

Freight Study: Full report



A technical report produced by WSP
for the EEH evidence base

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APPENDIX A

MULTI CRITERIA APPRAISAL APPROACH AND RESULTS



1

INTRODUCTION

1 INTRODUCTION

1.1 ENGLAND'S ECONOMIC HEARTLAND

- 1.1.1. Stretching from Swindon to Cambridgeshire and from Northamptonshire to Hertfordshire, England's Economic Heartland (EEH) brings political and business leaders together in a strategic collaborative partnership with a shared commitment to realise the economic potential of the Oxford – Milton Keynes – Cambridge corridor and surrounding areas.
- 1.1.2. As a strategic collaborative partnership, EEH is working at pace to realise the region's potential by:
- Agreeing an overarching Transport Strategy which provides a 30-year framework for the development of the transport system
 - Promoting the idea of a National Policy Statement (NPS) for the Heartland – a statement of intent on the part of Government that the Heartland is a long-term national priority
 - Ensuring investment in digital infrastructure and utilities is aligned to the overarching ambition of realising the Heartland's economic potential
 - Working with infrastructure owners to accelerate delivery of investment in strategic infrastructure.
 - Submitting the proposal to establish a statutory Sub-national Transport Body (STB) with powers and responsibilities devolved from Government in a way that enables delivery of the Transport Strategy
 - Working with businesses and infrastructure owners to develop proposals which meet the needs of the freight and logistics sector
 - Working with SME innovators and entrepreneurs to enable the development of innovative customer-focused journey solutions
 - Maintaining on behalf of partners the 'regional evidence base' that enables a consistent approach to the identification of investment needs
 - Working with partners to secure additional investment in strategic transport infrastructure
 - Working with Government to ensure its needs are reflected in national programmes, including those delivered by Highways England, Network Rail and through rail passenger franchises
 - Working with infrastructure owners to prepare business cases in support of investment in digital infrastructure.
- 1.1.3. The Government says STBs will be given 'unprecedented access' to decision-making on national investment strategies. They will have a 'key role' in advising on the allocation of monies from the National Roads Fund (established from 2020/21), for the more significant local authority owned roads, in support of economic growth.
- 1.1.4. STBs would also provide the leadership identified by the National Infrastructure Commission as being essential to providing a single voice on strategic transport infrastructure requirements in the region.
- 1.1.5. Over summer 2017 an initial round of engagement with potential partners and interested stakeholders was positively received and will form the basis for taking forward the work to develop a specific proposal to become a STB. This is being taken forward by the Strategic Transport Forum over the period to 2020/2021.

1.2 BACKGROUND AND PURPOSE OF THE COMMISSION

- 1.2.1. This report is intended to support EEH to plan for the most efficient way of providing access to goods that unlocks economic potential, protects the environment and communities, and future-proofs networks to accommodate growth and improve efficiency.
- 1.2.2. The purpose of this report is to define a clear starting point for freight sub nationally, analyse the implications of future scenario changes, identify how EEH can capitalise on opportunities and mitigate risk – and plan for this by drawing on technical conclusions.
- 1.2.3. The findings from the study will serve as a supporting document to support the development of the EEH Transport Strategy.

1.3 THE EEH AREA

- 1.3.1. The area covered by this report and constituent local authorities is illustrated in the map below.



Figure 1-1 - EEH Area

- 1.3.2. The Local Enterprise Partnerships (LEPs) are key partners in EEH. The following LEPS are covered in whole or in part by the EEH area: South East Midlands, Hertfordshire, Oxfordshire, Buckinghamshire Thames Valley, Swindon and Wiltshire, and the Combined Authority in Cambridge and Peterborough.
- 1.3.3. Freight and logistics will play a key role in servicing the needs of the Cambridge-Milton Keynes - Oxford Arc and the wider Heartland area over the next 30 years. EEH need to understand how it can set the right conditions regionally, balancing the effective distribution of freight with the environment; by planning for freight holistically. This study will help EEH take a strategic view on freight.

- 1.3.4. The NIC have identified the Oxford – Cambridge Arc as a national priority, due in part to its existing clusters of world-class research, innovation and technology. The Heartland region is located near or within the 'Golden Triangle of Logistics'.
- 1.3.5. Unlocking the region's full potential is dependent on the delivery of major transport infrastructure, transformational growth and connecting existing communities through well designed placemaking.
- 1.3.6. The delivery of a potential one million new homes by 2050, major urban extensions and the construction of infrastructure schemes such as East West Rail and Oxford-Cambridge Expressway are examples of ways we will see haulage movements continue to rise throughout this period of growth.
- 1.3.7. But the value of freight also extends to the Heartland's approximate 5.1 million population who are all reliant on freight, either directly or indirectly as consumers. The Heartland needs to understand how it can continue to harness the benefit of freight due to the rise of E-commerce, so its communities can continue to have access to a range of goods and services - enriching their quality of life.
- 1.3.8. The region's internationally significant business hubs, which range from scientific research to motorsport, depend on the effective movement of goods. Reducing barriers to the import and export of goods for these sectors is particularly important.

1.4 STRUCTURE OF THIS REPORT

- 1.4.1. Chapters 2 to 8 provide a comprehensive picture of freight movements in the region, including the businesses and locations that generate freight movements, the role of each mode and key corridors, and the importance of construction logistics.
- 1.4.2. Chapter 9 presents the results of the stakeholder engagement programme, including workshops and one to one discussions.
- 1.4.3. Chapters 10 to 16 present the issues identified and develop a long list of solutions into a series of recommendations.



2

LOGISTICS

2 LOGISTICS

2.1 DEFINITION OF LOGISTICS

- 2.1.1. The Chartered Institute of Logistics and Transport (CILT) defines logistics as “the time-related positioning of resource.” It is also described as the five rights. Essentially, it is the process of ensuring that goods or services are in the right place, at the right time, in the right quantity, at the right quality, at the right price.
- 2.1.2. The significance of these definitions is that logistics is about much more than transport. The challenge facing logisticians is minimising the cost of the entire supply chain while meeting tough demands from their customers (internal and external) in terms of delivery lead times and other quality factors.
- 2.1.3. As transport is only one part of complex supply chains, decisions may be made which improve the efficiency of a business overall, but result in the increasing of distances that goods are transported or their frequency (potentially leading to lower average payloads and more movements). Prime examples include:
- Centralisation: the long-term trend to centralise manufacturing and distribution nationally or globally, for example building a certain type of engine in one factory to supply car plants globally; or setting up a national distribution centre in the Midlands to serve the whole of the UK
 - Just in time manufacturing: where the emphasis is on supplying goods when they are needed and minimising stocks. Transport is required to provide regular deliveries regardless of volume
 - Same day or same hour deliveries: online retailers must meet tight deadlines to meet customer expectations. Deliveries cannot be held until a full load is achieved.
- 2.1.4. Therefore, while this report focuses on freight movement on roads and railways, it is important to remember the wider picture of economic efficiency when considering solutions.

2.2 KEY LOGISTICS TRENDS

- 2.2.1. Online research reveals numerous articles describing the key trends in logistics. Looking at the primary causes of change which could impact businesses and infrastructure in the EEH area, four trends stand out:

CUSTOMER DRIVEN CHANGES

- 2.2.2. The move towards e-commerce is clear, with almost 20% of UK retail sales being recorded online. This is driving other changes such as increased home deliveries, same day and same hour deliveries, and click and collect. Other consumer deviations include changes in the way we use cities, with less shopping, more at-home eating and entertainment, and a shift of purchasing power from material things to virtual things or experiences e.g. declining record sales and growing use of online streaming. The consequences of this on freight are significant for urban areas, with very low load factors for delivery vehicles in cities (e.g. 38% for vans in London) (ALICE / ERTRAC Urban Mobility WG, 2014).
- 2.2.3. To an extent, too, consumers are driving other changes through the supply chain; this includes concerns about waste, preference for locally sourced products, or pressure to reduce greenhouse

gas emissions. Some changes are prompted by wider societal changes such as population growth, urbanisation and new working and living demands.

GOVERNMENT DRIVEN CHANGES

- 2.2.4. Goods traffic can be seen in two ways, both as a concern due to environmental impacts and as a necessary means to sustain the economy and grow businesses. This dichotomy is summarised, for example, in the Minister's introduction to the DfT's Freight Carbon Review (DfT, 2017): "Road freight's positive contribution to our economy extends beyond its direct employment and financial benefits - the sector is a critical enabler of wider business across the UK - of all sizes, from internet entrepreneurs to large distribution businesses. However, I am also aware that heavy goods vehicles (HGVs) account for a significant portion of the UK's air quality impacts from transport, and am committed to working collaboratively with industry to address these issues."
- 2.2.5. Two major changes in approach from Government over the last twenty years have been the increased recognition of the impact of freight emissions, particularly greenhouse gases, and appreciation that efficient freight transport is an enabler of economic growth.
- 2.2.6. Response to the challenge of freight emissions has been set out in the Fifth Carbon Budget and the Freight Carbon Review, and there is some common ground between dealing with emissions and dealing with congestion (more efficient use of vehicles; fewer trips). Policy to improve the efficiency of freight is less developed, although there is substantial funding being devoted to innovation and new technology.
- 2.2.7. In cities, local and city authorities have had a much more direct impact on freight movements. While there is a clear understanding of the importance of efficient deliveries to local economies, cities see the urgent need to tackle air quality and congestion. In a positive light, many cities wish to become more pleasant, healthy, and safer places to live and work – this has led to proactive policies such as Low or Zero Emissions Zones and pedestrianisation.
- 2.2.8. The challenge of delivering to cities, with a growing preference for electric or human power for the last mile, means that more and more businesses are seeking to tranship goods from trunking vehicles to delivery vehicles around the city periphery. This disconnect between trunking and delivery has important implications for businesses and transport planners, such as the use of smaller vehicles and the need to provide land for new logistics uses.

INDUSTRY DRIVEN CHANGE

- 2.2.9. At the same time as customer driven changes (market) and Government driven changes (legislative environment), the logistics industry continues to develop and innovate to deliver solutions which meet those competing needs. In the UK in particular, freight movement is a low margin activity and fragmented, with competing businesses ranging from owner operators to major multinational companies. Technological and operational changes provide opportunities for disruptive entrants and new solutions. There is considerable sharing of experience and expertise across the world.

