subject of land use planning, the BPA advocate government and local bodies to 'plug' port masterplans into wider local and sub regional economic and planning policy to help coordinate future priorities and safeguard/promote complementary schemes. This applies across the whole South West where 'deeper engagement' extends to outlining or safeguarding future operational areas and international trade related inland ports.

9.2.7 Summary & Recommendations

Maritime freight, coastal shipping and ports will play a key role for shifting the reliance of goods movement away from road freight; especially for long distance haulage, whilst ports are emerging as key economic drivers across the region. There is a role to play for STBs working in partnership with local port and public authorities alongside the freight industry more broadly, to enhance the transparency of commercial opportunities and unlock future markets alongside lobbying for capital investment to steer port centric developments as well as incentivising mode shift.

Six key themes emerged from various rounds of engagements with stakeholders who were associated with maritime freight and coastal shipping; as either a port or local authority. The six themes related to:

Warehousing, Storage & Transhipment Facilities	The need to futureproof and invest in provision, safeguard facilities and designate strategic land (sympathetic to local area) to cater for future forecast demand
Port Connectivity & Mode Shift Potential	Exploring the role of rail and reinstating lines where feasible and viable to stimulate mode shift and build local network resilience around port access points.
Port Centric Logistics & Business Clusters	Maximising the designation of enterprise zones and freeports and continuing to facilitate business clustering and added value services at Falmouth/Plymouth.
Sector Competitiveness & Potential Markets	Balancing diversification with port infrastructure capacity and helping (financially and legislatively) the transition away from road freight dependency.
Quality & Availability of Freight Data	Developing a more comprehensive datahub and increasing the transparency of information available to make informed commercial decisions.
Future Role of STBs	Requesting STBs source investment and funding opportunities for enhancing port connectivity and incentivising the switch to cleaner technologies.

All stakeholders remarked on the value of establishing a Freight Steering Group to help steer future recommendations and unlock opportunities for maritime and coastal shipping to play a more prominent role in the freight mix; providing this platform could help deliver tangible, meaningful change.

9.3 Air

This section provides an overview air freight in the South West including the amount of goods moved and feedback from the stakeholder engagement.

9.3.1 Introduction

Aviation, the movement of air cargo and mail consignments, plays a limited role comparatively to other freight networks across the South West and UK more broadly. The sector is typically associated with low volumes of air cargo and air mail alongside delivering high value goods in low volumes on a Just in Time (JIT) basis serving global supply chains. Freight flows via air are heavily reliant on the SRN and having good access to airports is critical for last mile journeys.

The airports situated across the South West, described in the forthcoming section, are predominantly centred around passenger traffic with air freight carrying minimal tonnage. This also includes helipads and proposed spaceports; both of which will play niche roles in the shipment of consignments. Snapshot profiles of airports outside the study area have also been developed due to their relationship to regional freight flows.

9.3.2 The Aviation Sector

There are several commercial airports based across the South West which offer a select range of passenger and freight services but limited options comparatively to other parts of the UK with higher urban densities, transport infrastructure and industry markets. As the vast majority of air freight travels through larger airport hubs, snapshot profiles have also been developed for Gatwick, Heathrow and East Midlands International; the major origin/destination points for air cargo freight travelling through the South West of the UK. **Table 9-7** provides snapshot profiles of all airports provided in forthcoming sections. Plymouth Airport, mothballed in 2011, has not been considered in this analysis due to the lack of reliable data on the airport and uncertainty surrounding its future use.

Table 9-7: Civil Aviation Authority (CAA) statistics for commercial airports across the South West. All figures are Annual figures for 2019.

Airport	Air Passenger Movements	Freight (tonnes)	Mail (tonnes)
Exeter	1,021,784	N/A	3,363
Newquay	461,478	2	N/A
Land's End	64,056	71	201
Bristol	8,964,242	11	0
Bournemouth	803,307	0	0

Exeter Airport

Exeter Airport, one of two airports owned by Regional & City Airports (Rigby Group PLC as the Parent Group) within the South West is located east of the city of Exeter and accessed via the A30 and M5 J29. This is no direct rail connection to the airport. The runway is 2,076m long with the most trafficked airpath and commercial passenger service operating between Manchester[94].

Plans are proposed to expand Airport Business Park, a 7.69 hectare development providing hundreds of new jobs adjacent to the airport which will be accompanied by enhanced road connections (including widening) within the airport curtilage. The site, and airport, sit under one of the Exeter and East Devon Enterprise Zones which will enhance its role as a major gateway to help facilitate the forthcoming France-Alderney-Britain (FAB) interconnector project and increase the capacity of energy trade and future emergency network resilience.

Exeter Airport operates 27 commercial passenger routes between several destinations across seven European countries. These are provided across ten commercial airlines; many of which are part of package holidays and only operate seasonally (generally between the early summer and mid-autumn).

[94] CAA (2018) Airport Data 2018. Available from:, https://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airports/Datasets/UK-Airport-data/Airport-data-2018/

Table 9-8: Airline Services from Exeter Airport (2021)

Airline	Route	Weekly Frequency	Annual Schedule (UK)
TUI	Paphos	Once Weekly	Summer/Autumn
Crystal	Chambery	Twice Weekly	Winter
Joe Walsh Tours	Loudres	Once Weekly	Single Day
TUI	Corfu	Once Weekly	Summer/Autumn
TUI	Crete	Once Weekly	Summer/Autumn
TUI	Rhodes	Once Weekly	Summer/Autumn
TUI	Zante	Twice Weekly	Summer/Autumn
Transun	Enontekio	Once Weekly	Single Day
Newmarket Holidays	Pajala	Once Weekly	Single Day
Ryanair	Alicante	Twice Weekly	Annual/Year Round
TUI	Ibiza	Once Weekly	Summer/Autumn
TUI	Lanzarote	Twice Weekly	Annual/Year Round
TUI	Gran Canaria	Once Weekly	Autumn Only
TUI	Majorca	Four Weekly	Summer/Autumn
Ryanair	Malaga	Twice Weekly	Annual/Year Round
TUI	Menorca	Twice Weekly	Summer/Autumn
TUI	Tenerife	Twice Weekly	Autumn/Winter/Spring
TUI	Dalaman	Twice Weekly	Summer/Autumn
Loganair	Aberdeen	Four / Week	Annual/Year Round
Aer Lingus	Belfast City	Seven / Week (Daily)	Annual/Year Round
Loganair	Edinburgh	Seven / Week (Daily)	Annual/Year Round
Loganair	Glasgow	Seven / Week (Daily)	Annual/Year Round
Aurigny	Guernsey	Four / Week	Annual/Year Round
Skybus	Isles of Scilly	Six / Week	Summer/Autumn
Blue Islands	Jersey	Seven / Week (Daily)	Annual/Year Round
Blue Islands	Manchester	Seven / Week (Daily)	Annual/Year Round
Loganair	Newcastle	Seven / Week (Daily)	Annual/Year Round

The scale of air cargo tonnage handled over the past decade has been intermittent; to the point where no freight tonnage has been recorded over the past three years[95]. Air mail remains a constant revenue stream as it is a hub for Royal Mail; although tonnage has almost halved from 2010 to 2019 and has stabilised around the 3,300-tonne mark for annual handling (2015-2020).

The airport has scope to operate night deliveries with airports and storage locations situated within the site to manage, handle and process consignments for last mile delivery. However, the market scope is limited by runway length which cannot accommodate wide body aircraft.

Cornwall Airport (Newquay)

Cornwall Airport (Newquay), owned and managed by Cornwall County Council, operates 22 flight commercial passenger routes across domestic UK and mainland Europe, with seventeen available post pandemic in 2021. The airport is the site of the proposed 'spaceport' which will be in commercial operation from 2022. The current range of services available at the airport are provided across ten commercial airlines.

[95] CAA (2021) Freight 2010 - 2020 Tonnes. Available from: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2020_annual/Table_13_2_Freight.pdf

Table 9-9: Commercial Routes to/from Cornwall Airport (Newquay) (2021)

Airline	Route	Expected start/restart date
Eastern Airways	Leeds-Bradford	Now operating
Loganair	Manchester	Now operating
Loganair	Aberdeen	Now operating via Manchester
Loganair	Teesside	Now operating
Loganair	Edinburgh	Now operating
Skybus	Isles of Scilly	Now operating
Eastern Airways	Teesside	Now operating
Loganair	Newcastle	Now operating
easyJet	Manchester	Now operating
easyJet	Glasgow	Now operating
Aer Lingus	Dublin	Not currently operating
Ryanair	Faro	Now operating
Ryanair	Alicante	Now operating
easyJet	London Gatwick	Now operating
British Airways	London Heathrow	Now operating
Blue Islands	Jersey and Guernsey	Now operating
BACityFlyer	Belfast City	Now operating
Edelweiss	Zurich	Will not operate in 2021
Eurowings	Dusseldorf	Will not operate in 2021
Aer Lingus	Cork	Will not operate in 2021
SAS	Copenhagen	Will not operate in 2021
easyJet	Birmingham	Now operating
easyJet	Inverness	Now operating

Annual air cargo tonnage handled through the airport is nominal; peaking over the decade in 2017 (12 tonnes) and having stabilised at around 3 tonnes annually over the past three years[96].The same applies to air mail which recorded tonnage in 2014 alone.

Cornwall Airport (Newquay), recently upgraded in anticipation of the G7 conference, will eventually benefit from a new flight contract to develop more regular services between the region and UK destinations. Pending procurement and the award of a contract, the services, delivered by a commercial operator under the receipt of a subsidy, will fall under a Public Service Obligation (PSO) which applies to air routes that are vital for economic and social prosperity and wellbeing. Flybe previously ran the contract until it fell into administration and the short-term emergency contract awarded to British Airways has recently concluded.

Land's End (St Just)

Land's End (St Just) Airport, owned by Land's End Airport Ltd (part of the Isles of Scilly Steamship Group), is widely recognised as the Gateway to the Isles of Scilly, providing year-round scheduled flights of around 20 minutes to St Marys Airport. Skybus services take place during the daytime under the current licence. The airport can only be accessed via the B3306 and doesn't have a direct rail connection. Patronage dropped 45 per cent over 2019-2020 in contrast to the fortunes of air freight over the same duration (see below).

Of particular note is the proportion of air mail carried from Land's End (St Just) which handled 230 tonnes in 2020; the largest volume recorded across the South West, with the exception of Exeter which is a far more established airport in comparison. This is a growing market serving the Isles of Scilly having increased from just 70 tonnes annually over the decade; a 228 per cent uplift in total[97].

[96] CAA (2021) Freight 2010 - 2020 Tonnes. Available from: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2020_annual/Table_13_2_Freight.pdf
[97] CAA (2021) Freight 2010 - 2020 Tonnes. Available from:, https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2020_annual/Table_13_2_Freight.pdf

Isles of Scilly (St Marys)

The Isles of Scilly Airport (St Marys), owned by the Duchy of Cornwall and operated by the Council of the Isles of Scilly, is located to the east of Hugh Town and features a 694m runway and 400m helipad to cater for all aviation traffic arriving on the island. The airport can only be accessed using the A3110 or Old Town Lane via High Cross Lane.

All air freight is carried via the mainline and domestic flights with the vast majority travelling in the aircraft belly hold (33 tonnes) as opposed to a dedicated cargo aircraft during 2020 Until 2013, air cargo was also being delivered to Tresco as well as St Marys; with the latter still maintaining services albeit with a decline in through tonnage from its peak in 2010 (140 tonnes) compared to 2019 (82 tonnes).St Marys has always been the most prominent destination/origin for air mail whilst bucking the trend in tonnage flows having witnessed a 20 per cent increase in tonnage between 2019-2020 and nearing the peak volume handled in 2018 (251 tonnes).

Penzance Heliport

Penzance Heliport, owned by Penzance Heliport Ltd and operated by Penzance Helicopters, explicitly serves the Isles of Scilly (both St Marys and Tresco). Fifteen-minute flights operate year-round from a new base in Penzance, established in 2020, that is connected to the SRN and mainline rail network. According to the CAA, air mail tonnage has only been recorded between 2010-2012.

Bournemouth Airport

Bournemouth Airport owned by Regional & City Airports (Rigby Group PLC as the Parent Group) features a 2,200-metre runway accommodating most wide body aircraft and catering for over 4,000 jobs on site (making it one of the bigger sub regional employers). The airport is increasingly positioning itself as an alternative to the London hubs to facilitate e-commerce deliveries across the broader South West (with positive implications on road freight journey times/stem mileage). The Aviation Business Park is an important cluster for aerospace and aviation related businesses. It produces a number of advanced manufactured goods and is distributed throughout the UK and beyond. It is a key generator of freight activities both inbound and outbound which involves a number of freight vehicle movements. It is highly likely to generate more freight movements than the airport itself.

Air cargo was a revenue stream for Bournemouth Airport up until 2015 having peaked in 2014 at 1,888 tonnes annually after increasing significantly from a baseline of 304 four years previously[98]. Likewise, the airport was relatively prolific across the South West region in handling air mail up until 2016; having peaked at 10,828 tonnes in 2011 and declined to 7,275 tonnes before records halted in 2016.Part of the decline can be attributed to the relocation of Royal Mail facilities during this period.

New cargo operations began in 2020 to help bring in emergency supplies of Personal Protective Equipment (PPE) from China. But subsequently additional cargo services to New York USA and China have begun and additional services are planned, including potential links to the Middle East. A company named European Cargo is based at Bournemouth and has fifteen Airbus A340-600 aircraft of which six have been converted into freighters. European is operating daily flights from China, which is supporting the nation with PPE and COVID-19 test kits. The airport has an uncongested airfield and airspace, 24-hour operation with no restriction on flight times, short taxi times and no air or ground holding delays, meaning that it is able to cater for a catchment area including London in a cost effective and timely way when compared to congested London airports.

Bristol

Bristol International Airport, owned by Ontario Teachers Pension Plan, is the eight largest airport in the UK catering for over 8.9 million passengers annually. The site is situated in North Somerset on a former RAF base (Lulsgate) featuring a 2,011m runway with expansion plans on hold (enlargement of passenger terminus, car parking and plane taxiways) after local objections. The airport is located off the A38, 13km South West of the city of Bristol but does not have a direct rail connection (a key consideration for mass transit aspirators). Road access is fairly poor and journey times long as a result. Due to proximity of housing, night flying is restricted. Whilst this is not a problem for passengers this can be an issues for cargo operators.

Despite its relative size and proximity to international gateways and larger urban populace, Bristol airport handles a small amount of air cargo. Only 16 tonnes overall was handled in 2020 which was all carried in the passenger aircraft (belly hold) and almost all being exclusively transported to/from the European Union (EU).This is a subtle rise on previous years from 2017 when the first

[98] CAA (2021) Freight 2010 - 2020 Tonnes. Available from: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2020_annual/Table_13_2_Freight.pdf

quantities were recorded. The airport has handled a small amount of air mail over the last decade; handling 3,498 tonnes in 2010 but nothing of that scale since[99].

Major Hubs

Heathrow, owned by Heathrow Airport Holdings, as the largest airport hub in the UK handling more air cargo than other UK airports combined with a plethora of air pathways and frequent services across the world. It is the main airport for air cargo serving both the south east and the South West of the UK and handled over 1,698,000 freight tons in 2017[100] This dwarfs the tonnage handled across the South West airports as well as Gatwick, owned by Gatwick Airport Limited, and Southampton. It also has a well-established consolidation centre and logistics operation and has benefitted from access improvements in recent years; with the majority of freight travelling by long distance road freight to the study area. Mail tonnage dropped significantly, as witnessed across other major airport hubs between 2019-2020 (28 per cent) having peaked at 7,640 the previous year (2019).

There are also freight pathways, by road, from Gatwick towards the South West, which could play a more prominent role in the future. The Gatwick Airport Masterplan refers to the expanded role of air cargo; stating that 102,000 tonnes of cargo was handled in 2018, a 24 per cent increase on the previous year, which is likely to continue rising to 220,000 by 2032/2033. Air mail may play a reduced role longer term, due to shifting communication patterns/trends with Gatwick having experienced a 69 per cent reduction in tonnage between 2019-2020[101].

East Midlands Airport, owned by Manchester Airport Holdings, handles the second largest levels of freight cargo annually (335,000 tonnes in 2019) and is strategically positioned within proximity to the Golden Triangle serving National Distribution Centres (NDCs), the Strategic Road Network (SRN) and mainline rail corridors (e.g. Midlands Mainline). The airport serves as freight distribution/consolidation hubs for DHL Air and UPS similarly to Heathrow.

The growth in air cargo has been far more incremental in comparison to Heathrow (although this had grown by 27 per cent between 2008-2019) whilst the airport is considered a northern hub to South Westerly movements of freight. The vast majority (with the exception of 11 tonnes), are shipped by dedicated aircraft with over half of the tonnage arriving via chartered (51,760) or scheduled (210,714) services between the UK and the EU[102].

Similarly to Heathrow and Gatwick, air mail has also decreased from a peak in 2012 (35,702 tonnes) to 23,767 in 2019. Air mail is likely to serve more local destinations as opposed to using the SRN for long distance haulage towards/between the South West (although there is limited data and evidence to document freight flows).

Other Airports

Although not in Western Gateway for completeness the following airports do serve part of the South West.

Cardiff Airport

Cardiff International Airport located in South Wales is owned by the Welsh Government and operated by Cardiff Airport Limited. The airport moves more than 1.6million passengers annually; supporting 1,900 aviation related jobs at the airport and a further 700 across the wider sub region. The airport is served by 18 airlines, providing fifty direct routes to domestic, European and international destinations, including 11 routes to major hub airports.

The airport is well placed to take advantage of its location within the St Athan Enterprise Zone and 24/7 status to accommodate a range of commercial aviation services and business activities; including the expansion of cargo facilities and direct connections from Rhoose Cardiff International Airport Railway Station. This forms a key component of the 2040 Masterplan.

The airport carried a relatively small volume of international cargo (exclusively) by passenger aircraft (204 tonnes) and dedicated cargo aircraft (113 tonnes) via scheduled and chartered services respectively in 2020. The airport has witnessed notable fluctuations in air cargo demand since 2010; ranging from almost no tonnage in 2016 (5 tonnes in total), to peaking eight years later

[99] CAA (2021) Freight 2010 - 2020 Tonnes. Available from: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2020_annual/Table_13_2_Freight.pdf
[100] TfSE (2019) Freight, logistics and gateway review. Available from: https://transportforthesoutheast.org.uk/app/uploads/2020/11/Freight-logistics-and-gateway-review.pdf
[101] CAA (2021) Freight 2010 - 2020 Tonnes. Available from: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2020_annual/Table_13_2_Freight.pdf
[102] CAA (2021) Freight 2010 - 2020 Tonnes. Available from: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2020_annual/Table_13_2_Freight.pdf

in 2018 (1,803) and dropping 82 per cent in 2019. With the exception of London City, this is the largest percentage change across all major UK airports[103].

Air mail, contributing a small proportion of overall freight tonnage passing through the airport historically, stopped from 2015; leaving limited options across the South West mainly Exeter.

Southampton Airport

This airport, owned by AGS Airports, handled two million passengers in 2018 to over 30 destinations and it still has a good selection of passenger holiday destinations and operators. The runway has a length of 1,723m so is not as long as Bournemouth. But it does have a mainline railway alongside with regular services. The airport was badly affected by the demise of Flybe. But the airport is located well to serve particularly Wiltshire customers.

9.3.3 Stakeholder Engagement

The relative role of aviation, as a network for moving goods, is perhaps reflected in the limited feedback received by stakeholders during the engagement. Following early engagement with public authorities during roundtable events in 2019/2020, which sought to capture transport issues and opportunities across the area, a select number of detailed engagements with operators and airports took place.

Inevitably, this has an impact on how representative feedback received is on informing future decision making. This should be rectified through future efforts to bring together a Freight Steering Group to gather together data and information on the use of aviation by local freight generators as well as through inviting the airports to attend.

On this basis, the limited feedback received on aviation can be condensed into two themes; which reflect the tailored role of the sector for freight movements and the continued emphasis placed on the movement of people locally across the region. The themes are as follows:

Tailored Market	There is a niche, specific role aviation can play in facilitating the movement of goods and potential growth markets. Hence air freight can include urgent pharmaceutical and PPE supplies, perishable goods, expensive electronics and automotive parts. The airports in the South West can serve customers across the whole of the south, perhaps reducing the dominance of London Airports for cargo.
Airport Centric Developments	Running parallel to port centric logistics is the capacity and opportunity for airports to go beyond conventional land uses to incorporate in added value services. Several airports such as Exeter and Bournemouth have available land for warehousing and related business and this is attractive to certain international business.

The feedback generated through this process ultimately informed the compilation of a long list of future interventions that would be reviewed and assessed at a later stage in the development of the Freight Strategy. This would include interventions that were suggested and implied by stakeholders alongside possible solutions to the issues, challenges and opportunities highlighted in the research and data insights from previous tasks.

9.3.3.1 Tailored Market

It was acknowledged amongst stakeholders that the role of aviation, as a means of transporting freight, was uncertain; due in large part to the decarbonisation agenda, efforts to tackle the climate emergency and the scepticism around airport expansion and aviation nationally. There were also reservations whether existing airports, namely Exeter, would remain operational longer-term pending expansion plans for Bristol, the largest airport in the South West region. However Exeter has 24 hour operation and Bristol does not.

The scale of tonnage moved regionally, compared to road, rail and sea, is minimal in comparison; although disruptions to global supply chains and changes to customs procedures upon leaving or entering the UK, has raised interest in aviation as a reliable network for high value goods shipments, at least short term.

The most obvious example is the use of air cargo by Kawasaki, located off the A34 Devon Expressway north of Plymouth, whose budgets assigned to air cargo and delivering parts from Japan increased tenfold in response to disruptions to their international supply chains. With limited-service options covering the South West, goods are predominantly shipped, by road, from consolidation points at Heathrow or Gatwick.

[103] CAA (2021) Freight 2010 - 2020 Tonnes. Available from: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2020_annual/Table_13_2_Freight.pdf

There is a drive for larger organisations to maintain efficient supply chains and respond to challenging road conditions and operational deficiencies that hamper reliability. Babcock, also based in Plymouth, referenced their use of helicopter services for delivering 'mission critical kit' and a reluctance to use road freight in the event that delays, and congestion would compromise speed and, ultimately, national security. This is at great expense.

The role of aviation for carrying passengers and the propensity for air cargo and mail to be transported in the belly hold of an aircraft, was rarely mentioned. However, the potential for additional route paths domestically, from Newport to Manchester, and the consolidation of services to London and the Isles of Scilly could be better utilised for the movement of goods.

Recognising the need for enhanced links between Penzance and the Isles of Scilly, emerging competitors are also seeking to make the use of helicopters for the fast and convenient movement of people (and light goods) to rival maritime journeys. Whilst there was also interest and opportunities for airports, namely Exeter, to serve a large catchment area (arguable the South West more broadly), runway lengths restrict the ability for wide body aircraft to land; limited its role to niche services and cargos. This is where Bournemouth Airport with its longer runway suitable for wide body aircraft, its 24-hour operation and its more central location nearer London can exploit its advantageous position.

9.3.3.2 Airport Centric Developments

There has been much publicity in recent years surrounding the emergence of developments in and around Newquay airport and plans for Spaceport Cornwall, due for launch in 2022. The development of Goonhilly Earth station and the clustering of associated businesses and expertise for driving competitive, joined up operations is fundamental to the business plan and serves to be a major economic driver in the future.

The airport is exploring freeport status on ex-military land whilst the designation of 4,000 new homes locally is set to transform the area dynamics. Whilst the Spaceport is unlikely to have a freight component, the connectivity between space and airport and sharing of resources, facilities and expertise, is likely to raise the profile and potential of operations. It was noted too that surface access will likely require road capacity improvements to match future demand, especially in the absence of a suitable rail link.

Elsewhere, growth potential exists at Exeter to build on the designation of the Exeter & East Devon Enterprise Zone and successful development of Airpark to foster business growth and diversify the offer around the airport. This is set against the constraints posed to air cargo growth by the length of the runway. As discussed, there is potential for a larger cargo operation at Bournemouth due to its 24-hour operation, runway length, availability of land and location.

9.3.4 Summary

There is some uncertainty about the future role of aviation and the level of interest in scaling up operations to move goods; but there is a niche role to play in delivering high value goods in smaller quantities in response to supply chain inefficiencies and disruptions. There is scope to dovetail planned passenger services and serve domestic and international freight markets.

Due to the uncertainty surrounding air freight, the development of a Freight Steering Groupwould be a useful platform for drawing together airport operator and fleet operators, alongside public authorities and key business sectors, to develop a stronger narrative for the sectors future.

9.4 Summary

The multimodal review has brought together various data sources knowledge to provide an understanding of the current state of play in the South West for the rail, maritime and aviation sector. It has established an understanding from various stakeholders of the key issues the freight sector faces including the need to decarbonise and the opportunities that other modes can provide over road based transport.

It highlights the need to have connected networks in order to allow for interventions such as freight terminals to be successful. There is a need for better communications within and between the separate sectors to allow for a joint approach to make the best of each route and promote the aims and objectives of the South West. A number of interventions have come to light and will be taken forward as part of developing the Freight Strategy for the South West.

10. Stakeholder Engagement – freight issues

Following the review of freight strategies in other locations, a stakeholder engagement phase with key freight organisations and other interested parties was undertaken to discern overarching issues and opportunities across the industry across the South West region.

10.1.1 What is Stakeholder Engagement?

Stakeholder engagement involved communication with relevant industry representatives in order to understand their point of view on a wide range of interests. By developing a relationship with several key stakeholders within the freight and logistics sector, a better understanding of the role of organisations play within the South West could be discerned. The opinions of stakeholders with a deep knowledge of subject matters are invaluable to raising key challenges and potential opportunities moving forward and priorities for investment directed at a local authority, sub national or national level.

10.1.2 Methodology

In attempting to communicate with many diverse organisations within the South West, an email template was produced that gave an overview of the STBs and the aims and objectives of the study. The email enquired about their availability to participate within the study by answering several questions about their role, opinions and priorities within the freight sector, either via an informal interview held over Microsoft Teams or in the form of a detailed written response that could be returned via email. This email was distributed to approximately 75 organisations in each of the STB areas. Follow up telephone calls were also arranged for those stakeholders that did not reply via email to try and optimise response rates. A list of the organisation engaged with can be found in **Appendix E**.

Stakeholder responses and any further communication was recorded within a Stakeholder Matrix. This contained information such as stakeholder key contact details and proposed interview dates and enabled several individuals from both AECOM and WSP to keep track of engagement levels.

The feedback generated through this process ultimately informed the compilation of a long list of future interventions that would be reviewed and assessed at a later stage in the development of the Freight Strategy. This included interventions that were suggested and implied by stakeholders alongside possible solutions to the issues, challenges and opportunities highlighted in the research and data insights from previous tasks. The engagement process was also key at this point in time to help with identifying any 'knowledge gaps' that would require further follow up research and investigation to aid with capturing the full freight picture for the region.

10.1.3 Understanding Our Audience

In order to gain a thorough understanding of the needs and priorities of different stakeholders throughout the South West, it was crucial to liaise with a wide variety of representative organisations. Wide ranging stakeholder engagement was undertaken from May to August 2021. Qualitative feedback was received in the form of semi-structured questionnaire responses from key organisations within the freight sector.

This chapter predominately concentrates on road-based freight insights as stakeholder comments relating to rail, air and maritime have been covered in the multimodal chapter under each specific mode (**Chapter 9**).

Most of these organisations can be categorised into the following groups:

- **Local, regional and national freight operators;** a key audience that provided detailed, often anecdotal insights into the operational challenges and opportunities they face over the present period and in response to future aspirations and trends. It was crucial to gain a representative balance of feedback; from smaller, independent hauliers to larger national operators, whose demands, insights and outlook vary significantly.
- **Trade Associations;** (who look represent the views of a breadth of freight related organisations), such as Logistics UK and the Road Haulage Association (RHA). These are key contacts providing both a policy and member perspective of the challenges facing the industry, alongside reflecting on key subject areas and freight trends and scenarios.
- **Various local authorities;** who are instrumental in shaping future transport, land use and freight planning, policy and discourse, with direct connections and contact with major freight generators and an overview of local social, environmental and economic conditions. LAs are a key audience for helping align objectives and sense check findings.
- **Port/Airport/Rail Freight Operators;** covered more broadly their sectors but with a significant and insightful role in relaying freight issues and opportunities relating to connectivity, accessibility and mode shift potential.

The same audience was also engaged during the period of assessing a long list of interventions. This would enable stakeholders to make the link between issues and opportunities and the progress made towards developing solutions. Gaining the buy in of stakeholders would also be key for aiding with the future implementation and delivery of interventions whilst it would be important to scope out members for a future Freight Steering Group.

10.1.4 Stakeholder Workshop

As part of the engagement process, a stakeholder workshop was held on Thursday 24th June 2021, providing local organisations with an opportunity to offer their thoughts on key challenges and priorities for freight in the Peninsula region moving forward. The workshop was attended by a large variety of employers, including universities, technology companies and Local Enterprise Partnerships (LEPs). During the workshop, breakout sessions were organised under the three following subcategories:

- Freight regulation, efficiency and consolidation
- Innovation, decarbonisation and skills
- Multi-modal

The purpose of these break out discussions was to divide individuals into relevant groups based on the organisation they represented and their interests, enabling comprehensive discussion amongst key freight players. This stakeholder workshop was replicated for the Western Gateway area using a similar format on Thursday 22 July 2021. Again, there was good representation from stakeholders except for hauliers as it was a busy time for staff holidays. There were two breakout groups this time but the same themes were discussed. The two breakout group subcategories were:

- Freight regulation, efficiency and consolidation
- Multi-modal

10.1.5 Key Themes

Key issues discussed by the stakeholders throughout the engagement process have been categorised into the following themes, enabling the reader to easily access the most relevant information:

- Strategic Highway Infrastructure and Issues
- Urban and Last Mile Delivery Issues
- Types of Vehicle
- Alternative Fuels
- Skills, Training and Industry Image
- Local Supply Chains & Procurement Practices
- Data Requirements
- Partnerships

Within these key themes, subheadings have been developed to try and draw out the key issues that regularly arose. The discussion within these subheadings form the basis of this chapter.

10.2 Strategic Highway Infrastructure and Issues

There were numerous issues, challenges and opportunities discussed by respondents in relation to Strategic Highway Infrastructure issues, including but not limited to a lack of alternative routes, network resilience, capacity, accidents, congestion, journey time reliability and seasonality.

10.2.1 Network Resilience

The subject of ‘network resilience’, the ability for the transport network (and fleets operators) to be responsive to congestion, delays and disruptions with minimal impact upon journey times, was frequently raised by industry representatives. The impact of network resilience on operational efficiency, especially for smaller hauliers, has very real consequences on profit margins and financial sustainability for many of the respondents. This has become especially pertinent in recent years due to simultaneous impact of driver shortages and heightened freight demands which has required shorter turnarounds of road freight deliveries (particularly multi drop groupage consignments and the pallet network).

Road network resilience is a renowned challenge particularly across the Peninsula Transport area; with only a select number of connections that form part of the Strategic Road Network (SRN). Delays, congestion or accidents occurring along the M5, A30 and A38, which were directly referenced, could have implications on freight flows throughout the area; especially in the absence of appropriate diversionary routes. The confluence of the A30 and M5 at Exeter is a particular case in point and is particularly vulnerable during the tourist season.

Whilst a lack of network resilience is likely to impact operational and road freight sector efficiency and 'traffic mixing' is an inevitable reality with freight sharing the same road space as passenger and private means of transportation, the flexibility and 'fluidity' offered by road freight still makes it an attractive proposition for hauling goods over short and longer distances.

'If the A38 is heavily congested between Saltash and Plymouth, what alternative route do I have?'

Babcock

For the Western Gateway region, the subject of network resilience was also prevalent. One stakeholder, Wiltshire Council, noted the lack of North / South routes which have efficiency and financial impacts whilst adversely affecting environmental, amenity & journey times, and means that operators cannot be responsive to any congestion or delays. A greater number of respondents reported issues of resilience at a local level rather than a strategic level, with a number of examples of impacts of poor network resilience on operational efficiency. Examples cited included the A338 around Bournemouth and Poole (including port access), the connection into the port of Portland via the A417, the A36 in Salisbury and the A46 in Bath; the latter of which were both cited as having traffic flow and journey time reliability issues. These scenarios all have knock-on effects with drivers having limited control for getting to arrival slots on time due to the journey time reliability.

Stakeholders also noted how the incidents in the Western Gateway region involving HGVs can have very significant impacts on the SRN by way of length of closures and the cost and time to safely re-open roads. This happens for a variety of reasons, such as diesel spillage, repairs to the road surface or barriers and clearing of spilled loads off the road. Delays are exacerbated where diversionary routes are not suitable for HGVs or there are works on local roads.

10.2.2 Geography, Topography and Seasonality

According to the respondents, the geography of the Peninsula acts as a major stumbling block for the efficiency of freight operations in the South West. The overall peripherality and lack of accessibility (the Peninsula was described by many of the respondents as 'one way in and one way out'), coupled with the lack of strategic routes and poor network resilience, has a major impact upon consolidation and the ability for freight operators to backload stock. This is in contrast to the experiences of operators located in more urban and densely populated areas. Cornwall is typically at the end of the logistical line and quite often will be running empty as part of the return leg, meaning underutilisation of vehicles is a regular occurrence.

Due to the topography of the land and steep changes in gradients throughout the Peninsula, strategic freight routes, namelyA38 Holden Hill, and A30 Bodmin Moor, can be very sensitive to adverse weather conditions and pose increased risks to drivers. Flooding is also becoming a more significant factor throughout strategic routes, particularly on the A38 and A30 in Cornwall. Again, this has a direct impact upon the resilience and the operational efficiency of the respondents.

With reference to seasonality, several respondents highlighted the fact that seasonal, summer traffic is a major constraint for the freight and logistics sector on strategic routes throughout the South West. Large volumes of passenger vehicles on the M5 (particularly at the Avonmouth Bridge and Gordano Valley sections) as well as on the A30 and A303 over the summer periods lead to bottlenecks.

For the Western Gateway region, access to Ports was a common theme, with Bristol, Poole and Portland ports all noting significant congestion to get through the towns to the ports. Examples included congestion on the Gravel Hill Road in Poole and the A354 in Weymouth and Portland. Access to ports for lorries due to road structure was also cited as a key issue, such as the sharp turns on the Ring Road in Bristol which are unsuitable for lorries as well as the A350 between Blandford Forum and Warminster which has proven problematic for foreign drivers. Stakeholders also noted that lanes on roundabouts, especially in the Bournemouth area, are also often not wide enough for articulated lorries. The straddling of lanes thus then impacts on the operation and efficiency of the junction.

Stakeholders also noted that a key issue in the Western Gateway region is that routes can be very sensitive to severe weather, particularly the impacts of severe winter weather on high ground. The hilly topography of areas such as West and North Dorset, in particular, was cited as an issue for larger vehicles. Additionally, in a similar way to the Peninsula region, summer seasonal traffic was also cited as a key constraint in terms of impeding freight movements across the region. Examples given as part of the engagement included the Avonmouth bridge and Gordano Valley on the M5, as well as trunk routes such as the A31, A35 and A303.

> 'There is also particular sensitivity to incidents with the large numbers of recreational trips attracted to the SW region, which causes impacts on capacity/ safety due to significant seasonal increases of traffic flow'.
>
> **National Highways (Formerly Highways England)**

10.2.3 Mitigation

There was general acknowledgement amongst many of the respondents that more had to be done to mitigate against the issues impacting the reliability of the SRN, however many were also accepting of the limitations of the road network and were realistic about the scale and scope of future road-based investment across the area.

Several respondents commended the improvements made in recent decades to dual key roads (predominantly the A30 Bodmin Bypass and the A382 road widening corridor improvements) which has helped to improve strategic journey times and ease congestion around urban conurbations. This is particularly pertinent for those operators trying to access industry along the south coast of Devon, such as Paignton and Plymouth.

Despite this, several organisations commented on the need for further improvements and increased junction and road capacity throughout parts of the SRN. Targeted areas include single lane sections of the A30 (between Chiverton Cross and Carland Cross) and the A38 (between Saltash and Liskeard) which are prone to congestion, particularly during peak periods.

In terms of mitigating the impacts of network resilience and seasonal capacity constraints, many respondents suggested that better forward planning is required in terms of congestion hotspots. On a smaller scale, the need for improved insight into planned roadworks and road closures, including the availability of real time information on road to respond accordingly to delays and congestion, was a regular talking point amongst respondents. This would enable better routing and timing of consignments and the communication of scheduling down to customers and supply chains.

For the Western Gateway region, possible mitigations included an 'education' programme by ferry operators to warn unfamiliar drivers off all but the main routes in Dorset, as well as working with Satellite Navigation System companies to ensure that specific

HGV models are programmed with the correct and most up-to-date information on appropriate routes for HGV traffic across Dorset. The Dorset Local Transport Plan 3 includes a Freight Strategy which includes a freight map showing advisory routes and a Freight Action Plan. However, these have not been updated since 2017.

Additionally, the opportunity for retiming journeys and deliveries was a popular mitigation technique. For example, port traffic could look to load outside of the 'shoulders of the day' to avoid the peak rush periods. Town centres such as Poole have also retimed deliveries along the high street, particularly where roads have been closed between 10am and 10pm as part of the Poole Quay Traffic Regulation Order (TRO). This also enables mitigations to be to avoid rush hour periods. This also links to remarks made by several councils who were keen to support out of hour and off-peak deliveries, and quiet deliveries where appropriate, to mitigate against congestion. However, it was pointed out that some deliveries, such as customer deliveries to homes, could not be made at night.