THE IMPACT OF TECHNOLOGY AND BETTER DATA ON FREIGHT AND CONGESTION

- 2.2.10. Technology can act as a driver and enabler of change in all aspects. The logistics sector is already taking on board technological changes which affect every element of their operations, from automation of warehouses to real time monitoring of haulage fleets. Where available, the industry has been quick to adopt changes in vehicle technology, whether in the form of more fuel efficiency,

driver assistance / awareness devices, or safety monitoring devices. In urban areas there has been a notable uptake of electric vehicles for last mile deliveries.

- 2.2.11. The way that freight is managed is being changed by delivery management systems (that can plan and monitor every delivery end-to-end), online collaboration tools, and sophisticated fleet management systems. In the future, change is expected to be even more rapid. Connected and automated / autonomous vehicles, low or zero emission vehicles for trunking operations, technology, and better availability of data has the potential to revolutionise the way that supply chains are managed.

2.3 IMPACTS OF LOGISTICS

- 2.3.1. Efficient logistics is a fundamental requirement of a successful economy. Fast, frequent, and low-cost freight transport allows businesses to reach suppliers and markets and encourages businesses to invest. Logistics is a major employer in its own right. However, logistics also has impacts on the environment and society. This is particularly true for road freight.
- 2.3.2. Despite being cost efficient; freight activity has a range of negative consequences. All major forms of freight create harmful emissions that reduce air quality and contribute towards climate change. Freight contributes to congestion, and congestion affects the quality of freight services to customers.
- 2.3.3. HGVs only constitute five per cent of the total vehicle mileage in Great Britain but they contributed 16 per cent of the UK's greenhouse gas emissions from transport in 2014.
- 2.3.4. There is unlikely to be a single approach to reducing the harmful effects from the freight system. However, emerging technologies and alternative fuels could play a substantial role in reducing emissions and it is likely that a mixture of policy and disruptive technology will help in reducing other unwanted by-products.
- 2.3.5. In addition to greenhouse gas emissions, freight traffic also contributes to poor air quality, which is particularly concentrated in urban areas. 13 per cent of nitrogen oxide (NOx) pollution from road transport sources came from HGVs and 32 per cent from LGVs. In 2016, HGV and LGV tailpipe emissions together accounted for 11 per cent of PM10 and 17 per cent of PM2.5 pollution from road transport.
- 2.3.6. Emissions from road freight – greenhouse gases, NOx, and particulates – are all expected to fall over the next five to six years mainly because of improvements in engine technology such as EURO VI compliant engines and better fuel efficiency.
- 2.3.7. The Government's Road to Zero strategy outlines a number of policies that aim to further reduce road freight emissions – such as a voluntary 15 per cent reduction of greenhouse gas emissions by 2025, research projects with Highways England assessing the opportunities for zero emissions technologies for HGVs, and potential reform to Vehicle Excise Duty (VED) to encourage uptake of the cleanest vans.
- 2.3.8. Freight transport both contributes to congestion and is a victim of it. Congestion tends to occur at pinch points on road and rail networks, particularly where long-distance traffic meets local traffic and around major interchanges such as ports and airports. Freight is a significant component of road traffic generally and its contribution is magnified by slower speeds, longer braking distances and involvement in a disproportionate percentage of incidents.

- 2.3.9. Freight congestion cannot be considered in isolation from general congestion and the wider demand for road and rail space. Freight's specific contribution to road congestion is complex. HGVs are disproportionately concentrated on the Strategic Road Network (SRN). Only five per cent of all vehicle miles were completed by HGVs in Great Britain in 2017, but this percentage increases to 11 per cent of mileage on motorways and nine per cent of mileage on urban and rural A roads.
- 2.3.10. Obviously an HGV consumes more road capacity than a car. The impact of HGVs varies by road type and circumstances such as speed and road layout, but traffic models frequently count one HGV as having an impact equivalent to 2.5 cars. Using this measure, HGVs account for 12 per cent of traffic across all roads in Great Britain, 25 per cent of traffic on motorways, and 19 per cent of traffic on urban and rural highways.
- 2.3.11. The National Infrastructure Commission's (NIC) recent freight study "Better Delivery: The Challenge For Freight" included a thorough review of the impact of congestion on freight movement and the impact of freight movement on congestion. A key finding was that HGVs are typically used on the network less intensively during the morning and evening peaks, making a far smaller contribution to peak time congestion than cars and vans. HGVs use roads more intensively than cars and vans overnight, when there is less or no congestion. Therefore, though HGVs account for up to a quarter of road space use on motorways they do not make an equivalent contribution to congestion. HGVs represent a much lower proportion of traffic on the most congested roads, and they are driven on the network at less congested times.
- 2.3.12. By contrast, HGVs are a small component of urban traffic, making up only two per cent of vehicle miles, or four per cent of traffic (again, as measured by counting each HGV as 2.5 cars) on urban roads. However, HGVs, and in many cases LGVs, have a disproportionate effect on urban congestion, particularly where they are stationary (when loading or unloading) and because of the difficulty manoeuvring them in constrained areas.
- 2.3.13. Data from London suggests that freight vehicles (HGVs and LGVs) are particularly active at peak times – the Greater London Authority states that a third of central London's traffic in the morning peak is HGVs and LGVs (though it is recognised that a significant proportion of LGVs could be for other purposes such as servicing or personal transport).

2.4 SIGNIFICANCE FOR EEH

- 2.4.1. The long term trend towards centralisation of supply chains resulted in a strong concentration of large national distribution centres (NDCs) in the so called Golden Triangle of logistics centred around Lutterworth. The same forces have attracted developers and occupiers of "big sheds" for logistics into parts of the EEH area, notably Northampton and Milton Keynes.
- 2.4.2. This means that, under current models, businesses in the EEH area benefit from good access to key distribution centres, and logistics is an important employer in the region.
- 2.4.3. The extent of forecast change in the sector means that new supply chain models may develop, possibly more focussed on local distribution centres and less centralised supply chains. EEH needs to be prepared to adapt to continue to be attractive for logistics operations.



3

POLICY REVIEW

3 POLICY REVIEW

3.1 NATIONAL POLICY

UK GOVERNMENT STRATEGY – THE LOGISTICS INDUSTRY

- 3.1.1. The importance of efficient logistics is recognised at Government level. For example, the 2017 Industrial Strategy for the UK sets out a programme which includes several actions to improve supply chains and supports a focus on supply chains when planning infrastructure.
- 3.1.2. The DfT Logistics Growth Review of 2011, identified five core areas in which Government can play a significant part in increasing the productivity of the UK logistics industry and strengthening its role in the UK economy. The second of these core areas was “improving the longer-term capacity, performance and resilience of our congested road and rail networks, and in doing so, also improving connectivity to ports.”
- 3.1.3. However, there is no national industrial or transport strategy specifically for logistics.

Strategy	National Planning Policy Framework 2018
Key points	This document suggests that policies for large scale facilities should, where necessary, be developed through collaboration between strategic policy-making authorities and other relevant bodies. Examples of such facilities include ports, airports, and interchanges for rail freight. It also stipulates the need for new development to be located and designed to accommodate the efficient delivery of goods and supplies.
Strategy	The Policy Statement for National Networks (NN NPS) 2014
Key points	This statement sets out the need for, and Government’s policies to deliver, development of nationally significant infrastructure projects (NSIPs) on the national road and rail networks in England. Like many of the documents referred to in this section recognises the importance of the national road and rail networks. And quoting from The Eddington Transport Study: The Case for Action 2006 it states “that connect our cities, regions and international gateways play a significant part in supporting economic growth, as well as existing economic activity and productivity and in facilitating passenger, business and leisure journeys across the country. Well-connected and high-performing networks with sufficient capacity are vital to meet the country’s long-term needs and support a prosperous economy”.
Strategy	Rail Freight Strategy 2016
Key points	This strategy examines the future potential of the rail freight industry and considers what new skills and technology is required to deliver the economic benefits associated with delivering more goods by rail. This is covered in more detail in the Rail chapter of this report. The 2016 Rail Freight Strategy highlighted the potential to reduce emissions by growing rail freight and reducing HGV journeys. It will accelerate activity to enable cost-effective options for shifting more freight from road to rail, including using low emission rail freight for deliveries into urban areas, with zero emission last mile deliveries.
Strategy	National Infrastructure Delivery Plan 2016-2021
Key points	Like the DfT Growth Review, this plan recognises that roads are the backbone of the transport system, used for almost 70% of freight. The plan sets out an ambitious infrastructure vision for the next parliament and beyond, reinforcing the Government’s commitment to investing in infrastructure and improving its quality and performance. It is underpinned by a pipeline of over £460 billion of planned public and private investment. The Government is prioritising the public funding of infrastructure, putting in place the right policy framework to give investors the confidence to commit to long-term projects, and ensuring the supply chain has the certainty and tools it needs to deliver effectively.

Strategy	Transport Investment Strategy 2017
Key points	<p>The Investment Strategy sets out the government's priorities and approach for future transport investment decisions. It estimates that under a high growth scenario, by 2040, congestion could cost the freight industry £3.7 billion annually.</p> <p>The Strategy seeks to:</p> <ul style="list-style-type: none"> • create a more reliable, less congested, and better-connected transport network that works for the users who rely on it, • build a stronger, more balanced economy by enhancing productivity and responding to local growth, • enhance our global competitiveness by making Britain a more attractive place to trade and invest, and support the creation of new housing. <p>According to the sources within the Strategy, under current projections, growth is predicted as follows.</p> <ul style="list-style-type: none"> • By 2040, traffic on England's roads is forecast to increase by between 19% and 55%. • By 2030, rail journey demand is forecast to increase by 40%, and with unconstrained growth, rail freight has the potential to nearly double. • Substantial growth is expected to continue in unutilised freight, against a global backdrop of an expected doubling of seaborne trade by 2030. <p>The Strategy notes that out of the eleven most significant national road arteries, only three run laterally, citing as an example the lack of a direct dual carriageway route between the key centres of Oxford, Cambridge, Milton Keynes and Bedford.</p> <p>While the Strategy states that over 40% of goods by value traded with non-EU countries are carried by air freight, with Heathrow carrying more freight by value than all the other UK airports combined, the lack of freight rail connections to airports mean that air freight has no reasonable potential for modal shift, and air freight supply chains are unlikely to change significantly for the foreseeable future.</p> <p>The Strategy remarks that transport accounts for almost a quarter of domestic emissions, and emissions have fallen by only 1.5% since 1990. In the longer term, a key part of Government's strategy for reducing emissions from road transport is the commitment to almost all cars and vans in the UK being zero-emission by 2050, cars being responsible for roughly four times the amount of emissions of HGVs. The Government notes that road freight emissions are particularly challenging as these are no clear technological solutions at the moment.</p> <p>The Strategy also refers to the Government's Rail Freight Strategy, published in September 2016 and discussed later in this report, which signals a priority for modal shift from road to rail. Each tonne of freight moved by rail reduces CO2 emissions by 76% compared to road so shifting more freight from road to rail has potential to make a real contribution to meeting the UK's emissions reductions targets, as well as improving safety by reducing lorry miles. The Government committed £235m up to 2019, on a ring-fenced fund specifically to support investment in rail freight needs and deliver greater capacity and capability creating opportunity for more freight to be transported by rail.</p>
Strategy	Industrial Strategy 2017
Key points	<p>The strategy values the role of UK ports which handle 95 percent of UK freight by weight. This is recognised within this study where the report reviews the economic value the international gateways, including ports. Whilst not specifically relating to freight, the Industrial Strategy contains two "Grand Challenges" which have impacts on freight, one on clean growth and one on the "Future of Mobility", with both focussed on reducing carbon and pollution across the road and rail networks. The Government is also planning on alleviating</p>

	<p>congestion through higher-density use of road space enabled by automated vehicles and 5G connectivity.</p> <p>The Industrial Strategy predicts roll out of full-fibre broadband, new 5G networks and smart technologies all important to the evolution of the transport network. 5G will be essential to support smart motorways, autonomous vehicles, and any future freight platooning strategies, while charge points at the moment will mainly support decarbonised van-based freight movements and last mile solutions</p>
Strategy	National Infrastructure Assessment 2018
Key points	<p>The assessment predicts that the numerous and successful primary urban areas within will continue to grow, but will need to heed the recommendations for sustainable growth. The Assessment recommends prioritising urban transport over intercity networks in the 2030s. The NIC notes that increasing electric vehicle uptake will still lead to increased road congestion, and planning for cycling, walking, and public transport must be integrated into growth planning, especially for cities, but it does not go so far as to recommend prioritising rail schemes over road schemes for interurban travel, despite a general theme of recommending decarbonisation measures throughout the report. Regarding road investments, the NIC predicts that by 2025, most of the Strategic Road Network will have 5G coverage, which could assist with connected and autonomous vehicle uptake. The NIC notes that it is more important to invest in maintenance and incremental upgrading of roads than in mega-projects while the impacts of exploiting new autonomous vehicle technologies remain uncertain.</p> <p>At this level of report, the NIC has not compared or contrasted different modes of transport or different development models, except for a general theme that growth is happening, and growth is good. It does, however recommend that new road and rail schemes compete for the same funding, which does not necessarily reflect the current situation of East West Rail and the Cambridge-Oxford Expressway projects.</p>
Strategy	NIC Future of Freight Study 2018/9
Key points	<p>This seminal report review options to improve the existing infrastructure, recommending ways to use new technologies and processes to transform how freight moves by road and rail through the country. The final report concludes that the UK's freight system is one of the best in the world, providing a high quality, low cost service to businesses and consumers. It notes that freight also however produces negative by-products such as congestion, carbon emissions and particulate matter, which cause harm to society and are a drag on the UK's prosperity. The Commission's central finding is that without action, freight's contribution towards congestion and carbon emissions will remain problematic. The key recommendations were:</p> <ul style="list-style-type: none"> • Government should commit to decarbonising road freight by 2050, including by the end of 2021 to ban the sale of new diesel-powered HGVs no later than 2040. To support this: <ul style="list-style-type: none"> ○ Government should, in conjunction with distribution and transmission network operators, prepare detailed assessments of the infrastructure required to enable the uptake of battery electric or hydrogen HGVs, including the refuelling requirements at depots and key rest areas on major freight routes. ○ Ofgem, as part of the next energy distribution price review (RIIO-ED2) starting in 2023, should include a clear requirement for distribution network operators (in partnership with the freight industry) to map out the infrastructure upgrades and opportunities for alternative solutions, such as energy storage, required to enable large scale freight van charging at depots. • Government should undertake detailed cross-modal analysis, using a corridor-based approach, of the long-term options for rail freight's transition to zero emissions, including low carbon rail services and the scope for road based alternatives. It should then publish, by the end of 2021, a full strategy for rail freight to reach zero emissions by 2050, specifying the investments and/or subsidies that it will provide to get there.

- To help manage peak time congestion on the urban transport network, local authorities should include a plan for urban freight within the infrastructure strategies they are developing. These plans should review local regulations to incentivise low congestion operations, consider the case for investments in infrastructure such as consolidation centres, and identify the land and regulatory requirements of new and innovative low congestion initiatives.
- Government should produce new planning practice guidance on freight for strategic policy making authorities. The guidance should better support these authorities in planning for efficient freight networks to service homes and businesses as part of their plan making processes. This new planning practice guidance, which should be prepared by the end of 2020, should give further detail on appropriate considerations when planning for freight.
- Government should develop a data standard for freight data collection to support local authorities, outlining the requirements for technological capability, data requirements, and data format. Such a standard must seek to ensure consistent data quality and format across technologies to allow regional and national aggregation, and should be complete by the end of 2020.

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- 3.1.4. This study highlighted that for the area to achieve its full economic potential would require collaboration between central and local government, aligned with private industry, to deliver the necessary integrated community and transport planning.
- 3.1.5. The study recommends to succeed the deal needs to align regional policies with the Commission's housing target of one million new homes. The report has significant implications for amendments to local community, housing, inter- and intracity transport planning.
- 3.1.6. However, whilst the report recommends that local and regional bodies need to drive the Growth Arc strategy from the bottom-up.
- 3.1.7. Despite this the report proposes to progress East West Rail project as an "inter-urban commuter railway, limiting the number of stations in order to safeguard commuting times, and focusing larger scale development around a smaller number of transport hubs and interchanges".
- 3.1.8. By specifying that East West Rail must be a commuter railway, it is at risk of „limiting the potential for freight modal shift to rail.
- 3.1.9. The report makes two specific mentions of freight opportunities. The first mention is a general statement that the new Expressway can support freight journeys, and the second mentions that East West Rail can support national-scale freight opportunities across a wider network. Planning for increased freight movements from urban centres, population and job growth is not covered.
- 3.1.10. The report is generally supportive of EEH-type joined-up local authority efforts. In the vein of the Heartland's efforts to establish a sub-national transport body and to foster greater and more effective regional collaboration, the Commission recommends that Government should work with local authorities to establish an indicative, long-term pipeline of strategic national and local infrastructure investments, conditional upon specific housing delivery milestones, and with firm financial commitments made at the beginning of the relevant spending review, road investment or rail industry control period, with the pipeline to be established and agreed by 2020.

3.1.11. Other policies

3.1.12. The preceding policies identify the governments perspective in investment priorities for transport, and whilst in some areas, freight is omitted, the investment in transport infrastructure will impact the freight industry. However, there are other government policies that will undoubtedly impact freight. The following briefly summarises these:

Policy	What is it	Impact on freight
UK plan for tackling roadside nitrogen dioxide concentrations 2017	<p>Government pledges to be the first generation to leave the environment in a better state than which it was inherited. It includes, a goal for almost every car and van on the road to be a zero-emission vehicle by 2050 and investing over £2.7 billion overall in air quality and cleaner transport.</p> <p>The policy also plans to reduce nitrogen dioxide emissions by phasing out vehicles which create emissions.</p>	Potential HGV bans resulting in increased mileage, low emission zones which have the potential to increase costs to some parts of the sector
The Clean Growth Strategy 2018	<p>Here the Government emphasises the need to enable cost-effective options for shifting more freight from road to rail, including using low emission rail freight for deliveries into urban areas, with zero emission last mile deliveries. Part of the strategy to achieve these carbon budgets requires emissions from transport falling by 29 per cent from today, largely achieved by accelerating the shift to electric. This transition could involve reducing the energy and emissions intensity of road transport by 30 per cent and 44 per cent respectively.</p> <p>In addition to workplace and residential charging support, the Government has provided £80 million to support charging infrastructure deployment, alongside £15 million from Highways England to ensure rapid charge points every 20 miles across 95 per cent of England's SRN.</p>	Electric vehicle solutions for HGVs are noticeably absent and do not yet form part of the carbon budget strategy. Hydrogen vehicle solutions for HGVs are not mentioned. New powers under the Automated and Electric Vehicles Bill will allow specific requirements to be set for the provision of EV charge points or hydrogen refuelling.
Hydrogen for Transport Advancement Programme	Provision of £4.8 million to create a network of twelve hydrogen refuelling stations. A new £23 million fund was recently announced to boost the creation of hydrogen fuel infrastructure and encourage the roll-out of hydrogen vehicles.	This could have an impact on freight as some operators and manufactures are looking to hydrogen as a viable alternative low emission solution.
Low emission plug in grant, 2016	Low emission vans and HGVs between 3.5 and 44 tonnes have been eligible since late 2016 for plug-in grants worth up to £20,000 for the first 200 vehicles bought using the	

Policy	What is it	Impact on freight
	grant. The Government is also consulting on proposals to allow category B car licence holders to drive slightly heavier vans if they are powered by a low emission technology, to encourage further uptake of cleaner goods vehicles.	
Freight Carbon Review 2017	Identified a range of measures to help fleet operators reduce their emissions, including through improved fuel efficiency. The Energy Saving Trust is piloting a scheme to advise HGV fleet operators on reducing fuel consumption	
Road to Zero Strategy 2018	The government has committed to investing £1.5 billion in ultra-low emission vehicles by 2020 and the Road to Zero Strategy outlines a number of ambitious measures, including a number which may support freight. The Government has also launched an Electric Vehicle Energy Taskforce to bring together the energy and automotive industries to plan for the increase in demand on energy infrastructure that will result from a rise in the use of electric vehicles.	More widespread charging schemes will support small vehicle freight and last mile solutions. More specific to freight, the extension of the Plug-In Car and Van Grants in some form until at least 2020, will support subsidised rates for new electric vans
National policy on E-bikes	<p>£2 million funding package to promote e-cargo bikes, to “encourage alternate green technologies to counter the increasing usage of diesel delivery vans that has accompanied the 15.3% increase in UK online spending in 2017.</p> 	<p>Whilst very specific, this area highlights a national drive to address emissions from freight in urban areas with the use of EV. The latest road traffic estimates indicate van traffic increased by 4.7 per cent to 49.5 billion vehicle miles in 2016. It is unknown to date how much of this is freight related. At about the same time 16 of the UK’s largest van fleet operators have signed up to the clean van commitment in a bid to go electric. In previous grants a London-based E-cargobikes.com to set up on an industrial estate in Islington and conduct grocery delivery trials in partnership with Sainsbury’s. The trials showed that 96.7 per cent of orders could be fulfilled in a single e-cargo bike drop. This indicates a high potential for near-term modal shift for local and last mile freight solutions.</p>