In a similar way to Peninsula, many participants in the Western Gateway region welcomed recent improvements to key routes throughout parts of the SRN, however also noted other key issues with other roads and links in the region. Key examples included the M49 junction at Avonmouth to allow the motorway to connect to the nearby distribution park as well as local road issues such as local road infrastructure around Bournemouth (A338 and then onto M27 and M4) as well as the A350 in Dorset and A354 around Weymouth and Portland. Away from ports, the A338 from Swindon to Salisbury is a primary route but is unsuitable for HGVs in many sections.

10.3 Urban and Last Mile Delivery Issues

10.3.1 Last Mile Delivery Access

One of the main challenges raised in relation to urban and last mile delivery issues centred on port accessibility. Some port operators raised concerns about the overall efficiency of the local road network, and that without the effective funding of maintenance and upgrading of local roads, freight is often held up within a mile of leaving/arriving at the port. Furthermore, ports are often accessed via small narrow roads which are not suitable for large, bulky freight traffic. This is particularly of concern in and around some of the smaller ports in Cornwall especially where there is the presence of listed buildings and justified concerns about damage to the properties.

This is also the case in Western Gateway. Portland, in particular, is affected by congestion along the causeway adjacent to Chesil Beach into the port and congestion on local roads is caused by parked cars and supermarket deliveries blocking roads. Other town centres, such as Cheltenham and Stroud, also suffer from poor accessibility and make last mile logistics very difficult to undertake efficiently.

The issue of increasing on-site capacity of ports to hold freight deliveries (specifically at Plymouth and Falmouth) and the impact that maximising port space will have upon freight movements was regularly discussed by the respondents. A lack of capacity, as highlighted by many of the respondents, leads to excessive queueing on to main roads and subsequent delays for onward travel, again ultimately impacting upon operational efficiency.

Moreover, the penetration of large, congested urban areas by large freight vehicles is a concern to many of the respondents. This is particularly an issue during AM and PM peaks, whereby traffic delays are most likely to occur. This could be attributed to several factors, including routing behaviour (for example Plymouth ports are accessed via the city centre as well as Portland and Poole), vehicle type (HGVs require certain width clearances and therefore the routes in which they can travel are dictated) and the implications of roadworks and subsequent delays and diversions. One respondent suggested that this is further compounded by the introduction of Low Emission Zones in several inner-city locations.

In the Western Gateway region, level crossings were a key issue for last mile deliveries, with level crossings along the Severn Beach line near Avonmouth affecting journey time reliability, for example with waste travelling to the SUEZ energy recovery centre. Concerns were raised in particular whether higher frequency of service along this line in the future would potentially make this issue worse. Concerns were also voiced regarding the level crossing in Poole Town centre which is cited as causing empty shops as well as low usage of current shops on the high street as the high frequency of trains is acting as a 'barrier' within the city centre with people having to wait a significant time for trains to pass, especially if they are unable to use the footbridge. Suggestions have been made that the station could be moved to this crossing site as a potential solution. There is also worry about the impact of increased freight trains running on the line if Poole port is reconnected.

Cycle logistics was cited as a potential solution to some of these last mile delivery issues, however some stakeholders expressed concerns about cycle safety on smaller roads, particularly due to a lack of dual carriageways. Further to this, some local authorities noted that they are rolling out e-cargo bikes for last mile deliveries, however there are barriers to businesses adopting these and considerations need to be made such as impacts of loading and unloading on the streets. In conjunction with this, pedestrianisation could be considered but impacts on deliveries and accessing premises may be an issue.

10.3.2 Rurality and Remoteness

Rurality and remoteness were two topics which were raised frequently by the respondents when discussing last mile delivery issues. Some roads in rural areas of the Peninsula are too narrow for larger freight vehicles, often preventing delivery access and increasing the risk of accidents (this is particularly prevalent during the summer when levels of tourism and traffic volumes in the Peninsula are much higher). This issue is further compounded by overgrown, poorly maintained vegetation which often impedes the vision of drivers and requires smaller vans to deliver smaller consignments.

As towns are net consumers of goods and rural areas, covering large swathes of the Peninsula, are net producers of goods (predominantly farming and agriculture), there was a general acceptance and acknowledgement that there may be a greater flow of goods leaving the Peninsula than arriving. Furthermore, the relocation of many warehouses and distribution units from along the M5 route to the Midlands increases remoteness and reduces self-sufficiency of the South West. All these issues have considerable implications for freight operators, whilst public authorities, understandably, were concerned about forgetting rural community needs and aspirations within the broader discussion on freight related issues and opportunities.

In terms of remoteness, areas of western Cornwall, the Isles of Scilly and North Devon are locations within the Peninsula that suffer from a lack of accessibility - many multinational supermarkets have even gone as far as removing the Isles of Scilly from their supply chain due to their extreme remoteness. Amongst the respondents, there was a general resignation that, without unrealistic and illogical infrastructure improvements, access to these rural areas will always be a challenge.

> ‘There is no direct, strategic access to north Devon. Routing to this area has and always will be extremely challenging’
>
> **Newman Haulage (South West based haulier)**

For the Western Gateway region, the issue of rurality was similarly linked to route access but also exacerbated by issues linked to routing. For example, Wiltshire’s rural nature was described as creating access issues such as inappropriate route choice or disregard for local restrictions. The Forest of Dean was also described as difficult to access, with talk of a third crossing from Lydney to Sharpness to help provide better connectivity and alternative routes via the Severn Estuary. This links back to the general issue of ensuring appropriate HGV routes are known and available, especially in rural areas, as well as ensuring that suitable vehicles are used that can fit down narrow routes where no suitable alternatives are available.

The need to access rural business locations with insufficient infrastructure was also cited as an issue, linking for example to farm deliveries or business premises located away from major trunk routes. Some respondents explicitly noted the need to consider infrastructure requirements for longer semi-trailers and ensuring that rural infrastructure can cater as much as possible to these larger vehicles. This will also be important when considering locations for terminals or distribution centres that are often located away from major urban conurbations.

More generally, respondents noted the need for the strategy in general not to just focus on the urban areas but also include rural needs which is especially important due to the predominantly rural nature of the south west overall. Examples here for the food sector include the A368 routing via Blagdon and the A388 via the Ginsters plant at Callington which are both important freight routes for major freight generators.

10.3.3 Consolidation

The term ‘consolidation’ was used several times in multiple interviews and workshop discussions as an aspired component of the emerging Freight Strategy. Despite its many variations and limitations, which were acknowledged by stakeholders, there was a particular desire to explore its role in reducing HGV access within sensitive urban contexts. This included scoping what would constitute a successful scheme; whether a mandatory, voluntary or shared facility would be conducive to implement, depending on local interest and funding availability and whether urban centres, namely Exeter, could be pilot locations.

Equally, pack stations and consolidation points were raised in relation to overcoming the challenge posed to FOCs when navigating rural constrained road networks, alongside minimising ‘failed deliveries’. However, limited data and research exists to help define the problem statements and demand for targeted interventions.

The extent of ‘informal’ consolidation and groupage taking place is an interesting development that may be more commonplace than is reflected in local data discourse, whilst offering a potential model for future freight efficiency and optimisation. Using Newman Haulage as a named example, agreements have been brokered to deliver the ‘last mile’ for shipments bound for the South West with freight having originated in the Midlands and being consolidated at their site. This has afforded some diversification and provided additional revenue for delivering non-time sensitive consignments whilst reducing journey times and improving turnaround periods for partner logistics companies. As previously discussed, the relocation of many warehouses and distribution units from along the M5 route to the Midlands will reduce the facilities that enable efficient consolidation processes to happen and inhibit the ‘joined-up’ thinking that is required.

For the Western Gateway region consolidation was a subject raised by a number of stakeholders, particularly to reduce the number of freight related vehicles. There was general support for consolidation, however an issue was raised in the difficultly of schemes being financially viable and this was cited as a barrier to schemes being successful, as well as a lack of current facilities in a number of counties.

Questions were also raised as to how 'big' a city needs to be for consolidation to be viable. This links to concerns raised about the viability of consolidation centres for rural and dispersed populations, such as those rural areas within Dorset, and more densely populated and larger areas were cited as being more suitable such as Dorchester, Weymouth and the Bournemouth, Christchurch and Poole region. However, lack of investigation into consolidation centres to date was given as a barrier to date with regards to lack of progress with these. These concerns were also echoed by other councils during the Western Gateway stakeholder workshop.

DHL were cited as running consolidation pilots with electric vehicles in and out of Bristol City Centre, with interest from businesses in the area regarding consolidation being prevalent. There was a desire to work with Western Gateway STB to consider freight planning including consolidation across a wider region. Other stakeholders, such as the University of the West of England also noted that local consolidation centres are being considered.

10.3.4 Groupage / Load Sharing/Backloading

On the subject of groupage and load sharing, there appeared to be some disparity between the potential to reduce empty running and maximise vehicle payloads and the realities of optimising vehicle capacity. Whilst there are aspirations to utilise technology platforms to consolidate multiple consignments (such as a web-based platform), from various suppliers, into fewer vehicles, the poor value for money offered through this medium (when routing adds time), alongside the potential legislative constraints, do not make scaling up financially attractive for fleet operators.

Furthermore, data transparency using brokering platforms, may reveal the extent of spare running capacity and other sensitive information which could potentially compromise a haulier's competitive advantage (which ties into a broader challenge around freight data and coverage). Feedback from the haulage industry suggested backloading/load sharing would be most appropriate for the Pallet Network; where operational margins are tight and there is some form of standardisation for the commodities/loads being moved.

A linked issue, referenced in the stakeholder workshop, was also the extent to which foreign operators could undercut prices and offer relatively lower consignment costs; especially if the cabotage system was being abused. A distinction was made during the workshop between the different profit margins set by European hauliers relative to their UK counterparts which makes the former more cost effective and competitive in comparison. The suggestion from a local haulier was that the UK industry experiences far more stringent regulations through Traffic Commissioners compared to Europe; but that standards should be raised across the latter by engaging representatives in the discussion.

'Rules that apply to the rest of the country don't apply in this area'

Haulier based in the South West

On a broader, macroeconomic scale, the disproportionate number of SMEs stationed across the Peninsula Transport area, particularly Cornwall, have limited freight volume requirements; thereby placing the impetus on hauliers to consolidate loads from numerous sources to reduce sub optimal running. All the issues discussed above have the knock-on effect of causing disruption to journey times and supply chains, ultimately leading to significant financial implications for the organisations.

For the Western Gateway region, issues with load sharing focused more around town and city centre deliveries and considering groupage as an option to combat last-mile delivery issues. One issue is that it would require buy-in from the local businesses to facilitate this as it may mean changing suppliers or delivery times, and therefore cost and wider commercial issues would need to be considered as part of any plans.

Concerns were also voiced that many local businesses require perishable goods and any with load sharing would need to align with time critical requirements. In particular, the food industry in the South West region has a high dependency on road freight and products have very short and limited shelf life and often of high value, such as dairy. If multiple businesses used the same supplier then it was suggested that groupage may be easier to implement, but this is not known at present and there may be issues with gathering this data as businesses may find this commercially sensitive information.

Nonetheless, encouraging backloads and reducing empty running was seen as being of vital importance and that there should be an aim to look at filling every vehicle for every single journey. Cloud based backloading technology, load sharing sites and services, are much more prevalent and used more commonly by larger hauliers. A suggestion was made that signposting services for smaller companies may be helpful. Potential collaboration between different haulage companies to increase efficiencies, and the possibility for an exchange mechanism, was also raised as part of the engagement.

10.3.5 Re-routing

There was a general trend towards promoting the use of rail or coastal shipping and stimulating mode shift away from road freight movements for longer distance haulage but a notable lack of interchange infrastructure to facilitate this call to action. Reflecting on feedback from stakeholders engaged in the emerging Freight Strategy for Western Gateway, the STB abutting the Peninsula Transport study area, re-timing could be applicable to road freight serving consolidation centres and rail stations; with the latter encompassing the running of late night mixed use rolling stock carrying passengers and smaller parcel and mail consignments (particularly applicable where shift work patterns are prominent).

Other issues for the Western Gateway region include overcoming local restrictions on access routes to the SRN which have been born from residents' complaints. This reduces alternative routes and subsequently impacts route choice . Related to this, communities that are located along diversionary routes are cited as being negatively impacted where these are used. This is also linked to a risk to the programme of scheme delivery and associated costs, especially if a scheme must be halted with very short notice if a diversion route is not available.

A number of councils in the Western Gateway region have also reported that they either monitor freight routes both inside and outside of their region or have previously commissioned online freight routing map system which provided routing plans for HGVs with suitable and efficient routes. However, value for money and impact was described as questionable and future technologies eventually superseded its use. Another local authority noted that drivers used to have a 'route atlas' but not anymore, presenting an issue regarding how documents and systems are kept up to date so they can be used most effectively.

10.4 Types of Vehicle

The extent of older, more polluting vehicles entering the market and being 'cascaded' down to the South West from other areas, was raised as a valid concern for stemming efforts to decarbonise the road haulage industry. This is with particular reference to the re-allocation delivery fleets away from areas that have or will be implementing Clean Air Zones (CAZs) such as Bristol and Bath. This is especially relevant concurrently with the rise in LGVs (vans) and the acceleration of e-commerce, outsourcing and servicing trends. There was limited acknowledgement of this scenario compared to the broader requests to ensure sustainable urban freight management (and modes) were being incorporated into the emerging Freight Strategy; primarily in response to shifts in consumer behaviours (e.g. the next day economy).

As agriculture is a key industry sector, concerns were raised during the stakeholder engagement process about the enforcement of road haulage and vehicle use legislation for the shipment of goods around Devon and Cornwall. Reference was made to the use of farming equipment, namely tractors and trailers, for transporting goods for prolonged periods on trunk roads; both in terms of road safety and journey reliability (congestion and backlogs).

For the Western Gateway region, the agricultural sector was also explored, in particular the need for vehicles to go down farm tracks and narrow roads to farm premises and the requirement for appropriate freight vehicles for this terrain. This links back to the wider point about the rural nature of the South West and ensuring that types of vehicles are appropriate for these rural deliveries, such as narrow trucks for country lanes or vehicles with enough clearance for farm tracks as noted by one of the agricultural firms interviewed.

Another key theme across the stakeholder interviews, questionnaires and the workshop was reducing the number of traditional diesel and petrol vehicles on roads within the region and increasing the proportion of new energy vehicles, especially electric and hydrogen. However, there were concerns raised that there is a risk of excluding other fuel types, particularly as the sector is continually evolving and many alternative fuel technologies have yet to reach commercial maturity. Consideration of other fuel types such as battery power were also mentioned by stakeholders as power sources for different types of vehicles, both now and in the future.

There was also significant reference to alternative fuels for non-road modes. One example is shipping, where the prospect of enhancing mode shift to coastal shipping is a valuable step in terms of reducing congestion and taking pressure off road networks, while supporting UK emissions targets. Ships were cited as emitting significantly less CO_2/tonne-km than any other mode of freight transport. For rail, more efficient railway locomotives, or long-term use of electric or bi-mode locomotives were both cited by stakeholders.

10.5 Alternative Fuels

10.5.1 Decarbonisation and Transition to Alternative Fuels

There is a growing interest amongst many of the respondents in how their organisation can pursue more environmentally friendly practices and reduce their greenhouse gas emissions, in response to the climate emergency. These attitudes and changing perceptions are driven by the 2050 decarbonisation action plan. The decarbonisation agenda and the shift towards sustainable, 'environmentally friendly' freight practices were broadly accepted by the freight industry but what this should constitute and how this

should be achieved attracted different responses. Many respondents expressed an interest in supporting the transition to an electric vehicle fleet, however this will prove to be easier and more viable for smaller operators with vans/LGVs, as opposed to larger operators with HGVs, due to various practical implications.

Inevitably discussions around the use of alternative fuels brought into question the availability of infrastructure and resilience of the local energy network to cater for future demand. Whilst promising discussions and interest in hydrogen and biofuels have been facilitated through the stakeholder engagement process and public authorities, notably Plymouth City Council, have highlighted operational case studies applied to passenger transport re-fleeting, the freight industry requires 'reassurances' that alternative fuels can be easily adopted. A distinction was also made between different size operators, SMEs versus larger multinationals; the latter being able to afford larger capital outlays and greater margins of risk comparatively. This is relevant for both haulage and urban logistics.

However, as implied in the workshop breakout discussions covering the themes of innovation, decarbonisation and skills, there is a current value-action gap; where the prospect of future innovation does not match the reality of delivering practical schemes on the ground across the study area. There are emerging shoots of interest and progress on supporting alternative fuels, namely by Bennamann Energy, a renewable energy company based in Cornwall who have been developing a suite of technology that can capture, process, store, distribute and consume fugitive biomethane with a view to supplying the haulage industry (HGVs) with limited vehicle modifications.

However, as previously mentioned, the absence of infrastructure, in this instance for Liquid Natural Gas (LNG) and Compressed Natural Gas (CNG) hampers the 'visibility' of 'local' net zero fuel which can be readily available short term. The potential market opportunity (for consumption and export outside the South West) was heavily referenced, alongside the scope that this avenue could present as a revenue stream for the agricultural sector; a mainstay of the local economy. The challenge of a 'chicken and egg' scenario remains; with the demand for alternative fuels potentially growing exponentially with the right infrastructure in place.

Questions were raised as to whether vehicle fleet decarbonisation was being effectively targeted at businesses and the private sector (in contrast to the drive for public authorities to take on the role of trailblazers). Whilst technology was viewed as a quick win in some instances for journey/vehicle optimisation (e.g. in cab telematics), this must be complemented by organisational and behaviour change programmes; aiming to raise awareness and the opportunities presented by decarbonisation. This also raises the same point regarding public investment in energy/fuel infrastructure and authorities taking on a key facilitator role and options for collaboration across industry to support a green transition across the road haulage sector.

For the Western Gateway region, the theme of alternative fuels was covered in a variety of ways by stakeholders. One stakeholder noted that whilst a move to more widespread electric and hydrogen power systems will help to improve air quality and reduce noise pollution, however they did express concerns that this is unlikely to reduce congestion.

Other stakeholders noted alternative fuel trials that they are aware of. For example, SevernNet referenced that there are large volumes of methane from Bristol wastewater plant and anaerobic digestion and that there is experimenting and trials going on as to how biomethane can be used to support 44 tonne trucks in the future. They also noted that there are multiple gas CNG fuelling stations under construction and lots of hauliers looking to get fleets to run on CNG. Other stakeholders noted how their own vehicles are currently using alternative fuels, for example University of the West of England noted how most of the campus vehicles are currently battery electric.

Similar to the Peninsula region, the absence of charging infrastructure was cited as being a key issue in the Western Gateway region, however this mainly focused around electric and hydrogen infrastructure. For hydrogen in particular, the need to help end users to acquire and maintain hydrogen vehicles as well as new business models to make hydrogen fuel affordable for transportation was raised. More generally, concerns were raised that for larger national hauliers there is a need to consider length of journey and frequency, and if there is not so much volume going down to the south west, and a lack of infrastructure, then use of alternatively vehicles is less likely to be worthwhile in this region.

A number of stakeholders, particularly at the workshop, expressed concerns about the high initial cost of electric trucks as well as the comparatively small range, meaning they will have to charge regularly and decrease flexibility in operations. There was also concern about the increased weight of these vehicles which was cited as increasing brake particulates and tyre wear as well as potholes on the road.

Conversely, it was noted that the South West has several abundant sources for generation of green energy, such as tidal, solar and hydro-electric power and this offers an opportunity for the region to get their own self-sufficient hubs set up. This means that the South West could be a key 'region of potential' for alternative fuels with these resources.

10.5.2 Issues facing the Road Haulage sector

According to many respondents, the largest barrier to decarbonisation, specifically for road hauliers, is the lack of specific refuelling infrastructure for Electric, Hydrogen and Biomethane fuel types throughout the Peninsula and the wider region. This, coupled with

the limited range and lack of affordability associated with renewable technologies, presents a real obstacle to change. These sentiments likely echo a wider industry challenge. It was made clear by the respondents that in order to address this issue, collaborative working is required amongst regional and local organisations, particularly along strategic road networks, to ensure that long distance freight operations will be able to run smoothly in the future.

Another issue facing many of the hauliers that we spoke to is the changes to 'red diesel' tax' with effect from April 2022 following changes announced by the Chancellor the Exchequer in the April 2020 budget. 'Red diesel' is a dyed fuel used for agricultural or construction vehicles and carries a significantly reduced tax compared to undyed fuels. The tax regulations for 'red diesel' are changing from next April to restrict its use to a smaller range of uses than previously permitted including from a goods movement perspective for off road use in Agriculture, Forestry, Horticulture, Fish Farming, Movement by vehicles on rail tracks, commercial boats and fairgrounds and circus industry. This proposed change will see the duty rise from 11.4p / litre to 57.95p in April 2022 (baring any change in the meantime).

One of the largest sectors to be impacted is the construction sector which already has relatively slim profit margins. Equipment such as fridge motors and donkey engines on vehicles will be particularly affected. These changes will drive the use towards alternatives such as electric units. In some instances, such as ports at Falmouth and Plymouth, were taking a proactive approach and exploring electric powered surface transport and goods handling equipment and scoping the potential for onsite electricity generation.

For the Western Gateway region, one of the key issues facing the sector that was cited has been the impacts of CAZs and Low Emission Zones (LEZs) which has affected stakeholders in a number of ways. One stakeholder noted that measures were being introduced in a very short amount of time, with people having bought Euro 5 lorries, which were expensive at the time before the price dropped, and Euro 6 lorries then became very expensive. Hauliers were also noted as finding it hard to obtain delivery times for new vehicles, and therefore when trying to upgrade vehicles and fleets for compliance there are large delays to delivery from manufacturers. CAZs have also been cited as creating issues with the diversion of traffic, meaning vehicles are now having to travel through other areas and increasing congestion and moving the problems elsewhere.

10.5.3 Government Funding

There is a desire amongst many of the respondents to see funding (grants and subsidies) available through Peninsula Transport and DfT to support the transition to electric vehicle fleets, but there is also the recognition that this may only apply to certain types of vehicle classes. Thus far, the absence of any significant funding to support this transition, has been concerning for the road freight industry. A few of the respondents, particularly smaller haulage organisations, were resigned to the fact that without significant financial intervention from central government and industry partners, the transition would not be possible anytime soon because of the sheer upfront costs involved.

For the Western Gateway region, there was a key emphasis on a strategic approach alongside STBs which will help influence Government and provide funding opportunities for freight transport, as well as highlighting to central government priority areas for improvement.

Additionally, clearer government policy on hydrogen would be welcomed by stakeholders, with more funding and financial incentives helping to increase green hydrogen production and related infrastructure. This would help end users to acquire and maintain hydrogen vehicles as well as new business models to make hydrogen fuel affordable for transportation. This also links to electric charging, as it is not clear how the government will invest in charging infrastructure for commercial vehicles. Whilst there is infrastructure in some locations, stakeholders noted that most is geared towards cars and not for commercial vehicles, and therefore information from the government on charging infrastructure targeted to commercial vehicles would be welcomed.

Further promotion of specific financial schemes such as Mode Shift Revenue Support (MSRS) was also welcomed by some stakeholders and is seen as a key tool to increase prevalence of mode shift away from road to other modes. However, for the maritime sector, it was noted that whilst mode-shift grants do exist to encourage this move to coastal transport they are widely regarded as not a significant enough incentive to encourage behaviour change amongst businesses, and this is an issue which needs to be addressed. Subsidies for modal shift for rail freight are widely regarded to be good, so bringing coastal grants in line here would be valued.

10.5.4 End Users

There were several methods discussed by respondents on what freight shippers can do to encourage consumers to shop as sustainably as possible. These methods included:

- Improved advertising on food products to include the amount of CO_2 emitted during the production and transportation of the goods.
- Increased education of consumers about sustainable food choices
- Improved use of technology

Linking to this is the responsibility and accountability of the boards and the shareholders of large supermarkets. There is a growing desire amongst many consumers that their goods are sourced responsibly and in an environmentally friendly manner. It is now in the interest of the supermarket boards to prioritise reducing carbon emissions throughout the supply chain. This is another factor that can help to accelerate the transition to cleaner fuels.

For the Western Gateway region, the themes of end users was more closely related to that of industry image, and if end users are able to see operators and companies engaging in sustainable practices then this is something end users may adopt as well. This can also have links to the wider public seeing the freight industry in a more positive light and may have knock-on effects with issues such as driver shortage and encouraging more people, who may be customers, to enter the industry more generally.

10.6 Skills, Training and Industry Image

10.6.1 The Development and Diversification of the Cornish Economy

Amongst the respondents, there was a contrast in opinions in relation to the perceived impact of Cornwall's rural and peripheral geography upon the local economy and the labour market. Many respondents were resigned to the fact that the access to a young, skilled, well-educated labour force would always be a challenge due the isolated nature of the county's geography. As a result, the local economy would always centre around traditional low-income, low-skilled employment opportunities such as farming, agriculture and seasonal tourism, therefore the economy would struggle to diversify.

However, other respondents were more optimistic. Several stakeholders believed that, given improved levels of training and education offered by the county's educational institutions, Cornwall has the potential to offer a wealth of innovative, modern, highly skilled employment sectors, such as engineering (due to the county's wealth of natural resources) and the green economy. The development and success of these sectors would subsequently enable Cornwall to attract and retain the young, well-educated workforce.

10.6.2 Driver Shortages

As discussed by most of the respondents, one of the largest challenges facing the freight and logistics sector is the training, retainment and recruitment of new drivers. This is a well-renowned, international issue in Western Europe which has much to do with more retiring than wanting to join the industry. According to the RHA back in 2016 there was a shortage of 45,000 drivers and this has got steadily worse. Reasons given as to why recruitment into the sector is difficult include low pay, unsociable hours and stress, stricter medical requirements, tougher validation like the need for CPC training and a lack of respect for the industry as a whole. Part of the driver shortage over the last 10 years was partially filled by recruiting drivers from Eastern Europe but due to economic and political reasons some of these drivers have returned home to countries like Poland and Romania. The issue has intensified in recent years due to a range of factors which are difficult to quantify but include:

- Implications of leaving the European Union, the relative exchange rate and the repercussions this has had on the workforce size and skill base. This happened at a similar time to travel restrictions due to COVID-19 and hence is difficult to disaggregate from EU exit. However a RHA survey of hauliers with 615 responses in 2021 gave the UK leaving the EU as the top answer along with retirement with 58 per cent of responses quoting these are contributory factors.
  Source(https://www.bbc.co.uk/news/57810729)
- Changes to insurance premiums for newly qualified drivers and the cost implications for businesses (particularly SMEs)
- A backlog of drivers waiting to take commercial vehicle tests due to the implications of the COVID-19 pandemic.
- The perception of the industry; combining both the interest, awareness and role of freight transport and the quality of life and benefits from being employed compared to working in a supermarket or warehouse.
- The lack of investment in welfare facilities at service stations throughout the country. According to many respondents, the availability of healthy, nutritious food at service stations is either non-existent or very expensive. Improved welfare facilities are deemed essential to entice younger audiences into the freight and logistics industry.

The impact of driver shortages was explicitly discussed by one SME – they have a small fleet of seven HGVs but have struggled find the drivers to fill all their vehicles. Many respondents argued that the challenges associated with the training, retainment and recruitment of new drivers, coupled with the drive for more sustainable freight practises, may accelerate the necessitated modal shift transition to rail and coastal shipping and increase their commercial viability. In theory this should be the case, but in practise it is often a different story.

> ‘Labour shortages are a huge challenge and exist throughout the country.’
>
> **RHA (Trade association that represents hauliers)**

On a separate, related point, the opportunity for increasing rail freight movements and aspirations for boosting rail freight terminals and interchanges, was seen to be part of the solution to shift the demand for long distance haulage drivers towards local employment and satisfying burgeoning last mile and urban logistics.

For the Western Gateway region, similar themes were discussed in relation to driver shortages. Other factors that were cited included the expense of conducting driver training, despite government grants to facilitate additional training.

10.6.3 Industry Image

Closely aligned with the driver shortage and expressed on many occasions with industry representatives is the image and perception of the industry. The understated nature of freight and logistics often means that the industry is not prioritised in regional and national transport policy compared with other sectors, and therefore suffers from poor levels of investment. This leads to knock on impacts, such as:

- The low value perceptions of driving as a profession which translates directly into the quality and availability of driver welfare facilities.
- The lack of teaching and knowledge on the subject; both as a recognised trade but also in terms of fulfilling everyday tasks to keep society functioning.
- The recent impetus on charging higher emission vehicles or restricting access to HGVs and scapegoating for concerns around air quality and emissions.
- An ageing workforce

To combat this, a range of interventions are required, such as pay rises in line with multi-national companies (although ultimately this will be borne by the consumer), and investment in education about the benefits of the industry. One respondent discussed their proposed partnership with Cornwall College in an attempt to develop a driving academy to improve industry image and simply convey the critical role of road haulage to maintaining standards of living.

A few respondents commented on the missed opportunity to highlight and showcase the freight and logistics sector better, as a result of the 'key worker' label during the COVID-19 pandemic. There was a feeling that this should be led by the industry bodies but that a role could be played by Peninsula Transport to raise awareness and promote the virtues of the industry. In one case, a fleet operator had taken up the intervention of developing a driving school and raising awareness of the industry through schools and further education colleges.

For responses from the Western Gateway region, there were a number of issues raised surrounding welfare facilities for HGV drivers and how these can be improved to be safer, more secure and less expensive. Closely linked to other issues for HGV drivers such as poor hours and working conditions, the provision of appropriate facilities is important to improve the image of the haulage industry and make it more desirable overall. This is particularly important for drivers who have long journeys but have poor facilities and very little parking.

Throughout the stakeholder engagement, it was also considered that there needs to be a greater recognition of the importance of freight, and especially recognising the importance of and our reliance upon, freight and Ports accepted as essential multimodal hubs. This can be recognised in its own right, but also linked to the positive role the industry has had during the COVID-19 pandemic as mentioned previously in this section.

10.7 Local Supply Chains & Procurement Practices

The supply chain disruptions generated by the COVID-19 pandemic and the repercussions on road freight customs procedures for goods moving across borders, has triggered anchor institutions, such as public authorities, and multinational organisations, to reflect on procurement processes and supply chain efficiencies. The broader decarbonisation agenda and the opportunity presented for stimulating local economic prosperity through local sourcing, have also fuelled policy changes which look set to continue longer term.

This situation is particularly applicable in Plymouth; whereby the City Council have embarked on delivering Resurgum, a COVID-19 Economic Recovery Plan comprising of six key pillars, including Spend 4 Plymouth. This programme, or philosophy, centred around increasing local spend by 10 per cent with local suppliers, is believed to have an indirect benefit of reducing freight miles and supporting local employment in freight and logistics (and affiliated sectors). The opportunity this presents for joint and shared procurement practices and the local economy has been broadly acknowledged.

Similarly, based on insights from Plymouth Manufacturing Group, renowned organisations, including Babcock, are also looking to localise supply chains as part of a broader recalibration of operations. Whilst their commitments are unclear, the city's freeport designation has also shifted the focus towards the consolidation of operational activities, such as storage, to unlock the benefits of co-location. The clustering of businesses, innovation and supply chain activities, commonly known as economic agglomeration, was implicit in conversations with stakeholders; from port authorities to public authorities, who were already pursuing this agenda.

Elsewhere, sustainable procurement practices were fleetingly referenced. Cornwall County Council (CCC) were advocating a 'Green Fleet Policy' as part of their decarbonisation agenda which was being reflected in the latest revision to the council

procurement policy as issued in April 2021[104] and in the council climate change emergency action plan issued in 2019 where the transition of Cornwall Council/ CORMAC's fleet will be accelerated to ultra-low emissions vehicles by 2030.[105]

Within the Western Gateway region, one of the key issues considered was the need to tackle the increase in LGVs attributed to the increase online shopping and next day delivery services. Consideration needs to be given to how this can be dealt with in both residential and business areas moving forward, especially as these trends are set to continue going forward. Similarly, at a local level, local authorities expressed the need to keep freight on the key routes through good management of movements at a local level. Concerns were raised that there may be a conflict from bus strategies going forward, so effective monitoring and evaluation will be essential to help justify longer term actions.

Through the engagement for the Western Gateway region, National Highways noted how, via its Designated Funds, looks to develop packages of works that will improve safety, capacity and reduce congestion. This includes mitigating noise hotspots via the use of quieter surfacing or barriers and working with local authorities and other key stakeholders in air quality and cultural heritage. This can offer an example of collaboration to develop and improve local supply chain practices and align work packages with local priorities going forward.

10.8 Freight Movement Insight

Several respondents stated that a better understanding of the daily freight flows that are moving throughout the Peninsula is required to improve the efficiency of freight and logistics operations; either in the form of a universal data hub or web-based platform. This will provide greater information regarding the volume, type of load, and mode of transport used to transport goods throughout the Peninsula and ultimately provide the information for local authorities and organisations to make more informed decisions for the potential for modal shift and consolidation. It will also help to provide some 'quick wins', ensuring that local business will get on board and fully engaged with the Freight Strategy and any further engagement efforts.

National Highways considers that freight movement insight is particularly important to enable investment to be targeted efficiently and effectively. This could be an important role for the STBs. National Highways are also supportive of collaborative partnerships to achieve meaningful and effective solutions and confirmed their keenness and commitment to be involved in the implementation of the Strategy.

There was a general appreciation of the accelerated structural shift in freight and logistics trends taking place in the last 18 months. A number of forces have come together including the UK's decision to leave the European Union on trade flows and global shipping, accelerating the UK driver shortage, consequential changing supply chain patterns and disruptions to supply chains. More specifically, the simultaneous decline of the high street and rise in online retailing and changing consumer expectations, were driving the movement of parcels and smaller consignments over shorter lead times; serving both urban and rural areas.

With specific regard to the types of commodities being moved; feedback suggested that agricultural produce, ranging from animal feed and manure (slurry) to perishable foodstuffs, were likely to be more prominent alongside retail and consumer goods travelling over both strategic corridors (SRN) and across urban centres. Aggregate loads carried by rigid and / or articulated lorries, were logically present around quarries, processing plants (and by their location – ports) whilst moving up and down the SRN.

For the Western Gateway region, a number of respondents linked having access to high-quality freight data with insights into movements within the industry and therefore could provide a more granular understanding of real world industry operations. One respondent noted how insights into how goods are moving can help to find technical solutions, particularly for last mile deliveries, that can be scaled up for all sectors. These can include postal deliveries, health to retail deliveries, perishables and white goods deliveries.

Stakeholders also noted a variety of trials currently taking place within the region, which will all help to provide an understanding of how the sector may develop going forward and give an insight into which new technologies may be more prevalent going forward. This reinforces the importance of monitoring these trials going forward and investing in pilot projects.

One stakeholder also noted how they had seen a number of changes in automotive activity and how they have seen a change in how dealerships transport vehicles due to more people buying online. Insights such as these are particularly important to monitor to see whether they can be attributed to recent factors such as COVID-19, or whether they represent a longer-term shift.

10.9 Innovation

In an attempt to mitigate some of the challenges that have been discussed throughout this report, Falmouth Docks, in partnership with the LEP including Cornwall Council, has developed an enterprise zone to ring fence and protect vital infrastructural assets from

[104] Cornwall Council (2021) Responsible Procurement Policy and Framework. Available from: https://www.cornwall.gov.uk/media/hl3nnsad/responsible-procurement-policy.pdf
[105] Cornwall Council (2021) Climate Change Action Plan. Available from: https://www.cornwall.gov.uk/media/y5mctbyu/climate-change-action-plan.pdf

the development of housing and recreational facilities. This is with a view to safeguarding land for the expansion and development of port infrastructure going forward.

'Innovation' was otherwise rarely referenced as a term during the stakeholder engagement process; with much of the 'future gazing' pivoting around the application of existing technologies and better use of the planning system to support the freight industry. The opportunity to upskill and raise awareness of the local freight offer and coordinate industry aspirations with land use designations and strategic planning decisions was viewed favourably due to their practical applications. Although not 'innovative' in comparison to autonomous vehicles and drone technology (by comparison), they were interpreted as playing a more substantial role in developing a sustainable freight network that could bring economic, social and environmental benefits at scale.

The stakeholder workshop brought into question the role of autonomous vehicles and its application, such as platooning, but had not been investigated at any scale or with any potential use cases to reference. Automation and the prospect of mode shift away from road haulage would be resisted by companies whose livelihoods inevitably rely on the movement of goods by road and impinges on their respective market share across the region. The scope for exploring 'innovation' would likely originate within major conurbations and focusing in on urban logistics to respond quickly to changes in consumer behaviour and shifts towards online shopping.

The concept of innovation was also prominent in the stakeholder engagement process for the Western Gateway region. Some stakeholders referenced the Transport for London 2020 freight innovation challenge to tackle congestion and keep goods moving. This is a partnership arrangement with freight industry, Microsoft and the Social Tech Trust. It was suggested that Western Gateway and other STBs should look to a consistent approach to TfL's to work towards a national approach.

4G and 5G technologies were also discussed by multiple stakeholders who suggested a number of current practices involving these technologies. One stakeholder referenced the 5G pilot funded by the Department of Culture, Media and Sport (DCMS) which a number of ports including Avonmouth are involved in, looking at 5G to see how traffic flows can be managed. Bristol Port are also working with WECA and looking at how 5G can help distribution and port operations. Another stakeholder discussed the potential to link freight vehicles with traffic lights and reduce the need for stopping and starting. One example given was Dynniq GreenFlow: an in-vehicle service that allows vehicles to become 'connected' to traffic light infrastructure. This application can communicate via 4G or ITS-G5 to allow in-vehicle information services such as green light optimisation and soft priority information to be received.

Another stakeholder praised the improved driver visibility of refuse lorries but also expressed concerns that other lorries were not being technologically improved to the same standards, for example a lack of audible warnings for the driver when cyclists are near to the vehicle.