Table 3-1 - Other policies

3.2 HIGHWAYS ENGLAND

- 3.2.1. Highways England is responsible for motorways and major (trunk) roads in England, otherwise known as the SRN (Highways England, 2018). The SRN totals around 4,300 miles. While this represents only 2 per cent of all roads in England by length, these roads carry a third of traffic by mileage and two thirds of all freight traffic.
- 3.2.2. Highways England's stated priorities (Highways England, 2015) are to maintain an SRN which:
- is free flowing – where routine delays are infrequent, and journeys are reliable
 - is safe and serviceable – where no-one should be harmed when travelling or working
 - is accessible and integrated – so people are free to choose their mode of transport and can move safely across and alongside our roads
 - supports economic growth with a modern and reliable road network that reduces delays, creates jobs, helps business and opens new areas for development
 - ensures Highways England activities result in a long term and sustainable benefit to the environment
- 3.2.3. Highways England emphasises the importance of freight traffic to the British economy, and the SRN to freight traffic; however, it currently specifies few tangible responsibilities towards the freight industry. Freight does not appear in the Operational Metrics Manual, while the list of Key Performance Indicators in the Highways England Delivery Plan (Highways England, 2015) only states that: “a suite of Performance Indicators (is required) to help demonstrate and evaluate what activities have been taken to support the economy. These should, at a minimum include metrics on: supporting the business, and freight and logistics sectors”.
- 3.2.4. In Spring 2018 Highways England commissioned multi-year support to improve their understanding of freight businesses and the required data capture that is able to better inform freight related issues. This will allow Highways England “to collate benchmark data and develop initiatives for further improvements, lessening the impact of freight related incidents”. It is further understood that an element of this support will focus on freight incident prevention and tailoring incident response where freight vehicles are involved.

HIGHWAYS ENGLAND STRATEGY: FREIGHT TRAFFIC

- 3.2.5. Highways England Strategic Business Plan emphasises the importance of collaboration and consultation without committing to specific actions.
- *“Work with the freight and logistics sectors and other frequent and extensive users of the network to better understand their needs and help them achieve their business objectives.*
 - *Consult with representatives of the freight and road haulage sectors to assist future network planning”.*
- 3.2.6. Highways England Strategic Economic Growth Plan discusses in more detail specific potential problem areas and solutions for the freight industry (Highways England, 2017):
- “Supporting business productivity and competitiveness, and enabling the performance of SRN reliant sectors:*
- *We are also investing in innovation research and development to make journeys more reliable and efficient, and to improve communications with our customers to enable them to plan their journeys more effectively. These include working with the DfT and the freight industry on trials*

for freight platooning (lorry convoys) that should reduce journey times and could bring other savings for the logistics sector” – enabled/enhanced by Highways England investment in connected vehicle technology.

- *There are also large potential benefits from embracing the potential for modal shift onto the rail network for both people and businesses and for greater use of rail freight”.*

3.2.7. A particular example of where Highways England has identified freight congestion issues is in the provision of efficient routes to global markets through international gateways: e.g. improving access to ports (Highways England, 2017).

3.2.8. Highways England has identified the significant contribution of goods vehicles to major incidents, and has developed an Incident Management Team which is planned to include a freight function.

3.3 LOCAL ENTERPRISE PARTNERSHIPS (LEPS)



- 3.3.1. Local Enterprise Partnerships (LEPs) are private sector led partnerships between businesses and local public-sector bodies. They were announced in 2010 to bring private sector expertise into local economic decision making and to encourage collaboration and strategic decision making at a functional economic area. This was part of Government's ambition to shift power away from central government to local communities, citizens and independent providers, as set out in the Local Growth White Paper 2010.
- 3.3.2. Following the 2013 Spending Review LEPs acquired considerable new levers over growth – particularly funding to deliver the interventions that stimulate growth. Through three rounds of Growth Deals the Government is giving over £9 billion to help LEPs to deliver their investment priorities. Local Enterprise Partnerships also perform a strategic oversight function for EU Structural and Investment Funds.
- 3.3.3. There are six LEPs who have full or part coverage within the EEH region, :
- South East Midlands LEP (SEMLEP)
 - Oxfordshire LEP (OxLEP)
 - Buckinghamshire Thames Valley LEP (BTVLEP)
 - The Combined Authority of Cambridge and Peterborough (replaced the Greater Cambridgeshire and Greater Peterborough LEP)
 - Hertfordshire LEP
 - Swindon and Wiltshire LEP (SWLEP).
- 3.3.4. Since 2013 LEPs have each published Strategic Economic Plans (SEP), backed up with analysis of local sectors, skills challenges and places of opportunity. The SEPs are used to negotiate Growth Deals.
- 3.3.5. As proposed in the national Industrial Strategy launched by BEIS in November 2017, Local Industrial Strategies (LIS) will 'build on local strengths and deliver on economic opportunities' identifying 'priorities to improve skills, increase innovation and enhance infrastructure and business growth.
- 3.3.6. While some places might use their SEPs as a framework, the intention is that LIS will differ in approach, with joint local-national policy making and collaboration between local leaders in the public and private sectors, and that they will be more focused and action-driven.
- 3.3.7. Wave 1 - The first eight trailblazer local industrial strategies were announced in November 2017: Greater Manchester, West Midlands (Greater Birmingham & Solihull, Coventry & Warwickshire and Black Country) and the Cambridge-Milton Keynes-Oxford Corridor (Oxfordshire, Cambridgeshire & Peterborough, Buckinghamshire Thames Valley and South-East Midlands). These Local Industrial Strategies will be published in March 2019.

- 3.3.8. Wave 2 - The second wave of six local industrial strategies were announced in July 2018: Cheshire & Warrington, Heart of the South West, Leicester & Leicestershire, North East, Tees Valley and West of England. These Local Industrial strategies will be published by March 2020.
- 3.3.9. Wave 3 - On 3rd December 2018, the government announced the entire country will benefit from Local Industrial strategies with the rest of the LEPs forming the final third wave.
- 3.3.10. For each LEP covering the EEH area we have reviewed and summarised the Strategic Economic Plan, emerging Local Industrial Strategy, and supporting evidence. Our review focuses on:
- Scale and location of planned population and employment growth
 - Industrial and business focus, including clusters of industry
 - Proposals for transport investments
 - Freight issues and opportunities

LEP	Theme	Evidence
	Growth	Objective to grow employment by 10% by 2025 and to build 130,000 new homes in the same period.
	Industrial focus	Innovation High Performance Technology Manufacturing and Advanced Technology Logistics
	Transport investment	Planned improvements: East West Rail route and the proposal for an Oxford to Cambridge Expressway, and upgrades to the A14 and the A43/A45 corridor, M1 to A6 Link Road: a major infrastructure project linking the M1 J11A to the A6
	Freight issues and opportunities	Lack of suitable land - current projections demand for industrial and warehousing property in the corridor exceeds supply in the next three to eight years. Weak East – West transport links as a key constraint. An active Logistics Sector Group and Northamptonshire Logistics Forum providing opportunity to develop a programme of initiatives driven by industry needs.
	Growth	Growth of 85,600 jobs between 2011 and 2031 and approximately 100,000 new homes. This represents a 23% growth in jobs in the county. The Oxfordshire Infrastructure Strategy plans for growth from 2016 to 2040 of 267,700 people, or 39%, with 123,000 new homes, and 101,000 new jobs (growth of 25%). The more recent emerging LIS aims for 104,000 new private sector jobs by 2040.

LEP	Theme	Evidence
	Industrial focus	High tech businesses and innovation (academia, automotive & motorsport, creative & digital, electronics & sensors, life sciences and space technologies sectors).
	Transport investment	Planned improvements to strategic road corridors – mainly the A34 and A40. It also specifically identifies two potential freight investments: A freight consolidation centre near Oxford A freight interchange at Graven Hill (Bicester)
	Freight issues and opportunities	The various strategy documents mention general congestion, but with little specific mention of freight issues, opportunities or priority.
	Growth	The number of households in Buckinghamshire are projected to increase by 74,000 (9.8%) between 2012 and 2022, and Experian forecasts also suggest that Buckinghamshire's population will grow by 14.8% between 2013 and 2033 Assessments also identified a need for housing in the Buckinghamshire Housing Market Area (HMA) of 50,000 dwellings over 2013-33.
	Industrial focus	Key assets: <ul style="list-style-type: none"> ■ The creative and digital economy with Pinewood Studios at its core; ■ Medical technologies exploiting the international status of Stoke Mandeville Hospital and its status as birthplace of the Paralympic movement; ■ Silverstone's position at the core of a high-performance technology innovation; ■ The role of the Westcott Space Cluster as a key link in the UK space sector supply chain.
	Transport investment	The SEP notes the significant impact that major national infrastructure projects will have on the county, including HS2, Heathrow Third Runway, and Crossrail. It also references the importance of the Oxford Cambridge Arc.
	Freight issues and opportunities	There is no mention of freight or logistics in the SEP, although there are general concern about connectivity.
	Growth	
	Industrial focus	Key industries in the area including: Manufacturing, engineering and processing (e.g. Perkins, Bae Systems, and Marshall Aerospace) Agriculture, food, and drink (e.g. British Sugar, Premier Foods, Nestlé Purina, Bakkavor, and Produce World Group)

LEP	Theme	Evidence
		Logistics (e.g. IKEA, Amazon, Tesco and Debenhams)
	Transport investment	The SEP provides a list of planned and proposed transport improvements
	Freight issues and opportunities	Logistics is identified as a key industry and it is noted that there are some proposed freight enhancements to the rail network.
	Growth	Growth of employment by 10% by 2025.
	Industrial focus	The key priorities identified in the SEP are: maintaining global excellence in science and technology; harnessing links with London; and reinvigorating places. There is reference to “high end logistics” identified in a Hertfordshire skill strategy.
	Transport investment	
	Freight issues and opportunities	None are mentioned in the SEP.
	Growth	Growth of employment by 10% by 2025 and with a longer-term jobs growth trajectory of 5% per annum.
	Industrial focus	One of the Growth Zones identified in the SEP is “Swindon - M4” with strengths in manufacturing and commerce.
	Transport investment	
	Freight issues and opportunities	Main north-south road connections are not fit for purpose and the increasing unreliability of these routes is significantly constraining business and development growth. There is no specific mention of freight in the SEP.

Table 3-2 – LEP policy review

- 3.3.11. A key focus across the LEP is innovation. The South-East Midlands has a high concentration of innovation assets, including innovation centres, science parks, enterprise zones, technology clusters and universities/colleges.
- 3.3.12. The SEP identifies three “showcase sectors” which include High Performance Technology, (including ‘Next Generation Transport’), Manufacturing and Advanced Technology (including Food and Drink) and Logistics. These sectors have significant implications for logistics strategy, and are summarised in the figure below, extracted from the SEMPLEP SEP.

Table 3-3 - SEMLEP SEP priority sectors

Project name	High Performance Technology	Manufacturing & Advanced Technology	Logistics
Includes	Aerospace Automotive Electronics Low emissions technologies Motorsport Next Generation Transport (NGT) Precision engineering	Food and Drink Footwear Material and prototype testing	Freight transport Warehousing and storage Wholesale of goods
Employment Growth in SE Midlands (2009-14)	25%	5%	7%
Employment Growth in England (2009-14)	6%	1%	3%
Relevant Clusters/ Enterprise Zones/ other key sites in the SE Midlands:	Cranfield: Aerospace Integration Research Centre , Aerospace Technology Institute. Luton Airport Enterprise Zone: aerospace businesses and advanced engineering. Northampton Waterside Enterprise Zone: automotive. Silverstone Technology Cluster: engineering, innovation and business development. Westcott Venture Park: space propulsion.	Aylesbury Woodlands site of the Aylesbury Vale Enterprise Zone: agri-food and human health. Colworth Park: home to Unilever's Global Development Centre and R&D. Food Enterprise Zone in Central Beds and Northamptonshire Food & Drink cluster. Footwear industry cluster in Northamptonshire.	Daventry International Rail Freight Terminal (DIRFT): a nationally-important rail freight distribution centre. Magna Park: a major distribution centre between junctions 13 and 14 of M1. Midlands Logistics Park: its location on the A14 in Corby allows access to both the East Coast Ports, and the Midlands/ South East markets. Proposals for four new rail freight hubs.
Examples of relevant businesses located in the SE Midlands:	Cosworth GE Precision Engineering Lockheed Martin Mahle Powertrain Millbrook Nissan Prodrive	Food and Drink: Arla, Alpro, Brioche Pasquier, Carlsberg, Charles Wells, Jordans, Mondelez, Ryvita, Unilever, Weetabix. Footwear: Cheaney, Church's, Jeffrey West, John Lobb, SATRA, Stamp and Chancery.	Distribution Centres for: AG Barr, Booker, Coca Cola, John Lewis, Primark, River Island, Sainsbury's, Waitrose. Wholesalers: Bedford Continental, Medallion Foods, Jungheinrich, Cinram, RS Components

Local Industrial Strategy

- 3.3.13. As mentioned earlier, the Government has identified the Oxford-Milton Keynes-Cambridge area as one of three trailblazer areas for the first of the Local Industrial Strategies, due to be complete by March 2019. The area was chosen because of its potential to drive wider regional growth, focusing on clusters of expertise and centres of economic activity. SEMLEP is working with neighbouring LEPs, the Greater Cambridge and Peterborough Combined Authority, Local Authorities and other partners to develop this Local Industrial Strategy.
- 3.3.14. Emerging priorities identified as part of the LIS work include a specific focus on actions that:

- Tackle the shortage of good quality employment premises and space, particularly for smaller, expanding businesses critical to supply chain and sector strengths
- Position the area as the central place to commercialise new technology, bringing in and generating more of the innovation, R&D strengths of the universities and businesses within the Oxford-Milton-Keynes-Cambridge Growth Corridor
- Maximise and promote high-tech development and high value specialisms in next generation vehicles and logistics
- Provide specialist business support to those businesses who have the potential for rapid growth
- Tackle issues that growing businesses have with access to energy and core utilities.

3.3.15. Actions proposed include:

- Advanced Logistics Centre of Excellence within SEMLEP area
- Support with exporting and access to new markets
- Support strategic transport links and greater first mile-last mile connectivity
- Become an exemplar for electric vehicle usage and infrastructure
- Promote SEMLEP as the Connected Core of the Arc, the place to collaborate with space to capitalise on commercialising new technologies
- Pilot 'future settlement' ideas, inc: flexible work-live units, modern methods of construction and greener settlements
- Connections into strategic transport links across the Ox-MK-Cam Arc
- Facilitation and marketing of a 'Cluster of Clusters' across the Ox-MK-Cam Arc
- SEMLEP area as a test-bed for innovative technologies, including smart energy, waste utilisation & innovative freight technologies

3.3.16. A SEMLEP Document “Policy Themes and Propositions, October 2018” provides more detail on the proposal to develop the corridor as an Advanced Logistics Centre of Excellence. This identifies the significance of logistics to the area, particularly major assets such as DIRFT and Magna Park, but also weaknesses in terms of low productivity and lack of innovation compared to other sectors. Proposals to address this opportunity include:

- Supply Chain 4.0 South East Midlands Hub of Excellence proposal: Cranfield University, in conjunction with SEMLEP, John Lewis, Connected Places Catapult, Millbrook Proving Ground, Network Rail and FiveAI, has applied to the UKRI Strength in Places Fund for money to develop a Hub of Excellence for the logistics sector. This hub would offer companies – including SMEs – in the region knowledge, expertise, and a test bed for new ideas to improve their supply chain processes and operations by introducing automation in logistics and supply chain activities, using predictive analytics to better match supply with demand, aligning operations to cope with batch-size one (high degree of customisation) and utilising the latest technologies for last mile delivery such as drones, autonomous vehicles, and robots.
- Use SEMLEP area as a test-bed for innovative freight technologies: the Connected Places Catapult has said that, with government backing, it would like to help SEMLEP to build on its locational and logistics business assets to trial one or more of the following:
- Automated Yards: improving safety, efficiency and environmental impact.

- Land Corridor: speeding up freight deliveries while simultaneously reducing congestion on the roads. There might be mileage, for example, in a Birmingham to Milton Keynes Land Corridor.
- Shared Freight between businesses: to realise greater efficiencies for business-to-business deliveries.

3.4 LOCAL AUTHORITIES

- 3.4.1. The EEH area includes 11 local authorities; Swindon, Oxfordshire, Buckinghamshire, Northamptonshire, Milton Keynes, Hertfordshire, Central Bedfordshire, Bedford, Peterborough, Cambridgeshire and Luton.
- 3.4.2. Local authorities have taken a wide range of approaches to managing freight congestion which would be expected given their diverse geographical, demographic, economic and social differences. Local Authorities have an opportunity to best manage urban freight. Given the concentrated harmful effects, high cost and inefficiency of urban freight relative to the rest of the supply chain, this is an area where having clear freight plans could have the greatest impact. However, many authorities still do not have specific freight management policies beyond objectives to manage the negative impacts of freight. For example, nationally only 27 authorities out of 450 have policies in place for last mile logistics.
- 3.4.3. The following highlights the results of the literature review of the 11 authorities and their approach to freight and logistics. This includes only documents that could be accessed on public websites:

	Freight strategy	Last mile
Swindon	Yes (2011)	No
Oxfordshire	No (Oxford has)	No
Buckinghamshire	Yes (2018)	No
Northamptonshire	Yes - road only (2013)	No
Milton Keynes	Yes (2009)	Yes (2018) but only for people movements
Hertfordshire	Yes (2011)	No
Central Beds	Yes (2011)	Some reference in freight strategy
Bedford	Yes (2010)	Some reference in freight strategy
Peterborough	No	No
Cambridgeshire	No	No
Luton	Yes (2011)	No

Table 3-4 - Local Authority Freight Strategies

- 3.4.4. This table highlights where freight is a consideration as part of transport plans. Mainly freight is mentioned within LTP 3 or 4, with only Central Bedfordshire, Bedford, Buckinghamshire,

Northamptonshire and Milton Keynes having specific freight strategies. A few have a specific last mile plan, although some have referenced specific urban issues within their freight or LTP plans. Many of the actions identified focus on mitigating the negative impact of freight rather than embracing the economic opportunity freight brings to a region in jobs, enabling construction and servicing residents.

3.4.5. Where there are freight strategies, extracts are outlined below.

SWINDON

3.4.6. Within Swindon Transport plan they have identified a number of “Policy Packages” of which one, PP15 relates to freight. The freight policy package is reasonably well supported by analysis through the integrated transport decision support and simulation model (INTRA-SIM) used by Swindon. The analysis shows for them that the benefits of the policy package at medium and higher levels are considered limited compared to the higher expenditure, so freight provides best value at the low level without an equivalent loss of benefit. Specific interventions are supported in-principle, including:

- Greater use of the rail freight yard at South Marston,
- Continuation of the involvement in the Wiltshire and Swindon FQP,
- Engagement with freight industry (eg RHA),
- Lorry parking provision,
- Working on incorporating in HGV movements as part of the local development framework
- Potential urban freight consolidation centre.

OXFORD

3.4.7. In Oxford demand forecasting for 2031 indicates that around 2,500 HGV trips will be made to, from and within the city between 8am and 6pm per day, over a third of which would occur during the morning peak hour. The Oxford LTP3 highlights that it aims to: reduce the impact of freight on congestion, noise and air quality, the following measures will be developed:

- Delivery & Servicing Plans;
- Construction Logistics Plans;
- Out of hours deliveries;
- Freight will be expected to comply with increasing emissions requirements.
- Local consolidation points; and
- Freight consolidation centres for business, retail and construction.

BUCKINGHAMSHIRE

3.4.8. The aim of the Buckinghamshire’s freight plan is that: “Freight transport should continue to help Buckinghamshire grow, thrive and develop. Freight should move around the county as efficiently as possible, without imposing inappropriate costs on business, consumers, residents or our unique environment”.