10.10 Data Requirements

The value of better quality data and data transparency was a perpetual theme presented by industry and public authority representatives to help inform commercial and policy decision making respectively. An example is the lack of knowledge of what freight movements are happening in an area and if more were known then better planning of roadworks and enhanced justification of road improvements could be done. Whether this could transpire as an open access hub or a shared resource available virtually or whether a platform could facilitate the sharing of best practice and wider performance indicators and benchmarking, was open for debate. However, the extent to which private companies are willing to share data, including on emissions, is unclear; although suggestions from the workshop hinted at the role retailers, manufacturers and businesses generally could play in better informing (and providing options) on carbon impact of delivery options/choices.

A number of public authorities also raised the opportunity to move towards decarbonisation of the freight industry and proactive discussions with members/councillors on policy and strategy formation. This would rely upon the provision of demonstrable evidence and robust datasets; which would also aid with building constructive relationships with the private sector and the freight industry.

For the Western Gateway region specifically, the main concerns expressed surrounded Hydrogen data, and in particular the need to know what the options are for more hydrogen HGVs and the required infrastructure and investments. This relates back more generally to emerging technologies more generally, and the requirement for sufficient data as a baseline from which to innovate going forward and hydrogen related studies currently going on in the Western Gateway region.

10.11 Partnerships

In general, the promotion of partnerships, through a Freight Steering Group (as an example), was viewed positively by both industry and public authorities; providing it could deliver focused, tangible outcomes and incorporated opportunities for more bespoke 1-2-1 engagements for relaying sensitive information. The feedback received hinted at the facilitation role of public authorities, both in terms of managing future engagement processes (or left to a third party) alongside a financial commitment, such as through providing an initial capital outlay for a broad range of facilities to leverage private sector engagement.

Having a more established link between the freight industry and local authorities was also viewed positively from the perspective of raising awareness of the role and importance of road freight and how to resolve possible tensions and future supply chain challenges that would directly impact on the cost of living (e.g. driver shortage and increase in food costs). As an STB, bringing together multiple local authorities and industry presents a unique opportunity to develop a coherent voice for change.

For the Western Gateway region, a number of stakeholders noted the importance of a joined up and collaborative approach to achieve freight goals. In particular, stakeholders reinforced the need for a coherent message to help pull different businesses together and expressed concern that it can be difficult to get everyone to push into the same direction. The need for more communication between Borough Councils and County Councils was also discussed, as well as a need to have people involved in the operational side of freight from hauliers involved in these partnerships.

Several stakeholders also noted the need for effective ongoing stakeholder engagement to build collective expertise on how to do things better going forward, and that ongoing engagement, possibly in the form of a regional freight forum and/or a steering group, is important moving forward. One stakeholder was supportive of how the Western Gateway STB is working with other STBs and noted that they would like this collaboration and communication to be extended further so that other bodies are involved such as operators, Network Rail and the Department for Transport to allow for a comprehensive strategic freight corridor.

Throughout the stakeholder engagement, several stakeholders gave examples of effective collaboration and partnerships that have been formed so far to achieve freight and transport-related goals. Examples included Swindon and Wiltshire Local Enterprise Partnership (LEP) who noted they are currently collaborating with four other LEPs to understand what is needed to increase the proportion of new energy vehicles – both gas and electric – on our roads. They are now in the process of starting a feasibility study examining commercial viability of a local green hydrogen production at a scale. They note how working with Local Enterprise Partnerships can help bring together local businesses and local authorities to identify challenges and opportunities and work together to maximise benefits and reduce threats.

However, there are issues of ensuring that partnerships remain strong going forward after being set up. One council noted how they used to have an active Freight Quality Partnership which met every 6 months, however this ceased in 2017/18. This demonstrates a need for collaboration and partnerships to be sustained to ensure they are effective as possible.

Inter-connected, strategic planning decisions and increased understanding of how investment in freight supports the whole transport network, including passengers

British Ports Association

10.12 Multimodal issues

There were a breadth of issues, challenges and opportunities discussed in relation to maritime, rail and air freight. Issues such as sustainable mode shift, capacity for increased rail freight and coastal shipping were highlighted on a regular basis by the respondents. The notion of ‘syncromodality’, the term used to describe the co-ordination of various freight modes in a coherent fashion, was mentioned alongside the future role of Mobility as a Service (MaaS) and Mobility Hubs; with limited substance to their application across the South West area.

One of the primary issues that was highlighted by several respondents is the lack of connectivity that enables freight to travel via rail. Many of these connectivity points have been removed over the past decade to optimise passenger services, however there is demand for them to be reinstated to increase freight volumes, particularly considering the decarbonisation agenda.

Rail connectivity will be a real ‘game changer’ in Falmouth

Falmouth Docks

For the Western Gateway region there was significant support from a number of stakeholders with regard to modal shift, particularly with rail and maritime. This was cited as being a key solution to the issues of congestion and emissions, with rail freight having real potential to grow in the coming years and coastal shipping being a critical part of the solution. Stakeholders also referenced the drop in passenger traffic due to COVID-19, with freight trains potentially being able to absorb the spare capacity, whilst helping reduce CO_2 emissions by moving some of the freight off our roads and aiding Clean Growth and Net Zero plans.

New revenue streams were also discussed in relation to expanding the market share of rail freight which included supporting the burgeoning construction industry and exploring how rail can facilitate smaller-scale deliveries. For maritime, discussion included potential new routes within the South West, for example the possibility for a new route connecting the region with Wales by sea (for

example Ilfracombe to Swansea) which could provide a key alternative to road. Additionally, the takeover of Appledore Shipyard by Harland & Wolff offers further opportunities for shipbuilding and maintenance and growing maritime activity within the South West.

The specific issues and opportunities captured through the stakeholder engagement were discussed under the sections relating to rail, aviation and ports and coastal shipping.

10.13 Summary

To conclude, a wide ranging stakeholder engagement was undertaken from May to August 2021 as part of the development of the evidence base and to develop a better understanding of the role they play, their opinions on the key challenges and potential opportunities moving forward for the development of the freight and logistics sector. The feedback obtained throughout the engagement process forms a vital component of the Freight Strategy and will help to inform future policy development moving forward. The process itself has highlighted a number of key issues and opportunities to help inform the development of interventions.

11. Freight Issues in the South West

This chapter brings together the emerging freight issues in the South West from a combination of the stakeholder engagement both direct and workshops, client officers and literature review sources.

11.1 Ports and Maritime

Suitable alternative to road freight	• Maritime freight is increasingly viewed as a viable alternative to road-based freight transport and long-distance haulage as part of efforts to decarbonise the freight industry and improve supply chain efficiency. Whilst the sector has the opportunity to explore and unlock new economic opportunities and investments through a focus on 'port centricity', there are challenges to these ambitions of stimulating mode shift away from road to maritime freight movements.
Changes to procedures and supply chain networks	• These challenges include the implications of leaving the European Union on customs procedures, globalised supply chains and workforce availability. The economic and social consequences of COVID-19 and the financial aftermath will continue to have repercussions on consumption habits, forecast demands and project timelines, with an absence of supply chain visibility making the optimisation of vessel capacity (road-sea shipping) difficult.
Poor freight data	• The lack of available and good-quality freight data that help indicate potential mode shift opportunities for coastal shipping to replace road haulage longer distance freight journeys is an issue. This has a knock-on effect on investment in equipment/handling requirements.
Suitable capacity to hold goods	• The availability, quality, appropriateness and capacity of the current provision of warehousing and storage facilities to host commodities at ports across the Peninsula Transport area is also a key challenge to address if maritime freight movements were anticipated to grow, and particularly if there are longer turnover periods at ports due to delays. These facilities are also necessary to consolidate existing markets (e.g. animal feed in Falmouth) and help diversify into other areas, so there is a clear need to futureproof and invest in provision, safeguard facilities and designate strategic land (sympathetic to local area) to cater for future forecast demand.
Lack of facilities	• The lack of deep-sea berths and alternative port-based connections - by rail – along with the growing forecast demand, are also increasing constraints on ports' capacity to manage turnover of goods, holding areas and increased freight tonnage.
Lack of interchange facilities	• Despite the natural, geographical advantages of the South West for coastal shipping, the shortage of interchange infrastructure and relative prioritisation of road freight interventions and its competitive advantages, are limiting port heading and coastal shipping activity. The relative competitiveness of short sea/maritime shipping to road-based transport (the latter offering more flexibility) without investment in infrastructure, incentives and regulations, is limiting the potential to reduce the reliance on road freight transport and maximise the role of maritime transport.
Awareness of modal shift	• Although the prospect of enhancing mode shift to coastal shipping is being gradually acknowledged across the freight industry as a valuable step in terms of reducing congestion and taking pressure off of road networks while supporting UK emissions targets, there is still lots to be done to increase the limited awareness of the potential maritime shipping offer.
Investment and support	• With heightened investment risk due to global shipping changes/trends, the lack of financial support required to decarbonise the sector; including shoreside power, vessels and handling/processing equipment particularly when demand is fluctuating, is raised as a concern.
Changing demand	• The nature of commodities moved is also shifting; with trends suggesting a marked reduction in historical sectors such as coal and 'traditional' bulky materials, towards growing demand for construction materials and alternative fuels. This has impacted ports such as Bristol historically.

11.2 Aviation

Niche markets	• Aviation plays a limited role comparatively to other freight networks across the South West and UK more broadly. The sector is typically associated with low volumes of air cargo and air mail alongside

	delivering high value goods in low volumes on a JIT basis serving global supply chains. There is, in particular, limited scope in the South West area.
Passenger focused	• The airports situated across the South West are predominantly centred around passenger traffic with air freight carrying minimal tonnage. This also includes helipads and proposed spaceports; both of which play niche roles in the shipment of consignments. The lack of widespread use of drone and pilotless technologies is also a barrier, as many of these operations are still in their trial phases.
Poor environmental image	• Due in large part to the decarbonisation agenda, efforts to tackle the climate emergency and the scepticism around airport expansion and aviation nationally, there are currently reservations around airports expansion in the South West on environmental grounds. The scope/potential for upscaling the role of freight in the future could be limited due to the dominance of Gatwick and Heathrow airports, also taking precedence on these grounds.

11.3 Rail

There is a need for the public sector to understand the issues affecting the rail freight sector in order to help facilitate change and examine potential opportunities. The following summarises some of the key issues

Lack of Terminals	• The South West is poorly served by rail terminals particularly with respect to those in the growth sectors of intermodal (both domestic and deep sea), express freight and construction. The lack of terminals is a barrier to modal shift of freight for prospective customers moving products by rail. There are ways of making small terminals economic with flexible working
Lost Terminals	• Inappropriate development near / next to current and potential sites may impede the operation and development of rail freight modal transfer facilities in the future. Many terminals have also been mothballed or disconnected from the mainline network over time in response to a decline in demand. But with the need to demonstrate corporate social responsibility and choose environmentally friendly methods of transport, circumstances are changing.
Poor interchange facilities	• Absence/lack of interchange facilities to formally shift freight from road to rail and connections into ports for onward travel to reduce road freight miles. Two ports in Western Gateway are rail connected – Portbury and Poole, although only Portbury is active. Only Fowey has a rail connected port across the in Peninsula Transport area, although the Port of Falmouth has the potential for re-opening a previous branch line into the site.
Future market opportunities	• Other than Network Rail – the region lacks a one stop business support signposting service that could aggregate and help to co-ordinate the building of awareness to action with the FOCs and Network Rail.
Lack of freight paths	• Need for freight paths not just in the Peninsula region but also strategic locations such as the Midlands, London and the North. It is important to note that whilst freight capacity isn't a significant issue in the majority of the Peninsula Transport area there are sections of the network in Western Gateway which most definitely have capacity issues – e.g. Bristol Parkway to Thurleigh Junction.
Gauge clearances	• Whilst in the Peninsula Transport area in the short / medium term this could be addressed by a wagon technical solution for journeys beyond Bristol to the South West – the implementation of W10 or W12 on diversionary routes in Western Gateway to / from domestic intermodal terminals / deep sea intermodal terminals is essential for resilience.
Lack of dialogue and connection between Local Authorities and the Logistics sector	• Both sectors need to understand each other; both in terms of roles and responsibilities between the public and private sector needs and requirements. Local Authorities through their planning and highway authority roles have significant powers which can assist and facilitate freight modal shift through the connections to / from terminals and the sites of terminals themselves.
Lack of appropriate train paths for freight	• Train paths are more than just the provision of an allocated slot on the rail network. Freight paths need to match to the type of freight flow be it Class 1 Express Freight (passenger train speeds), Class 4 Intermodal Trains – which run at a maximum of 75mph and Class 6 Bulk Trains which run at a maximum of 60 mph.

Lack of railway electrification	• Lack of electrification on key routes, for example Bristol to Exeter, as well as to quarries such as Merehead and Whatley. The lack of electrification on the spine route is an issue hindering the path towards net zero. However this doesn't mean that even if the use of diesel traction carbon reduction of freight movements cannot be achieved in the short / medium term as rail freight is significantly more carbon efficient than road.
Diversification of rail industries	• Lack of diversification of mineral operations, with a focus on china clay (which is important) but less focus on other important minerals such as China Clay sands. It will be important to diversify freight traffics where a business case can be made to avoid dependency on one market sector where possible.
Short term alternative fuels solution for the railways	• Further exploration is required into the adoption of alternative fuels such as Hydrotreated Vegetable Oil (HVO). This should be considered an appropriate bridging technology pending electrification or other alternative fuel for rail freight on lines that are not due to be electrified in the short / medium term.
Consideration of land for rail freight	• Lack of futureproofing when considering developments on land which is suitable for rail freight potential in the future. The role of the local planning authority is critical in this instance to provide for supportive land use polices to facilitate and safeguard appropriate freight modal transfer sites with linking infrastructure and prevention of inappropriate land use adjacent to such sites e.g. Residential.
Infrastructure constraints	• Limits on infrastructure mainly bridges and gradients, such as the South Devon banks, Somerset Wellington Banks and the Royal Albert Bridge which limit the weight of rail freight that can be carried. Physical gradients and weight restrictions limit the payload of trains that can be hauled particularly on the Tamar Bridge to Exeter section.
Poor uptake of new sectors	• Slow take-up and investment in potential new sectors such as Express Parcels – the lack of appropriate terminal sites / station facilities is a constraint here to the introduction of services.
Cost comparisons to road freight	• Cost of road transport is often cheaper than rail meaning that road is often a preferred option – this is changing especially in the most addressable markets for rail freight especially long haul deep sea and domestic intermodal for a variety of well-known factors including driver shortages, increasing cost of fuel and carbon reporting requirements.
Under investment and support	• Lack of initial funding for rail freight interventions, with different projects often competing for the same pot with the lack of a terminal facilities grant for England being a major constraint for aiding with pre-operational modal shift development costs.

11.4 Road Freight Industry Issues

There is a need for the public sector to understand the issues affecting the road freight sector in order to help facilitate change and examine potential opportunities. The following summarises some of the key issues under several themes.

11.4.1 Market Issues

Poor industry image	• The transport industry remains challenging for recruiting (and retaining) staff (most notably HGV drivers) within the profession. All across Europe there are more lorry drivers retiring than there are wanting to join the industry. This is leading to a skewed driver demographic (average age is nearing 50 years old) and risk of not being able to recruit sufficient staff. Part of the problem is based on perceptions of the haulage industry, which is seen as long hours, poor pay, sometimes dirty and possibly away from home a lot. Also, there are concerns that although there are plenty of driving jobs available now, should widespread automation occur there may be fewer driving jobs by 2040.
Rising costs of transport	• Typically labour represents a third of road haulage costs. As a result of the increasing shortage of drivers there has been some inflation in driver wages in response to the need to retain HGV drivers for meeting supply chain demand.
Low Margins in the Freight Sector	• There has been a longstanding relationship between shippers and freight sector; with some of the former attempting to drive down prices against the rising operational costs/eroding profit margins of the haulage industry. The road haulage market is made up of a small number of large operators with over 100 lorries and thousands or smaller operators often with less than 10 vehicles. The

	average size of transport operator is only about 6 vehicles. This highly competitive market has generally worked against the haulier as if one company holds out for a better haulage price then the shipper may shop around for a cheaper quote. Hence margins are very tight often less than five per cent and hence there is little or no contingency for when problems arise.
Changing trends in haulage market	• There is a Northwards shift in distribution patterns being driven by rising land prices in the South Midlands and access to labour. This includes the location of National Distribution Centres (NDCs) as they move from Northamptonshire to Staffordshire and Nottinghamshire. It is important to understand the increasing demand for larger warehouses and fulfilment centres on the outskirts of major cities. There is a need to designate land provision for facilities to serve urban/rural communities across the South West.
Competition from Foreign Registered Hauliers	• The last decade saw a rapid growth in the number of foreign vehicles moving goods to/from the UK. Whist these vehicles are in this country the transport company is allowed to do some (usually 3) domestic loads (cabotage). There is concern that few resources are available to enforce these regulations of EU hauliers v UK hauliers, including cabotage, which can result in the former undercutting haulage rates.
Unfair competition by certain agricultural vehicles	• Some tractors and especially fast track vehicles can travel at 40mph and be used to move farm produce over longer distances. Many of these vehicles may be running on the low taxed red diesel and hence be gaining an unfair advantage. Enforcement of agricultural vehicles trunking goods for prolonged distances is believed to be inadequate. The use of these tractors can have implications on journey time reliability/speeds to all road users, particularly acute during the summer months (but this needs to be balanced with sectors local role).

11.4.2 Road Freight Flows

Lack of data	• There is limited data transparency to aid with making informed commercial decisions and stimulating for example a shift from road freight to rail and coastal shipping (covering commodities moved/empty running/journey requirements). It is important to understand freight flows in order to investigate potential solutions.
Seasonal fluctuations	• Traffic flows in the South West vary depending on the season. This is especially marked on routes to Devon and Cornwall in the summer. The sheer volume of traffic causes congestion especially on summer weekends. Traffic can also be congested on sunny days to other resorts such as Bournemouth with day-trippers during summer. Clearly with many more people in the South West in the summer versus winter there is a need for additional freight movements to ensure the supply of essentials such as food, drink and hotel supplies. Also waste collection becomes more intensive.
Goods flow imbalance	• A challenge that many transport companies find especially in less accessible counties is to find a backload to help defray operating costs. If a lorry travels 4+ hours from the Midlands with a load for Cornwall but cannot find a load northbound then the empty running is expensive and a waste of resources. Load sharing (including visibility of activity) is important and practised by many hauliers but due to inherent geographical challenges such as being at the end of logistical supply chains and also being a net importer of goods this is a significant issue.

11.4.3 Highway Issues

The road network in the South West is not as developed as in many other parts of England	• The SRN is fairly limited in the region and there are pinch points of the network. If incidents happen congestion tends to occur as there are few alternative routes. This can be problematic particularly around larger conurbations, such as Bristol, Exeter and Plymouth and in other locations particularly during the peak holiday season in July and August.
Poor quality roads	• The network of rural roads in the South West has several issues, there are many width restrictions, tight bends and low bridges that are historic and would be expensive to upgrade. It means that vehicle routing can be difficult and many transport companies have to use smaller size vehicles to cope with the local conditions. This usually means that it is more expensive to deliver to customers in this area
Network resilience	• There has been a lack of ability for freight companies to proactively forward programme schedules around planned road maintenance/schemes (timescales/duration) and also to react to delays due to unforeseen incidents such as accidents and the possible need to use diversionary routes. With

	better information on planned roadworks it is suggested that the former issue could be addressed. Clearly unforeseen circumstances need a responsive solution based on road conditions.
Limited access and connectivity to ports and rail terminals	• Connectivity is limited in the South West and this hinders the opportunity for modal switch.

11.4.4 Rural and Urban Deliveries

Rural Deliveries	• A challenge with delivering to remote settlements is that the journey time between customer drops is often long partly due to via smaller lanes (impacted by seasonality), which includes lack of roadside maintenance.
Selective Delivery Area	• Some suppliers and indeed some freight transport operate a restricted coverage so that for example they do not offer a service to remote locations. This is often related to a lack of commercial viability of serving parts of rural Devon and Cornwall. It is sometimes due to the high quality of existing services, namely Isles of Scilly, but in both these cases it diminishes consumer choice.
Delivery Bays and Kerbside space	• There is a lack of co-ordination of kerbside space for vehicles in many locations across the country. Many traditional shops and cafes only have front entrances to their premises and hence lorries have to park outside on the road and deliver across the pavement. In many locations even large vans and light goods vehicle drivers cannot find anywhere suitable to park. This either means walking a long way with deliveries which is inconvenient for the drivers and a potential hazard for others using the pavement or it means parking on double yellow lines and risking being given a Penalty Charge Notice (PCN), or double parking which then causes congestion as traffic tails back trying to negotiate around the badly parked vehicle.
Lorry parking provision	• It has been recognised that part of making the road haulage sector more attractive to drivers is having a good national network of better quality lorry parks. This is especially important in certain parts of the country where drivers are unable to return home in the same operational day. This is because a proportion of the sector are required to travel a long distance because of the geography of the region, inter-drop distance and nature of the supply chain. Although there are some lorry parks there are gaps on the network.

11.4.5 Road Freight Decarbonisation

Some of the key issues affecting road decarbonation aspirations can be summarised around the points below:

Access to alternative fuels	• The availability of charging infrastructure required to transition towards alternative fuel technologies (for HGVs) represents a major challenge to alternative fuelled vehicles uptake. In general, charging infrastructure will be required at depots to enable charging when vehicles are not in use (for example, overnight), at destinations (within logistics centres while loading/unloading for example) and at public charging hubs. Building a supporting infrastructure will require investments and, potentially, incentives/subsidy/grants for freight and logistics operators.
Costs associated to transitioning to alternative fuels	• The increased operational costs of road freight is another issue facing the transition towards alternative fuel technologies, this is combined with driver shortages, market uncertainty, the rise of fuel duty, future emission charging and driver wages.
Markets slowing down transition to alternative fuels	• The risk of second-hand vehicle market expansion (namely LGVs) cascading through the South West, which may stem the transition towards electric vehicles, with knock on implications on air quality within urban areas. These impacts will be amplified by the proliferation of servicing/urban logistics demand in the area.
Adverse weather	• Future implications of climate change on adverse weather conditions and driving conditions; with direct time and cost consequences for haulage industry (particularly smaller firms)

11.5 General Issues

A key question was raised during the stakeholder engagement as to the role of Peninsula Transport, Western Gateway and STBs in addressing the issues outlined and shaping future priorities with different stakeholders; being able to demonstrate the relationship with the private sector and how the Freight Strategy can be delivered. This could be manifested in different ways; with Peninsula Transport / Western Gateway taking on ownership and responsibility for facilitating and delivering schemes and projects, almost exclusively, working in partnership to facilitate and leverage industry aspirations or playing a purely lobbying role in respect to its relationship to central government.

Lastly the suggestion was that each of the identified interventions should be categorised as to whether the STB is

(i) responsible for delivery

(ii) needs to collaborate with others

(iii) needs to influence others or finally

(iv) to evidence the need for change which will be published after the Freight Strategy.

The implementation plan, implied in this case, will follow the assessment of a long list of interventions and the development of a prioritised 'top 40' that have been sense checked and evaluated by stakeholders and the project team.

11.6 Summary

This chapter has brought together all of the issues identified throughout the desktop and stakeholder engagement phases across the various modes of transport. These issues form the focus on what needs to be addressed in order to improve operations of freight in the South West. The next chapter will look to create a series of interventions that respond to these issues.

12. Developing the draft Freight Strategy interventions

This chapter brings together the learnings from the previous chapters to compose the draft freight interventions for the South West. It is necessary to convey the rationale and methodology for assessing and prioritising future interventions and to state the approach taken to ensure this is a robust process that can withstand scrutiny. This includes reflecting on key themes from the engagement process to feed into the shaping the narrative of the Freight Strategy and the future implementation of prioritised interventions.

12.1 Rationale

The development of the draft freight interventions naturally follows on from the process of highlighting and understanding the issues and opportunities faced across the region and the freight industry. The latter was captured through a combination of stakeholder engagement activity and complemented the extensive review of key datasets and information.

During this process, a long list of interventions was collated that could respond to particular sectorial, geographical and subject area issues and opportunities across the region. The list developed initially amounted to almost eighty separate interventions spread across the different freight modes (e.g. road, rail, aviation etc) and freight themes (e.g. decarbonisation, safety etc).

The draft interventions were compiled on the basis of interpreting stakeholder feedback and the views and experience of the project team in sifting and delivering interventions historically and were specifically aligned to addressing issues raised during the development of the strategy.

However, the need and purpose of engaging in further stakeholder engagement at this stage was as follows:

- To convey the status of the Freight Strategy and to take stock of the process at a critical stage of the project with organisations and representatives engaged in the journey.
- The need to sense check assumptions and the interpretation of core issues and opportunities and how effectively these have been translated into relevant interventions.
- To help prioritise the most relevant freight interventions from a long list of options to create a more concise short list ready for packaging within an implementation plan.
- To recognise the change in the geographical scope of the project and the broader focus on the South West which includes Peninsula Transport and Western Gateway
- To provide the opportunity for re-engaging with stakeholders on subject matters to ensure that key issues, opportunities and possible areas of intervention were being acknowledged.
- To help plant the seed for different representatives to engage in a Freight Steering Group and future working groups to develop and deliver outlined interventions.

12.2 Methodology

Feedback on the draft interventions is crucial to sense check the appropriateness and relevance of the Freight Strategy and more specifically the emergent interventions. At this point in the project timeline, the decision was taken to adopt a three layer screening approach to the final list of interventions to sift and filter down a hypothetical wish list of interventions to a prioritised package of deliverables for featuring in an implementation plan.

The three layer screening approach all pivoted around the delivery of a virtual workshop and the following analysis:

- **Core Messages**: The notes and feedback from discussions and debates within break out groups on the proposed long list of interventions.
- **Intervention Questionnaire**: Multiple scoring form completed post workshop by willing stakeholders to evaluate interventions
- **Project Team Assessment**: Combining both the feedback from the intervention form and internal, qualitative based analysis of the interventions

A fourth screening of the interventions was also undertaken which sought to compare and contrast the feedback from stakeholders and the project team.

12.3 Draft Freight Strategy interventions

Based on all the information gathered around the freight issues for the South West from various sources, the information from the freight data and engagement with stakeholders, the project team devised a draft list of 79 freight interventions for the South West.

These were categorised by mode including ports and maritime, aviation, rail, road and freight trends. A list of the draft 79 freight interventions can be found in **Appendix F**.

These interventions were taken forward to the workshop to allow stakeholders to critique and refine the interventions based on their needs and experiences in the South West.

12.4 Workshop

The success of previous virtual workshops for previous stakeholder engagements made it the preferred platform for re-engaging with organisations and representatives on the assessment and sifting of future freight interventions. This was also deemed the most practical approach to help describe and contextualise the interventions amongst a wider group of people whose level of familiarity with individual interventions would likely vary.

The workshop sought to bring together all stakeholders, from across Peninsula Transport and Western Gateway, who had previously expressed and interest and engaged in the process of capturing key freight issues and opportunities across the region. This sought to create continuity and enabled participants to continue on the journey from identifying and communicating issues and opportunities through to shaping and defining the interventions that could and would ideally be implemented in the future.

The aims of the workshop were as follows:

- Describing progress to date on the Freight Strategy and walking the audience through the different stages of the project along a timeline of activities and tasks.
- Describing the proposed interventions for the South West in response to stakeholder engagement and clearly packaging these under relevant mode headings.
- Generating feedback from stakeholders on proposed interventions for the South West through anecdotes and industry insight to help determine the feasibility of interventions
- To clarify the projects next steps and the desire for continuing engagement through the development of a Freight Steering Group for the region.

The workshop was delivered on the 16 September between 14:00-16:00 and was well attended by 38 representatives from across local authorities, trade associations and interest groups. Representatives from the two consultancies involved in the development of the Freight Strategy were also present to help with facilitation and note taking. Their roles were agreed in advance. The workshop was bookended by an introduction and concluding remarks from Cornwall County Council, the lead sponsor of the project, with AECOM leading on the delivery of the virtual presentation.

Academic	2
Aviation	2
Local authority	15
Local enterprise partnerships and other regional organisations	8
Maritime	2
Other	1
Rail	3
Road	5

The workshop format was designed in a manner to help convey core messages around the status of the Freight Strategy and to enable a high degree of interaction with freight interventions. The latter was achieved through establishing four breakout groups with a mix of representatives, led by separate facilitators, who showcased the long list of interventions in two thirty minute sessions under the following headings:

- Rail, Maritime and Aviation
- Road Freight and Freight Trends

Stakeholders, who were first exposed to the interventions for the first time, were encouraged to read through the list of interventions to both feedback and debate their potential impact and relevance. This also including inviting requests for further interventions to be included within the long list that may not have been captured as well as raising any queries or concerns to the way in which the interventions were phrased and framed. This was particularly important as a means to sense check their validity by both industry experts and public authorities responsible for helping shape future delivery programmes.

Stakeholders were also reminded that the workshop aimed to provide initial oversight of the interventions for comment but that everybody would be given the opportunity to score each intervention separately at their convenience after the workshop had concluded. This was important to ensure that participants had the opportunity to query interventions and to raise any questions about their meaning or application before submitting answers.

12.4.1 Core Messages

Several notes were recorded during the two breakout sessions across the four groups by member of the consultancy team. These provided an insight into stated preferences and subject matters raised by participants and offered constructive input into evaluation the type and nature of the interventions being proposed.

A number of core messages and new, 'proposed interventions' have been extracted and tabulated from the collation of the notes. The latter would be an addition to the long list and considered as part of the process for prioritising a short list of interventions for implementation. These have been summarised below under each of the different modes of freight transport (as per the workshop format).

12.4.2 Ports & Maritime

There were specific concerns expressed about regulating the industry and best practice. One reference was made in particular to the limited role of national government has had in addressing IMO management regulations and more specifically policing ballast water management approach to ensure this is being implemented correctly for health, safety and efficiency perspectives. The suggestion was that this needed to be factored into broader maritime management.

A broader point raised in relation to the interventions was the desire to have greater consideration for the diversity of ports across the region, with some form of categorisation required to be able to tailor the scale and type of approach in each case. The awareness building needs, infrastructure and support required for Avonmouth will contrast to Falmouth whilst many port operators will tend to fixate on physical interventions as opposed to efforts to nudge behaviour change.

There was also recognition that coastal and short sea shipping as well as the development of port environments are heavily dependent and driven by market conditions so commercially viability will be a key driver alongside political will. There needs to be greater awareness and promotion of possible market opportunities (PM1), but this should also be prioritised to deliver change. The options for diversification should form part of any awareness campaigns across the industry (PM10).

Overall however, there was generally a consensus that there were difficulties in understanding the market potential for mode shift (PM4) but that promoting maritime freight, namely coastal shipping (PM6) was sensible if it was economically justifiable. Commercial viability will always key and needs to be acknowledged within the approach to implementation (PM9) and there would be benefits to identifying and focusing on areas of investment (PM13 needs to encompass a broader focus on activity inland around the A38 and access off the River Plym further upstream).

There was the suggestion that increasing road haulage traffic along port access roads could exacerbate current conditions and negate the benefits from mode shift away from long distance road haulage. Some degree of strategic freight routing would be advised which avoids road freight taking convoluted roads to ports and key pinch points on long distance routes. Making connections was popular across all groups (PM5), especially for the potential for aiding with decarbonisation.

The appeal and relative carbon intensity of maritime freight also needs to be contextualised against other modes as part of a broader assessment into why coastal shipping isn't more popular compared to other freight transport, especially for selling the virtues of mode shift. Similarly, the focus of awareness building suggested through the interventions needs to aim more at aiding port authorities with capturing, deciphering and relaying back the interests of prospective customers.

There were caveats raised in relation to the safeguarding of potential freight space (PM4/PM14) and the potential impact of local marketability and land values from blight and obtrusive structures and activities alongside the opportunity costs associated with developing prime real estate. The idea that planning guidance could have an impact was questioned (PM3) especially as activity tends to be market driven – although updated local plan policy could go some way to consider improved regional connectivity and port integration (a rephrasing of the intervention).

There was support for developing a business case for using short sea coastal feeds to remove road vehicles including commissioning a feasibility study into the operation of a coastal feeder vessel between Southampton and Plymouth (PM9) (although there was some scepticism about demand). This was linked to lowering carbon emissions and freight movements along the A35 corridor (west-east) although short sea shipping is also in the process of decarbonising and shouldn't be viewed as a panacea (PM6).

12.4.3 Aviation

Few queries, suggestions and new interventions were made in regard to aviation compared to other modes. This may be symptomatic of the challenge in encouraging sector representatives to attend the workshop and engage with the project more generally. Relatively, air freight is a niche area of study whilst only a few interventions were actually presented to assess during the breakout sessions.

Drones were raised as being applicable in remote locations (reference made to the Solent FTZ for supplies being transported between Southampton and the Isle of Wight) but they were acknowledged as being impractical in an urban context. The need to research appropriate legislation and better definitions of use cases would be required.

Reference was made to the ongoing changes in supply chain activity and the potential role of air cargo in delivering goods for the manufacturing sector in greater quantities. This was being monitored short term in response to a breakdown in JIT supply chains and disruptions to global shipping but the long term trend (and future planning) was undetermined. A link was made to airport centric logistics (AV2) and how warehousing would need to be part of this discussion.

Loose reference was made to the development of freight hubs at existing airports and developing existing capacity although there was hesitance to notions of building capacity when a commitment has been made to decarbonisation. There was greater support and interest in re-fleeting aircraft and improving access by sustainable modes (namely rail) to airports although questions were raised around the role of Bristol as a future freight hub for the South West region (one for exploring) as well as Exeter because of its strategic location.

12.4.4 Rail

Feedback suggested that the interventions presented were heavily skewed towards serving Peninsula Transport and that more consideration needed to be given to the broader geographical context and network requirements around Gloucester, Swindon and South Wales. Greater clarification was also sought for why certain routes have been prioritised (more explicit reference to focusing on key rail freight trunk routes required).

There was an appreciation of the need to invest in interchange facilities (RF1) and develop new business cases for freight terminals at strategic locations on the rail network. This included the former Tiverton Junction site, which is being explored by DB Cargo for aggregate/intermodal commodities, revisiting the redundant site at Par or delving into proposals at Burngullow. Intermodal terminals at Plymouth and in Cornwall. There have been some exploratory discussions on the potential for freight to use the Hamworthy branch line near Poole. Some of these are driven by the decarbonisation agenda.

Stakeholders working within the rail industry stated the requirement to pump prime business case for additional rail service capacity and the need for developing a comprehensive business case and strategy required by a supportive circle of partners. Ultimately a market demand needs to be satisfied that can hold weight over time to support mode shift to rail. First and last mile considerations also need to be given more attention as well as potential for unlocking underserved rail sidings in places such as Lydney, Gloucestershire and around Air Quality Management Areas (AQMA).

There was a consensus that gauge clearance is an obstacle to the expansion of rail freight across the region alongside the need to develop greater network resilience, including enhanced diversionary routes, specifically to futureproof against bridge strikes and disruptions along the Dawlish Coast (although the business case and benefit cost ratio was debated). An alternative route between Exeter and Plymouth via Tavistock and Oakhampton has been mooted.

Indeed practical concerns needed to be given more consideration (RF11) to the aforementioned rail upgrades alongside aspirations for electrification. Any additional train paths (RF12) also need to be driven by the agents for change which would need to be identified. This links to previous points raised by stakeholders around the need to invest in facilities to attract future market growth.

Proposed Intervention: Raising awareness of freight issues and potential opportunities to DfT as a collective that builds on establishing working relationships between Councils, STBs, Local Government and GBR.

12.4.5 Road

There was support for raising best practice across the industry and agreement over the potential value of incorporating accreditation requirements and standards into supply chain contracts. Explicit reference was made to re-establishing FQPs again to serve this purpose. Similar ‘soft’ measures to encourage the adoption of best practice were popular, such as Sustainable Urban Logistics Plans (which are another term for Delivery and Service Plans). Broader communication around industry standard equipment (e.g. Sat Navs).

An opportunity was presented by the RHA to raise the profile of the educational programme amongst its membership with UK traffic commissioners to raise awareness of the standards and regulations around subjects such as bridge strikes and the latter’s power to withdraw operating licences if haulage companies are not reputable. This is designed to minimise incidents and raise standards. Linked closely with this is the need to agree and signpost better diversionary routes where width, height and weight restrictions apply (which can be checked against the rate/locations of incidences)

Consolidation (R10) gained mixed feedback. The view from the RHA was that the popularity of consolidation centres can be overstated with logistics being a low margin, high risk sector that will not benefit from adding additional layers of complexity and costs to operations, which includes the risk of contamination. The practical challenges of delivering consolidation and the

commercial sensitivities with data sharing, may need more explicit reference being made to a shared use, mandatory site and local authority management and future franchising.

The availability of land for consolidation, which was recognised as a 'buzz' term, is also a key consideration that would need more detailed regional and local assessments. Even with financial incentives, wider consideration of labour requirements, time/handling needs all need to be factored into the analysis. However, in contrast, small (micro) delivery consolidation hub locations were raised as a possible intervention with ties to investment in e-cargo bikes and provision for other types of zero emission vehicles such as LGVs.

More secure and attractive lorry parking facilities and associated welfare facilities (R12) were viewed favourable to aid with recruitment and retention of drivers within the road haulage profession, particularly for drawing interest from particular demographic groups, namely women and younger individuals. The suggestion was that these facilities could be bolted onto local freight generators instead of being designated sites. Opportunities are also coming forward for jobs in last mile deliveries and night time deliveries which may further exacerbate shortages in drivers for long distance trunking.

A number of stakeholders stressed the importance of recognising and accounting for national developments on decarbonisation and zero emission freight trials taking place across the UK that seek to scale up adoption. However, catering for long distance haulage remains a conundrum whilst the cost effectiveness of battery electric technology has not been realised. Hydrogen was explicitly referred to as the favoured fuel of the future and best for decarbonisation.