3.4.9. Each of the policies being perused in the Strategy support overarching objectives

- Objective 1: Appropriate Road Use
- Objective 2: Protecting our Environment
- Objective 3: Partnership Working
- Objective 4: Consider Freight in Decision Making

3.4.10. The final strategies being pursued are highlighted below, further details of what the strategies contain is detailed in the Strategy.

- Promoting appropriate routes
- Improving navigation information
- Appropriate parking facilities
- Improving road safety
- Celebrating responsible operators
- Our approach to managing inappropriate freight movements
- Maximising Rail Freight Opportunities
- Empowering Communities
- Working with the freight industry
- Raising awareness
- Consumer behaviour
- Freight in new developments and major infrastructure schemes
- Putting freight at the heart of our work
- Future of freight

NORTHAMPTON

3.4.11. Northampton aims to mitigate measures related to growing demand by;

- Addressing the problems caused by HGV traffic in both urban and rural locations and to reduce the impact of HGV's on local communities, especially concerning overnight lorry parking;
- Influencing and encouraging movement patterns and transport choice within the county;
- Encouraging commercial and economic growth;
- Reducing the environmental impact of freight movement and reduce the impact of HGV's on inappropriate routes e.g. rural areas, areas in Air Quality Management Areas (AQMAs), and areas with weight restrictions; and
- Managing the network to provide ease of movement through the county and to reduce the impacts of congestion and 'lost productive time'.

3.4.12. Overarching this, Northampton aims to encourage the sustainable distribution of goods through minimising road based travel and the associated environmental impacts of road haulage, whilst maintaining economic efficiency and helping to improve the quality of life for the residents of Northamptonshire.

HERTFORDSHIRE

3.4.13. Policy 16 within LTP3 focuses on Freight and Logistics which states that the county council will seek to manage freight and logistics traffic, by:

- Encouraging HGV's to use the primary route network
- Providing clear advice to local planning authorities in respect of highways and freight implications of new development proposals
- Encouraging a shift from road-borne freight to less environmentally damaging modes, including rail, water and pipelines
- Supporting the formation of Quality Partnerships between interested parties.

- Monitoring changes in HGV and LGV activity to inform possible solutions which reconcile the need of access for goods and services with local environment and social concerns.
- Supporting improvements in HGV provision in the county, including overnight parking, in appropriate locations.
- Utilising traffic management powers, where appropriate to do so, to manage access and egress from specific locations.

CENTRAL BEDFORDSHIRE

3.4.14. Policy T8 of the Central Bedfordshire LTP deals with the management of freight which specifically deals with the issue of where a development will result in the movement of freight as part of its operations, and commits to:

- Require evidence that realistic alternatives to the movement of freight by road based haulage are not possible or practical.
- Ensure that developments forecast to generate significant freight movements are located where they deliver the greatest benefit for, businesses, and the least negative impact on the environment and local communities for example within industrial areas close to the Designated Road Freight Network.
- Ensure that sufficient land is provided for anticipated freight facilities associated with new developments including construction traffic.
- Ensure that proposals likely to generate freight sufficiently mitigate any forecast impacts on local communities and the environment through traffic management measures and developer contributions.

BEDFORD

3.4.15. Bedford Borough Freight Strategy considers aspects of freight in the Borough and seeks to make freight transport an integral part of transport and development policy. This will in part be achieved through considering how freight can be routed and managed to achieve efficiencies for the industry while minimising impact on the environment and residential communities in particular. The Strategy notes that due consideration needs to be given to all means of transporting freight, not just road.

LUTON

3.4.16. Luton's LTP includes a reference to freight which notes that in addition to continuing their membership of the regional FQP, they will also work in partnership with major local employers, representatives of the freight industry and with Central Bedfordshire Council to develop initiatives at the local level to mitigate the adverse impacts of the movement of freight, in particular to remove lorries from residential areas.

3.4.17. The strategy also refers to the desire to promote to multimodal freight.

3.5 CONCLUSIONS FROM POLICY REVIEW

NATIONAL POLICIES

3.5.1. The following conclusions may be extrapolated for the future of the Heartland:

- There is no overarching national strategy for logistics, and little or no coordination between national stakeholders regarding freight policy.
- The NIC findings that there is “freight blindness” in the planning system; that freight data is inadequate; and that regulation should be coordinated are key indicators to the future direction of freight strategy.
- The Heartland will grow both in overall population and connectivity.
- EEH cities and primary urban areas will grow in both population and urban congestion, as the majority of new homes will be located within urban areas.
- More homes in cities and primary urban areas, more of which will have better internet access, will lead to more consumer goods-driven freight growth within and between urban areas in the EEH in the near- to long-term.
- More homes will require more construction materials freight in the Heartland over the expansion period.
- The Government and other national-level bodies have all emphasised decarbonisation and emission reductions for freight, and for transport in general. The most effective ways to decarbonise freight and reduce emissions include modal shift to rail, making road freight transportation models more efficient, and decarbonisation of freight road vehicles.
- In the shorter term, road freight emission reduction strategies rely on modal shift and reducing local concentrations of nitrogen dioxide, which will involve enabling behaviour change and developing local freight road strategies, clean air zones, and possible local junction/road improvements.

LEPS

3.5.2. Only SEMLEP has significant analysis of, and engagement with, the logistics sector. This partly reflect the importance of major logistics businesses to the SEMLEP area compared to other LEP areas.

3.5.3. The Government has asked for a Local Industrial Strategy for the Cambridge to Oxford arc. To date the three LEPs concerned have produced their own draft SIPs.

LOCAL POLICIES

3.5.4. Whilst freight has been considered within some local plans, and in lesser case with specific freight plans, there is a theme that freight is “problem” that needs to be resolved rather than an opportunity that can be exploited. A number reference how freight contributes to a prosperous economy but the actions proposed relate more to problem that needs to be overcome.

3.5.5. A number of the freight policies recognise the value in working together through FQPs and that freight needs due consideration as part of development planning process.



4

LOGISTICS IN THE EEH AREA

4 LOGISTICS IN THE EEH AREA

4.1 INTRODUCTION

4.1.1. This chapter looks at the key components of logistics in the EEH area:

- What are the major freight generators in the region?
- What are the major freight destinations?
- What freight hubs are in the region?
- The importance of logistics to businesses in the region
- Road freight origins and destinations
- Road freight volumes by corridor
- Rail freight origins and destinations
- Rail freight volumes by corridor
- Other freight traffic: air and water

4.1.2. The objective is to provide a clear picture of what freight is moving to, from, within, and through the EEH area and which modes and corridors are being used.

4.1.3. The EEH Transport Strategy Baseline Report is one source of data for this chapter. This was published in November 2017 and so does not include data from Hertfordshire and Swindon which joined EEH in 2018.

4.2 THE EEH ECONOMY

4.2.1. The following comments are taken from the EEH Stage 1 Evidence Report. This was produced before Hertfordshire and Swindon formally joined EEH.

- The Heartland economy is in good shape, contributing £102.5 bn Gross Value Added (GVA) per annum, supporting just over 2 million jobs in 174,000 enterprises.
- The Heartland has particular strengths in the distribution, public administration, education and health, business services and real estate sectors as well as globally competitive business clusters within the knowledge economy including high performance engineering, advanced manufacturing, life sciences and pharmaceuticals.
- The EEH economy has performed strongly with its total GVA increasing by 18.3% from 2011-2016 compared to 15.9% for the UK. Growth in GVA per head of population for the Heartland (13.4%) has also exceeded the UK growth rate (7.9%) from 2011-2015.
- Economic growth has ranged significantly with Wellingborough achieving the highest levels of GVA growth (+44.2%) and East Northamptonshire the lowest (-5.1%) between 2011-2015
- Strong job growth has been achieved in South Cambridgeshire (+14.7%), South Buckinghamshire (+10.5%), Peterborough (+10.1%) and Oxford (+9.9%), with negative job growth rates occurring in Cherwell (-1.2%), West Oxfordshire (-1.7%), South Northamptonshire (-2.5%) and Fenland (-5.3%)
- Within South Cambridgeshire, 31.2% percent of employees are employed within a knowledge sector, the highest figure for a local authority within England and Wales. The lowest percentage of employees employed in the knowledge sector within the Heartland is Corby (4.4%).

4.2.2. The evidence report also identifies the following key economic clusters:

- **High performance technology and engineering:** Including clusters in Milton Keynes, Oxfordshire and Northamptonshire
- **Logistics:** Including clusters in Northamptonshire, Bedfordshire and Milton Keynes
- **Electronics and Telecommunications:** With particular concentrations in Buckinghamshire and
- **Knowledge Economy:** Clusters of scientific research and development, biotechnology, Computer programming, life science, pharmaceuticals and consultancy focused in Oxfordshire and Cambridgeshire.

4.2.3. In employment terms, there are important differences between the EEH area and the UK as a whole, as illustrated in the chart below.

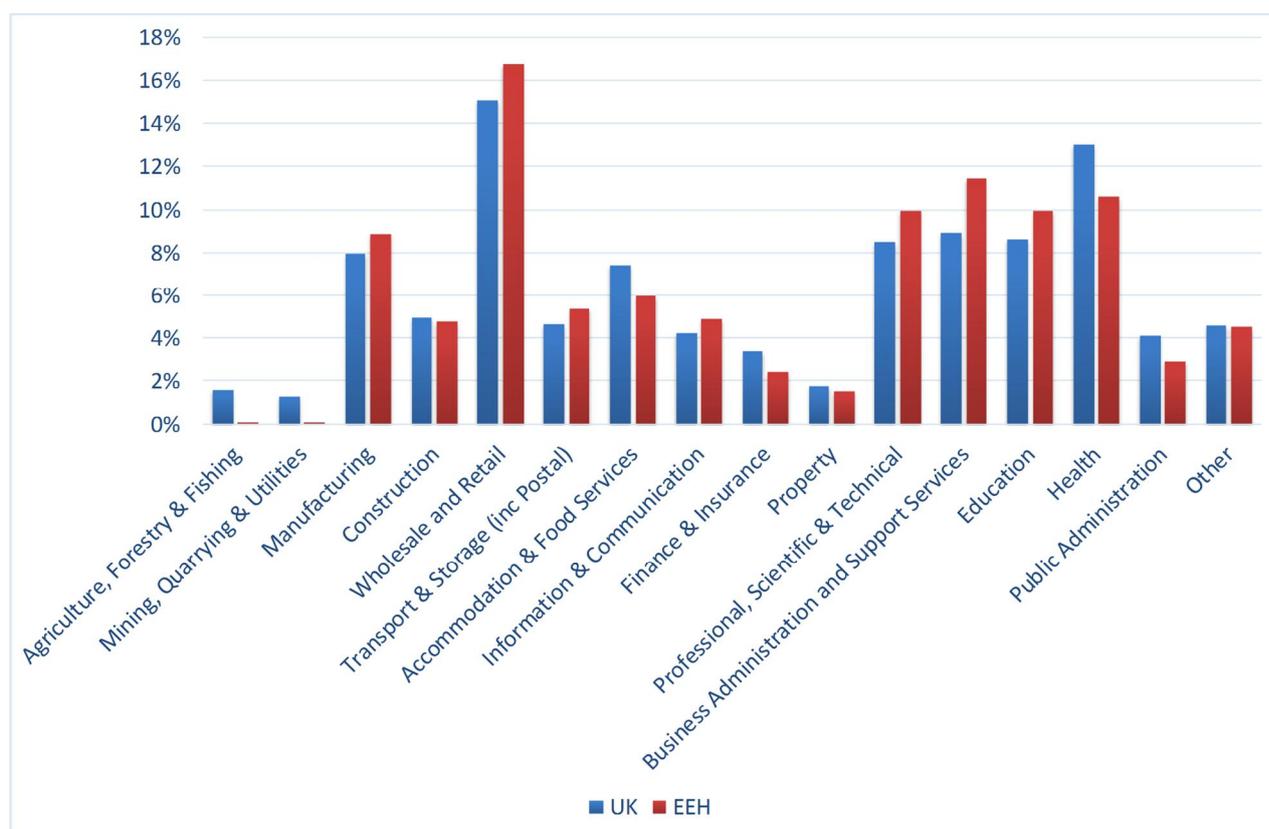


Figure 4-1 - 2011 Census Employment Data % Of Total Employment

4.2.4. This clearly shows the importance of business administration, professional, scientific, education and technical services in the region. It also shows that the region has a higher percentage of employees in wholesale and retail and transport and storage than the national average.

- 4.2.5. In table 4-2 it is difficult to draw conclusions about the importance of logistics from high level employment and GVA data. However, employment statistics do include a category “: Warehousing and support activities for transportation” which can be used to identify the areas where logistics businesses may be clustered.

2011 super output area - middle layer	52 : Warehousing and support activities for transportation	
	Employees	% Of Category
Milton Keynes Total	11,865	20%
Northampton Total	4,710	8%
Swindon Total	4,000	7%
Daventry Total	3,540	6%
Bedford Total	3,195	5%
Wellingborough Total	2,790	5%
Central Bedfordshire Total	2,740	5%
Luton Total	2,335	4%
Dacorum Total	2,250	4%
Peterborough Total	1,930	3%

Table 4-1 - Warehousing employees in EEH

- 4.2.6. While this set of data may overstate the significance of Milton Keynes in 2011, it certainly indicates the significance of warehousing in the SEMLEP area.

4.3 KEY FREIGHT GENERATING INDUSTRIES

- 4.3.1. Within the Heartland there is no data on freight volumes by commodity or business. However, conclusions can be drawn about certain key freight generating industries, notably strategic warehousing, aggregates, and automotive.

STRATEGIC WAREHOUSING AND FREIGHT HUBS

- 4.3.2. Manufacturers, importers, and retailers manage flows of goods using distribution centres. These are more than warehouses for storing goods. Increasingly these locations are involved in storing goods and transferring them between different tiers of the supply chain. For example, a typical retail supply chain could include might involve collecting goods into a regional distribution centre some of which are then moved to a national distribution centre for distribution out to other regional distribution centres before final delivery to stores or direct to customers.
- 4.3.3. In general, the UK logistics sector is highly centralised, with many businesses choosing to locate national Distribution centres (NDCs) in the East Midlands “Golden Triangle”. The Golden Triangle is a vaguely defined area effectively centred on Lutterworth. The main benefits of locating in the Golden Triangle are that all major ports can be reached in a single lorry driver shift (out and back), as can the vast majority of UK consumers and businesses.
- 4.3.4. Other factors impact the location of distribution centres including land values and supply, and access to labour. In addition, different supply chain models are evolving including “Port Centric” (where DCs are located near to ports), and E Commerce solutions where DCs may be closer to population centres to reach consumers as quickly as possible.
- 4.3.5. A recent report by the UK Warehousing Association (UKWA) identified over 1,500 warehouses across the UK accounting for 424 million square feet of space.35% of this space was occupied

by High Street or homeware retailers or food retailers. Over 20% of space was in the East Midlands, with a further 15% in the South East but less than 5% in the East of England.

- 4.3.6. The 20% of warehousing which is located in the East Midlands equates to about 84 million square feet. To indicate the scale of impact on road traffic, this area of warehousing would generate very approximately 50,000 lorry movements per day. (This is based on an average trip generation of 0.6 lorry trips per 100 sq m of warehousing, cited in various warehouse planning applications). For EEH, only Northamptonshire is in the East Midlands, but adding the other clusters of warehousing in the region is likely to provide a comparable volume of lorry trips.
- 4.3.7. The map below shows the locations of large warehouses across England. The source of this map is the Foresight report “Understanding the UK Freight Transport System, February 2019”.

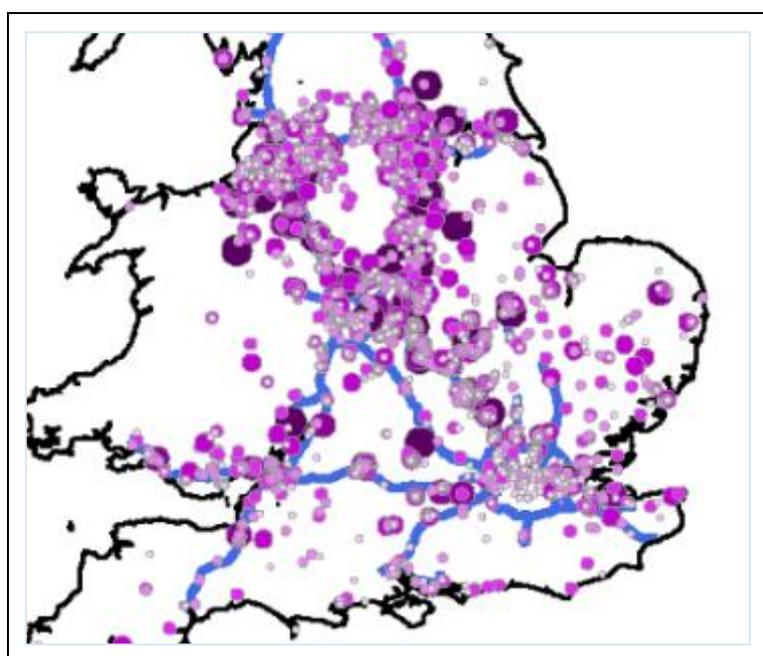


Figure 4-2 -The location of distribution space over 8,000 square metres in England

- 4.3.8. Depending on the definition, parts of the “Golden Triangle” for distribution are in the EEH area, notably Northampton and Daventry, and Milton Keynes has become a major location for distribution space. There are signs of increasing demand for large warehouses around Banbury and Bicester on the M40 corridor, and distribution is a major land user in the Swindon area.
- 4.3.9. The two maps below show the locations of major distribution parks from GIS analysis for this report, and the locations of specific major warehouse operators from a database collected by TfL.