The costs and potential ramifications of cascading vehicles to the South West also needs further exploration whilst interventions (generally) were also seen as HGV heavy despite the need for considering the impact of LGV movements (particularly in an urban context). Regardless, any transition must be complemented by interventions to provoke a shift in vehicle purchasing.

On this basis, feedback from the workshop hinted at the need to support a 'fuel mix' and promoting a range of 'transition' and 'low carbon' fuels in the short term; with loose reference being made to developing separate studies exploring the role of green hydrogen along the SRN. Intervention RD1, developing and mapping a network of alternative fuel provision was highly popularised as well as bringing trial scenarios to the region (RD18). New technologies, namely Platooning, were suggested which recognised the opportunity presented by automation to reduce emissions. There was no particular use case associated with this suggestion.

Interventions that supported operational efficiency were not discussed in much depth although interventions that could reduce empty running on return journeys (and load sharing) were seen as being favourable (FM11). This was not viewed as a new issue and greater awareness and advantages of load sharing needs to be communicated. Nonetheless, the majority of the debate homed in on reducing emissions and road freight miles by targeting shorter trips (urban areas and villages).

There was some controversary and debate around interventions that enhanced the SRN and were framed in relation to improving and boosting capacity. This was viewed as going against the grain of efforts to promote mode shift and efforts to decarbonise the freight industry with strong reference made to the stance taken by Welsh Government on highway construction (as part of the Future Generations Act). This view was countered by noting that that types of vehicles that are using the roads are important, not the roads themselves, particularly in relation to road building. There was positive feedback from participants on the need to collectively plan review road investment strategies (national and local) (RD21) in the short term.

Proposed Intervention: Liaise with virtual map providers (such as Google, Bing etc and local highway authorities) to upload data on width, height and weight restrictions to platforms across street environments. This would complement existing mapping software and hard copy maps provide by RHA and 'professionalise' use of 'informal' software for HGV journey planning.
Proposed Intervention: Promotion of low carbon, 'transitional' fuels which takes a pragmatic approach towards decarbonisation and phasing our HGV diesel traction and accounts for the uncertainty surrounding the market's ability to deliver at pace.
Proposed Intervention: Exploring the role of HVO as a legitimate transitional fuel for road freight that can reduce emissions from current fleets short term whilst the shift towards long term, more sustainable zero emission options (infrastructure and vehicle options) come to fruition.
Proposed Intervention: Greater physical enforcement and regulation to prevent informal, tourism traffic from impacting deliveries across coastal communities. This goes beyond use of smarts bays to apply access restrictions and the use of managed delivery windows.
Proposed Intervention: Promoting the role and significance of the Traffic Commissioners for upholding best practice and operational integrity across the road haulage industry and key industry stakeholders (through the Freight Steering Group). This extends to communicating their role and regulatory powers.
Proposed Intervention: Development of Freight Quality Partnerships through the emerging Freight Steering Group for the South West to bring together industry, trade bodies and public authorities around identified workstreams/packages in the Freight Strategy.

12.4.6 Freight Trends

There is a desire to mirror the collaboration between National Highways and Network Rail on the Solent to Midlands Multi-Modal Corridor for trunk connections/routes through the South East. Linked to this is the need for greater joined up thinking between local authorities across borders (especially for the freight industry) and the potential role STBs could play in helping coordinate transport and planning authorities to invest in facilities that bring strategic and local benefits.

There was support for developing and promoting best practice through CLOCS and FORS (FT6) although measures linked to improving the safety of vulnerable road users was absent in the list of interventions. This may also be attributed to the relative lack of 'safety' based interventions presented as part of the long list of interventions.

The use of technology and its potential application to infrastructure management and maintenance, operational efficiency and road safety, was raised but interventions needed to be more explicit, such as the use of 5G sensor technology on the road network for positively influencing journey time reliability. There is a debate around the provision of on road infrastructure, such as Variable Messaging Signage (VMS) to adopting in cab technologies and telematics for optimising journeys.

12.5 Barriers to Implementation

A number of potential barriers to the delivery of interventions were raised during the breakout sessions. These were useful in highlighting, at this stage, potential challenges for implementation as well as the validity of certain interventions in the short, medium and long term. This included:

- The barriers presented by the land use planning system for expanding the scope for port centric logistics activities, growth in maritime/coastal shipping and skills development across the freight and logistics industry as part of the freeport designation (Plymouth). Greater awareness and clarity of their role and relevance to future productivity, modal shift and operational efficiency is required that can be tailored to the freight and logistics industry.
- The necessity for partnership working between major bodies, namely FOCs, infrastructure bodies, regulators and prospective users and customers to unlock the use of rail connections into ports (being explored for Poole and Portland) and rail interchanges/intermodal hubs along strategic routes at the confluence of the highway and rail network. The road haulage and rail industry also have to viewed as complementary sectors that collaborate on such interventions. Any mode shift is also likely to be medium to long term.
- The lack of access to data was raised as a general issue and how it could be manipulated to be too prescriptive about informing future interventions (at this early stage). The lack of granular data and engagement and commercial sensitivity around data sharing by industry makes developing a business case particularly challenging.
- The practical challenge with actually realising actions and interventions that could lead to freight decarbonisation was mooted by stakeholder, especially due to the risk and costs presented to smaller businesses for transitioning to alternative fuels. Similarly, there is a value action gap between suggesting and recognising the interventions presented and both industry and public authorities following these up with tangible outcomes. The view was that national government needs to set the roadmap and provide funding for the transition to nudge the private sector to adopt new practices and technologies with local authorities also using regulatory tools to make alternative fuels far more cost effective than conventional fuels.

12.6 Structure of Interventions

There was the suggestion that the long list of freight interventions needs to be more legible and packaged into more 'digestible' themes namely infrastructure, awareness, operational efficiency and decarbonisation. The level of detail under each intervention needs to be minimal. There was also some duplication/similarity in the interventions list that needed to be rectified.

12.7 Interventions Questionnaire Review

A key component of assessing and evaluating the validity of a long list of interventions and moving towards a prioritised 'package' for (proposed) implementation, was the completion of the intervention's questionnaire by key stakeholders. The online questionnaire, developed in Microsoft Forms, was released as a link to stakeholders after the conclusion of the workshop (including to those who could not attend) to generate feedback on the popularity of each intervention.

The questionnaire was designed for stakeholders to complete in their own time (taking approximately 20 minutes) having gained some degree of familiarity with each intervention during the workshop to make an informed decision. Responses were requested back within a five day period of the workshop taking place (21 September) to allow the results to be quickly processed and analysed.

The questionnaire was intentionally designed to be simple. Ultimately this was with the aim of sifting the most popular, strongly favoured interventions from those where there was some opposition or level of uncertainty. This was also important to ensure a

positive response rate to the questionnaire. On this basis, stakeholders were requested to provide one of the following responses to each intervention:

- Strongly Oppose (-2)
- Somewhat Oppose (-1)
- Neutral (0)
- Somewhat Favour (1)
- Strongly Favour (2)

The analysis of the stakeholder feedback required whittling down the long list to approximately 40 interventions using an internal scoring criteria to help rank the interventions by popularity. For example, an intervention that a stakeholder stated they 'strongly favour' would score two points in contrast to one that they would 'strongly oppose'; which would score minus two. The scorings would then be calculated and summarised across all stakeholders to then rank the most popular interventions.

12.7.1 High Level Analysis

Overall, 39 completed questionnaires, from a total of 45 stakeholders, were received back which provided representative feedback to the interventions. Generally speaking, the vast majority of interventions were positively received with few outright objections and opposition to those suggested (although there was limited feedback by stakeholders which helped to discern the rationale for their stated preference). This could imply that the interventions identified were in accord with addressing issues and unlocking opportunities and that they could hold weight under scrutiny.

However, in some instances, there was a high proportion of 'neutral' responses (those where the number of responses overall exceeded fifteen) to particular interventions which may have reflected the lack of subject matter interest or knowledge in this respect or the difficulty in being able to understand the application of the intervention in the context of addressing freight issues and opportunities.

This took place when more specific reference was made to geographical application or delved more into the technicalities of an intervention. In these instances, such interventions could be more broadly defined and rephrased to resonate with a wider audience with more specific reference made to application in the implementation plan. It was also acknowledged, post workshop, that the list of interventions, and a description of their application, may have been beneficial in helping to inform stakeholder decision making.

Other caveats could also apply to the scoring more broadly; such as the lens in which the freight interventions were being assessed. Scorings may have been based on the ease of deliverability or, conversely, their scale of ambition depending on the stakeholder and their respective motives, interests and position.

12.7.2 Stakeholder assessment

The scores collated across the completed questionnaires were then complied and ranked to help frame the most popular interventions. The scores ranged from 61 (RF9 Establish and promote a South West Freight Steering Group (to include Network Rail and National Highways) through to 39 (RF15 Promote training and awareness package on the role, value and requirements of the freight and logistics sector (last ranked item in the list of forty intervention). The top 40 interventions from the stakeholders can be found in **Appendix G.1**.

These were then sense checked against the scorings and ranking of interventions gleaned from the project team (consultants) as described in the following section.

12.7.3 Project Team Assessment

The decision was taken at an early stage to provide some degree of 'professional' scrutiny of the proposed interventions that could take into account the views, expertise and experience of the project team who had been working on the development of the Freight Strategy. This was with the intention of generating consensus and working towards a consolidated list of interventions that reflected both the aspirations and technical recommendations for addressing freight issues and opportunities.

The whole project team, totalling 14 people from both AECOM and WSP consultancies, submitted their responses on a replica of the questionnaire form (link) distributed to stakeholders. Similar to the analysis of stakeholder feedback, the results were collated and analysed with the aim of comparing and contrasting the ranking of the top 40 interventions. The aim of this exercise was to help nullify any bias and to ultimately strike a balance of interventions that could satisfy all individual/organisation motives and interests combined with the objectives of the strategy. The top 40 interventions from the project team can be found in **Appendix G.2.**

The only comment submitted with respect to the questionnaire referred to the need to prevent duplicates or for similar interventions to be consolidated namely:

- Combining RD7 (Review options to deliver smarter and during quieter periods of the day or week i.e. Retiming away from peak periods and RD22 (Promote the use quiet equipment technology on supply chain vehicles);
- RD13 (Promote training to help operators avoid bridges strikes such as the FORS Bridge Strike Toolkit for operators) and RD14 (Ascertain support for removal of height constraints on Strategic Road Network).

Overall there was a 78 per cent correlation between the top 40 draft interventions chosen by stakeholders and consultants. This was a hugely positive and reassuring outcome with a view to developing an implementation plan with clear, popular interventions. This process was also very important to avoid a professional bias being applied to the interventions, many of which had been developed by the project team (although informed by an evidence base).

Of the top 40 draft interventions chosen by the stakeholders, the following **did not** feature as part of the top 40 short list from the consultants:

- RF3 - Collaborate with Network Rail, Local Economic Partnership and Local Authorities to exploit freight terminals
- RF14 - Development of a Supplementary Planning Guidance for freight matters to include safeguarding of key sites, adequate land in urban areas for consolidation / micro consolidation
- PM12 - Identify and implement opportunities for consolidation sites and booking systems to reduce congestion
- RF2 - Conduct a Feasibility Study into the operation of an intermodal container train between Southampton and other deep-sea ports to appropriate new terminal(s) in the South West
- FT19 - Establish regional public sector freight capabilities within the South West to manage the strategic engagement / relationship with DfT, Network Rail, National Highways and Ports / Air
- RF16 - Collaborate with Network Rail to work with operators / demand generators to assist early market entry at key sites in the South West, including Community Rail Partnership
- RF19 - Work in partnership with local rail teams and core freight units
- PM6 - Awareness campaign on how coastal shipping can be cost effective option for supply chains including details of water freight grants e.g. brochure
- RD8 - Identify the strategically important roads which must require journey time reliability and assessing options for future proofing including communication with in-vehicle technologies to.
- PM2 - Strategic Warehousing Audit and Specific Supplementary Planning Guidance for the South West.
- RF10 - Review a minimum path allocation for Birmingham to Bristol and Bristol to Exeter.

In comparison the following top 40 selected by the consultants **did not** feature part of the stakeholder top 40:

- RF8 - Support recommendation for W12 / S45 standards for all current W10 cleared routes and diversionary routes.
- RD13 - Promote training to help operators avoid bridges strikes such as the FORS Bridge Strike Toolkit for operators. Also investigate solutions for the most commonly struck bridges in the region.
- RF13 - Pursue roll out of using alternative fuels including HVO to existing rail freight operations in the South West – starting with the existing Burngullow – Fowey and Burngullow to Stoke on Trent.
- RD4 - Promoting suitable alternative routes for the event of adverse weather including communicating these clearly with the industry
- RD6 - Identify options to implement improvements on the SRN and coping mechanisms to ensure flow of traffic
- RD17 - Continue support for routine road maintenance activities, avoiding peak periods of traffic flow
- RD18 - Review suitability of technologies from trials and their potential for the South West
- FT2 - Undertake targeted promotional campaigns with schools, colleges to develop apprenticeship and placement opportunities across industry partners - facilitated through regional trade body.
- PM13 - Market Study into maximising the potential of the Plymouth Freeport as well as encourage small ports to explore Eco Port status and PERS accreditation through investments in energy etc
- AV4 - Work with operators to understand future business model/interest in carrying cargos within commercial craft (belly hold) and optimising use of existing commercial passenger

- RD5 - Establish a social enterprise / co-operative model for a community based load matching and vehicle matching exchange.

Based on the comments received during the workshop, the scoring from the questionnaire and the comparison of the intervention priorities between the stakeholders and project team, this guided the process of further refining and consolidating the interventions into a shorter, refined list.

12.8 Summary

This chapter has sought to reflect on the methodology applied to assessing the long list of interventions by all stakeholders and the project team. This was with the view to helping create a prioritised short list based on the scoring applied to the process of collecting and collating feedback to workshop notes and questionnaire forms.

The next step will be to refine the interventions further by taking onboard the scoring from the questionnaire, the comments from the workshops, include additional interventions suggested and the comparison between the interventions selected by the stakeholders and the project team. These will then be packaged up into a revised set of interventions and an implementation plan. This will also coincide with the development and promotion of a South West Freight Steering Group, the most popular intervention scored by stakeholders, to help guide and coordinate scheme delivery.

13. Freight interventions for the South West

This chapter lists out the prioritised freight interventions for the South West, along with the full list that has been developed. These take onboard the comments received from the workshop, questionnaire and the comparison of the priorities from the stakeholders and the project team. The rationale for interventions have been aligned to the key issues identified for the South West.

13.1 Introduction

Through a comprehensive process of evidence gathering, analysis and stakeholder engagement a set of 46 freight interventions has been developed and refined. These have been developed from the draft interventions that were created and taken forward to the stakeholder workshop. **Appendix F** provides the link between the draft interventions and the final set of recommended interventions.

13.2 Prioritised freight interventions for the South West

Once the draft interventions had been developed, refined and combined to form the final recommended interventions, the scoring of the interventions from the stakeholders, using the online questionnaire, were combined to generate the prioritised freight interventions. The interventions align to drive forward the three key aims for the South West Freight Strategy:

Modal shift	Seeking opportunities to move freight to a more efficient and more appropriate transport mode for the goods or circumstances. For example, from road to rail or coastal shipping. Benefits will include reducing road congestion and carbon emissions, as well as improvements in noise and air quality.
Decarbonising freight	Whilst some mode shift away from road freight is possible a large proportion of freight movements will continue to use the road network for all or part of their journey, as the road network provides a comprehensive set of routes to markets/customers. Decarbonising freight is therefore a critical component of the Freight Strategy and the freight interventions highlight several areas where opportunities exist to reduce carbon emissions. These include investing in greener vehicle technologies and supporting infrastructure.
More efficient operations	Many of the interventions cut across transport modes to deliver efficiency savings. For example, the levels of empty vehicle running in the South West provides considerable opportunity to reduce carbon emissions whilst at the same time reducing logistics costs and the number of vehicle movements. These include sharing information and developing logistics schemes and partnerships.

The following 13 interventions represent those which were considered most important by the stakeholder group for the study – and these have been aligned with the three key study aims to highlight how implementing some of the interventions will contribute towards these.

Table 13-1: Intervention packages and the prioritised interventions with suggested owner of the intervention

Intervention packages	Prioritised interventions	Owner of the Intervention
Modal shift rail	RL4: Support and signpost businesses and local authorities to transition to rail freight.	STBs
	RL7: Encourage the establishment of rail freight intermodal sites in the South West. There are various possible locations to give regional coverage for example Bodmin/Burngullow, Bridgewater, Bristol, Exeter/Newton Abbot, Plymouth, Poole and Westbury.	Network Rail/FOCs
	RL9: Allocate sufficient freight train paths on the main line and diversionary routes.	Network Rail
Modal shift coastal shipping	M3: Awareness campaign of coastal shipping opportunities for supply chains.	Port Authorities
	M6: Review of ports in the South West. (NB. Western Gateway has already done this)	STBs
Decarbonisation	M2: Explore opportunities to diversify ports into renewable energy production and usage.	Port Authorities
	RD1: Strategically plan network of alternative fuel stations and promote existing sites. Development of new sites by private sector	Private Sector
Operational efficiency	RD3: Promote solutions to driver shortages.	Logistics UK/RHA

	RD6: Support for infrastructure improvements and investment where suitable.	National Highways
	RD14: Review suitability of technologies from trials and their potential for the South West.	National Highways
	RD15: Promote a trial of the use of a load and vehicle matching exchange to reduce empty running for 10 hauliers for a year.	STBs
Freight Steering Group	O1: Develop engagement on logistics schemes and partnerships.	STBs
	O3: Establish and promote a South West Freight Steering Group.	STBs

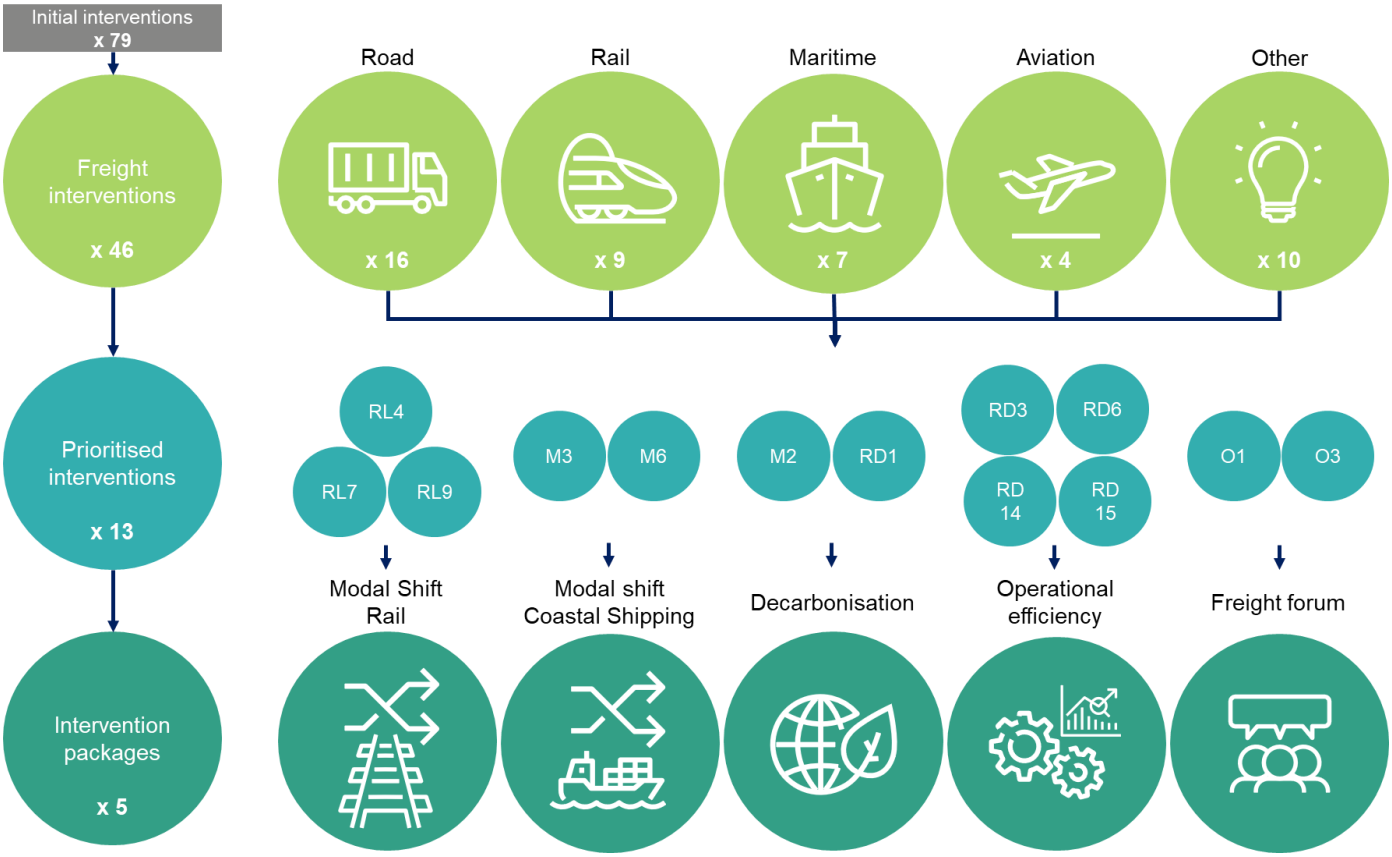


Figure 13-1: Development of the freight interventions for the South West

13.3 Freight interventions for the South West

The following sections list out the 46 freight interventions recommended for the South West by mode and theme. The ownership and funding is discussed in the following implementation section. The following six themes are used to categorise interventions for each mode throughout this chapter. **Figure 13-1** summarises the priority intervention packages for freight in the South West.

- Connectivity
- Decarbonisation
- Information and awareness
- Infrastructure
- Operational efficiency
- Technology

13.3.1 Aviation

Table 13-2: Final: Aviation Interventions

Intervention ID	Interventions	Further details	Theme
A1	Support for sustainable aviation and aerospace sector	Include links to the Isles of Scilly, other key aviation hubs for essential air freight cargo thus improving connectivity.	Connectivity
A2	Further develop business / employment zones around airports .	Include assessing the success of smaller regional airports and how this can be applied to other zones surrounding airports in the region, such as Bournemouth, Exeter and Newquay.	Connectivity
A3	Work with operators to understand future opportunities for carrying air cargo.	Optimising existing commercial passenger services for moving goods.	Information and awareness
A4	Review suitability and potential locations that could benefit from drone technology.	Include a review of areas which are labelled as difficult to reach by the supply chains and whether they could benefit from drone technology. Trials could include Isles of Scilly and remote rural areas.	Technology

13.3.2 Maritime

Table 13-3: Final: Maritime Interventions

Intervention ID	Interventions	Further details	Theme
M1	Develop business case for coastal feeder services to help remove road vehicles.	Include feasibility study for feeder vessel between Southampton and Plymouth and services between Wales and Devon.	Decarbonisation
M2	Explore opportunities to diversity ports into renewable energy production.	Include exploration of alternative fuels including LNG, electric and green hydrogen, as well as shoreside power for bunkering facilities and promoting Eco Port status and PERS accreditation for Ports within the region through investment in energy efficiency and electrification.	Decarbonisation
M3	Awareness campaign of coastal shipping opportunities for supply chains.	Include awareness of location, the benefits, modal shift opportunities and support opportunities through the use of the water freight grants.	Information and awareness
M4	Develop and expand growth into new sectors at ports.	Include exploring new sectors such as aggregates, animal feed and agriculture and how the ports need to adapt through infrastructure and management.	Infrastructure
M5	Investigate improvements in road and rail links to Port terminals.	Recognising the existing Western Gateway Port Access Study, investigate improving links to intermodal sites and commercial ports, such as Poole, Plymouth and Dartmouth, and the level of investment required. The outcome of this could lead to the need for additional funding for infrastructural improvements.	Infrastructure
M6	Review of ports in the South West (Already done for WG).	Recognising the existing Western Gateway Port Access Study, include a port capacity review, review of traffic management plans, review of highway access improvements required, opportunity for multi-modal connections to ports (such as rail), consolidation sites with booking systems in close proximity to ports, and Strategic Warehousing Audit.	Operational efficiency
M7	Review of ports planning guidance.	Include creating specific Supplementary Planning Guidance for the South West including provisions for freight activities and safeguarding of appropriate sites for wharves.	Operational efficiency

13.3.3 Rail

Table 13-4: Final Rail Interventions

Intervention ID	Interventions	Further details	Theme
RL1	Feasibility study to operate intermodal container trains from deep sea ports to intermodal sites.	Include how more road freight can be moved by rail to its destination for last mile logistics. There should be at least three to four intermodal terminals in the South West, see intervention RL7.	Connectivity
RL2	Support electrification and gauge enhancement of the core rail network.	Electrification projects normally facilitate gauge enhancement. Include W12 / S45 standards for all current W10 cleared routes and diversionary routes. An urgent but modest scheme would be to electrify the connection to the Mendip quarries. Longer term would see the electrification of the main line to Plymouth.	Decarbonisation
RL3	Pursue rollout of new alternative fuel locomotives and wagon technology.	Include HVO and hydrogen, along with infrastructure to support transition and identifying how rail can support other modes of transport and the movement of alternative fuels.	Decarbonisation
RL4	Support and signpost businesses and local authorities to transition to rail freight.	Include engagement with FOCs and promoting training and awareness of their role, opportunity and value of rail freight.	Information and awareness
RL5	Understand the availability of grants to help facilitate modal switch to rail.	Include raising awareness of the strategic importance of these grants and the impacts on the industry.	Information and awareness
RL6	Partnership working with stakeholders to promote South West priorities.	Include GBR, local rail teams, core freight units, councils, Sub-National Transport Bodies, local government and the Department for Transport.	Information and awareness
RL7	Encourage the establishment of rail freight intermodal sites in the South West. There are various possible locations to give regional coverage for example Bodmin/Burngullow, Bridgewater, Bristol, Exeter/Newton Abbot, Plymouth, Poole and Westbury.	Identify rural and urban sites, demand generator areas, sites with connections to ports and bring back online key existing sites. Potential locations should include sites in a catchment area of one hour by HGV and consideration required for vehicle access needs.	Infrastructure
RL8	Safeguard rail freight sites through developing Supplementary Planning Guidance.	Include adequate land in urban and industrial areas to promote rail freight consolidation along with how sidings on the network could be adapted to support intermodal rail freight.	Infrastructure
RL9	Allocate sufficient freight train paths on the main line and diversionary routes.	Include growing market for intermodal, bulk and parcels and identifying alternative freight train routes to avoid hotspot areas.	Operational efficiency

13.3.4 Road

Table 13-5: Final Road Interventions

Intervention ID	Interventions	Further details	Theme
RD1	Strategically plan network of alternative fuel stations and promote existing sites. Development of new sites by private sector	Include promoting, identifying and mapping out a cohesive network of multi-fuel energy propulsion sites and work with fuel providers to scale up infrastructure provision and future production for serving the road haulage sector and its energy transition to lower emission fuels and then zero emission fuels when the technology is available. This should not just be approached for road but include cross-modal synergies e.g. many modes could refuel at a port.	Decarbonisation
RD2	Promote resources and training to help operators avoid bridge strikes.	Include working with map providers to map vehicle restrictions and recommend routing plans, support use of Bridge Strike Toolkit, use of technology on commonly struck bridges and potential height constraint removals where feasible.	Information and awareness
RD3	Promote solutions to driver shortages.	Include advocating for changes to the industry to encourage uptake, promote opportunities to access	Information and awareness

		driver training facilities in the South West, use of smart delivery patterns for the short term gap.	
RD4	Work with hauliers to understand how they can be supported in the uptake of alternatively fuelled vehicles.	Include how the use of low carbon transitional fuels can help with decarbonisation and the phasing out of HGV diesel traction.	Information and awareness
RD5	Review of current lorry parking facilities in the South West.	Include identifying improvements and additional sites required to support drivers and the industry.	Infrastructure
RD6	Support for infrastructure improvements and investment where suitable.	Include engagement with National Highways on the Road Investment Strategy 2, future Road Investment Strategy 3, local authority road schemes and route study schemes for HGV alignment and width easement. Also includes good connectivity to ports, rail hubs and airports.	Infrastructure
RD7	Continue support for routine road maintenance activities but broadcast plans so hauliers can better plan.	Include effective and far reaching communication plans for users of the network regarding new road schemes and road maintenance programmes to reduce disruptions.	Infrastructure
RD8	Identify cluster locations where logistics plans are needed along with facilities for last mile logistics.	Include undertaking a rolling programme of rural delivery service plans, for example - key tourist centres.	Operational efficiency
RD9	Promote use of swap trailers to reduce demands for long distance trunking between regions.	Include how these can be linked to intermodal hubs to create freight interchange hubs.	Operational efficiency
RD10	Feasibility study on consolidation sites for last mile logistics.	Include reducing vehicles and maximising vehicle utilisation with combined loads and understanding the costs behind consolidation and the barriers to uptake. Bristol could be used as a template for future consolidation models/sites. Feasibility study to consider highway access and SRN impact.	Operational efficiency
RD11	Promoting suitable alternative routes in the event of adverse weather.	Include how National Highways and local authorities work together to clearly communicate with the industry to ensure their effectiveness.	Operational efficiency
RD12	Review options to deliver smarter during quieter periods of the day or week.	Include access restrictions to support freight vehicles, managed delivery windows, retiming deliveries and use of quiet equipment for supply chain vehicles.	Operational efficiency
RD13	Support improvements to strategically important roads that require better journey time reliability	Include data on HGV routing, assessing options for future road enhancements. Involve stakeholders in discussions regarding reliability. Examples of this include the A303, A35, A37 and A39.	Operational efficiency
RD14	Review suitability of technologies from trials and their potential for the South West.	Include opportunities for a smarter SRN through data collection, vehicle technologies, fuel technologies including electrification and pilot concept with plug in points for static vans.	Technology
RD15	Promote a trial of the use of a load and vehicle matching exchange to reduce empty running for 10 hauliers for a year.	Include how local businesses can benefit from using utilised empty vehicles and using local hauliers to create a circular economy.	Technology
RD16	Explore collaboration between delivery companies to service hard to reach areas.	Include how technology and partnerships in supply chains can help deliver consistent last mile services to all areas in the region.	Technology

13.3.5 Other

Table 13-6: Final: Other Interventions

Intervention ID	Interventions	Further details	Theme
O1	Develop engagement on logistics schemes and partnerships.	Include road / rail route study schemes and establishing freight capabilities to manage the strategic engagement / relationship with DfT, Network Rail, National Highways and Ports / Airports / Rail Terminal Operators. This may be in conjunction with Local Authorities and developers who for commercial reasons do not want to bring the scheme to the Steering Group.	Connectivity
O2	Lead by example by implementing low or zero emission vehicles in local authority fleets.	Include details around how the transitional process takes place and the support that stakeholders can obtain to aid transition.	Decarbonisation

O3	Establish and promote a South West Freight Steering Group.	Include Network Rail, National Highways, Traffic Commissioner, trade bodies, public authorities and industry stakeholders to identify workstreams/packages in the Freight Strategy.	Information and awareness
O4	Agree the role of Sub-national Transport bodies with regards to the freight industry. Once established carry out an awareness campaign	Include understanding how the STBs can support the freight industry and stakeholders within the South West to achieve regional goals e.g. decarbonisation.	Information and awareness
O5	Assist with targeted recruitment campaigns for the freight industry.	Include promoting the industry to schools, colleges to develop apprenticeship and placement opportunities across industry partners - facilitated through regional trade body representatives.	Information and awareness
O6	Guidance for agricultural operators on the use of the road network during busy periods.	Consider the impacts of slow moving vehicles on journey time reliability during busy summer periods and the use of agricultural vehicles rather than utilising local hauliers. To include researching into the nature and scale of the issue of agricultural vehicles causing poor vehicle flow in particular locations on the network.	Information and awareness
O7	Promote sourcing from local businesses.	Include the use of using local farmers and businesses to minimise demand for travel.	Information and awareness
O8	Undertake sector supply chain audits.	Include dairy, agriculture and aggregates to review their needs and understand their movements.	Operational efficiency
O9	Consider creating an information sharing platform in conjunction with the Freight Steering Group so that for example best practice case studies can be featured.	Include promoting safety such as specifying accreditation to best practice schemes e.g. FORS / CLOCS and engagement with the Traffic Commissioner to communicate their role and regulatory powers.	Operational efficiency
O10	Exploring collective procurement with local anchor institutions for purchasing 'essential' goods.	Include review of procurement practices with a view to develop a Procurement Strategy for the South West.	Operational efficiency

13.4 Stakeholder and project team assessment

Where the interventions were combined, the scoring from the stakeholders and project team questionnaires were combined in order to establish a correlation in the intervention priorities. Of the top 40 interventions, out of 46, there was a 90 per cent correlation between the priorities of the stakeholders and the project team. Compared with 78 per cent correlation on the draft interventions, it identifies a significant improvement. This is a reassuring outcome with a view to developing an implementation plan with clear, popular interventions.

13.5 Summary

This chapter provides a comprehensive series of 46 freight interventions for the South West. These have been developed over time in response to the issues identified and the feedback received from the stakeholder workshop. These have been reduced from the initial 79 interventions that were developed. A number of prioritised interventions have been identified based on the response from the online questionnaire. These have then been developed into the five recommended intervention packages.

14. Implementation plan

As part of the implementation plan, the interventions will need to be led and developed by a number of primary and secondary owners. Intervention should take an industry-led approach as new schemes have to be commercially viable. Similarly where interventions are ranked as requiring National Highways and Network Rail action, this should be led within the existing structures and budgets of those organisations. At the time of writing we are in a transition phase before the establishment of Great British Railways. Eventually the new entity could take ownership of some of the rail freight interventions.

The strategy has been structured modally and for some of the implementations the STBs should consider a cross modal picture to leverage maximum benefits across all modes.

Primarily their role will be to deliver or support the intervention. Each of the interventions will vary in their timescale and costs. A high-level indication of these have been set out in the following sections. Table 14.1 below provides a definition of the timescale and cost.

Table 14-1: Definition of Timescales & Costs per Intervention

Timescale	Definition – year brackets	Cost	Definition – cost bracket
🕒	2022 – 2024	£	£0 – £ 100,000
🕒🕒	2025 – 2029	££	£100,001 – £1million
🕒🕒🕒	2030 +	£££	£1million +

14.1 Aviation

Table 14-2: Implementation of: Aviation Interventions

ID Number	Interventions	Primary owner and role	Secondary owner/s and role	Timescale	Cost
A1	Support for sustainable aviation and aerospace sector	Airports and air freight operators - deliver	STBs - support	🕒🕒	££
A2	Further develop business / employment zones around airports.	LAs - lead in conjunction with private developers	Airports and Freight Steering Group – support. STBs to support	🕒🕒🕒	£
A3	Work with operators to understand future opportunities for carrying air cargo.	Operators - deliver	Airports and STBs to influence and support	🕒	£
A4	Review suitability and potential locations that could benefit from drone technology.	Air freight operators and technology providers - deliver	STBs - support	🕒🕒	££

14.2 Maritime

Table 14-3: Implementation of: Maritime Interventions

ID Number	Interventions	Primary owner and role	Secondary owner/s and role	Timescale	Cost
M1	Develop business case for coastal feeder services to help remove road vehicles.	Port authorities - deliver	STBs - support	🕒	£
M2	Explore opportunities to diversity ports into renewable energy production.	Port authorities - deliver	Energy generators - support	🕒🕒	£££
M3	Awareness campaign of coastal shipping opportunities for supply chains.	Port authorities - deliver	STBs - support	🕒	£
M4	Develop and expand growth into new sectors at ports.	Port authorities - deliver	STBs - support	🕒🕒	££

M5	Investigate improvements in road and rail links to Port terminals.	Port authorities, highway authorities and Network Rail - deliver	STBs - support	🕒	£
M6	Review of ports in the South West (Already done for WG).	STBs - deliver	Port authorities, National Highways and Network Rail - support	🕒🕒	£
M7	Review of ports planning guidance.	LAs – lead and deliver	Port authorities & STBs - support	🕒	£

14.3 Rail

At the time of writing we are in a transition phase before the establishment of Great British Railways. Eventually the new entity could take ownership of some of the rail freight interventions.

Table 14-4: Implementation of: Rail Interventions

ID Number	Interventions	Primary owner and role	Secondary owner/s and role	Timescale	Cost
RL1	Feasibility study to operate intermodal container trains from deep sea ports to intermodal sites.	Network Rail and FOCs - deliver	STBs - support	🕒	£
RL2	Support electrification and gauge enhancement of the core rail network.	Network Rail and FOCs- deliver	STBs - support	🕒🕒🕒	£££
RL3	Pursue rollout of new alternative fuel locomotives and wagon technology.	Network Rail and FOCs - deliver	STBs - support	🕒🕒🕒	£££
RL4	Support and signpost businesses and local authorities to transition to rail freight.	STBs - deliver	Network Rail and FOCs - support	🕒	£
RL5	Understand the availability of grants to help facilitate modal switch to rail.	Network Rail and FOCs - deliver	STBs - support	🕒🕒	£
RL6	Partnership working with stakeholders to promote South West priorities.	STBs - deliver	All interested stakeholders - support	🕒	£
RL7	Encourage the establishment of rail freight intermodal sites in the South West. There are various possible locations to give regional coverage for example Bodmin/Burngullow, Bridgewater, Bristol, Exeter/Newton Abbot, Plymouth, Poole and Westbury.	Network Rail and FOCs - deliver	STBs - support	🕒🕒🕒	£££
RL8	Safeguard rail freight sites through developing Supplementary Planning Guidance.	LAs - deliver	Network Rail, FOCs and STBs - support	🕒🕒	£
RL9	Allocate sufficient freight train paths on the main line and diversionary routes.	Network Rail - deliver	STBs - support	🕒🕒	££

14.3.1 RL7 – intervention rationale

It is recommended that in order to sufficiently provide the South West with access to rail freight terminals, seven rail freight intermodal terminals are required. **Figure 14-1** presents the recommended locations across the South West and their area coverage, a one hour driving time from the recommended locations. This would enable an operator to deliver three local loads per day.

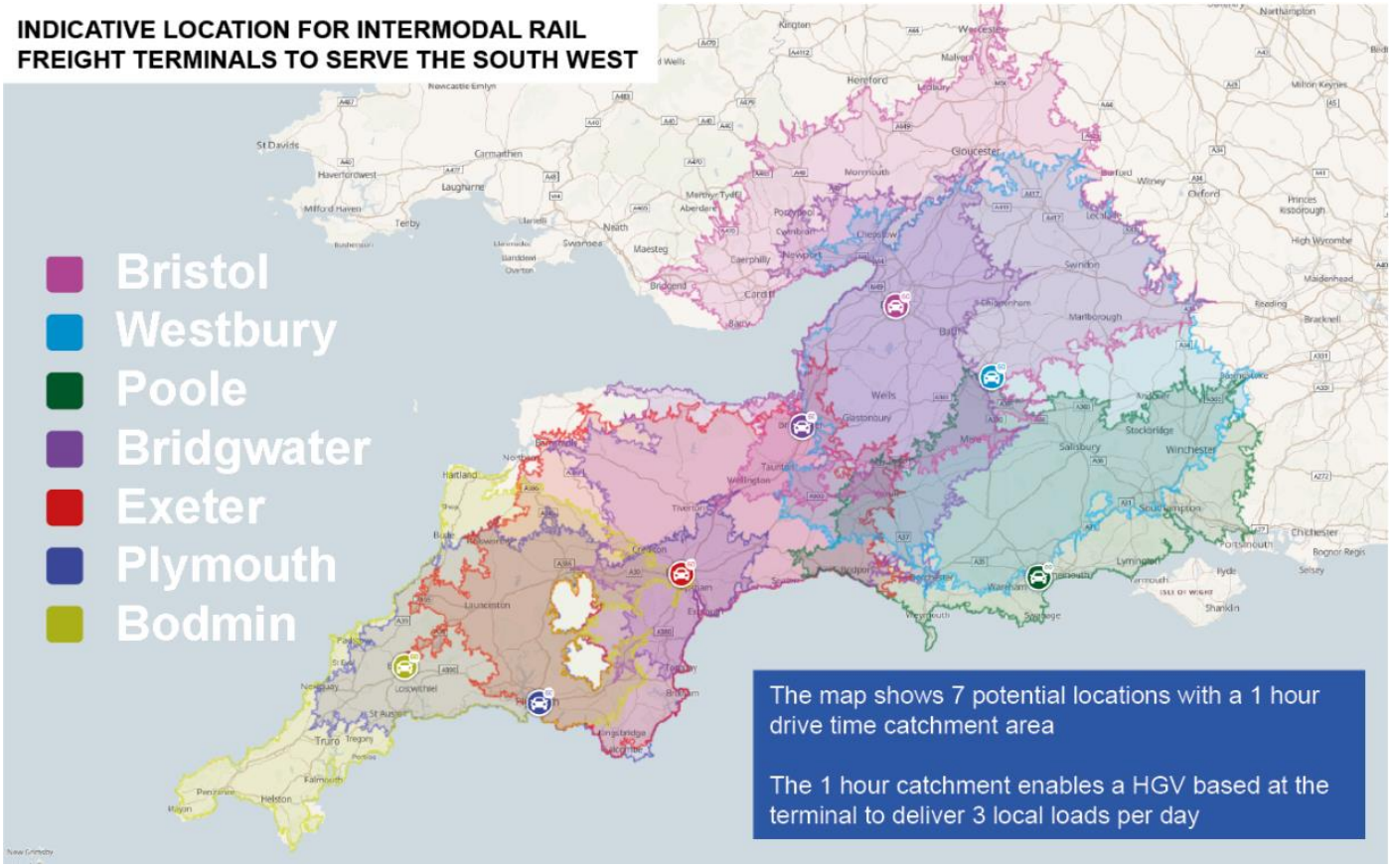


Figure 14-1: Indicative location for intermodal rail freight terminals to serve the South West[106]

To understand the potential impact of introducing these terminals, indicative calculations have been made to consider the approximate impact that a five per cent modal shift to rail would have. This includes the number of rail freight movements that would be required to achieve these modal shift levels. This was based on the CSRGT data that is shown in **Appendix C**.

Each of the terminal locations shown in **Figure 14-1** has been matched with the road-based inbound and gross goods lifted (tonnes) from the local authority in which they are located. This is to assume, for the purposes of this exercise, that these terminals would only serve the local authorities in which they are located (which in reality may not be the case, especially if the local authority covers a small area). Furthermore, freight trains would not be used for movements taking place wholly within the local authority (as this would be too short of a distance). Inbound data for Wiltshire CC is not available in the CSRGT data. The outbound tonnage was used to give an indicative calculation for this terminal.

The potential number of freight trains required for modal shift is then calculated by using the tonnage calculated using the method explained above, and then taking five per cent of this figure. Estimating that a typical intermodal freight train can carry 448 tonnes (32 containers at 14 tonnes per container) it would take, indicatively, the number of services shown annually to carry five per cent of the inbound 2019 gross goods lifted (tonnes) by rail. A daily number of trains (rounded up) has been provided based on an operating period of 300 days per year.

[106] Geoapify. Available from: https://commutetimemap.com/

Table 14-5: Potential number of freight trains required for modal shift

Potential Terminal	Local Authority	Inbound Gross Goods Lifted (Tonnes) to local authority region	5% of Inbound Gross Goods Lifted (Tonnes)	Required Annual Freight Trains for Inbound 5% modal shift	Required daily Freight Trains for Inbound 5% modal shift
Bristol	City of Bristol	10,764,458	538,223	1,202	5
Westbury* (Outbound data used)	Wiltshire CC	12,493,514	624,676	1,395	5
Poole	Bournemouth and Poole	1,612,715	80,636	180	1
Bridgwater	Somerset	9,155,342	457,767	1,022	4
Exeter	Devon CC	8,743,856	437,193	976	4
Plymouth	Plymouth	813,253	40,663	91	1
Bodmin	Cornwall and the Isles of Scilly	3,309,233	165,462	370	2

There is potential to align this modal shift and the number of trains required to the findings from the Solent to Midlands Route Strategy study. It similarly identifies a number of trains which would be required to move five per cent of goods moved for the study area. Given the proximity to the South West, there would be opportunity to utilise trains bound to the South West from the Solent to then travel further into the South West to serve the recommended freight intermodal terminals. Similar findings for the Solent to Midlands study can be found in **Appendix H**, along with the impacts of a 10 per cent modal shift of goods to rail.

14.4 Road

Table 14-6: Implementation of Road Interventions

ID Number	Interventions	Primary owner and role	Secondary owner/s and role	Timescale	Cost
RD1	Strategically plan network of alternative fuel stations and promote existing sites. Development of new sites by private sector	Private sector -deliver	Energy generators - deliver STBs - support	🕒🕒🕒	£££
RD2	Promote resources and training to help operators avoid bridge strikes.	Network Rail – deliver	Technology & training providers – support. STBs - support	🕒	££
RD3	Promote solutions to driver shortages.	Logistics UK and RHA - deliver	STBs - support	🕒🕒	££
RD4	Work with hauliers to understand how they can be supported in the uptake of alternatively fuelled vehicles.	STBs - deliver	Energy generators - support	🕒	£
RD5	Review of current lorry parking facilities in the South West.	LAs with private developers - deliver	National Highways – support STBs - support	🕒	££
RD6	Support for infrastructure improvements and investment where suitable.	National Highways - deliver	STBs - support	🕒🕒🕒	£££
RD7	Continue support for routine road maintenance activities but broadcast plans so hauliers can better plan.	National Highways - deliver	STBs - support	🕒🕒	££
RD8	Identify cluster locations where logistics plans are needed along with facilities for last mile logistics.	STBs - deliver	Local authorities - support	🕒	£
RD9	Promote use of swap trailers to reduce demands for long distance trunking between regions.	Logistics UK and RHA - deliver	STBs - support	🕒🕒	££
RD10	Feasibility study on consolidation sites for last mile logistics.	Local authorities and logistics operators - deliver	STBs - support	🕒	£
RD11	Promoting suitable alternative routes in the event of adverse weather.	National Highways and local authorities - deliver	STBs - support	🕒	£
RD12	Review options to deliver smarter during quieter periods of the day or week.	Local authorities and logistics operators - deliver	STBs - support	🕒	£
RD13	Support improvements to strategically important roads that require better journey time reliability	National Highways - deliver	STBs - support	🕒	£
RD14	Review suitability of technologies from trials and their potential for the South West.	National Highways - deliver	STBs and technology providers - support	🕒🕒	££
RD15	Promote a trial of the use of a load and vehicle matching exchange to reduce empty running for 10 hauliers for a year.	STBs - deliver	Freight Steering Group and logistics operators - support	🕒	£
RD16	Explore collaboration between delivery companies to service hard to reach areas.	Logistics operators - deliver	STBs - support	🕒	££

14.5 Other

Table 14-7: Implementation of: Other Interventions

ID Number	Interventions	Primary owner and role	Secondary owner/s and role	Timescale	Cost
O1	Develop engagement on logistics schemes and partnerships.	STBs - deliver	All interested stakeholders - support	🕒🕒	££
O2	Lead by example by implementing low or zero emission vehicles in local authority fleets.	LA - implement	STBs - support	🕒🕒	££
O3	Establish and promote a South West Freight Steering Group.	STBs - deliver	All interested stakeholders - support	🕒	£
O4	Agree the role of Sub-national Transport bodies with regards to the freight industry. Once established carry out an awareness campaign	STBs - deliver	All interested stakeholders - support	🕒	£
O5	Assist with targeted recruitment campaigns for the freight industry.	Logistics UK and RHA - deliver	STBs - support	🕒	££
O6	Guidance for agricultural operators on the use of the road network during busy periods.	Logistics UK and RHA - deliver	STBs - support	🕒	£
O7	Promote sourcing from local businesses.	Local business groups - deliver	STBs - support	🕒	£
O8	Undertake sector supply chain audits.	Private sector - deliver	Interested stakeholders and STBs support	🕒	£
O9	Consider creating an information sharing platform in conjunction with the Freight Steering Group so that for example best practice case studies can be featured.	STBs - deliver	Transport Commissioner and local authorities - support	🕒	£
O10	Exploring collective procurement with local anchor institutions for purchasing 'essential' goods.	Local authorities and logistics operators - deliver	STBs - support	🕒	£

14.6 Interventions where the STBs are the prime owner

The 46 Interventions have been categorised as to which organisation should be the primary owner. In the table below it is proposed that the STBs own 10 of the 46. It is suggested that 26 of the interventions are progressed in the short term which is by the end of 2024. The timescales used tie in with the five year control periods which are similar in both Network Rail (CP6 etc.) and National Highways (RIS2 etc.).

Table 14-8:Number of interventions by level of ownership, by timescale and by cost for the STBs

Category	No. of Interventions	STBs as Primary owner	STB as Secondary owner	Timescale Short	Timescale Medium	Timescale Long	Cost £	Cost ££	Cost £££
Air	4	0	4	1	2	1	2	2	0
Maritime	7	1	6	4	3	0	5	1	1
Rail	9	2	7	3	3	3	5	1	3
Road	16	3	13	10	4	2	7	7	2
Other	10	4	6	8	2	0	7	3	0
Total	**46**	**10**	**36**	**26**	**14**	**6**	**26**	**14**	**6**

14.7 Indicative costs

In order to obtain a financial quantum, a midpoint has been chosen within each of the cost categories and this provides an indication of likely cost. For the 10 interventions listed as being led by the STBs the majority are in the lower cost bracket and are as shown below with the total predicted to be around £950,000. The overall time window of this Freight Strategy is to 2050, so depending on the amount of resource available annually this is thought to be affordable as over the 28 years this equates to about £34,000 per annum split between the two STBs. Admittedly the current timeframe recommended is heavily orientated around the short term but this is negotiable. Importantly this includes the need for administering the running of the Freight Steering Group which is fundamental to facilitate the implementation of this Freight Strategy.

Table 14-9: Indicative costs of interventions led by the STBs

Cost	Definition – cost bracket	Midpoint	Number	Total
£	£0 – £ 100,000	£50,000	9	£450,000
££	£100,001 – £1million	£500,000	1	£500,000
£££	£1million +	£2,000,000	0	£0
Total			10	£950,000

In terms of indicative cost for the wider group of stakeholders including those for the STBS, it is estimated that 25 of the interventions are in the lower cost category meaning under £100,000, 15 are in the medium category and six are in the highest cost category. In order to obtain a financial quantum, a midpoint has been chosen and this provides an indication of likely cost of just over £20 million and most of this is attributable to other organisations that would lead these interventions, such as National Highways, Network Rail, Port Authorities and some Local Authorities. Please note although the mid-point values have been given, in the case of major infrastructure improvements the initial funding would only cover the design of the scheme. Additional funding would be required for the construction phase.

Table 14-10: Indicative costs of interventions led by the wider group of stakeholder

Cost	Definition – cost bracket	Midpoint	Number	Total
£	£0 – £ 100,000	£50,000	25	£1,250,000
££	£100,001 – £1million	£500,000	15	£7,500,000
£££	£1million +	£2,000,000	6	£12,000,000
Total			46	£20,750,000

14.8 Summary

This chapter has helped to define primary and secondary owners of each intervention split under each mode of freight transport and identified the indicative timescale and costs for deployment across the region. This is with a view to helping guide the priorities of a South West Freight Steering Group and the delivery of interventions that satisfy the vision and objectives of the Freight Strategy. There are 10 interventions to be led by the STBs and a further 36 to be taken forward by other organisations such as Network Rail and National Highways. 26 of the interventions are proposed to be started and, in many cases, finished in the short term.

15. Freight Steering Group

15.1 Introduction

One of the key steps for this strategy is to establish a Freight Steering Group with representatives from Trade Bodies, hauliers, ports, rail freight and shippers to take forward actions discussed as part of the Freight Strategy development. It is important that these stakeholders buy-in to what Peninsula Transport and Western Gateway are aiming to achieve and hence help provide evidence and guidance to the process. It is also important to assemble a group of stakeholders who are a mix of representatives from various public and private sector interests, with a cross section from representative sectors.

15.2 Function

The overall function of the Freight Steering Group will be to drive forward the Freight Strategy development by considering and implementing interventions developed as part of the Freight Strategy. The group will meet regularly throughout the life of the project to drive forward the recommended implementations and consider the practical nature of how measures can be introduced. The group should:

- Identify potential for collaboration and joint working to improve freight flows within the region
- Share non-sensitive information
- Support mutual understanding of issues/concerns and communicate these to relevant parties
- Consult on a variety of proposals and interventions
- Lobby for improvements to transport infrastructure
- Promote best practice and better use of existing infrastructure
- Explore the potential for more sustainable practices, reducing road miles and emissions
- Be a platform for sharing data and identifying solutions to plug the data gaps

15.3 Structure

Transport Peninsula and Western Gateway will play an integral role in the Freight Steering Group. Organisations with an interest or involvement in freight and the movement of goods or servicing activity within the South West are welcome to engage with the Forum. The group will be managed to ensure that it has a balance of representation by model, industry and other stakeholder types to ensure a broad spectrum of expertise and knowledge.

It is recommended that the steering group will come together as one group with the idea of meeting twice yearly to provide an update on progress. These meetings are to be supported by sub groups which meet up more regularly to push through their individual agendas based on the interventions suggested. These sub groups should be divided up into the different modes of transport to bring together different expertise of that mode. For example Network Rail to lead the rail sub group with support from the rail freight operators and stakeholders, along with local authority and STB representation.

15.4 Stakeholders

The stakeholder engagement process gave a number of opportunities for individuals to indicate whether they would be willing to serve on a Freight Steering Group. This included questions as part of stakeholder interviews and questionnaires, as well as during the stakeholder workshops. It is positive to report that there is an encouraging number of volunteers from a variety of different stakeholder groups. In many cases, the project team built meaningful relationships with stakeholders during the stakeholder engagement phase and have continued to engage with them following the questionnaires, interviews and workshops.

In total, 60 stakeholders have agreed they wish to be considered to form part of the Freight Steering Group for the South West. This is an excellent position to be in, with having probably more on the list than can practically be accommodated. It allows the organiser of the steering group the ability to make sure there is a reasonable mix of stakeholders from different organisations and backgrounds. These are broken down by:

Table 15-1: Split of different stakeholders interested in joining a South West Freight Steering Group

Stakeholder groups	Number of stakeholders
Academic	2
Aviation	2
Local authority	11
Local enterprise partnerships and other regional organisations	10
Maritime	11
Other	4
Rail	9

A list of the organisations can be found in **Appendix I**

15.5 Implementation

It is expected that a Freight Steering group is to be set up in 2022 and will include representation from both public bodies and private sector freight organisations. Following the Freight Strategy development this group will provide an opportunity for Peninsula Transport and Western Gateway to keep track of progress on the implementation of initiatives and an opportunity for organisations to feedback on them. The STBs will benefit from this level of support in promoting uptake of the initiatives.

It is also expected that the delivery plan of chosen initiatives will be integrated into the respective STB strategies. It is yet to be determined if these will be separate freight sections as there are a significant number of interventions which are cross boundary and even national in nature which would benefit from an all STB approach and plan – particularly for the integration with the planning work being undertaken by National Highways / Network Rail for RIS3 / CP7. Examples of joint national infrastructure planning such as Solent – Midlands Study (Phase 1) are likely to become more common place.

15.6 Summary

This chapter has reflected on the value and importance of developing a South West Freight Steering Group which is more than a forum (talking shop). The level of interest expressed by stakeholders in forming a group to help coordinate, guide and deliver interventions in the future in really encouraging with 60 people on the provisional list. A Freight Steering Group, compromising of public authorities, industry representatives and trade bodies, can serve various functions and is ultimately the vehicle for realising the ambitions of the Freight Strategy moving forward.

16. Next steps

This Freight Strategy is a culmination of the work between Peninsula Transport and Western Gateway which has looked to reflect the fact that freight and the associated supply chains operate on a more regional, national and international basis than is the case for passenger movements. This South West Freight Strategy regards freight and logistics as an opportunity and not an afterthought. It is centred around three sustainability pillars of environment, economy and society. This strategy contains standalone freight-specific initiatives as well providing supporting evidence for the overall transport strategy. Due to the reliance of the freight sector on key assets such as ports, rail terminals, airports and highway corridors, the Freight Strategy is aligned with relevant strategies and policies beyond the South West. There are links to the 2020 Port Access Study produced for Western Gateway which contains more specific locational detail and it also links to the forthcoming Peninsula Transport WP12 International Gateway work too.

The stakeholder engagement process was conducted successfully and has provided a strong platform for next steps, including the forming of a freight steering group, to help implement the strategy. This was evidenced by the positive feedback received from stakeholders and the willingness of most to take part in further development. The success of the workshops was also assisted by the variety of stakeholders that took part as well as their input and discussions during the sessions. This process has set out the key freight interventions that are a priority for implementation. This will help to deliver the freight vision as part of the wider strategies and priorities for Peninsula Transport and Western Gateway and will enable the region to address the challenges, opportunities and priorities for freight in the South West over the next 30 years – to 2050. Peninsula and Western Gateway are now in a position to implement measures by keeping engaged with those who have expressed a keen interest to be part of this journey, essential to achieve their visions, goals and objectives for their respective areas. Effective partnerships and strong planning are needed to implement these measures with the financial support and guidance of the Department for Transport.

Peninsula Transport STB			
Vision	***"Transforming transport across the Peninsula, enabling our society and economy to thrive and our unique and outstanding environment to flourish"***	**Goals / Objectives**	• We will improve connections between people, businesses, and places • We will enhance resilience of the transport network • We will deliver affordable, zero-emissions transport for everyone • We will help to improve the health and wellbeing of communities in the peninsula • We will help the peninsula to be a great place to live and work
Western Gateway STB			
Vision	***"Enable sustainable economic growth by identifying a long-term investment programme designed to deliver a well-connected, reliable and resilient strategic transport system; that closes productivity gaps and makes the Gateway area more competitive, while respecting its world class natural and built environments"***	**Goals / Objectives**	• Ensure effective access of labour markets • Enable greater integration between employment clusters • Enhance business connectivity to international markets • Improve North-South connectivity • Provide a robust regional evidence base in support of the local plan making process which understands different travel markets and use of strategic travel corridors • Decarbonisation of the strategic transport network • Adoption of electrification and/or use alternative fuels to enable fossil-fuel-free transport • Improve air quality • High quality digital connectivity to reduce the need for travel • Influence the sustainable delivery of new homes and employment opportunities • Support multi-modal travel options within travel to work areas • Improve transport & digital connectivity to reduce poverty and deprivation • Embrace the role of technology in supporting strategic travel

Appendix A Freight Strategy review

A.1 Freight Strategy documents

Below presents a comprehensive list of freight strategies that were reviewed.

Freight Strategy documents reviewed

Source	Document Name	Date
European Platform on Sustainable Urban Mobility Plans	Sustainable Urban Logistics Planning	Jun-19
Buckinghamshire County Council	Transport, Economy and Environment - Freight Strategy 2018/2036	Jun-19
Transport for London	Freight and servicing action plan	Mar-19
WestTrans Partnership	Freight Strategy (West London region)	July-16
Birmingham City Council	Birmingham Transport Plan	Jan-20
Merseytravel	Liverpool City Region freight and logistics strategy – Merseytravel	Jan-17
Transport Scotland	National Transport Strategy 2 - Draft strategy for consultation	2019
England's Economic Heartland	England's Economic Heartland Freight Study final report	Jun-19
Midlands Connect	Freight Strategy Overview	Apr-17
Peninsula Transport	Peninsula Transport Shadow Sub-National Transport Body Regional Evidence Base	Jul-19
Transport Scotland	Delivering the goods - Scotland's rail Freight Strategy	Mar-16
Abu Dhabi Department of Transport	Abu Dhabi Multimodal Freight Master Plan	Nov-19
Federal Ministry of Transport, Building and Urban Transport Development	Freight Transport and Logistics Action Plan – Logistics Initiative for Germany	Dec-10
Transport for Greater Manchester	Freight and Logistics Transport Strategy	2013 & 2020
Travelwest	Draft joint local transport plan 4 2019-2036	2019
Transport Scotland	National Transport Strategy	2020
AECOM	South West Scotland Transport Study	2020
Institute for Public Policy Research North	Inclusive growth – future challenges How mayors can build inclusive economies for the future	Oct-20
CBRE	Cornwall Logistics Market	Sep-19
Transport for the North	Freight and Logistics Report	2016
Transport for the North	Enhanced Freight and Logistics Analysis Report 2018	Jan-18
Tees Valley Combined Authority	Freight Implementation Plan 2020	2020
Transport for the South East	Freight and Logistics gateway review	2019
Transport for the South East	Freight Strategy scoping study	2020

A.2 Issues

Common freight issues identified across freight strategies and the documented initiatives (numbered from Appendix A2) to resolve them

			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
			Sustainable Urban Logistics Planning	Buckinghamshire County Council Transport, Economy and Environment - Freight Strategy 2018/2036	Transport for London - Freight and servicing action plan	WestTrans - Freight Strategy	Birmingham Transport Plan	LCR freight and logistics strategy – Merseytravel	Transport Scotland - National Transport Strategy 2 - Draft strategy for consultation	EEH Freight Study final report	Midlands Connect: Freight Strategy overview / Freight narrative report	Peninsula Transport Shadow Sub-National Transport Body Regional Evidence Base	Delivering the goods - Scotland's rail Freight Strategy	Abu Dhabi Multimodal Freight Master Plan
Issues	1	Congestion / road capacity		2 / 17	2 / 16 / 20			17 / 20		10 / 17	15 / 17	17		
	2	Air quality		2 / 12 / 14	12 / 21	2 / 9 / 12	12 / 16 / 21	2 / 12	12	9 / 14		17		
	3	Safety		18 / 19	10 / 19 / 21	5 / 19		10				17		
	4	Inappropriate freight routing / signage ignorance		4 / 10 / 17						10		17		
	5	Parking / loading and unloading		11						11				
	6	Infrastructure restrictions (weight / height)		17						10 / /20				
	7	Rise in demand (population growth)			20 / 21	20	16		20					
	8	Freight hubs (located away from central areas)			2									
	9	Consumer behaviour change			10	6 / 16								
	10	Lack of support for the industry											4 / 7 / 16	
	11	Lack of consistency in standards												10 / 20
	12	Lack of information / data												

			R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	R24	
			Freight Transport and Logistics Action Plan – Logistics Initiative for Germany	TfGM Freight Strategy	Travelwest - Draft joint local transport plan 4 2019-2036	Transport Scotland - National Transport Strategy	South West Scotland Transport Study	IPPR North - Inclusive growth – future challenges How mayors can build inclusive economies for the future	CBRE - Cornwall Logistics Market	Transport for the North - Freight and Logistics Report	Transport for the North - Enhanced Freight and Logistics Analysis Report 2018	Tees Valley Combined Authority - Freight Implementation Plan 2020	TfSE - Freight and Logistics gateway review	TfSE - Freight Strategy scoping study	Total
Issues	1	Congestion / road capacity	2	2 / 10 / 15 / 17 / 20	2 / 15 / 17		15 / 17	17	2	2 / 10 / 15 / 17 / 20	2 / 10 / 15 / 17 / 20	2 / 17	2 / 15 / 17 / 20	2 / 15 / 17 / 20	**17**
	2	Air quality	9 / 21	2 / 12 / 14 / 21	2 / 9 / 14 / 21	9 / 14		21	2 / 9	2 / 9 / 10 / 15 / 20 / 21	2 / 9 / 10 / 15 / 20 / 21	2 / 14 / 15 / 20 / 21	2 /15 / 16 / 20 / 21	2 /15 / 16 / 20 / 21	**19**
	3	Safety	10 / 18	10 / 19 / 21	9 / 21		15				10 / 21		10 / 19 / 21	10 / 19 / 21	**12**
	4	Inappropriate freight routing / signage ignorance					17			4 / 10 / 17		17			**6**
	5	Parking / loading and unloading			11					11	11	11	11	11	**8**
	6	Infrastructure restrictions (weight / height)					17		20	10 / 15 / 17 / 20	10 / 15 / 17 / 20	10 / 17			**7**
	7	Rise in demand (population growth)		4 / 6 / 10 / 20 / 21	21	6			20 / 21	4 / 6 / 10 / 20 / 21			20 / 21	20 / 21	**11**
	8	Freight hubs (located away from central areas)		2 / 14 / 17 / 20					2 / 20		2 / 14 / 17 / 20	2 / 14	2 / 17 / 20	2 / 17 / 20	**7**
	9	Consumer behaviour change		4 / 6					10			21	21	21	**7**
	10	Lack of support for the industry				6			8	4 / 6 / 7 / 16	4 / 6 / 7 / 16	7	6 / 7	6 / 7	**8**
	11	Lack of consistency in standards											20	20	**3**
	12	Lack of information / data		5 / 6				4 / 5 / 7				7	6	6	**5**

A.3 Initiatives

Common freight initiatives identified across freight strategies

			R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
			Sustainable Urban Logistics Planning	Buckinghamshire County Council Transport, Economy and Environment - Freight Strategy 2018/2036	Transport for London - Freight and servicing action plan	WestTrans - Freight Strategy	Birmingham Transport Plan	LCR freight and logistics strategy – Merseytravel	Transport Scotland - National Transport Strategy 2 - Draft strategy for consultation	EEH Freight Study final report	Midlands Connect: Freight	Peninsula Transport Shadow Sub-National Transport Body Regional Evidence Base	Delivering the goods - Scotland's rail Freight Strategy	Abu Dhabi Multimodal Freight Master Plan
Initiatives	1	Positively highlighting responsible operators		■			■							
	2	Consolidation Centres / freight consolidation / holding areas / multi-modal distribution parks		■	■	■		■						
	3	Delivery restrictions / standardise delivery restrictions								■				
	4	Stakeholder engagement / Empowering communities / Collaboration		■						■			■	
	5	Improve Freight data collection		■		■				■				
	6	Freight Forums / working groups / focus groups / freight lab (innovation platform)				■							■	
	7	Funding to support industry				■							■	
	8	Land for urban logistics								■				
	9	Last-mile logistics				■				■				
	10	Driver training / logistics training and guides / consumer behaviour awareness / sharing knowledge / Key route network awareness	■	■	■			■		■				■

	11	Lorry Parking		■	■					■				
	12	Low emission Zone / Ultra Low Emission Zone / Air Quality Management Zone		■	■	■	■	■	■					
	13	Quiet deliveries			■									
	14	Rail logistics terminals / rail freight access improvement / rail freight opportunity		■						■				
	15	Rail network capacity review						■			■		■	
	16	Retiming deliveries			■	■	■							
	17	Road improvement scheme / access improvement scheme / port access improvements / designated load bays		■				■		■	■	■		■
	18	Road safety programmes		■										
	19	Safety initiative schemes (Direct Vision Standard / FORS / CLOCS)		■	■	■								
	20	Sustainable Urban Logistics Plans / Construction Logistics Plans / Delivery Service Plans / Area Freight Management Plans / Urban logistics toolkit	■		■	■		■	■	■				■
	21	Technology (safety equipment, clean/electric/low emission vehicles, remote delivery, innovation)			■		■						■	

			R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	R24	
			Freight Transport and Logistics Action Plan – Logistics Initiative for Germany	TfGM Freight Strategy	Travelwest - Draft joint local transport plan 4 2019-2036	Transport Scotland - National Transport Strategy	South West Scotland Transport Study	IPPR North - Inclusive growth – future challenges How mayors can build inclusive economies for the future	CBRE - Cornwall Logistics Market	Transport for the North - Freight and Logistics Report	Transport for the North - Enhanced Freight and Logistics Analysis Report 2018	Tees Valley Combined Authority - Freight Implementation Plan 2020	TfSE - Freight and Logistics gateway review and Scoping study	TfSE - Freight Strategy scoping study	**Total**
Initiatives	1	Positively highlighting responsible operators													**2**
	2	Consolidation Centres / freight consolidation / holding areas / multi-modal distribution parks	■	■	■				■	■	■	■	■	■	**13**
	3	Delivery restrictions / standardise delivery restrictions		■	■					■	■				**5**
	4	Stakeholder engagement / Empowering communities / Collaboration		■	■			■		■	■				**8**
	5	Improve Freight data collection		■				■		■	■				**7**
	6	Freight Forums / working groups / focus groups / freight lab (innovation platform)		■		■				■	■		■	■	**8**
	7	Funding to support industry						■		■	■	■	■	■	**8**
	8	Land for urban logistics							■	■	■	■			**5**
	9	Last-mile logistics	■		■	■			■	■	■		■	■	**10**
	10	Driver training / logistics training and guides / consumer behaviour awareness / sharing knowledge / Key route network awareness	■	■						■	■				**10**
	11	Lorry Parking	■	■	■					■	■	■	■	■	**11**
	12	Low emission Zone / Ultra Low Emission Zone / Air Quality Management Zone		■											**7**

	13	Quiet deliveries													**1**
	14	Rail logistics terminals / rail freight access improvement / rail freight opportunity		■	■	■				■	■	■			**8**
	15	Rail network capacity review		■	■	■	■			■	■		■	■	**11**
	16	Retiming deliveries													**3**
	17	Road improvement scheme / access improvement scheme / port access improvements / designated load bays		■	■		■	■		■	■	■	■	■	**15**
	18	Road safety programmes	■	■								■			**4**
	19	Safety initiative schemes (Direct Vision Standard / FORS / CLOCS)		■									■	■	**6**
	20	Sustainable Urban Logistics Plans / Construction Logistics Plans / Delivery Service Plans / Area Freight Management Plans / Urban logistics toolkit		■					■	■	■		■	■	**13**
	21	Technology (safety equipment, clean/electric/low emission vehicles, remote delivery, innovation)	■	■	■			■	■	■	■	■	■	■	**13**

Appendix B CSRGT data assumptions

B.1 Commodity types

For the commodity types, the naming conventions are very descriptive, causing the labelling in graphs and tables to be extended. To analyse the data, the naming conventions have been summarised and shortened.

Simplified commodity categories

Original commodity type	Updated commodity type
Basic metals; fabricated metal products, except machinery and equipment	Metals
Chemicals, chemical products, and man-made fibers; rubber and plastic products; nuclear fuel	Chemicals
Coal and lignite; crude petroleum and natural gas	Coal, crude petroleum and natural gas
Coke and refined petroleum products	Coke and refined petroleum products
Empty vehicle	Empty vehicles
Equipment and material utilized in the transport of goods	Transport of goods
Food products, beverages and tobacco	Food and drink
Furniture; other manufactured goods	Furniture
Goods moved in the course of household and office removals; baggage and articles accompanying travellers; motor vehicles being moved for repair; other non-market goods	Removals and vehicle movements
Grouped goods: a mixture of types of goods which are transported together	Grouped goods
Machinery and equipment; office machinery and computers; electrical machinery and apparatus; radio, television and communication equipment and apparatus; medical, precision and optical instruments; watches and clocks	Machinery and equipment
Mail, parcels	Mail and parcels
Metal ores and other mining and quarrying products; peat; uranium and thorium ores	Mining and quarrying
Other goods	Other goods
Other non-metallic mineral products	Non-metallic mineral products
Products of agriculture, hunting, and forestry; fish and other fishing products	Agricultural products
Secondary raw materials; municipal wastes and other wastes	Waste products
Textiles and textile products; leather and leather products	Textiles
Transport equipment	Transport equipment
Unidentifiable goods: goods which for any reason cannot be identified and therefore cannot be assigned to groups 01-16.	Unidentified goods
Wood and products of wood and cork (except furniture); articles of straw and plaiting materials; pulp, paper and paper products; printed matter and recorded media	Wood products

B.2 Trips

The data provided from the DfT has been analysed to understand the estimated number of trips that have occurred between the origin and the destination. To do this, an understanding of the estimated payload capacity of the vehicle was required to then calculate the trips required to move the amount of goods. This involves dividing the grossed goods lifted by the payload of the vehicle to establish the number of trips. This does not include empty vehicles as there is no payload associated with these trips.

For a typical 44 tonne artic, it is assumed that the payload capacity of the vehicle is 29 tonnes. If this vehicle type was used to lift 1,000 tonnes of goods, it would be require around 34 trips. In the data, it is assumed that any rigid vehicle weighing more than 32 tonnes is a drawbar configuration. A detailed breakdown of the assumptions used when estimating vehicle payload is available below.

Estimated payload of vehicles

Vehicle type	Gross vehicle weight – Tonnes	Estimated vehicle payload – Tonnes	Vehicle type	Gross vehicle weight – Tonnes	Estimated vehicle payload – Tonnes
Artic	19.0	10	Rigid	12.2	7
Artic	24.0	15	Rigid	13.0	7
Artic	25.0	16	Rigid	13.1	7
Artic	28.0	18	Rigid	13.5	8
Artic	31.0	20	Rigid	14.0	8
Artic	34.0	22	Rigid	15.0	8
Artic	36.0	23	Rigid	16.0	9
Artic	38.0	25	Rigid	17.0	9
Artic	40.0	26	Rigid	17.5	9
Artic	44.0	29	Rigid	18.0	10
Rigid	4.6	3	Rigid	20.3	12
Rigid	5.0	3	Rigid	21.0	12
Rigid	5.2	3	Rigid	21.5	12
Rigid	5.3	3	Rigid	22.0	12
Rigid	5.5	3	Rigid	22.5	14
Rigid	6.2	4	Rigid	23.0	14
Rigid	6.5	4	Rigid	23.6	14
Rigid	7.0	4	Rigid	24.0	15
Rigid	7.2	4	Rigid	25.3	15
Rigid	7.5	4	Rigid	25.7	15
Rigid	7.5	4	Rigid	26.0	16
Rigid	7.6	4	Rigid	29.5	19
Rigid	8.3	5	Rigid	32.0	20
Rigid	8.3	5	Rigid	33.0	21
Rigid	8.5	5	Rigid	35.0	23
Rigid	8.6	5	Rigid	36.0	23
Rigid	8.8	5	Rigid	38.0	24
Rigid	10.0	6	Rigid	40.0	25
Rigid	10.5	6	Rigid	44.0	29
Rigid	11.0	7	Rigid	46.0	30
Rigid	12.0	7			

B.3 CO_2

The data provided has been analysed to understand the estimated amount of CO_2 attributed to the journey between the origin and the destination. The CO_2 has been calculated based on an assumption that an artic does 2.5 kilometres per litre of fuel used and a rigid four kilometres per litre of fuel used. This is based on DfT national data but reduced to reflect topography, type of roads and consultation with an operator. This is then converted to a CO_2 output with is assumed that for every litre of fuel used, it produces 2.62kg of CO_2 .

Appendix C CSRGT data analysis – local authorities

C.1 Peninsula Transport

Cornwall and the Isles of Scilly – Key facts

- 16 million tonnes lifted in total for 2019
- 57 per cent of the goods lifted was internal within local authority
- 24 per cent of the vehicle kilometres were by Empty vehicles
- 30 per cent increase in vehicle kilometres in 2019
- Estimated 903,000 trips completed by HGVs in Cornwall and Isles of Scilly
- Most goods were lifted internally
- Of the flow of goods to and from Devon, 57 per cent of this was outbound
- 81 per cent of goods to and from North West travelled outbound
- Internal movements within Cornwall and Isles of Scilly, the dominant commodity is Waste products, lifting 3.4 million tonnes. This equates to 39,450 trips
- Tonnage was reduced 38 per cent from 2018
- Inbound flow is primarily from Devon and Gloucestershire, Wiltshire, and Bristol/Bath area
- Outbound movement is mainly made up of Mining and quarrying, transporting 1.02 million tonnes of goods (equating to 41,000 trips)
- Tonnage has reduced by 22 per cent from 2018
- HGVs completed around 241 million vehicle kilometres in, out around the local authority
- 30 per cent increase in vehicle kilometres from 2018 to 2019
- From this increase between 2018 and 2019, 24 per cent accounted for empty vehicles
- It is estimated that the HGV sector accounted for approximately 202,583 tonnes of CO_2 in Cornwall and the Isles of Scilly
- 35 per cent estimated increase in CO_2
- Biggest contributor to internal movements was Waste products at 10,450 tonnes
- In terms of inbound movements, the biggest contributor towards of CO_2 was empty vehicles at 17,266 tonnes
- Similarly, Empty vehicles were the greatest contributor of CO_2, of which 16 per cent accounted for movement outbound to Gloucestershire, Wiltshire, Bristol/Bath area
- Food and Drink is the next highest contributor of CO_2 at 39,287 tonnes

Cornwall and Isles of Scilly – data outputs

Outputs from the CSRGT analysis for Cornwall and the Isles of Scilly

		Movement	Goods lifted (tonnes) - 2019	Percentage
		Internal (within LA)	9,306,792	57 per cent
		Inbound	3,309,233	20 per cent
		Outbound	3,646,995	22 per cent
2019 – Cornwall and the Isles of Scilly		**Total**	**16,263,019**	**100 per cent**

		Movement	Trips - 2019	Percentage
		Internal (within LA)	603,421	67 per cent
		Inbound	143,887	16 per cent
		Outbound	156,254	17 per cent
2019 – Cornwall and the Isles of Scilly		**Total**	**903,563**	**100 per cent**

		Movement	Vehicle kilometres - 2019	Percentage
		Internal (within LA)	75,623,995	31 per cent
		Inbound	83,239,922	35 per cent
		Outbound	82,127,286	34 per cent
2019 – Cornwall and the Isles of Scilly		**Total**	**240,991,203**	**100 per cent**

		Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
		Internal (within LA)	53,924	27 per cent
		Inbound	74,465	37 per cent
		Outbound	74,194	37 per cent
2019 – Cornwall and the Isles of Scilly		**Total**	**202,583**	**100 per cent**

Top commodities and origin/destination by movement type - Cornwall and the Isles of Scilly - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Waste products – 3,428,227	Waste products – 10,450	-
	Inbound	Food and drink – 1,021,680	Empty vehicles – 17,266	Devon
	Outbound	Mining and quarrying – 1,020,722	Empty vehicles – 21,457	Devon

Goods lifted (total) to and from regions - Cornwall and the Isles of Scilly - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Cornwall and Isles of Scilly	9,306,792	57 per cent		
Devon CC	2,523,653	16 per cent	43 per cent	57 per cent
Gloucestershire, Wiltshire and Bristol/Bath area	971,288	6 per cent	63 per cent	37 per cent
West Midlands, England	548,779	3 per cent	42 per cent	58 per cent
North West, England	535,806	3 per cent	19 per cent	81 per cent
Wales	429,038	3 per cent	61 per cent	39 per cent
Plymouth	358,757	2 per cent	45 per cent	55 per cent
South East, England	352,248	2 per cent	30 per cent	70 per cent
East Midlands, England	307,321	2 per cent	61 per cent	39 per cent
Somerset	292,130	2 per cent	59 per cent	41 per cent
Dorset CC	167,240	1 per cent	61 per cent	39 per cent
Yorkshire and the Humber, England	143,740	1 per cent	66 per cent	34 per cent
Torbay	88,214	1 per cent	0 per cent	100 per cent
East of England	85,418	1 per cent	66 per cent	34 per cent
Bournemouth and Poole	59,872	0 per cent	86 per cent	14 per cent
North East, England	41,544	0 per cent	93 per cent	7 per cent
Northern Ireland	38,835	0 per cent	100 per cent	0 per cent
London, England	11,028	0 per cent	100 per cent	0 per cent
Scotland	1,316	0 per cent	0 per cent	100 per cent
Grand Total	**16,263,019**	**100 per cent**		

Devon – Key facts

- 26.9 million tonnes lifted in total for 2019
- 42 per cent of the goods lifted was internally within local authority
- 22 per cent of the vehicle kilometres completed by Empty vehicles
- 15 per cent increase in vehicle kilometres in 2019
- Estimated 1.4 million trips completed by HGVs in Devon
- Empty vehicles estimated to account for 23 per cent of the total HGV CO_2
- Movement to and from the West Midlands amounts to 2.7 million tonnes of goods which is split into 50:50 by inbound and outbound movements
- 25 per cent increase in goods lifted from 2018
- 42 per cent of goods lifted internally
- For internal movements within Devon, the dominant commodity was grouped goods lifting 2.8 million tonnes (equating to 156,600 trips)
- For the inbound and outbound movements, Food and Drink was the most dominant
- The inbound flow of the Food and Drinks sector has seen a 38 per cent increase 2018 to 2019
- HGVs completed around 438 million vehicle kilometres, in, out and around Devon
- 22 per cent of total vehicle miles was completed by empty vehicles, amounting to 98 million kilometres
- Food and Drink a significant contributor to the vehicle kilometres (71 million kilometres)
- Empty vehicles largest contributor to CO_2 for inbound and outbound flows
- 13 per cent estimated increase in CO_2 between 2018 and 2019

Devon – data outputs

Outputs from the CSRGT analysis for Devon

		Movement	Goods lifted (tonnes) - 2019	Percentage
		Internal (within LA)	11,183,445	42 per cent
		Inbound	8,743,856	32 per cent
		Outbound	7,009,896	26 per cent
2019 – Devon		**Total**	**26,937,196**	**100 per cent**

		Movement	Trips - 2019	Percentage
		Internal (within LA)	735,650	52 per cent
		Inbound	381,282	27 per cent
		Outbound	306,347	22 per cent
2019 – Devon		**Total**	**1,423,279**	**100 per cent**

		Movement	Vehicle kilometres - 2019	Percentage
		Internal (within LA)	151,123,909	35 per cent
		Inbound	145,386,123	33 per cent
		Outbound	141,394,723	32 per cent
2019 – Devon		**Total**	**437,904,755**	**100 per cent**

		Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
		Internal (within LA)	109,402	29 per cent
		Inbound	133,508	36 per cent
		Outbound	129,511	35 per cent
2019 – Devon		**Total**	**372,422**	**100 per cent**

Top commodities and origin/destination by movement type - Devon - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Grouped goods – 2,823,596	Food and drink – 24,268	-

	Inbound	Food and drink – 2,181,898	Empty vehicles – 30,369	Cornwall and the Isles of Scilly
	Outbound	Food and drink – 1,915,796	Empty vehicles – 46,962	Gloucestershire, Wiltshire and Bristol/Bath area

Goods lifted (total) to and from regions - Devon - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Devon CC	11,183,445	42 per cent		
West Midlands, England	2,697,864	10 per cent	50 per cent	50 per cent
Gloucestershire, Wiltshire and Bristol/Bath area	2,691,714	10 per cent	46 per cent	54 per cent
Cornwall and Isles of Scilly	2,523,653	9 per cent	57 per cent	43 per cent
South East, England	1,421,525	5 per cent	52 per cent	48 per cent
Somerset	806,907	3 per cent	56 per cent	44 per cent
Dorset CC	736,228	3 per cent	72 per cent	28 per cent
North West, England	681,977	3 per cent	62 per cent	38 per cent
Wales	624,860	2 per cent	69 per cent	31 per cent
East Midlands, England	606,798	2 per cent	77 per cent	23 per cent
Plymouth	605,023	2 per cent	51 per cent	49 per cent
East of England	535,441	2 per cent	59 per cent	41 per cent
Yorkshire and the Humber, England	455,386	2 per cent	38 per cent	62 per cent
London, England	389,031	1 per cent	99 per cent	1 per cent
North East, England	278,400	1 per cent	69 per cent	31 per cent
Torbay	238,115	1 per cent	42 per cent	58 per cent
Scotland	235,530	1 per cent	27 per cent	73 per cent
Bournemouth and Poole	145,193	1 per cent	36 per cent	64 per cent
Northern Ireland	80,106	0 per cent	100 per cent	0 per cent
Grand Total	**26,937,196**	**100 per cent**		

Plymouth – Key facts

- 3 million tonnes lifted in total for 2019
- 44 per cent of the goods lifted was internally within local authority
- 45 million vehicle kilometres in 2019
- 23 per cent of the vehicle kilometres completed by Empty vehicles
- Estimated 184,000 trips completed by HGVs in Plymouth
- Movement of goods is primarily completed within Plymouth
- For internal movements within Plymouth the dominant commodity was waste products
- For inbound and outbound movements, the non-metallic mineral products were most dominant at 232,747 and 162,523 tonnes
- HGVs completed around 45.8 million vehicle kilometres
- 23 per cent of kilometres by empty vehicles, this amounts 10.6 million kilometres
- Other dominant commodity for vehicle kilometres was waste products
- It is estimated the HGV sector accounts for 39,693 tonnes of CO_2 in Plymouth

Plymouth – data outputs

Outputs from the CSRGT analysis for Plymouth

		Movement	Goods lifted (tonnes) - 2019	Percentage
		Internal (within LA)	1,322,381	44 per cent
		Inbound	813,253	27 per cent
		Outbound	865,736	29 per cent
2019 – Plymouth		**Total**	**3,001,370**	**100 per cent**

		Movement	Trips - 2019	Percentage
		Internal (within LA)	100,367	55 per cent
		Inbound	38,564	21 per cent
		Outbound	44,891	24 per cent
2019 – Plymouth		**Total**	**183,822**	**100 per cent**

		Movement	Vehicle kilometres - 2019	Percentage
		Internal (within LA)	9,411,574	21 per cent
		Inbound	17,256,005	38 per cent
		Outbound	19,098,675	42 per cent
2019 – Plymouth		**Total**	**45,769,254**	**100 per cent**

		Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
		Internal (within LA)	8,037	20 per cent
		Inbound	14,762	37 per cent
		Outbound	16,894	43 per cent
2019 – Plymouth		**Total**	**39,693**	**100 per cent**

Top commodities and origin/destination by movement type - Plymouth - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Waste products – 815,787	Waste products – 4,093	-
	Inbound	Non-metallic mineral products– 232,747	Non-metallic mineral products– 2,893	Devon
	Outbound	Non-metallic mineral products– 162,523	Empty vehicles – 5,932	Devon

Goods lifted (total) to and from regions - Plymouth - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Plymouth	1,322,381	44 per cent		
Devon CC	605,023	20 per cent	49 per cent	51 per cent
Cornwall and Isles of Scilly	358,757	12 per cent	55 per cent	45 per cent
West Midlands, England	171,483	6 per cent	62 per cent	38 per cent
North West, England	102,457	3 per cent	21 per cent	79 per cent
Gloucestershire, Wiltshire and Bristol/Bath area	86,478	3 per cent	30 per cent	70 per cent
North East, England	47,261	2 per cent	100 per cent	0 per cent
Bournemouth and Poole	46,965	2 per cent	0 per cent	100 per cent
Wales	43,778	1 per cent	47 per cent	53 per cent
Northern Ireland	42,580	1 per cent	53 per cent	47 per cent
Yorkshire and the Humber, England	42,397	1 per cent	0 per cent	100 per cent
East Midlands, England	32,389	1 per cent	100 per cent	0 per cent
London, England	29,471	1 per cent	50 per cent	50 per cent
East of England	28,866	1 per cent	63 per cent	37 per cent
Somerset	25,386	1 per cent	35 per cent	65 per cent
Dorset CC	14,736	0 per cent	0 per cent	100 per cent
Torbay	960	0 per cent	100 per cent	0 per cent
South East, England	-	0 per cent	0 per cent	0 per cent
Grand Total	**3,001,370**	**100 per cent**		

Somerset – Key facts

- 26.8 million tonnes lifted in total for 2019
- Flow of goods internally, inbound and outbound were evenly distributed
- 398 million vehicle kilometres in 2019
- 23 per cent of the vehicle kilometres completed by Empty vehicles
- Estimated 1.3 million trips completed by HGVs in Somerset
- 5.3 million tonnes of goods were lifted between Somerset and Gloucestershire, Wiltshire and Bath/Bristol area (approximately 20 per cent)
- Inbound movement mainly consisted of non-metallic mineral products (184,000 tonnes). This was followed by Food and Drinks (180,000 tonnes)
- Internal movements within Somerset, the dominant commodity was Mining and quarrying, lifting 3.4 million tonnes (this equated to approximately 148,399 trips)
- Food and Drink sector was the most dominant commodity for inbound and outbound movements, 2.4 and 2.6 million tonnes respectively
- HGVs completed around 398 million vehicle kilometres in, out and around Somerset, a 15 per cent increase from 2018
- 23 per cent of the total vehicle kilometres was completed by empty vehicles amounting to 93 million kilometres
- Following the other dominant commodity was Food and Drink, with over 60 million vehicle kilometres
- Estimated that the HGV sector accounts for 346,980 tonnes of CO_2 in Somerset
- The biggest contributors of CO_2 in the Somerset area were empty vehicles, followed by Food and Drink

Somerset – data outputs

Outputs from the CSRGT analysis for Somerset

		Movement	Goods lifted (tonnes) - 2019	Percentage
		Internal (within LA)	9,479,441	35 per cent
		Inbound	9,155,342	34 per cent
		Outbound	8,213,953	31 per cent
2019 – Somerset		**Total**	**26,848,736**	**100 per cent**

		Movement	Trips - 2019	Percentage
		Internal (within LA)	563,168	43 per cent
		Inbound	385,547	29 per cent
		Outbound	361,484	28 per cent
2019 – Somerset		**Total**	**1,310,200**	**100 per cent**

		Movement	Vehicle kilometres - 2019	Percentage
		Internal (within LA)	108,559,857	27 per cent
		Inbound	154,409,853	39 per cent
		Outbound	135,187,510	34 per cent
2019 – Somerset		**Total**	**398,157,220**	**100 per cent**

		Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
		Internal (within LA)	78,828	23 per cent
		Inbound	142,453	41 per cent
		Outbound	125,698	36 per cent
2019 – Somerset		**Total**	**346,980**	**100 per cent**

Top commodities and origin/destination by movement type - Somerset - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Mining and quarrying – 3,446,833	Grouped goods – 15,423	-

	Inbound	Food and drink– 2,407,111	Empty vehicles– 31,063	Gloucestershire, Wiltshire and Bristol/Bath area
	Outbound	Food and drink– 2,602,454	Empty vehicles – 46,913	Gloucestershire, Wiltshire and Bristol/Bath area

Goods lifted (total) to and from regions - Somerset - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Somerset	9,479,441	35 per cent		
Gloucestershire, Wiltshire and Bristol/Bath area	5,292,938	20 per cent	51 per cent	49 per cent
South East, England	2,318,689	9 per cent	41 per cent	59 per cent
West Midlands, England	2,197,196	8 per cent	51 per cent	49 per cent
Wales	1,433,703	5 per cent	66 per cent	34 per cent
East Midlands, England	1,128,422	4 per cent	54 per cent	46 per cent
East of England	998,840	4 per cent	60 per cent	40 per cent
Yorkshire and the Humber, England	935,271	3 per cent	75 per cent	25 per cent
Devon CC	806,907	3 per cent	44 per cent	56 per cent
North West, England	792,505	3 per cent	52 per cent	48 per cent
London, England	409,339	2 per cent	68 per cent	32 per cent
Cornwall and Isles of Scilly	292,130	1 per cent	41 per cent	59 per cent
Dorset CC	228,478	1 per cent	43 per cent	57 per cent
Northern Ireland	191,700	1 per cent	39 per cent	61 per cent
Bournemouth and Poole	154,038	1 per cent	44 per cent	56 per cent
Scotland	94,354	0 per cent	48 per cent	52 per cent
North East, England	44,514	0 per cent	100 per cent	0 per cent
Plymouth	25,386	0 per cent	65 per cent	35 per cent
Torbay	24,887	0 per cent	49 per cent	51 per cent
Grand Total	**26,848,736**	**100 per cent**		

Torbay – Key facts

- 631,508 tonnes lifted in total for 2019
- 46 per cent of the goods lifted was inbound
- 43 per cent of the vehicle kilometres completed by Food and drink
- Estimated 55,432 trips completed by HGVs in Devon
- Empty vehicles estimated to account for 23 per cent of the total HGV CO_2
- Internal movements within Torbay, the dominant commodity was Non-metallic mineral products, lifting 67,927 tonnes, this equates to approximately 6,793 trips
- Inbound movements, the mining and quarrying sector was the most dominant at 168,656 tonnes
- The dominant outbound commodity was Non-metallic mineral products at 45,452 tonnes
- HGVs completed around 16.6 million vehicle kilometres in and out of Torbay, this was an increase of nine per cent from 2018
- HGV sector accounts for 11,596 tonnes of CO_2 in Torbay

Torbay – data outputs

Outputs from the CSRGT analysis for Torbay

		Movement	Goods lifted (tonnes) - 2019	Percentage
		Internal (within LA)	211,627	34 per cent
		Inbound	279,173	44 per cent
		Outbound	140,708	22 per cent
2019 – Torbay		**Total**	**631,508**	**100 per cent**

		Movement	Trips - 2019	Percentage
		Internal (within LA)	25,591	46 per cent
		Inbound	16,472	30 per cent
		Outbound	13,370	24 per cent
2019 – Torbay		**Total**	**55,432**	**100 per cent**

		Movement	Vehicle kilometres - 2019	Percentage
		Internal (within LA)	7,937,593	48 per cent
		Inbound	3,563,381	21 per cent
		Outbound	5,141,464	31 per cent
2019 – Torbay		**Total**	**16,642,437**	**100 per cent**

		Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
		Internal (within LA)	5,206	45 per cent
		Inbound	2,692	23 per cent
		Outbound	3,699	32 per cent
2019 – Torbay		**Total**	**11,596**	**100 per cent**

Top commodities and origin/destination by movement type - Torbay - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Non-metallic mineral products – 67,927	Food and drink – 4,415	-
	Inbound	Mining and quarrying – 168,656	Empty vehicles– 1,127	Devon
	Outbound	Non-metallic mineral products – 45,452	Empty vehicles – 1,377	Devon

Goods lifted (total) to and from regions - Torbay - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Devon CC	238,115	38 per cent	58 per cent	42 per cent
Torbay	211,627	34 per cent		
Cornwall and Isles of Scilly	88,214	14 per cent	100 per cent	0 per cent
Bournemouth and Poole	34,714	5 per cent	100 per cent	0 per cent
Somerset	24,887	4 per cent	51 per cent	49 per cent
South East, England	16,131	3 per cent	0 per cent	100 per cent
East Midlands, England	7,740	1 per cent	0 per cent	100 per cent
Gloucestershire, Wiltshire and Bristol/Bath area	5,262	1 per cent	83 per cent	17 per cent
West Midlands, England	3,857	1 per cent	0 per cent	100 per cent
Plymouth	960	0 per cent	0 per cent	100 per cent
Grand Total	**631,508**	**100 per cent**		

C.2 Western Gateway

City of Bristol – Key facts

- 26 million tonnes lifted in total for 2019.
- 24 per cent of the goods lifted was internal within local authority.
- 21 per cent of the total vehicle kilometres were completed by Empty vehicles.
- Estimated 1,198,000 trips completed by HGVs in The City of Bristol.
- Food and Drink accounted for 36 per cent of total goods lifted and the biggest contributor to CO_2 by tonnes internally, outbound, and inbound.
- The highest movement category for goods lifted was outbound activities accounting for 35 per cent of the total.
- The highest movement category for total trips was inbound activities accounting for 36 per cent of the total.
- The highest movement category for total vehicle kilometres was inbound activities accounting for 38 per cent of the total
- The highest movement category for total CO_2 was inbound activities accounting for 40 per cent of the total.
- The top commodity by goods lifted was Food and Drink for all three movement types.
- The top commodity by CO_2 output was Food and Drink for internal within LA and inbound, whereas the top output for outbound was empty vehicles.
- In Goods lifted to and from Bristol, Northern Ireland had 88 per cent of goods outbound, whereas Wiltshire had a 100 percent of goods inbound to Bristol.

City of Bristol – data outputs

Outputs from the CSRGT analysis for City of Bristol

		Movement	Goods lifted (tonnes) - 2019	Percentage
		Internal (within LA)	6,195,855	24 per cent
		Inbound	10,764,458	41 per cent
		Outbound	9,052,632	35 per cent
2019 – City of Bristol		**Total**	**26,012,945**	**100 per cent**

		Movement	Trips - 2019	Percentage
		Internal (within LA)	405,124	34 per cent
		Inbound	429,885	36 per cent
		Outbound	363,166	30 per cent
2019 – City of Bristol		**Total**	**1,198,175**	**100 per cent**

		Movement	Vehicle kilometres - 2019	Percentage
		Internal (within LA)	105,852,768	25 per cent
		Inbound	160,784,321	38 per cent
		Outbound	153,582,401	37 per cent
2019 – City of Bristol		**Total**	**420,219,490**	**100 per cent**

		Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
		Internal (within LA)	79,631	21 per cent
		Inbound	156,130	40 per cent
		Outbound	148,597	39 per cent
2019 – City of Bristol		**Total**	**384,358**	**100 per cent**

Top commodities and origin/destination by movement type - City of Bristol - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Food and Drink – 2,400,842	Food and Drink – 30,254	-

	Inbound	Food and drink – 3,313,615	Food and Drink – 42,262	West Midlands England
	Outbound	Food and Drink – 3,563,887	Empty vehicles – 48,150	Wales

Goods lifted (total) to and from regions - City of Bristol - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Bristol, City of	6,195,855	24 per cent	0 per cent	0 per cent
Bath and North East Somerset, North Somerset and South Gloucestershire	2,193,697	8 per cent	59 per cent	41 per cent
South East (England)	2,170,832	8 per cent	51 per cent	49 per cent
Wales	2,158,550	8 per cent	41 per cent	59 per cent
West Midlands (England)	1,805,246	7 per cent	74 per cent	26 per cent
Somerset	1,626,273	6 per cent	57 per cent	43 per cent
East Midlands (England)	1,404,161	5 per cent	71 per cent	29 per cent
North West (England)	1,234,258	5 per cent	59 per cent	41 per cent
East of England	1,114,282	4 per cent	67 per cent	33 per cent
London	749,625	3 per cent	35 per cent	65 per cent
Devon	729,232	3 per cent	98 per cent	2 per cent
UNKNOWN	695,520	3 per cent	0 per cent	100 per cent
Yorkshire and the Humber	632,399	2 per cent	63 per cent	37 per cent
Cornwall and Isles of Scilly	591,829	2 per cent	46 per cent	54 per cent
Swindon	519,910	2 per cent	44 per cent	56 per cent
Gloucestershire	492,162	2 per cent	29 per cent	71 per cent
Devon CC	450,102	2 per cent	0 per cent	100 per cent
Dorset CC	359,019	1 per cent	54 per cent	46 per cent
Wiltshire CC	246,491	1 per cent	100 per cent	0 per cent
North East (England)	205,036	1 per cent	79 per cent	21 per cent
Scotland	203,905	1 per cent	33 per cent	67 per cent
Bournemouth and Poole	154,700	1 per cent	28 per cent	72 per cent
Northern Ireland	79,861	0 per cent	12 per cent	88 per cent
Total	**26,012,945**	**100 per cent**		

Bath and North East Somerset, North Somerset, and South Gloucestershire – Key facts

- 24 million tonnes lifted in total for 2019.
- 22 per cent of goods lifted was internal within the LA.
- 22 per cent of the vehicle kilometres were by Empty vehicles.
- Estimated 1,249,000 trips completed by HGVs in The Bath and North east Somerset, Norther somerset, and south Gloucestershire.
- Goods lifted in the outbound direction accounted for 45 per cent of goods lifted.
- Out of the total trips completed 38 per cent of movements occurred within the outbound field.
- Out of the total vehicle kilometres completed 44 per cent accounted for outbound activities.
- Out of the total CO_2 output, 43 per cent of CO_2 was accounted for by outbound movements.
- The top commodity by goods lifted within the region for internal within LA was Mining and Quarrying and the top commodity for inbound and outbound activities was Food and Frink.
- The top commodity by CO_2 output for internal within the LA was food and drink, whereas the top output for inbound and outbound was completed by empty vehicles.
- Of the total goods lifted to and from the LA; 100 per cent of the movements to Devon cc, Unknown and Bournemouth and Poole was outbound.
- Of the total goods lifted to and from the LA, 100 per cent was inbound from Wiltshire and 93 per cent inbound from the North East.

Bath and North East Somerset, North Somerset, and South Gloucestershire – data outputs

Outputs from the CSRGT analysis for Bath and North East Somerset, North Somerset, and South Gloucestershire

	Movement	Goods lifted (tonnes) - 2019	Percentage
	Internal (within LA)	5,306,026	22 per cent
	Inbound	8,094,240	33 per cent
	Outbound	11,210,705	45 per cent
2019 – Bath and North East Somerset, North Somerset, and South Gloucestershire	**Total**	**24,610,971**	**100 per cent**

	Movement	Trips - 2019	Percentage
	Internal (within LA)	406,255	33 per cent
	Inbound	363,360	29 per cent
	Outbound	480,099	38 per cent
2019 – Bath and North East Somerset, North Somerset, and South Gloucestershire	**Total**	**1,249,714**	**100 per cent**

	Movement	Vehicle kilometres - 2019	Percentage
	Internal (within LA)	81,752,434	22 per cent
	Inbound	135,810,783	37 per cent
	Outbound	149,952,515	41 per cent
2019 – Bath and North East Somerset, North Somerset, and South Gloucestershire	**Total**	**367,515,732**	**100 per cent**

	Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
	Internal (within LA)	60,181	18 per cent
	Inbound	126,234	39 per cent
	Outbound	141,195	43 per cent
2019 – Bath and North East Somerset, North Somerset, and South Gloucestershire	**Total**	**327,611**	**100 per cent**

Top commodities and origin/destination by movement type - Bath and North East Somerset, North Somerset, and South Gloucestershire - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Mining and quarrying – 1,486,966	Food and Drink – 20,808	-
	Inbound	Food and drink – 2,488,699	Empty vehicle – 35,229	West Midlands England
	Outbound	Food and Drink– 2,869,563	Empty vehicles – 33,958	South East England

Goods lifted (total) to and from regions - Bath and North East Somerset, North Somerset, and South Gloucestershire - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Bath and North East Somerset, North Somerset and South Gloucestershire	5,306,026	22 per cent	0 per cent	0 per cent
Bristol, City of	2,193,697	9 per cent	41 per cent	59 per cent
West Midlands (England)	2,183,652	9 per cent	59 per cent	41 per cent
South East (England)	1,779,041	7 per cent	25 per cent	75 per cent
Gloucestershire	1,613,842	7 per cent	35 per cent	65 per cent
Somerset	1,576,461	6 per cent	32 per cent	68 per cent
Wales	1,536,043	6 per cent	37 per cent	63 per cent
East of England	1,158,967	5 per cent	54 per cent	46 per cent
North West (England)	1,084,703	4 per cent	48 per cent	52 per cent
East Midlands (England)	842,014	3 per cent	62 per cent	38 per cent
London	752,680	3 per cent	55 per cent	45 per cent
Devon CC	685,650	3 per cent	0 per cent	100 per cent
Dorset CC	642,590	3 per cent	0 per cent	100 per cent
UNKNOWN	602,700	2 per cent	0 per cent	100 per cent
Devon	593,682	2 per cent	99 per cent	1 per cent
Wiltshire CC	571,794	2 per cent	100 per cent	0 per cent
Yorkshire and the Humber	554,656	2 per cent	67 per cent	33 per cent
Cornwall and Isles of Scilly	301,654	1 per cent	12 per cent	88 per cent
Swindon	241,439	1 per cent	36 per cent	64 per cent
Scotland	188,458	1 per cent	16 per cent	84 per cent
Northern Ireland	91,442	0 per cent	28 per cent	72 per cent
Bournemouth and Poole	79,656	0 per cent	0 per cent	100 per cent
North East (England)	30,124	0 per cent	93 per cent	7 per cent
Total	**24,610,971**	**100 per cent**		

Gloucester CC – Key facts

- 24 million tonnes lifted in total for 2019.
- 36 per cent of the goods lifted was internal within local authority.
- 18 per cent of the total vehicle kilometres were by completed Empty vehicles.
- Estimated 1,136,000 trips completed by HGVs in Gloucester CC
- Out of the total trips completed 40 per cent of the movements occurred internal within the LA.
- Out of the total vehicle's kilometres completed 40 per cent of activities was accounted for by inbound.
- Out of the total CO_2 output 41 per cent of activities was accounted for by inbound movements.
- The top commodity by goods lifted for internal within the LA was waste products 2,200,205 tonnes.
- The top commodity by goods lifted for inbound movements was food and drink, 2,488,699 tonnes.
- The top commodity by goods lifted for outbound movements was mining and quarrying with 1,126,205 tonnes.
- Out of the total goods lifted to and from the LA, the regions Northern Ireland and unknown accounted for 100 per cent of outbound movement.
- Out of the total goods lifted to and from the LA, 100 per cent of the good to and from the region Wiltshire and Bournemouth and Poole was inbound.

Gloucester CC – data outputs

Outputs from the CSRGT analysis for Gloucester CC

	Movement	Goods lifted (tonnes) - 2019	Percentage
	Internal (within LA)	8,756,246	36 per cent
	Inbound	8,150,443	34 per cent
	Outbound	7,344,287	30 per cent
2019 – Gloucester CC	**Total**	**24,250,976**	**100 per cent**

	Movement	Trips - 2019	Percentage
	Internal (within LA)	456,446	40 per cent
	Inbound	350,252	31 per cent
	Outbound	329,726	29 per cent
2019 – Gloucester CC	**Total**	**1,136,423**	**100 per cent**

	Movement	Vehicle kilometres - 2019	Percentage
	Internal (within LA)	70,409,540	21 per cent
	Inbound	134,688,191	40 per cent
	Outbound	134,600,305	39 per cent
2019 – Gloucester CC	**Total**	**339,698,037**	**100 per cent**

	Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
	Internal (within LA)	56,787	19 per cent
	Inbound	119,060	40 per cent
	Outbound	120,395	41 per cent
2019 – Gloucester CC	**Total**	**296,242**	**100 per cent**

Top commodities and origin/destination by movement type - Gloucester CC - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Waste Products – 2,200,205	Grouped goods – 11,724	-
	Inbound	Food and drink – 2,488,699	Empty vehicles – 31,783	West Midlands England

	Outbound	Mining and Quarrying - 1,126,205	Empty vehicles – 44,001	West Midlands England

Goods lifted (total) to and from regions - Gloucester CC - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Gloucestershire	8,756,246	36 per cent	0 per cent	0 per cent
West Midlands (England)	2,773,812	11 per cent	53 per cent	47 per cent
Wales	2,145,029	9 per cent	46 per cent	54 per cent
East of England	1,865,930	8 per cent	55 per cent	45 per cent
Bath and North East Somerset, North Somerset and South Gloucestershire	1,613,842	7 per cent	65 per cent	35 per cent
South East (England)	1,382,089	6 per cent	40 per cent	60 per cent
North West (England)	1,078,593	4 per cent	51 per cent	49 per cent
East Midlands (England)	1,026,472	4 per cent	58 per cent	42 per cent
Somerset	713,152	3 per cent	52 per cent	48 per cent
Yorkshire and the Humber	682,058	3 per cent	79 per cent	21 per cent
London	552,109	2 per cent	43 per cent	57 per cent
Bristol, City of	492,162	2 per cent	71 per cent	29 per cent
UNKNOWN	310,161	1 per cent	0 per cent	100 per cent
Dorset CC	164,684	1 per cent	42 per cent	58 per cent
Scotland	140,386	1 per cent	50 per cent	50 per cent
Northern Ireland	140,020	1 per cent	0 per cent	100 per cent
North East (England)	113,074	0 per cent	50 per cent	50 per cent
Wiltshire CC	107,169	0 per cent	100 per cent	0 per cent
Cornwall and Isles of Scilly	76,835	0 per cent	69 per cent	31 per cent
Bournemouth and Poole	54,884	0 per cent	100 per cent	0 per cent
Swindon	52,358	0 per cent	50 per cent	50 per cent
Devon	9,910	0 per cent	25 per cent	75 per cent
Devon CC	-	0 per cent	0 per cent	0 per cent
Total	**24,250,976**	**100 per cent**		

Swindon – Key facts

- 7.6 million tonnes lifted in total for 2019.
- 17 per cent of the goods lifted was internal within local authority.
- 27 per cent of the total vehicle kilometres were by Empty vehicles.
- Estimated 328,000 trips completed by HGVs in Swindon.
- Out of the total goods lifted 44 per cent of activities accounted for inbound movements.
- Out of the total trips completed 39 per cent was inbound movements.
- Out of total vehicle kilometres completed 47 per cent of movements occurred inbound.
- Out of the total CO_2 output 48 per cent accounted for inbound movements.
- The top commodity by goods lifted internally within LA was Transport of Goods whereas the top commodity for inbound and outbound movements was Grouped Goods.
- Top commodity by CO_2 output for internal within LA is Transport of Goods, inbound was Grouped Goods and outbound was Empty Vehicles.
- Goods lifted to and from the LA, the regions: Unknown, Devon, and North East had outbound proportions of 100 per cent. Bournemouth and Poole displayed 91 per cent and London displayed 98 per cent outbound from the LA.
- Goods lifted to and from the LA, the regions; Scotland, Devon, Wiltshire CC and Cornwall and isles of Scilly showed 100 per cent outbound movements.

Swindon – data outputs

Outputs from the CSRGT analysis for Swindon

	Movement	Goods lifted (tonnes) - 2019	Percentage
	Internal (within LA)	1,327,746	17 per cent
	Inbound	3,330,062	44 per cent
	Outbound	2,919,900	39 per cent
2019 – Swindon	**Total**	**7,577,708**	**100 per cent**

	Movement	Trips - 2019	Percentage
	Internal (within LA)	74,608	23 per cent
	Inbound	129,681	39 per cent
	Outbound	123,650	38 per cent
2019 – Swindon	**Total**	**327,939**	**100 per cent**

	Movement	Vehicle kilometres - 2019	Percentage
	Internal (within LA)	12,667,094	10 per cent
	Inbound	60,404,127	47 per cent
	Outbound	54,548,286	43 per cent
2019 – Swindon	**Total**	**127,619,507**	**100 per cent**

	Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
	Internal (within LA)	10,825	9 per cent
	Inbound	57,091	48 per cent
	Outbound	51,768	43 per cent
2019 – Swindon	**Total**	**119,684**	**100 per cent**

Top commodities and origin/destination by movement type - Swindon - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Transport of goods – 439,297	Transport of Goods – 2,708	-
	Inbound	Grouped Goods – 1,005,815	Grouped Goods – 13,138	South East England

	Outbound	Grouped Goods – 948,250	Empty vehicles – 17,859	South East England

Goods lifted (total) to and from regions - Swindon - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
South East (England)	1,615,642	21 per cent	38 per cent	62 per cent
Swindon	1,327,746	18 per cent	0 per cent	0 per cent
West Midlands (England)	656,462	9 per cent	68 per cent	32 per cent
East Midlands (England)	622,083	8 per cent	62 per cent	38 per cent
Bristol, City of	519,910	7 per cent	56 per cent	44 per cent
North West (England)	406,874	5 per cent	69 per cent	31 per cent
East of England	392,822	5 per cent	68 per cent	32 per cent
Yorkshire and the Humber	373,453	5 per cent	51 per cent	49 per cent
Bath and North East Somerset, North Somerset and South Gloucestershire	241,439	3 per cent	64 per cent	36 per cent
UNKNOWN	222,764	3 per cent	0 per cent	100 per cent
Somerset	216,524	3 per cent	77 per cent	23 per cent
London	214,749	3 per cent	2 per cent	98 per cent
Wales	204,873	3 per cent	39 per cent	61 per cent
Scotland	182,681	2 per cent	100 per cent	0 per cent
Devon	134,740	2 per cent	100 per cent	0 per cent
Wiltshire CC	94,852	1 per cent	100 per cent	0 per cent
Gloucestershire	52,358	1 per cent	50 per cent	50 per cent
Devon CC	42,429	1 per cent	0 per cent	100 per cent
Bournemouth and Poole	38,696	1 per cent	9 per cent	91 per cent
North East (England)	10,518	0 per cent	0 per cent	100 per cent
Dorset CC	5,865	0 per cent	88 per cent	12 per cent
Cornwall and Isles of Scilly	229	0 per cent	100 per cent	0 per cent
Northern Ireland	-	0 per cent	0 per cent	0 per cent
Total	**7,577,708**	**100 per cent**		

Wiltshire CC – Key facts

Anomaly with the data *caution refer to Section 4.2.1

- 12 million tonnes lifted outbound from the LA.
- 18 per cent of the vehicle kilometres were by Empty vehicles.
- Estimated 630,000 outbound trips completed by HGVs in Wiltshire.
- The top commodity by goods lifted outbound is agricultural products with 3,335,453 tonnes.
- The top commodity by CO_2 output for outbound movements is food and drink with 29,108 tonnes.
- The top origin by destination is Unknown accounting for 57 per cent of the total goods lifted in the Wiltshire CC region. It could be assumed this Wiltshire accounting for internal movements.

Wiltshire CC – data outputs

Outputs from the CSRGT analysis for Wiltshire CC

	Movement	Goods lifted (tonnes) - 2019	Percentage
	Internal (within LA)		0 per cent
	Inbound		0 per cent
	Outbound	12,493,514	100 per cent
2019 – Wiltshire CC	**Total**	**12,493,514**	**100 per cent**

	Movement	Trips - 2019	Percentage
	Internal (within LA)		0 per cent
	Inbound		0 per cent
	Outbound	634,376	100 per cent
2019 – Wiltshire CC	**Total**	**634,376**	**100 per cent**

	Movement	Vehicle kilometres - 2019	Percentage
	Internal (within LA)		0 per cent
	Inbound		0 per cent
	Outbound	173,406,725	100 per cent
2019 – Wiltshire CC	**Total**	**173,406,725**	**100 per cent**

	Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
	Internal (within LA)		0 per cent
	Inbound		0 per cent
	Outbound	142,591	0 per cent
2019 – Wiltshire CC	**Total**	**142,591**	**100 per cent**

Top commodities and origin/destination by movement type - Wiltshire CC - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)			-
	Inbound			
	Outbound	Agricultural Products – 3,335,453	Food and Drink – 29,108	Unknown

Goods lifted (total) to and from regions - Wiltshire CC - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
UNKNOWN	7,155,621	57 per cent	0 per cent	100 per cent
South East (England)	1,195,129	10 per cent	0 per cent	100 per cent
West Midlands (England)	635,118	5 per cent	0 per cent	100 per cent
Bath and North East Somerset, North Somerset, and South Gloucestershire	571,794	5 per cent	0 per cent	100 per cent
Somerset	537,768	4 per cent	0 per cent	100 per cent
North West (England)	370,021	3 per cent	0 per cent	100 per cent
Wales	321,804	3 per cent	0 per cent	100 per cent
East of England	248,050	2 per cent	0 per cent	100 per cent
Bristol, City of	246,491	2 per cent	0 per cent	100 per cent
East Midlands (England)	239,166	2 per cent	0 per cent	100 per cent
Scotland	216,263	2 per cent	0 per cent	100 per cent
London	164,591	1 per cent	0 per cent	100 per cent
Yorkshire and the Humber	149,800	1 per cent	0 per cent	100 per cent
Dorset CC	132,830	1 per cent	0 per cent	100 per cent
Gloucestershire	107,169	1 per cent	0 per cent	100 per cent
Swindon	94,852	1 per cent	0 per cent	100 per cent
Devon CC	60,984	0 per cent	0 per cent	100 per cent
Northern Ireland	30,974	0 per cent	0 per cent	100 per cent
Bournemouth and Poole	14,372	0 per cent	0 per cent	100 per cent
Cornwall and Isles of Scilly	718	0 per cent	0 per cent	100 per cent
Devon	-	0 per cent	0 per cent	0 per cent
North East (England)	-	0 per cent	0 per cent	0 per cent
Wiltshire CC	-	0 per cent	0 per cent	0 per cent
Total	**12,493,514**	**100 per cent**		

Bournemouth and Poole – Key facts

- 4 million tonnes lifted in total for 2019
- 35 per cent of the goods lifted was internal within local authority
- 19 per cent of the total vehicle kilometres were by Empty vehicles
- Estimated 265,000 trips completed by HGVs in Bournemouth and Poole
- Out of the total goods lifted 38 per cent of goods accounted for inbound movements.
- Out of the total trips completed 38 per cent of trips completed internally within the LA.
- Out of the total vehicle kilometres completed 39 per cent occurred in the outbound movements.
- Out of the total CO_2 output 41 per cent of tonnes occurred in the outbound movements.
- The top commodity by goods lifted internally within the LA was by Removal and Vehicle movements. Whereas for inbound the commodity is Food and Drinks and outbound it is Non-metallic Mineral Products.
- The top origin/destination by goods lifted inbound and outbound was South East England.
- For the Goods lifted to and from the LA, the regions, Gloucestershire, Devon CC, Scotland, Northern Ireland, and Unknown displayed 100 percent outbound movements.
- For the goods lifted to and from the LA, the regions, Bath and North East Somerset, North Somerset and South Gloucestershire, East Midlands (England) and Wiltshire CC displayed 100 per cent inbound movements.

Bournemouth and Poole – data outputs

Outputs from the CSRGT analysis for Bournemouth and Poole

	Movement	Goods lifted (tonnes) - 2019	Percentage
	Internal (within LA)	1,446,338	35 per cent
	Inbound	1,612,715	38 per cent
	Outbound	1,145,431	27 per cent
2019 – Bournemouth and Poole	**Total**	**4,204,514**	**100 per cent**

	Movement	Trips - 2019	Percentage
	Internal (within LA)	99,820	38 per cent
	Inbound	83,527	31 per cent
	Outbound	81,500	31 per cent
2019 – Bournemouth and Poole	**Total**	**264,848**	**100 per cent**

	Movement	Vehicle kilometres - 2019	Percentage
	Internal (within LA)	14,253,796	23 per cent
	Inbound	22,908,944	38 per cent
	Outbound	23,963,156	39 per cent
2019 – Bournemouth and Poole	**Total**	**61,125,896**	**100 per cent**

	Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
	Internal (within LA)	9,534	19 per cent
	Inbound	20,231	40 per cent
	Outbound	21,005	41 per cent
2019 – Bournemouth and Poole	**Total**	**50,770**	**100 per cent**

Top commodities and origin/destination by movement type - Bournemouth and Poole - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted

	Internal (within LA)	Removal and vehicle movements – 228,666	Waste Products – 4,687	-
	Inbound	Food and Drinks – 438,270	Food and Drink – 4,232	South East England
	Outbound	Non-metallic mineral products – 229,693	Empty Vehicles – 6,754	South East England

Goods lifted (total) to and from regions - Bournemouth and Poole - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Bournemouth and Poole	1,446,338	34 per cent	0 per cent	0 per cent
South East (England)	737,886	18 per cent	56 per cent	44 per cent
East of England	306,976	7 per cent	56 per cent	44 per cent
Dorset CC	237,247	6 per cent	52 per cent	48 per cent
Wales	205,084	5 per cent	98 per cent	2 per cent
London	199,365	5 per cent	34 per cent	66 per cent
Devon	174,208	4 per cent	80 per cent	20 per cent
Bristol, City of	154,700	4 per cent	72 per cent	28 per cent
Somerset	154,038	4 per cent	56 per cent	44 per cent
North West (England)	108,629	3 per cent	22 per cent	78 per cent
Yorkshire and the Humber	80,470	2 per cent	88 per cent	12 per cent
Bath and North East Somerset, North Somerset and South Gloucestershire	79,656	2 per cent	100 per cent	0 per cent
Cornwall and Isles of Scilly	59,872	1 per cent	14 per cent	86 per cent
Gloucestershire	54,884	1 per cent	0 per cent	100 per cent
Devon CC	52,664	1 per cent	0 per cent	100 per cent
East Midlands (England)	39,671	1 per cent	100 per cent	0 per cent
Swindon	38,696	1 per cent	91 per cent	9 per cent
West Midlands (England)	36,410	1 per cent	63 per cent	37 per cent
Wiltshire CC	14,372	0 per cent	100 per cent	0 per cent
Scotland	11,583	0 per cent	0 per cent	100 per cent
Northern Ireland	7,532	0 per cent	0 per cent	100 per cent
UNKNOWN	4,234	0 per cent	0 per cent	100 per cent
North East (England)	-	0 per cent	0 per cent	0 per cent
Total	**4,204,514**	**100 per cent**		

Dorset CC – Key facts

- 9 million tonnes lifted in total for 2019.
- 36 per cent of the goods lifted was internal within local authority.
- 24 per cent of the vehicle kilometres were by Empty vehicles.
- Estimated 537,000 trips completed by HGVs in Dorset.
- Out of the total trips completed 47 per cent of trips occurred internally within the LA.
- Out of the total vehicle kilometres 40 per cent occurred in inbound movements.
- Out of total CO_2 output 42 per cent occurred in inbound movements.
- The top commodity by goods lifted internally within the LA is Mining and Quarrying, for inbound and outbound it was Food and Drink.
- Top commodity by CO_2 output internally within the LA is Grouped Goods, for inbound it is Food and Drink and outbound it is Empty Vehicles.
- For goods lifted to and from the LA, there was a bias in inbounds flows from Bath and North East Somerset, North Somerset and South Gloucestershire, Devon and Wiltshire CC at 100 per cent.
- For goods lifted to and from the LA, there was a bias in outbounds flows to Devon CC and Unknown with 100 per cent. Flows to Scotland were 82 per cent split to outbound.

Dorset CC – data outputs

Outputs from the CSRGT analysis for Dorset CC

		Movement	Goods lifted (tonnes) - 2019	Percentage
		Internal (within LA)	3,326,738	36 per cent
		Inbound	3,118,685	33 per cent
		Outbound	2,857,954	31 per cent
2019 – Dorset CC		**Total**	**9,303,378**	**100 per cent**

		Movement	Trips - 2019	Percentage
		Internal (within LA)	256,018	47 per cent
		Inbound	148,957	28 per cent
		Outbound	132,570	25 per cent
2019 – Dorset CC		**Total**	**537,544**	**100 per cent**

		Movement	Vehicle kilometres - 2019	Percentage
		Internal (within LA)	29,340,722	21 per cent
		Inbound	56,178,331	40 per cent
		Outbound	54,401,277	39 per cent
2019 – Dorset CC		**Total**	**139,920,330**	**100 per cent**

		Movement	CO_2 (tonnes) - 2019 *estimated	Percentage
		Internal (within LA)	20,342	17 per cent
		Inbound	50,481	42 per cent
		Outbound	48,789	41 per cent
2019 – Dorset CC		**Total**	**119,611**	**100 per cent**

Top commodities and origin/destination by movement type - Dorset CC - 2019

2019	Movement type	Top commodity by goods lifted (tonnes)	Top commodity by CO_2 output (tonnes) *estimated	Top origin / destination by goods lifted
	Internal (within LA)	Mining and Quarrying – 934,882	Grouped Goods – 5,119	-

	Inbound	Food and Drink – 1,227,375	Food and Drink – 11,629	Bath and North East Somerset, North Somerset, and South Gloucestershire
	Outbound	Food and Drink - 581,731	Empty Vehicles – 16,602	South East England

Goods lifted (total) to and from regions - Dorset CC - 2019

Goods lifted to and from regions – 2019	Total Grossed tonnes	Total per cent	Inbound per cent	Outbound per cent
Dorset CC	3,326,738	36 per cent	0 per cent	0 per cent
South East (England)	1,004,925	11 per cent	45 per cent	55 per cent
Bath and North East Somerset, North Somerset and South Gloucestershire	642,590	7 per cent	100 per cent	0 per cent
West Midlands (England)	531,714	6 per cent	50 per cent	50 per cent
Devon CC	527,943	6 per cent	0 per cent	100 per cent
East of England	383,759	4 per cent	50 per cent	50 per cent
Bristol, City of	359,019	4 per cent	46 per cent	54 per cent
East Midlands (England)	293,008	3 per cent	38 per cent	62 per cent
Yorkshire and the Humber	264,983	3 per cent	44 per cent	56 per cent
Bournemouth and Poole	237,247	3 per cent	48 per cent	52 per cent
Somerset	228,478	2 per cent	57 per cent	43 per cent
Devon	223,021	2 per cent	100 per cent	0 per cent
London	203,412	2 per cent	67 per cent	33 per cent
Wales	193,262	2 per cent	53 per cent	47 per cent
Cornwall and Isles of Scilly	167,240	2 per cent	39 per cent	61 per cent
Gloucestershire	164,684	2 per cent	58 per cent	42 per cent
North West (England)	160,891	2 per cent	69 per cent	31 per cent
Wiltshire CC	132,830	1 per cent	100 per cent	0 per cent
UNKNOWN	127,993	1 per cent	0 per cent	100 per cent
Northern Ireland	87,011	1 per cent	59 per cent	41 per cent
Scotland	36,764	0 per cent	18 per cent	82 per cent
Swindon	5,865	0 per cent	12 per cent	88 per cent
North East (England)	-	0 per cent	0 per cent	0 per cent
Total	**9,303,378**	**100 per cent**		

Appendix D Case studies

D.1 Outside the South West

Port to Inland Terminal Rail Services

Image credit: iPort

The Issue

There is strong demand for additional inland intermodal terminals in many countries including the UK, but some ports are relatively close by, so can container trains run efficiently over short distances? Answer = Yes, providing its run efficiently.

Case Study Description

1. Short-distance rail services have been implemented between TeesPort (north-east England) and the new iPort Terminal in Doncaster (Yorkshire).
2. The intermodal rail service operates two complete round-trip services per day, covering roughly 140km in each direction with a turnaround time of 2 – 3 hours.
3. The train works as a shuttle with 14 wagons and 28 platforms.

Implication for South West

1. South West currently lacks any intermodal terminals outside Bristol, and there are very few freight rail services operating in and out of the region
2. Reasonable to suggest that terminals could be constructed in a variety of strategic locations, for example Truro, Plymouth, Exeter and Taunton
3. Terminals at the above locations would enable a strategic network of terminals within around an hour of travel time of each other
4. This presents a potential opportunity to utilise parts of the rail network in the South West region that are currently not used for freight movements.

Cricklewood Freight Terminal

Image credit: Railway Magazine

The Issue

There is strong demand for additional inland intermodal terminals in many countries including the UK, but some ports are relatively close by, so can container trains run efficiently over short distances? Answer = Yes, providing its run efficiently.

Case Study Description

- Short-distance rail services have been implemented between Teesport (north-east England) and the new iPort Terminal in Doncaster (Yorkshire).
- The intermodal rail service operates two complete round-trip services per day, covering roughly 140km in each direction with a turnaround time of 2 – 3 hours.
- The train works as a shuttle with 14 wagons and 28 platforms.

Implication For South West

- South West currently lacks any intermodal terminals outside Bristol, and there are very few freight rail services operating in and out of the region
- Reasonable to suggest that terminals could be constructed in a variety of strategic locations, for example Truro, Plymouth, Exeter and Taunton
- Terminals at the above locations would enable a strategic network of terminals offering customers the chance to access a railhead within around an hour of travel time by local lorry. The long distance trunk haul would be done by rail
- This presents a potential opportunity to utilise parts of the rail network in the South West region that are currently not used for freight movements.

Stockholm Norvik Port

Image credit: Green Cargo

The Issue

Port developments across most of Europe recognise that providing new rail infrastructure is just as essential as building a new road.

Case Study Description

- Stockholm Norvik Port opened in May 2020, and the industrial branch line was added in June, connecting the container terminal to the rail network.
- The construction of the rail connection cost SEK 800m (GBP 70m / EUR 77m), and included:
  - 4,400m branch line;
  - 360m track on the port esplanade;
  - A railway yard with three 750m tracks; and
  - A 100m siding.

Implication for South West

- This project shows the synergetic opportunities between port and rail freight, primarily in this example through intermodal containers, in this case being moved by Green Cargo the aptly named Swedish Rail freight operator.
- This could serve as a broad 'blueprint' that port developments should aim to connect to modern rail facilities onto an existing port, highlighting expected opportunities, challenges, costs and timeframes.
- Therefore, any future plans at ports such as Avonmouth, Falmouth and Plymouth, both with rail connections, should all factor in consideration of rail freight.
- Ports in the South West region should collaborate with Local Authorities, the STBs and Government to see how rail can be part of the freight solution.

Tesco Supermarket Materials by Rail Freight

Image credit: Direct Rail Services

The Issue

Tesco is the market leader in the UK supermarket arena. It takes its Corporate Social Responsibility seriously and has worked diligently with the rail industry and partners to build a network of daily train services ranging from Inverness to South Wales. A useful model for the South West is in the Highlands of Scotland where Tesco run their trains to Inverness which then services stores across the Far North using a local haulier. The photo shows some of its curtain sided swapbodies branded to say boldly it creates less CO_2 by rail. Tesco wanted to build a new store in North London and was required by a planning stipulation to bring in some of the building materials by rail.

Case Study Description

- In order to obtain planning permission for a new superstore above a railway in North London, Tesco agreed that a specified proportion of construction materials would be transported by rail.
- This agreement mitigated the congestion and pollution/air quality impacts of the store's construction.

Implication for South West

- This case study demonstrates two different messages. Firstly, that there are some more enlightened companies that see the merits of rail freight and work hard to make it work, a non-traditional usage of rail freight to enable and enhance urban planning. Secondly, that Local Authority planners can have an influence on the mode of transport used for moving construction materials by incorporating it into the planning permission conditions.
- This may provide a new avenue of adoption by Local Authorities in the South West region favouring rail freight due to its environmental benefits, without requiring significant commitments to long-term support for freight services from either businesses or the authorities. This can also be suitable in areas with a Clean Air Zone or Low Emission Zone where rail transportation can help meet targets

Doncaster iPort rail

Image credit: iPort Rail

The Issue

There is a strong demand for efficient and effective logistics hubs which also embrace transportation of freight by rail to lessen the reliance of the industry on road haulage

Case Study Description

- iPort rail is a 30-acre multimodal container site located within the 337-acre iPort logistics park in Doncaster.
- It has up to 3,000 TEU of storage capacity and is capable of handling 775m trains, the current UK maximum length capacity, and is connected to the rest of the UK rail network.
- It is located within seven hours of the main deep seaports at London Gateway, Southampton and Felixstowe.
- iPort rail offers direct access to the UK national rail network via the East Coast Main Line, including direct services to Europe via the Channel Tunnel

Implication for South West

- iPort rail helps firms using the iPort to move goods both domestically and internationally with greater efficiency, as well as promoting greater connections with the various rail services operating there
- A similar set-up in the South West region located within easy reach of ports in the South West could have direct services to Europe to help firms in the region to export to a greater extent.
- The use of rail can also help South West region to meet sustainability and environmental commitments, with CO_2 emissions 70 per cent less per tonne carried by rail than by road, with rail also producing 15 times less NOx emissions.

New Express Parcels

Image credit: Eversholt Rail

The Issue

Transporting parcels by train using conventional rail freight services can be slow and less competitive compared to road. Many services are also using diesel locomotives such as the Class 66 which are less environmentally friendly than their electric counterparts

Case Study Description

- Eversholt Rail began development of an express electric freight train
- The new train will involve the conversion of a Class 321 electrical multiple unit (EMU) which will be capable of travelling at 100mph and will be able to hold up to 12 tonnes of freight per vehicle
- Trials of the new train are expected to take place in 2021

Implication for South West

- South West currently has a low proportion of freight transported by rail as well as having a road network which is often congested
- If trials are successful and these services can be implemented, they will offer an alternative solution to road freight to enable faster deliveries and greater consolidation of goods being transported
- These services can also be implemented in conjunction with any rail freight or intermodal terminals that may be developed in the South West region in the future

Yara Birkeland

Image credit: Yara

The Issue

The shipping industry is reliant on fossil-fuelled vessels causing significant environmental pollution. Journeys by coastal shipping may be a viable alternative, therefore reducing unnecessary road journeys and congestion.

Case Study Description

- Yara Birkeland, developed as part of the Yara fertiliser company, is the world's first electric and autonomous ship with zero emissions.
- The ship is a 120 TEU open top container ship, and will be a fully battery powered solution, prepared for autonomous and unmanned operation.
- The ship will move transport from road to sea, reducing noise and particulate matter (pm), improving the safety of local roads and reducing Carbon Dioxide emissions.
- With this vessel, Yara will reduce diesel powered truck haulage by 40,000 journeys a year
- The operational area involves the autonomous ship sailing within 12 nautical miles from the coast, between 3 ports in southern Norway.

Implication for South West

- Coastal shipping using alternatively fuelled vehicles can assist with modal shift by taking vehicles off the road as well as helping reduce the carbon footprint of freight transportation
- South West ports, such as Avonmouth, Falmouth and Plymouth, are well set up to facilitate coastal shipping and ease congestion on routes like the A30 and A38
- Alternatively fuelled vessels can also help the South West region contribute to wider decarbonisation targets by taking lorries off the road

Coastal shipping of logs and aggregates in the western UK

Image credit: Great Glen Shipping

The Issue

The log and aggregate industry in Scotland is reliant on roads to transport goods both around Scotland as well as to the rest of the UK.

Case Study Description

- Great Glen Shipping has a bespoke set of coastal vessels used for transporting timber, aggregates and other bulk cargo throughout the west of the UK
- Vessels run both between Scottish ports as well as to various ports in Northern Ireland, England and the Isle of Man
- English ports involve Plymouth in the South West region as well as the Isles of Scilly
- One vessel, The CEG Cosmos, has both self-loading and discharging capabilities and regularly provides a sea freight service to the smaller harbours in the Outer Isles from mainland Scotland

Implication for South West

- Coastal shipping can assist with modal shift by taking vehicles off the road and help to move greater volumes of freight using one movement
- South West ports can build on the current success of coastal shipping at Plymouth and look to incorporate other ports in the South West region to increase the proportion of coastal shipping in the region
- Coastal shipping can also help the South West region to increase links with other ports in the west of the UK which are also served by these vessels

Shoreham Eco Port

Image credit: Shoreham Port

The Issue

Ports are often reliant of fossil fuel to support it operations and business activity typically located within the port itself.

Case Study Description

- Shoreham is only port in the UK registered as PERS (Port Environmental Review System) accredited and has taken steps to reduce its reliance on fossil fuels through its energy network (renewable energy production), surface access interventions and on site building and business hosting.
- The port has adapted its fuelling infrastructure to supply Gas To Liquid (GTL) across its fleet of over 60 operational vehicles including forklifts, cranes, telehandlers and work-platforms. This led to reducing emissions by 37.5 tonnes of CO_2 per year, engine particulates by up to 90 per cent and nitrogen oxides by up to 25 per cent (Shoreham Port, 2021).
- The port excels in fostering port centric business activity and small scale logistics

Implication for South West

- Inspiration to ports seeking to diverse revenue streams and proactively engage with social, economic and environmental challenges facing the industry; with plans to be carbon neutral by 2030.
- South West ports can support local communities and economies with employment opportunities
- Promotes self-sufficiency in the long term and investment in future industries e.g. energy

Drone transport of medical supplies to the Isle of Wight

Image credit: Solent Transport

The Issue

There are difficulties in transporting time-critical medical supplies, such as cancer treatments or organs for transplants, to hard-to-reach locations such as rural areas or islands.

Case Study Description

- Solent transport began trialling an Unmanned Aerial Vehicle service (UAV) to the Isle of Wight
- Funding is provided by the Department for Transport, with the trial forming part of the Solent Future Transport Zone (FTZ) project
- In May 2020, a UAV was successfully tested to take Personal Protective Equipment (PPE) from Lee-on-the-Solent in Hampshire to Binstead near Ryde
- This crossing takes around 10 minutes and it is hoped that this can improve the movement of time-critical supplies going forward

Implication for South West

- South West is a highly rural area with insufficient highway capacity in many locations, meaning drones can offer a more reliable transport method for time-critical deliveries
- Drones can also be used for more regular deliveries, especially in hard-to-reach areas where vans and trucks are unsuitable for the narrow lanes
- This in turn can free up highway capacity and enable faster road journeys

Zeem Manchester Cycle Logistics

Image credit: Business Manchester

The Issue

Last mile deliveries being operated by conventionally-fuelled, larger vehicles are causing disruption to city centres by causing congestion and contributing to air pollution. Greener alternatives more suitable for city centres are required to combat these issues.

Case Study Description

- Zeem Logistics has a fleet of electric cargo and fixed gear bikes, and currently provides services including food deliveries and luggage transfers from hotels to airports
- On average, deliveries arrive 5-10 minutes early and encourage environmentally friendly operation
- Currently Manchester based and intends to cover the whole of Greater Manchester, with the aim of expanding to other cities such as Liverpool and Sheffield
- Also looking at more general parcel deliveries with the aim to expand into larger cargo trikes so that larger parcels can be carried

Implication for South West

- Cargo bikes can help ease congestion in urban areas in the South West by improving space-efficiency and lessening the need for cars and vans
- Electric and fixed gear bikes also enable a form of cleaner transport, and help the South West's aims with regards to decarbonisation
- These bikes also enable quicker deliveries, especially in the last mile, which means that deliveries can be completed more efficiently, especially with cargo bikes being able to route where trucks and vans cannot

Use of backloading and load matching services

Image credit: The Leader Live

The Issue

Many road freight journeys in the UK run loaded in one direction but run empty in the opposite direction. This means more lorry journeys are required leading to more CO_2 being produced than is necessary and lower road capacity

Case Study Description

- Kronospan UK is based in Chirk, Wales and is a manufacturer of wood-based panels, with their production facility handling hundreds of road freight vehicles each day
- Backloading of lorries is a major priority for Krosnospan. Excluding their log carriers, 92 per cent of lorry journeys are successfully backloaded
- Lorries delivering raw materials to the site are backloaded either with finished products from the site or waste materials to be recycled
- By backloading wherever practical, hauliers are paid for both inbound and outbound trips, cutting wasted mileage and Kronospan is able to obtain much more competitive haulage prices as a consequence

Implication for South West

- The South West region has significant empty running, particularly with vehicles travelling to/from the north west
- Backloading schemes can help to improve capacity on the roads of the South West region as well as potentially reduce costs for businesses and hauliers
- Reducing lorry journeys will also help to cut pollution in the South West region and help the region to decarbonise

Alternatively fuelled vehicles (Tesla Semi)

Image credit: Tesla

The Issue

There is a reliance on fossil-fuelled vehicles for road deliveries, and alternatively fuelled vehicles are required to enable road freight to decarbonise and contribute to the UK government commitment to net-zero. Types of alternative freight transport energy include biodiesel, renewable diesel, natural gas, battery electric and hydrogen fuel cell

Case Study Description

- The Tesla Semi is an electric truck powered by 4 independent motors on the rear axles, with a range of either 300 or 500 miles and acceleration from 0-60mph in 20 seconds
- The Tesla semi also includes enhanced autopilot which helps to reduce collisions
- Electric Lorries such as the Tesla Semi also produce less noise, therefore allowing them to operate during hours where other vehicles may not be allowed. As yet they are not available in the UK but other electric vehicles are being introduced mainly rigid lorries

Implication for South West

- Embracing alternatively fuelled vehicles can help the South West region to contribute to a route to net-zero
- Interventions could also complement other measures such as encouraging modal shift and retiming of deliveries
- This is also important in the context of Cornwall having been the host of the G7 summit in June 2021 and commitment to COP26 outcomes later in the year

National Highways Agreed Diversion Routes

Image credit: National Highways

The Issue

There is a reliance on fossil-fuelled vehicles for road deliveries, and alternatively fuelled vehicles are required to enable road freight to decarbonise and contribute to the UK government commitment to net-zero. Types of alternative freight transport energy include biodiesel, renewable diesel, natural gas, battery electric and hydrogen fuel cell

Case Study Description

- National Highways Agreed Diversion Routes demonstrate the recommended routes for when a section of road is closed or otherwise unusable
- Routes are split directionally (northbound, southbound, eastbound, westbound, clockwise and anticlockwise
- Information on route length and description is also provided to ensure drivers unfamiliar with diversion routes know what to expect from the diversionary route

Implication for South West

- South West can implement approved diversionary routes at a more regional level to help delivery drivers to navigate the region if their original intended planned route is not available
- This can also help drivers of large vehicles to know which routes are suitable, especially with many roads in the South West region being unsuitable for HGVs
- Appropriate routing can also ease congestion caused by vehicles taking inappropriate routes and needing to turn back or getting stuck and causing blockages to the road network

Quieter Waste Collections

Image credit: Engie

The Issue

Most refuse collection vehicles are powered by fossil fuels. These vehicles are also often responsible for high levels of noise, particularly in urban areas where collections are made. It is also important that alternatively fuelled vehicles can complete rounds on a single charge to ensure that they are time efficient.

Case Study Description

- Following two years of trials, Manchester City Council launched 27 new zero-emissions electric refuse collection vehicles
- The vehicles are quieter and cost efficient as well as being helping to reduce air pollution and can complete a full shift on one charge
- This is part of Manchester City Council's zero-carbon action plan that aims to halve its direct emissions by 2025, as part of a wider drive to make Manchester carbon free by 2038

Implication for South West

- The use of low and zero-emission waste collection vehicles can help the South West region to work towards their clean air targets
- Vehicles such as these will also be useful for urban collections in large urban areas such as Bristol, Bournemouth, Plymouth and Exeter as they may be able to make collections earlier or later in the day without causing as much of a noise disturbance to residents
- The ability to complete a full round in a single charge is also useful for the South West region as all charging points can be centred at the depot or base for the vehicles with no other charging points required

D.2 Inside the South West

China Clay Movement

Image credit: Railfreight.com

Summary

China clay traffic is mined in the far South West, from a range of loading points around St Austell. It is then carried locally within Cornwall for export via the Port of Fowey, as well as over longer distances outside the South West region

Case Study Description

- DB Cargo operates two separate flows for Imerys, from Goonbarrow to Fowey and from Cornwall to Cliffe Vale in Stoke. 7,200 tonnes are moved by rail every week, removing the equivalent of 11,000 lorries per year from roads in Cornwall
- The terrain in Cornwall is often steeply graded and the open cast mines are often located in locations remote from main line access. This can make moving bulk loads challenging; however, the presence of a rail network helps all involved.

How this has helped South West

- Rail represents a reliable and environmentally friendly means of moving bulk cargo throughout the South West
- These services also help support regional ports such as Fowey, and demonstrate the importance of implementing rail connections to ports
- Services such as these also help to support trade outside of the South West with rail services running to the Midlands
- Taking lorries off the road also helps the South West region, and the UK as a whole, to work towards achieving a route to net-zero

Aggregates Movement

Image credit: Rail Business Daily

Summary

Stone trains are running out of Merehead and Whatley quarry running to various destinations including London. Jumbo (heavy) trains have also been running between various locations, including Merehead and London, using a Class 70 locomotive.

Case Study Description

- Mendip Rail Ltd operates as a joint venture between Hanson UK and Aggregate Industries
- Freightliner are operating all trains on behalf of the Mendip joint venture having taken over from DB Cargo in 2019. This includes the Jumbo Trains
- Under the Mendip Rail Contract, Freightliner haul around eight million tonnes of aggregate per year in total, around 107,000 wagon loads

How this has helped South West

- Jumbo trains operating in the South West region means more material can be carried per train, which can help to free up additional train paths and increase the carbon savings per train.
- Bulk rail freight operations such as these also help take trucks off the road and help the local economy by exporting out of the South West region into other areas of the UK
- This service also demonstrates how aggregates companies can work together, such as through joint ventures, to increase efficiency savings and encourage additional modal shift

Timber Movement

Image credit: Cornwall Rail Society

Summary

Colas Rail have previously operated timber rail freight services including those from Newton Abbott to Chirk in Wales for the Kronospan paper mill firm.

Case Study Description

- A previously disused 4-mile freight line, running between Newton Abbott and Heathfield, was brought back into use to enable the Teignbridge to Chirk connection.
- When launched, services consisted of around 15 wagons, and carried around 600 tonnes of timber. This is the equivalent of around 24 lorries being removed from the roads for each service
- Timber has also been transported to Chirk from outside the South West region, such as services from Lockerbie in Scotland

How this has helped South West

- Despite not currently running, this project shows how investing in and reopening old railway lines, especially freight lines, can help to encourage modal shift
- Reopening the Heathfield branch has both helped to facilitate shorter journeys fully within the region, but also longer journeys from outside the region helping firms operating in the South West region
- This example also shows the importance of a 'can-do' attitude from rail freight companies (such as Colas Rail in this case) to work proactively to make these services cost-effective, as well as councils and local authorities in assisting with necessary processes to get lines reopened when this is possible

Drone Deliveries

Image credit: Aerospace Cornwall

Summary

Drone trials have taken place between the UK Mainland and the Isles of Scilly as part of a Royal Mail Trial. This is part of a government funded project developed with a number of partners including Southampton University and Windracers Limited

Case Study Description

- Drones have been transporting goods such as PPE and COVID-19 testing kits to the Isles of Scilly
- Each round trip can be completed in under 2 hours and covers around 211km
- Drones can carry up to 100kg in a single journey, around the equivalent of a typical delivery round

How this has helped South West

- Along with flights to Land's End Airport and helicopter transfers, these transport links ensure that communities are not cut-off and can get access to essential services to benefit themselves and local economies
- These services also allow visitors to travel the Isles of Scilly, who account for around 80 per cent of the local economy, and these services therefore allow local businesses to benefit from the tourist economy
- An array of different transportation options also allows greater versatility, for example helicopters allowing a faster and more urgent transportation option, with ferries being slower but also allowing more to be carried

Lifeline ferry services to the Isles of Scilly

Image credit: Falmouth Packet

Summary

Ferry services run between Cornwall and the Isles of Scilly, as well as between the islands themselves, ensuring that communities are not cut off and links with the Cornwall mainland can be maintained.

Case Study Description

- The Isles of Scilly are located 28 miles off the coast of Cornwall and have a population of around 2,200.
- Lifeline services enable access to healthcare, such as medicines, and essential goods and services, including food, as well as allowing movement of critical workers and patient transport.
- There are inter-Island services running between each of the Islands, as well as services running to Cornwall.

How this has helped South West

- The current postal boat running between the islands is weather dependent, however the drone is able to operate even in bad weather, increasing reliability of deliveries
- The drone deliveries are particularly useful for time-sensitive parcels, such as medication and special deliveries
- These trials have been especially helpful during the COVID-19 pandemic, both to transport medicines and PPE as well as to help with the increased number of parcels that have been sent

Zoom! Deliveries

Image credit: Cornwall Live

Summary

Zoom! 1 Hour Delivery has launched in Falmouth, with customers in an eight mile radius receiving their order within 2 hours of placing it on an app, or at another time that suits them

Case Study Description

- Co-op has chosen Zoom! as a logistics partner in Falmouth, whilst McDonald's delivery is also available
- Average delivery time for Co-op customers is 20 minutes from ordering, demonstrating a quick service
- This is in addition to other delivery services, such as Deliveroo, which has been operating in Falmouth for 2 years and is planning to launch in other locations such as Penzance and Newquay

How this has helped South West

- Due to narrowness of roads, many areas in the South West area are hard to reach for conventional deliveries, especially those using vehicles weighing 7.5 tonnes or over
- The use of smaller vehicles therefore helps reduce congestion in and around Falmouth, especially during the peak summer season
- There is also a number of older people and/or isolated communities living in rural Cornwall, and delivery services such as this can help them to access essential goods quickly and efficiently. This is, however, subject to them having a sufficient internet connection and being able to use the App
- It is also helped that this service will help local business in Falmouth going forward by making it easier for customers to access their products

Somerset County Council Traffic Choices

Image credit: trafficchoices.co.uk

Summary

Traffic Choices “aims to assist communities with decisions on traffic schemes by providing them with user friendly information”. This includes a bespoke page for Heavy Goods Vehicle issues

Case Study Description

- Information is provided on key issues for HGVs including causing congestion on local roads, getting stuck on narrow roads and causing excessive noise and vibration when using small residential roads.
- Key solutions are given such as HGV directional signs, “Unsuitable for HGVs” signs and weight limits, as well as key advantages and disadvantages of these, as well as links to further information

How this has helped South West

- Communities working with local councils have often said information about traffic schemes, including those for HGVs, is not easily available.
- Interventions such as those identified as part of Traffic Choices can help with better routing for HGVs at a local level in the South West region, and help mitigate issues associated with poor HGV routing in the region
- Implementation of weight limits and other measures as identified as part of Traffic Choices can help efficiency of deliveries, by signalling the best routes to use and avoiding unsuitable shortcuts and rat runs

Ginsters Food Products Logistics

Image credit: Commercial Motor

Summary

Ginsters produce food products from their factory at Callington in Cornwall, and are a strong example of a successful firm with a strong logistics operation working within Cornwall

Case Study Description

- Ginsters produces around 3 million savoury pastries each week
- Ingredients required include 14-15 tonnes of beef a week, 19 tonnes of chicken, 8 tonnes of pork, 8-9 tonnes of swedes a week and 8-9 tonnes of onions a week
- 14 lorries leave the factory 24 hours a day every day, with the majority of products transported to a distribution centre in Bristol before being distributed to the rest of the country

How this has helped South West

- The location of the Ginsters factory also helps local farmers and producers, with potatoes being transported from only 12 miles away
- The factory incorporates 500 jobs on site, in addition to supporting other operations such as distribution and logistics, therefore helping to support the local economy and provide employment for a number of local companies
- The brand also looks to promote Cornwall through packaging and merchandise, such as including Cornish scenes, a chough and the flag of St Piran, demonstrating a commitment to Cornwall and in particular their role in getting Protected Geographical Indication (PGI) status for the Cornish pasty

Wincanton ESG strategy

Image credit: Truck and Driver

Summary

Wincanton is the largest British owned logistics firm with their head office located in Wiltshire. They have made a number of environmental commitments to help make their business greener.

Case Study Description

- Wincanton has a target to be net-zero by 2040 across transport, property and waste. This includes investing in an all-electric company car fleet by 2026
- The Wincanton Woodland planting scheme provides customers the opportunity to offset their carbon emissions through a certified and recognised programme
- They are also working on offering diesel alternative fuel options, such as HVO or biomethane fuel, that will reduce transport emissions by 70–85 per cent.

How this has helped South West

- Wincanton is a leading example of a logistics company based in the South West which has developed an Environment, Social and Governance (ESG) strategy with measurable targets including a firm commitment to net-zero
- They also look to collaborate with other businesses, including those in the South West, to tackle industry issues such as understanding how to eliminate red diesel for refrigeration
- These interventions set an example to other businesses in the South West looking to decarbonise and collaborate, as well as the steps that logistics firms can take to become more socially responsible

DHL logistics consolidation

Image credit: DHL

Summary

DHL is a large international logistics firm with operations across the world and they even have their own aircraft. They offer consolidation of freight as part of their freight offering in the Bristol and Bath area.

Case Study Description

- Consolidation in logistics is described as where a carrier combines a number of smaller shipments into an individual load/container
- Cargo from various manufacturers and suppliers, can be palletised and taken into DHL's own dedicated warehouse. This means that the loads can be grouped for movement into the centre of both Bath and Bristol which have congestion and air quality issues.
- Multiple orders can be bundled into urban friendly urban vehicles for delivery to shops or other locations.

How this has helped South West

- Consolidation in logistics may benefit freight carriers as it makes shipments easier from their end as they can avoid having to travel into the centre of Bristol or Bath
- Consolidation means businesses in the South West can draw down stock that is held in the local CC when they need it rather than having to store it themselves. This can be more cost-effective allowing businesses to operate more efficiently
- Having consolidation centres such as these in the South West could be beneficial to the South West economy, including job creation, and also helps provide solutions that are local to South West based businesses.

Crest Medical PPE supplies through

Image credit: Dorset Echo

Summary

During the COVID-19 Pandemic, Bournemouth Airport has acted as a key UK freight airport in facilitating the delivery of Personal Protective Equipment (PPE) coming in from countries such as China and Malaysia

Case Study Description

- NHS supplier Crest Medical has been using passenger jets as well as cargo planes in order to increase imports of PPE to assist with the COVID-19 pandemic
- In particular, a passenger Airbus A340 has been used with boxes strapped into every seat to enable these imports to be increased
- Overall, it is estimated that over 65 million pieces of PPE have come through Bournemouth including 20 million pairs of gloves, 16.2 million gowns and 2.6 million theatre caps

How this has helped South West

- These flights have helped establish Bournemouth as a key freight base during the pandemic which it can build on going forward. New services to America, the Far East and Middle East are either operating or are planned
- These flights have generated significant positive publicity for Bournemouth and the South West, especially as part of wider positive publicity for the freight and logistics sector and the NHS
- The NHS PPE cargo operations have also enabled Bournemouth to be on a strong footing to recover from the pandemic, with these newer freight and military services operating alongside passenger services

Morocco to Poole ferry services

Image credit: World Cargo News

Summary

A Ferry service is due to be launched in 2022 running between Morocco and Poole, offering an alternative to road vehicles travelling through continental Europe

Case Study Description

- United Seaways plan to operate a one-sailing-per-week ferry service from Tangier in Morocco to the Port of Poole
- The service will take 3 days compared to the 6 it currently takes by road and also negates the need for two crossings via Spain and the English Channel
- The service is also marketed as enabling hauliers to bypass bureaucratic procedures as a result of the UK departure from the European Union

How this has helped South West

- This service will help to offer a direct service into the South West via Poole, as opposed to needing to pass through ports located further away such as Southampton or London Gateway
- This service will help lessen the environmental impact of logistics as they lessen the requirement for road transport, through Spain and France
- Services such as these also enable goods to be transported more efficiently and quickly, as well as helping to offer more choice to the logistics industry regarding how and when they wish to transport products

Gloucester Motorway Service Area

Image credit: Glen Howells Architects

Summary

The provision of lorry parking is an issue. Many lorry parks have insufficient space for vehicles, are insecure, have limited facilities for drivers and are often in sub-optimal locations. HGV drivers are therefore forced to use inappropriate parking spaces or drive significantly out of their way to find an appropriate parking location.

Case Study Description

- Gloucester Motorway Service Area (MSA) is located to the south of Gloucester between junctions 11A and 12 of the M5
- The MSA is regularly considered one of the best MSAs in the UK due to provision of facilities such as a farm shop
- The MSA is located in the Cotswold countryside, with the main facilities building bedded into the undulating hills with a grass covering to protect views of the landscape
- HGV parking is available for £23 which includes a £5 meal voucher

How this has helped South West

- If the South West is to increase development of freight terminals involving road, areas for lorry parking will be required to facilitate lorry journeys to the region
- Due to the location of the South West region, many lorry drivers will have driven a significant distance to reach the area, therefore provision of facilities is important for wellbeing and enabling drivers to comply with driver's hours requirements
- Gloucester MSA also offers an example of how MSAs and other service areas can be constructed in a way that is complementary to the landscape, particularly with South West having a significant number of rural areas including National Parks and Areas of Outstanding Natural Beauty

ForFarmers consolidation

Image credit: World Grain

Summary

ForFarmers, a Dutch owned animal feed producer, has invested in their Exeter mill plant with significantly quicker loading for efficiency purposes. It has plants in the South West region at Avonmouth, Portbury, Radstock & Exeter.

Case Study Description

- The new facility is 15 meters taller than the previous mill structure to accommodate a new, energy-efficient vertical feed conveyor transport system
- A new out loading facility has been installed which utilizes pre-loaded feed bins and has cut discharge of feed into delivery vehicles from 90 minutes, to 90 seconds – reducing delivery times and enabling a higher of volume of customer deliveries
- By restructuring, ForFarmers has been able to increase the Mill's capacity from 140,000 tonnes to 300,000 tonnes of animal feed per year

How this has helped South West

- Investment such as that at the ForFarmers plant is an example of businesses looking to expand and increase their productivity
- It is also a benefit to have a mix of multi-national firms and small firms to increase collaboration and contribute to a healthy economy mix
- With a number of plants in the South West, ForFarmers are an example of how a network of linked sites across different locations can help South West businesses by being well spread throughout the region and therefore being closer to farmers

Bennamann Energy

Image credit: Cornwall and Isles of Scilly Growth Programme

Summary

Bennamann Energy is a renewable energy company based in Cornwall. Over the past six years they have been developing various technologies that can capture, process, store, distribute and consume fugitive biomethane

Case Study Description

- Fugitive biomethane is methane that is captured from slurry lagoons and repurposed into a better-than-net-zero form of renewable fuel
- This can be used as an alternative fuel and a replacement for diesel/petrol
- Bennamann are in the process of deploying their technology on seven dairy farms in Cornwall with an ambition is to sell liquified fugitive biomethane into the logistics sector/heavy duty transport/electric vehicle markets

How this has helped South West

- Bennamann are producing ‘better than net-zero’ fuel in the South West, making a significant contribution to the decarbonisation throughout the region as well as positioning the South West at the heart of transport decarbonisation
- Fugitive biomethane offers superior environmental credentials than green hydrogen and is available now, whilst provision of slurry means that it is a fuel source that will continue to be prevalent going forward
- There are compelling economic credentials as well as environmental, therefore using biomethane can help haulage firms in the South West to be more financially competitive

EXO Cell

Image credit: Atmos Clear

Summary

Plymouth City Bus and Plymouth City Council are trialling technology known as an EXO cell developed by Atmos-Clear Limited (www.atmos-clear.com) on 5 vehicles each, with the aim of reducing the production of toxic emissions from engines

Case Study Description

- The system works by adding hydrolysed gas to the regular fuel/air mixture. The result is a faster, cooler fuel burn which eliminates almost all waste gases produced and provides overall better fuel economy
- Different cell sizes can be used for various vehicles, all the way from car derived vehicles and those with small engines to larger commercial vehicles with larger engines
- Trials have previously taken place in locations such as Paris and are now taking place in Plymouth

How this has helped South West

- This trial shows how Plymouth is at the forefront of the development of these new technologies to help Devon and the wider region to develop a route to net-zero
- Technologies that can help reduce emissions of diesel and petrol vehicles can offer a quicker solution in comparison to alternatively fuelled vehicles which may be more expensive and take longer to come through
- This also offers a versatile solution that can help a number of vehicle types with different engine sizes, offering a possible solution to a wide variety of vehicles within the freight sector

Appendix E Stakeholder engagement – organisation contacted

A&P	Conway Bailey Transport	Gregory Distribution Ltd	Poole Harbours Commission
ABP Property	Cornwall Council	Harbour Transport Ltd	Portland Port
Aldridge Transport (now TJK Transport)	Cornwall Manufacturers' Group	Harts Haulage & Plant Hire	R L C Transport
Allways Removals Ltd	D & L Haulage Dorset Ltd	Heart of the South-West LEP	R R Transport
Amberon Ltd	D J Wills Haulier	Heltor Ltd	Rail Freight Group
Andy Lee Transport Ltd	Dave Bevis Haulage	Hockings	Road Haulage Association
Associated British Ports	DB Cargo UK	Hydrogen Suppliers - BOC UK & Ireland,	RT Keedwell Ltd
Babcock	Devon County Council	Imerys	Salisbury BID
Bath and North East Somerset Council	Direct Rail Services	J A Mackenzie Limited	Scott Transport Ltd
Bath BID	Dorset Council	Kintetsu	SevernNet
Bath International Transport	Downes Transport	Logistics UK	Somerset County Council
Bennamann Energy	Dunchaul	M Way	South Gloucestershire Council
Bournemouth Airport	Dyce Carriers Ltd	Mouland David	South West Infrastructure Partnership
Bournemouth BID	EFRET European Haulage	Nagel Langdons	Swindon & Wiltshire LEP
Bournemouth, Christchurch and Poole Council	Evans	National Highways	T Barry Haulage Ltd
Bristol Airport	Falmouth Port / Harbour	Network Rail	Torbay Council
Bristol BID	Free Ports	Newman Haulage	University of West of England
Bristol Council	Freightliner	Newquay Airport	WBB Minerals (now Sibelco)
Bristol Port	Freightroute	Nicholas Rowell Haulage	West of England CA
Bristol University	G A Sheppard Transport	Norman E Webb Ltd	Western Aviation
British Ports Association	G.A Carlyon	North Somerset Council	Westfield Transport, Cornwall
Burcombe Haulage Ltd	Gilders Transport Ltd	Phill Bascombe Transport Ltd	Weymouth Port
Burden Transport Ltd	Ginsters/Cornwall Bakery (Sam West Bros)	Plymouth City Council	Wiltshire Council
C&D South West Kingfisher Works	Gloucestershire Council	Plymouth Manufacturing Group	Wincanton plc
Carlton Power Limited	Gloucestershire LEP	Poole BID	Wyvern Cargo Poole
CILT Rail Freight Forum	Grahams	Poole boat transport	

Appendix F Draft freight interventions

The below table details the freight interventions that were initially developed based on the feedback from the stakeholders and the workshop. After reviewing the feedback, many of the interventions were combined and the categories adapted. In order to link the initial interventions to the final recommended set of freight interventions, the linking intervention ID number has been provided below.

Draft freight interventions

ID	Category	Intervention	Corresponding intervention ID for the final set of interventions
PM1	Ports and Maritime	Awareness campaign on opportunities for using coastal shipping for supply chains	M3
PM2	Ports and Maritime	Strategic Warehousing Audit and Specific Supplementary Planning Guidance for the South West.	M6
PM3	Ports and Maritime	Planning guidance to include consideration and provisions for freight activities	M7
PM4	Ports and Maritime	Awareness campaign on opportunities for modal shift and its benefits	M3
PM5	Ports and Maritime	Review of port capacity, traffic management and exploration into port based connections through rail and coastal feeders to reduce demands	M6
PM6	Ports and Maritime	Awareness campaign on how coastal shipping can be cost effective option for supply chains including details of water freight grants e.g. brochure	M3
PM7	Ports and Maritime	Awareness campaign on maritime shipping offers including their locations	M3
PM8	Ports and Maritime	Awareness campaign on opportunities to diversify ports into renewable energy production	M2
PM9	Ports and Maritime	Develop business case for using short sea coastal feeds to remove road vehicles including Feasibility Study into operation of a coastal feeder vessel between Southampton and Plymouth.	M1
PM10	Ports and Maritime	The development and growth of new sectors at ports in aggregate, animal feed and agriculture.	M4
PM11	Ports and Maritime	Exploring scaling up of bunkering facilities (LNG) as well as the potential to use shoreside power where the energy network has capacity	M2
PM12	Ports and Maritime	Identify and implement opportunities for consolidation sites and booking systems to reduce congestion	M6
PM13	Ports and Maritime	Market Study into maximising the potential of the Plymouth Freeport as well as encourage small ports to explore Eco Port status and PERS accreditation through investments in energy efficiency and electrification	M2
PM14	Ports and Maritime	Region wide standards and policy for planning safeguarding of appropriate sites for wharves.	M7
AV1	Aviation	Support electrification of regional aviation to maintain lifeline links to the Isles of Scilly and to other key aviation hubs for essential air freight cargoes.	A1
AV2	Aviation	Create business / employment zones around airports showcasing Gloucestershire Airport (Churchdown) as an example	A2
AV3	Aviation	Review suitability and potential locations that could benefit from drone technology	A4
AV4	Aviation	Work with operators to understand future business model/interest in carrying cargos within commercial craft (undercroft/plane belly) and optimising use of existing commercial passenger services for moving goods.	A3
RF1	Rail	Collaborate with Network Rail / site owners / local authorities / launch customers to bring forward an intermodal kick starter terminal network in the South West	RL7
RF2	Rail	Conduct a Feasibility Study into the operation of an intermodal container train between Southampton and other deep-sea ports to appropriate new terminal(s) in the South West.	RL1
RF3	Rail	Collaborate with Network Rail, Local Economic Partnership and Local Authorities to exploit freight terminals	RL7
RF4	Rail	Work with Local Planning Authorities to safeguard appropriate sites both for rail, water and in urban and rural areas	RL7
RF5	Rail	Support transition pathway for conventional fuel distribution to enable a just transition and avoidance of excessive stranded assets	RL3
RF6	Rail	Allocate sufficient freight train paths on the network for the needs of the growing freight markets (intermodal, bulk and parcels)	RL9

RF7	Rail	Investigate the current status and feasibility study into re-introducing port connection at Cattedown, Plymouth for serving waste and recycling centre and to support future aggregate movements	RL7
RF8	Rail	Support recommendation for W12 / S45 standards for all current W10 cleared routes and diversionary routes.	RL2
RF9	Rail	Establish and promote a South West Freight Steering Group (to include Network Rail and National Highways)	O3
RF10	Rail	Review a minimum path allocation for Birmingham to Bristol and Bristol to Exeter	RL9
RF11	Rail	Support electrification of the network to large Somerset quarries and to Exeter as an early priority. Extend electrification to Plymouth and Cornwall in the longer term	RL2
RF12	Rail	Support local businesses to establish new services by rail by signposting them to specialist resources that can help them make the modal shift and engage with the Freight Operating Companies	RL4
RF13	Rail	Pursue roll out of using alternative fuels including HVO to existing rail freight operations in the South West – starting with the existing Burngullow – Fowey and Burngullow to Stoke China Clay flows	RL3
RF14	Rail	Development of a Supplementary Planning Guidance for freight matters to include safeguarding of key sites, adequate land in urban areas for consolidation / micro consolidation / residential and industrial uses and land allocation for Local Development Plans	RL8
RF15	Rail	Promote training and awareness package on the role, value and requirements of the freight and logistics sector.	RL4
RF16	Rail	Collaborate with Network Rail to work with operators / demand generators to assist early market entry at key sites in the South West, including Community Rail Partnership	RL7
RF17	Rail	Explore the case for different incentive regimes to promote modal shift	RL5
RF18	Rail	Establish an alternative rail route for freight flows between Plymouth and Exeter avoiding Dawlish.	RL9
RF19	Rail	Work in partnership with local rail teams and core freight units	RL6
RD1	Road	Identify, map and develop network of alternative fuel stations, as well promote existing stations to support hauliers to transition to alternative fuels	RD1
RD2	Road	Work with hauliers to understand how they can be supported in the uptake of alternatively fuelled vehicles	RD4
RD3	Road	Feasibility study on consolidation sites to reduce vehicles and maximise vehicle utilisation with combined loads for last mile logistics	RD10
RD4	Road	Promoting suitable alternative routes for the event of adverse weather including communicating these clearly with the industry	RD11
RD5	Road	Establish a social enterprise / co-operative model for a community based load matching and vehicle matching exchange.	RD15
RD6	Road	Identify options to implement improvements on the SRN and coping mechanisms to ensure flow of traffic	RD6
RD7	Road	Review options to deliver smarter and during quieter periods of the day or week i.e. retiming away from peak periods	RD12
RD8	Road	Identify the strategically important roads which must require journey time reliability and assessing options for future proofing including communication with in-vehicle technologies to better inform stakeholders	RD13
RD9	Road	Explore options to use technology and collaboration between multiple delivery companies to consolidate into one supply chain on the last mile to provide consistent delivery services to harder to reach areas	RD16
RD10	Road	Establish effective communication plans to inform stakeholders about new road schemes and major road maintenance programmes to minimise disruption	RD7
RD11	Road	Identify cluster locations where basic logistics plans are needed along with positive enforcement of facilities for last mile logistics	RD8
RD12	Road	Use the knowledge of the location and type of lorry parking facilities currently available and identify improvements and suggest locations for additional sites to ensure there is sufficient provision	RD5
RD13	Road	Promote training to help operators avoid bridges strikes such as the FORS Bridge Strike Toolkit for operators. Also investigate solutions for the most commonly struck bridges in the region.	RD2
RD14	Road	Ascertain support for removal of height constraints on SRN.	RD2
RD15	Road	Support needs for infrastructure improvements to improve journey time reliability	RD6
RD16	Road	Support National Highways route study; to include HGV alignment / width easement as an early interim measure.	RD6

RD17	Road	Continue support for routine road maintenance activities, avoiding peak periods of traffic flow	RD7
RD18	Road	Review suitability of technologies from trials and their potential for the South West	RD14
RD19	Road	Develop promotional material showcasing HGV road network	RD13
RD20	Road	Pilot concept with Hockings Ice Cream Vans in North Devon with North Devon District Council – Vans and Plug in Points.	RD14
RD21	Road	Engage and work with National Highways on their committed Road Investment Strategy 2, future Road Investment Strategy 3, local authority road schemes and route study schemes	RD6
RD22	Road	Promote the use quiet equipment technology on supply chain vehicles	RD12
FT1	Freight trends	Awareness campaign on the Sub-national Transport bodies role how they can support the freight industry	O4
FT2	Freight trends	Undertake targeted promotional campaigns with schools, colleges to develop apprenticeship and placement opportunities across industry partners - facilitated through regional trade body representatives	O5
FT3	Freight trends	Promote the industry and provide opportunities for potential drivers to access driver training facilities	RD3
FT4	Freight trends	Promote short term solutions to driver shortage through smarter delivery patterns	RD3
FT5	Freight trends	Promote use of swap trailers to reduce demands for long distance trunking between regions	RD9
FT6	Freight trends	Promote championing best practice through specifying accreditation to best practice schemes e.g. FORS / CLOCS	O9
FT7	Freight trends	Guidance for agricultural operators on the use of the road network during busy periods	O6
FT8	Freight trends	Lead by example by implementing low or zero emission vehicles in to local authority fleets	O2
FT9	Freight trends	Scoping study into multi-fuel energy propulsion locations	RD1
FT10	Freight trends	Awareness campaign of the opportunities and the benefits of shifting to other modes.	M3
FT11	Freight trends	Advocate using a community based load and vehicle matching service to help reduce empty running of freight vehicles	RD15
FT12	Freight trends	Exploring both joint and collective procurement with local anchor institutions for purchasing 'essential' goods.	O10
FT13	Freight trends	Undertake review of procurement practices with a view to developing procurement strategies that promote supply chain efficiencies per local authority	O10
FT14	Freight trends	Work with burgeoning alternative fuel providers to scale up infrastructure provision and future production for serving the road haulage sector	RD1
FT15	Freight trends	Targeted promotion and campaigns to support farming and local sourcing to minimise the demand to travel.	O7
FT16	Freight trends	Region wide audit and early delivery plan to improve link from Port / Airport / Rail Terminal to Strategic Road Network.	M5
FT17	Freight trends	Undertake a rolling programme of rural delivery service plans. Phase 1 - Key Tourist Centres Summer Season 2022	RD8
FT18	Freight trends	Extend current Birmingham – Bristol – Exeter joint road / rail route study to Penzance to include Peninsula Transport / Western Gateway as a formal partner.	O1
FT19	Freight trends	Establish regional public sector freight capabilities within the South West to manage the strategic engagement / relationship with DfT, Network Rail, National Highways and Ports / Airports / Rail Terminal Operators.	O1
FT20	Freight trends	Undertake sector supply chain audits including dairy, agriculture and aggregates to review to understand their movements and needs	O8

Appendix G Top 40 draft freight interventions ranked from stakeholder and the project team

G.1 Top 40 draft freight interventions from the stakeholder

ID	Category	Intervention	Stakeholder score	Rank
RF9	Rail	Establish and promote a South West Freight Steering Group (to include Network Rail and National Highways)	61	1
RD3	Road	Feasibility study on consolidation sites to reduce vehicles and maximise vehicle utilisation with combined loads for last mile logistics	61	2
PM3	Ports and Maritime	Planning guidance to include consideration and provisions for freight activities	58	3
FT8	Freight trends	Lead by example by implementing low or zero emission vehicles in to local authority fleets	58	4
RF3	Rail	Collaborate with Network Rail, Local Economic Partnership and Local Authorities to exploit freight terminals	57	5
PM4	Ports and Maritime	Awareness campaign on opportunities for modal shift and its benefits	56	6
RF14	Rail	Development of a Supplementary Planning Guidance for freight matters to include safeguarding of key sites, adequate land in urban areas for consolidation / micro consolidation / residential and industrial uses and land allocation for Local Development Plans	56	7
RF6	Rail	Allocate sufficient freight train paths on the network for the needs of the growing freight markets (intermodal, bulk and parcels)	54	8
RD1	Road	Identify, map and develop network of alternative fuel stations, as well promote existing stations to support hauliers to transition to alternative fuels	54	9
PM5	Ports and Maritime	Review of port capacity, traffic management and exploration into port based connections through rail and coastal feeders to reduce demands	53	10
RF1	Rail	Collaborate with Network Rail / site owners / local authorities / launch customers to bring forward an intermodal kick starter terminal network in the South West	53	11
RF4	Rail	Work with Local Planning Authorities to safeguard appropriate sites both for rail, water and in urban and rural areas	53	12
RF12	Rail	Support local businesses to establish new services by rail by signposting them to specialist resources that can help them make the modal shift and engage with the Freight Operating Companies	52	13
PM1	Ports and Maritime	Awareness campaign on opportunities for using coastal shipping for supply chains	51	14
RD2	Road	Work with hauliers to understand how they can be supported in the uptake of alternatively fuelled vehicles	51	15
RD21	Road	Engage and work with National Highways on their committed Road Investment Strategy 2, future Road Investment Strategy 3, local authority road schemes and route study schemes	51	16
FT10	Freight trends	Awareness campaign of the opportunities and the benefits of shifting to other modes.	51	17
PM12	Ports and Maritime	Identify and implement opportunities for consolidation sites and booking systems to reduce congestion	49	18
RF2	Rail	Conduct a Feasibility Study into the operation of an intermodal container train between Southampton and other deep-sea ports to appropriate new terminal(s) in the South West.	48	19
FT16	Freight trends	Region wide audit and early delivery plan to improve link from Port / Airport / Rail Terminal to Strategic Road Network.	48	20
RF17	Rail	Explore the case for different incentive regimes to promote modal shift	47	21
RD9	Road	Explore options to use technology and collaboration between multiple delivery companies to consolidate into one supply chain on the last mile to provide consistent delivery services to harder to reach areas	46	22
FT14	Freight trends	Work with burgeoning alternative fuel providers to scale up infrastructure provision and future production for serving the road haulage sector	46	23
RF11	Rail	Support electrification of the network to large Somerset quarries and to Exeter as an early priority. Extend electrification to Plymouth and Cornwall in the longer term	45	24
RD11	Road	Identify cluster locations where basic logistics plans are needed along with positive enforcement of facilities for last mile logistics	45	25
RD12	Road	Use the knowledge of the location and type of lorry parking facilities currently available and identify improvements and suggest locations for additional sites to ensure there is sufficient provision	44	26

FT9	Freight trends	Scoping study into multi-fuel energy propulsion locations	43	27
FT19	Freight trends	Establish regional public sector freight capabilities within the South West to manage the strategic engagement / relationship with DfT, Network Rail, National Highways and Ports / Airports / Rail Terminal Operators.	43	28
RF16	Rail	Collaborate with Network Rail to work with operators / demand generators to assist early market entry at key sites in the South West, including Community Rail Partnership	42	29
RF19	Rail	Work in partnership with local rail teams and core freight units	42	30
FT1	Freight trends	Awareness campaign on the Sub-national Transport bodies role how they can support the freight industry	42	31
FT3	Freight trends	Promote the industry and provide opportunities for potential drivers to access driver training facilities	42	32
PM6	Ports and Maritime	Awareness campaign on how coastal shipping can be cost effective option for supply chains including details of water freight grants e.g. brochure	41	33
RD8	Road	Identify the strategically important roads which must require journey time reliability and assessing options for future proofing including communication with in-vehicle technologies to better inform stakeholders	41	34
FT11	Freight trends	Advocate using a community based load and vehicle matching service to help reduce empty running of freight vehicles	41	35
PM2	Ports and Maritime	Strategic Warehousing Audit and Specific Supplementary Planning Guidance for the South West.	40	36
PM9	Ports and Maritime	Develop business case for using short sea coastal feeds to remove road vehicles including Feasibility Study into operation of a coastal feeder vessel between Southampton and Plymouth.	40	37
PM8	Ports and Maritime	Awareness campaign on opportunities to diversify ports into renewable energy production	39	38
RF10	Rail	Review a minimum path allocation for Birmingham to Bristol and Bristol to Exeter	39	39
RF15	Rail	Promote training and awareness package on the role, value and requirements of the freight and logistics sector.	39	40

G.2 Top 40 draft freight interventions from the project team

ID	Category	Intervention	Project team score	Rank
RF9	Rail	Establish and promote a South West Freight Steering Group (to include Network Rail and National Highways)	15	1
RD2	Road	Work with hauliers to understand how they can be supported in the uptake of alternatively fuelled vehicles	15	2
FT14	Freight trends	Work with burgeoning alternative fuel providers to scale up infrastructure provision and future production for serving the road haulage sector	15	3
PM4	Ports and Maritime	Awareness campaign on opportunities for modal shift and its benefits	14	4
RF6	Rail	Allocate sufficient freight train paths on the network for the needs of the growing freight markets (intermodal, bulk and parcels)	14	5
RF8	Rail	Support recommendation for W12 / S45 standards for all current W10 cleared routes and diversionary routes.	14	6
RD9	Road	Explore options to use technology and collaboration between multiple delivery companies to consolidate into one supply chain on the last mile to provide consistent delivery services to harder to reach areas	14	7
RD12	Road	Use the knowledge of the location and type of lorry parking facilities currently available and identify improvements and suggest locations for additional sites to ensure there is sufficient provision	14	8
RD13	Road	Promote training to help operators avoid bridges strikes such as the FORS Bridge Strike Toolkit for operators. Also investigate solutions for the most commonly struck bridges in the region.	14	9
FT8	Freight trends	Lead by example by implementing low or zero emission vehicles in to local authority fleets	14	10
PM5	Ports and Maritime	Review of port capacity, traffic management and exploration into port based connections through rail and coastal feeders to reduce demands	13	11
PM8	Ports and Maritime	Awareness campaign on opportunities to diversify ports into renewable energy production	13	12
RF1	Rail	Collaborate with Network Rail / site owners / local authorities / launch customers to bring forward an intermodal kick starter terminal network in the South West	13	13

RD1	Road	Identify, map and develop network of alternative fuel stations, as well promote existing stations to support hauliers to transition to alternative fuels	13	14
RD3	Road	Feasibility study on consolidation sites to reduce vehicles and maximise vehicle utilisation with combined loads for last mile logistics	13	15
RD11	Road	Identify cluster locations where basic logistics plans are needed along with positive enforcement of facilities for last mile logistics	13	16
RD21	Road	Engage and work with National Highways on their committed Road Investment Strategy 2, future Road Investment Strategy 3, local authority road schemes and route study schemes	13	17
FT1	Freight trends	Awareness campaign on the Sub-national Transport bodies role how they can support the freight industry	13	18
FT3	Freight trends	Promote the industry and provide opportunities for potential drivers to access driver training facilities	13	19
FT9	Freight trends	Scoping study into multi-fuel energy propulsion locations	13	20
FT10	Freight trends	Awareness campaign of the opportunities and the benefits of shifting to other modes.	13	21
FT16	Freight trends	Region wide audit and early delivery plan to improve link from Port / Airport / Rail Terminal to Strategic Road Network.	13	22
PM1	Ports and Maritime	Awareness campaign on opportunities for using coastal shipping for supply chains	12	23
PM3	Ports and Maritime	Planning guidance to include consideration and provisions for freight activities	12	24
RF4	Rail	Work with Local Planning Authorities to safeguard appropriate sites both for rail, water and in urban and rural areas	12	25
RF11	Rail	Support electrification of the network to large Somerset quarries and to Exeter as an early priority. Extend electrification to Plymouth and Cornwall in the longer term	12	26
RF12	Rail	Support local businesses to establish new services by rail by signposting them to specialist resources that can help them make the modal shift and engage with the Freight Operating Companies	12	27
RF13	Rail	Pursue roll out of using alternative fuels including HVO to existing rail freight operations in the South West – starting with the existing Burngullow – Fowey and Burngullow to Stoke China Clay flows	12	28
RF15	Rail	Promote training and awareness package on the role, value and requirements of the freight and logistics sector.	12	29
RF17	Rail	Explore the case for different incentive regimes to promote modal shift	12	30
RD4	Road	Promoting suitable alternative routes for the event of adverse weather including communicating these clearly with the industry	12	31
RD6	Road	Identify options to implement improvements on the SRN and coping mechanisms to ensure flow of traffic	12	32
RD7	Road	Review options to deliver smarter and during quieter periods of the day or week i.e. retiming away from peak periods	12	33
RD17	Road	Continue support for routine road maintenance activities, avoiding peak periods of traffic flow	12	34
RD18	Road	Review suitability of technologies from trials and their potential for the South West	12	35
FT2	Freight trends	Undertake targeted promotional campaigns with schools, colleges to develop apprenticeship and placement opportunities across industry partners - facilitated through regional trade body representatives	12	36
FT11	Freight trends	Advocate using a community based load and vehicle matching service to help reduce empty running of freight vehicles	12	37
PM6	Ports and Maritime	Awareness campaign on how coastal shipping can be cost effective option for supply chains including details of water freight grants e.g. brochure	11	38
PM9	Ports and Maritime	Develop business case for using short sea coastal feeds to remove road vehicles including Feasibility Study into operation of a coastal feeder vessel between Southampton and Plymouth.	11	39
PM12	Ports and Maritime	Identify and implement opportunities for consolidation sites and booking systems to reduce congestion	11	40

Appendix H Freight trains / ships required for modal shift

H.1 Trains required for the South West – 5 and 10 per cent modal shift

Potential Terminal	Local Authority	Inbound Gross Goods Lifted (Tonnes) to local authority region	5% of Inbound Gross Goods Lifted (Tonnes)	Required Annual Freight Trains for Inbound 5% modal shift	Required daily Freight Trains for Inbound 5% modal shift* based on 300 days per year	10% of Inbound Gross Goods Lifted (Tonnes)	Required Annual Freight Trains for Inbound 10% modal shift	Required daily Freight Trains for Inbound 10% modal shift
Bristol	City of Bristol	10,764,458	538,223	1,202	4	1,076,456	2,403	8
Westbury* (Outbound data used)	Wiltshire CC	12,493,514	624,676	1,395	4	1,249,351	2,789	9
Poole	Bournemouth and Poole	1,612,715	80,636	180	1	161,272	360	2
Bridgwater	Somerset	9,155,342	457,767	1,022	3	915,534	2,044	6
Exeter	Devon CC	8,743,856	437,193	976	3	874,386	1,952	6
Plymouth	Plymouth	813,253	40,663	91	1	81,325	182	1
Bodmin	Cornwall and the Isles of Scilly	3,309,233	165,462	370	1	330,923	739	2

This analysis assumes that if a five per cent modal shift occurs it could be sufficient to generate eight intermodal services inbound to Peninsula Transport terminals and nine services to Western Gateway locations. The most likely locations are Bristol, Bridgewater and a suitable Devon location such as Exeter or Newton Abbot. There is a need to consider Plymouth tonnage in conjunction with Cornwall. The distances and journey times are long to these locations and this is more suited to rail if sufficient volume can be obtained. The figures suggest there is sufficient for a train a day.

H.2 Trains required assuming Modal switch

As part of a routing study completed for Network Rail and Highways England an analysis was done using 2019 CSRGT data from the Solent area to a number of different study zones across the country. For the purposes of this study just those relevant to South West zones are featured. The study area comprises of Portsmouth, Southampton, Isle of Wight, South Hampshire and Central Hampshire and its relevance is that the Port of Southampton is the major international port for several products such as containers for the whole of the South West. Indicative calculations have been made to consider the approximate impact that both five per cent and 10 per cent modal shift from road to rail would have for movements from the Solent to the south west specifically, and the number of rail freight movements that would be required to achieve these modal shift levels. This is to provide an indicative demonstration of the impact of mode shift of goods travelling inbound to the south west from a specific region.

Each of the Terminal locations has been matched with the road-based inbound and gross goods lifted (tonnes) from the region from the routing zone in which they are located. Terminals have been grouped where a routing zone is shared. This is to assume for the purposes of this exercise that these terminals would only serve the routing zone in which they are located (which in reality may not be the case, especially if the routing zone is small in size).

The potential number of freight trains required for modal shift is then calculated by using the tonnage calculated using the method explained above, and then taking five per cent and 10 per cent of this figure. Estimating that a typical intermodal freight train can carry 448 tonnes (32 containers at 14 tonnes per container) it would take, indicatively, the number of services shown annually to carry five per cent and 10 per cent of the inbound 2019 gross goods lifted (tonnes) by rail. Also, the number of trains are rounded to represent a freight train, approximate train requirement figures for 10 per cent may not be exactly double those for five per cent.

This is to demonstrate, indicatively, the number of services shown annually to carry five per cent and 10 per cent of the inbound 2019 gross goods lifted (tonnes) coming from the Solent region by rail to each routing zone in the table below.

Potential Terminals by Region	Region	Inbound Gross Goods Lifted (Tonnes) to region	5% of Inbound Gross Goods Lifted (Tonnes)	Required Annual Freight Trains for Inbound 5% modal shift	Required weekly Freight Trains for Inbound 5% modal shift	10% of Inbound Gross Goods Lifted (Tonnes)	Required Annual Freight Trains for Inbound 10% modal	Required weekly Freight Trains for Inbound 10% modal
Bristol	Gloucestershire, Bristol/Bath area and South Wales	831,386	41,569.3	93	2	83,138.6	186	4
Westbury	Wiltshire CC	459,927	22,996.35	52	1	45,992.7	103	2
Poole	Dorset, Bournemouth, Christchurch and Poole	366,082	18,304.1	41	1	36,608.2	82	2
Bridgwater, Exeter, Plymouth and Bodmin	Cornwall, Isles of Scilly, Devon and Somerset	807,029	40,351.45	91	2	80,702.9	181	4

H.3 Ships required assuming Modal switch

Using a similar method to provide an indicative demonstration of the impact of mode shift of goods travelling inbound to the south west from a specific region, the following assumes using a coastal feeder vessel capable of carrying 1,000 tonnes. From the Port of Southampton assuming a five per cent modal switch, there could be sufficient volume for a weekly sailing to Plymouth and a weekly sailing to Bristol but insufficient for a service to Poole. From the rest of the UK inbound assuming a five per cent modal switch but that only around 10 per cent of this is in a region near a suitable coastal port the potential addressable market is around 60,000 tonnes for Bristol (serving immediate area, Somerset and parts of Wiltshire) and a similar amount for Plymouth (serving Devon and Cornwall). This could be sufficient for a weekly service between a nominated northern port and these two locations. For example, Teesport to Plymouth and Liverpool to Bristol. This would need further investigation.

Appendix I Freight steering group – organisations

Organisations interested in forming part of the Freight Steering Group

Stakeholder groups	Organisation
Academic	University of the West of England
Aviation	Kintetsu
Aviation	Bournemouth Airport
Local authority	Bath and North East Somerset Council
Local authority	BCP
Local authority	BCP Council
Local authority	Bristol Council
Local authority	Cornwall Local Authority
Local authority	Dorset Council
Local authority	Gloucestershire Council
Local authority	Plymouth City Council
Local authority	South Gloucestershire Council
Local authority	West of England Combined Authority
Local authority	Wiltshire Council
Local enterprise partnerships and other regional organisations	Gloucestershire LEP
Local enterprise partnerships and other regional organisations	Heart of the South-West LEP
Local enterprise partnerships and other regional organisations	Plymouth Manufacturing Group
Local enterprise partnerships and other regional organisations	Salisbury and District Chamber of Commerce and Industry
Local enterprise partnerships and other regional organisations	SevernNet
Local enterprise partnerships and other regional organisations	South West Business Council (Maritime)
Local enterprise partnerships and other regional organisations	South West Infrastructure Partnership
Local enterprise partnerships and other regional organisations	Swindon and Wiltshire LEP
Maritime	Associated British Ports
Maritime	Babcock
Maritime	Bristol Port
Maritime	British Ports Association
Maritime	Falmouth Docs and Engineering Company
Maritime	Falmouth Port / Harbour
Maritime	Poole BID
Maritime	Poole Port
Maritime	Portland Port
Other	Bennamann Energy
Other	Carlton Power
Other	NTS Global
Other	Viterra
Rail	CILT Rail Freight Forum
Rail	Deutsche Bahn
Rail	Freightliner
Rail	Imerys
Rail	Network Rail
Rail	Rail Freight Group
Road	C&D South West Ltd
Road	Conway Bailey Transport
Road	National Highways
Road	Hockings
Road	Logistics UK / FTA
Road	Newman Haulage
Road	Road Haulage Association (RHA)

Road	TLK Transport (Aldridge Transport)
Road	Wincanton

Peninsula Transport

Transforming the economic performance of the south west

Western Gateway

Sub-national Transport Body