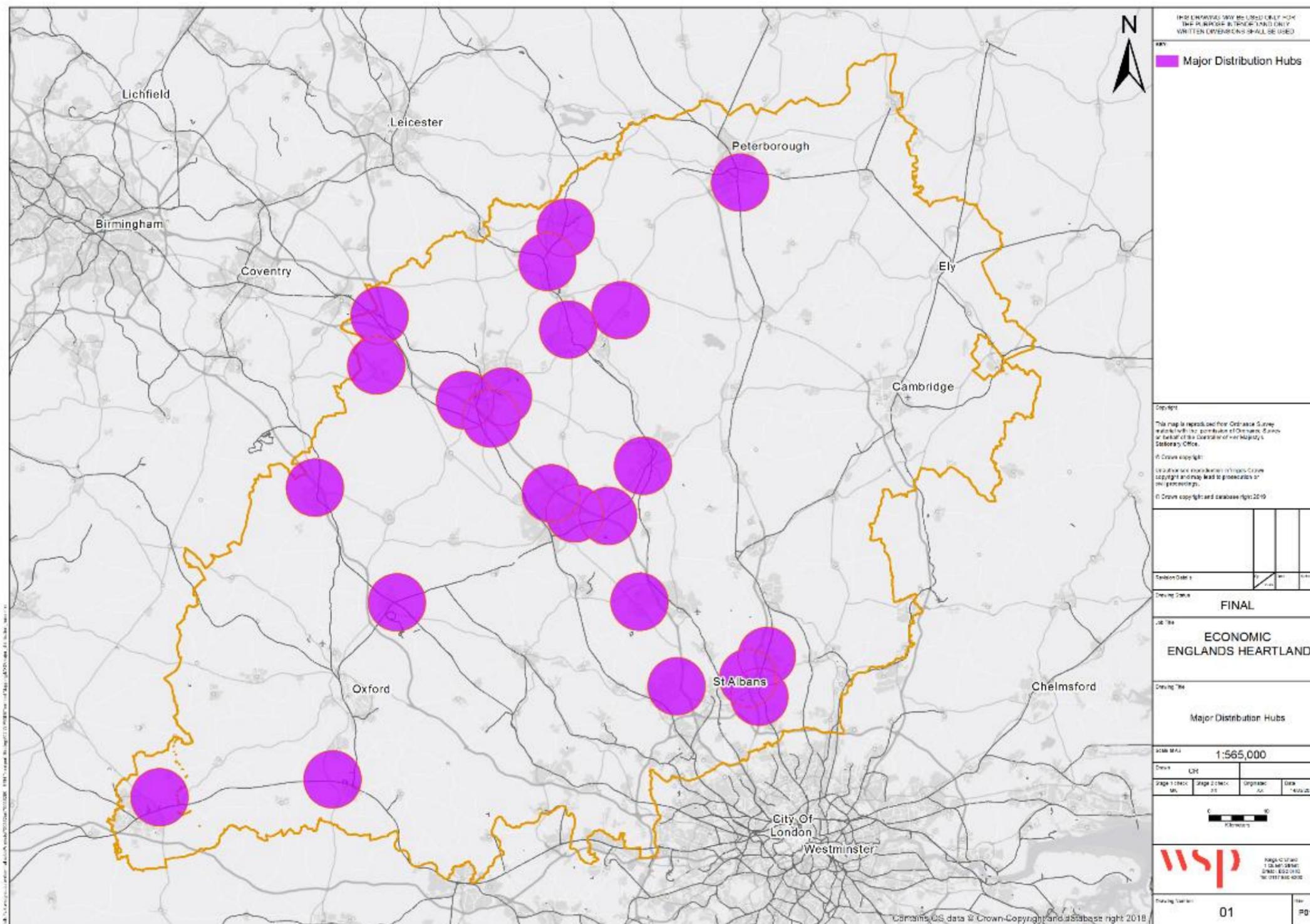


Figure 4-3 - Map Of Distribution Parks

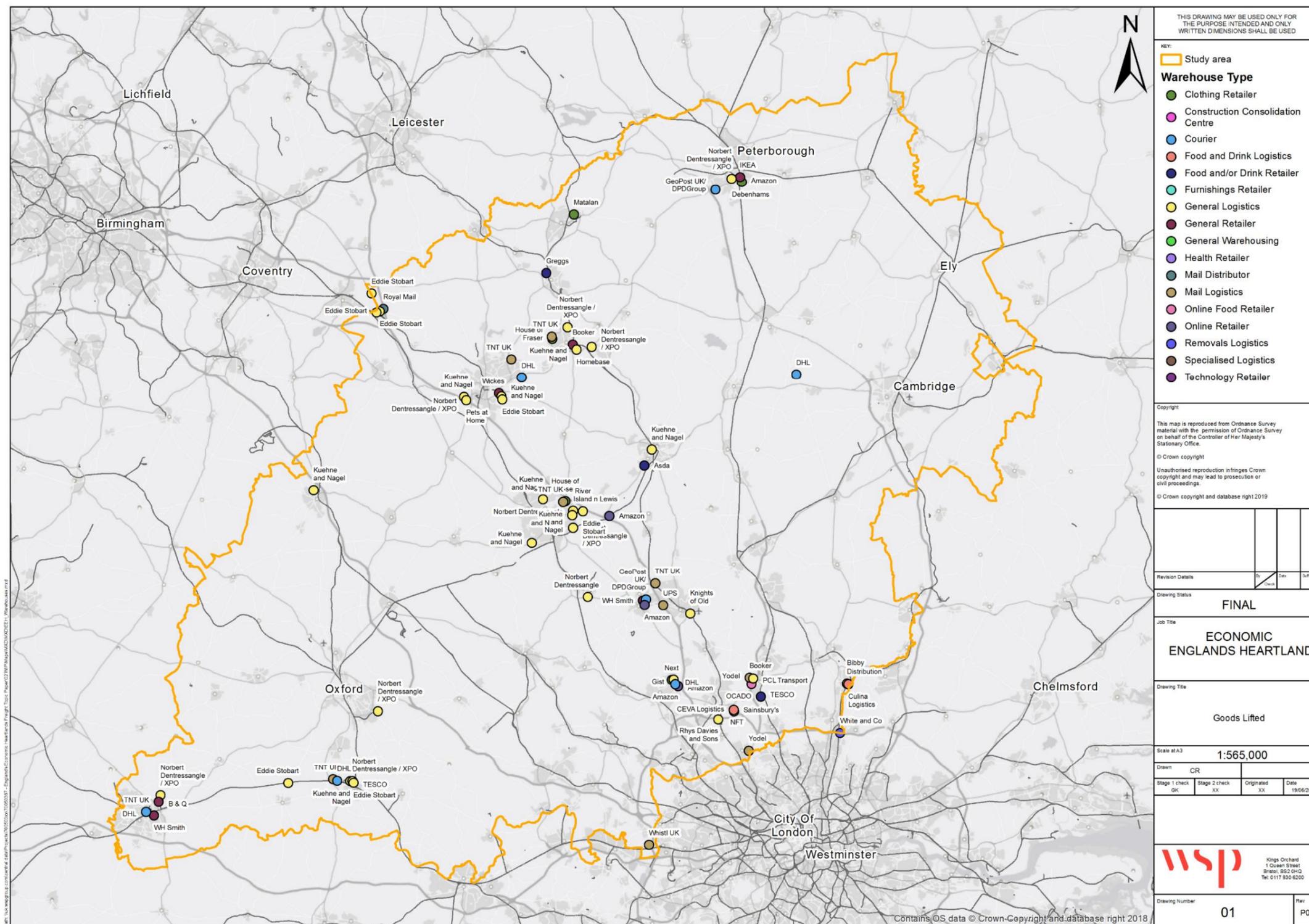


Figure 4-4 - Map Of Selected Distribution Centre Operators

4.3.10. These maps illustrate the following concentrations of distribution centres:

- Crick / DIRFT
- Northampton / Wellingborough
- Milton Keynes
- Didcot
- Swindon

4.3.11. A major focus is the M1 corridor, with far few distribution businesses located in the East of the region, other than Peterborough.

AGGREGATES

4.3.12. All construction projects require aggregates, which include sand, gravel, and crushed rock. The British Geographic Survey published the report “Collation of the results of the 2014 Aggregate Minerals survey for England and Wales” in 2016 which provides useful information on production and consumption of various mineral types down to local authority level.

4.3.13. This report shows that, in 2014, the Heartland consumed 15 million Tonnes of aggregates, of which 10 million Tonnes were sand and gravel and 5 million Tonnes were crushed rock. Of this, 72% of sand and gravel was produced locally but only 27% of crushed rock was produced locally.

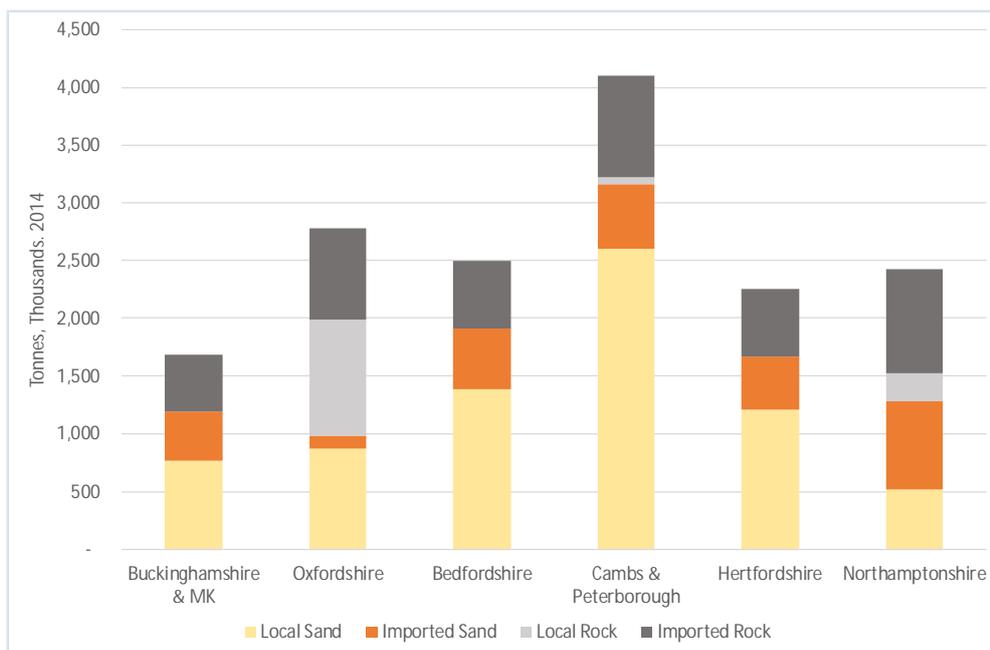


Figure 4-5 - The pattern by county is illustrated in the chart below.

4.3.14. Most locally won aggregates are used very close to the originating quarry, with typical journeys of less than 20km. Much of the 4.2 million Tonnes of imported rock arrives by rail. Nonetheless, as a million tonnes of aggregates would generate approximately 500 lorry trips per day (half loaded and half empty), aggregates accounts for around 8,000 lorry journeys per day within the EEH area. The chapter on construction logistics identifies ways to reduce the impact of such traffic.

AUTOMOTIVE

- 4.3.15. The Heartland includes the following major automotive manufacturers:
- BMW in Oxford 218,885
 - Honda in Swindon 164,160
 - Vauxhall in Luton 59,795 (going to 100,000)
 - Warnerbus in Dunstable
- 4.3.16. In addition, there is the UK national focus for high technology automotive products including auto sports manufacturing in the Northamptonshire and Oxfordshire area.
- 4.3.17. A large percentage of cars and vans produced in the region are exported, notably via Southampton. The BMW mini plant has a rail connection, and most cars are taken by rail to Purfleet or Southampton for export.
- 4.3.18. Each manufacturer relies on just in time deliveries of components from all over the world, with many component manufacturers locating in the Heartland, notably the BMW body panel pressing plant in Swindon.

OTHER MAJOR MANUFACTURERS

- 4.3.19. Tata Steel Corby manufactures over 250,000T of steel tube each year.

4.4 FREIGHT MOVEMENTS TO, FROM AND WITHIN THE REGION

- 4.4.1. All homes and businesses generate freight movements. Freight demand could, perhaps, be divided into two categories:
- Demand which is in proportion to the number of residents or employees in an area (for example: food and drink; office materials; clothing; and, refuse.)
 - Demand where higher volumes are focussed on particular industries or businesses (including a wide range of goods from agricultural products and construction materials to manufactured goods.)
- 4.4.2. A detailed analysis of Department for Transport Road Goods Statistics has been undertaken for this report. This was sourced from a bespoke data set from the Continuing Survey of Road Goods Transport (CSRGT) a major annual survey of a sample of HGV journeys.
- 4.4.3. The survey indicated that while EEH includes 7.7% of the UK population, 8.9% of journeys by UK registered HGVs start in the region. This suggests that there are some significant businesses generating freight journeys from the region.
- 4.4.4. Similarly, 9.5% of UK registered goods vehicle journeys end in the region. The 132 million Tonnes involved equates to approximately 44,000 lorry journeys per day based on an average payload of 12T and over 250 days per annum.

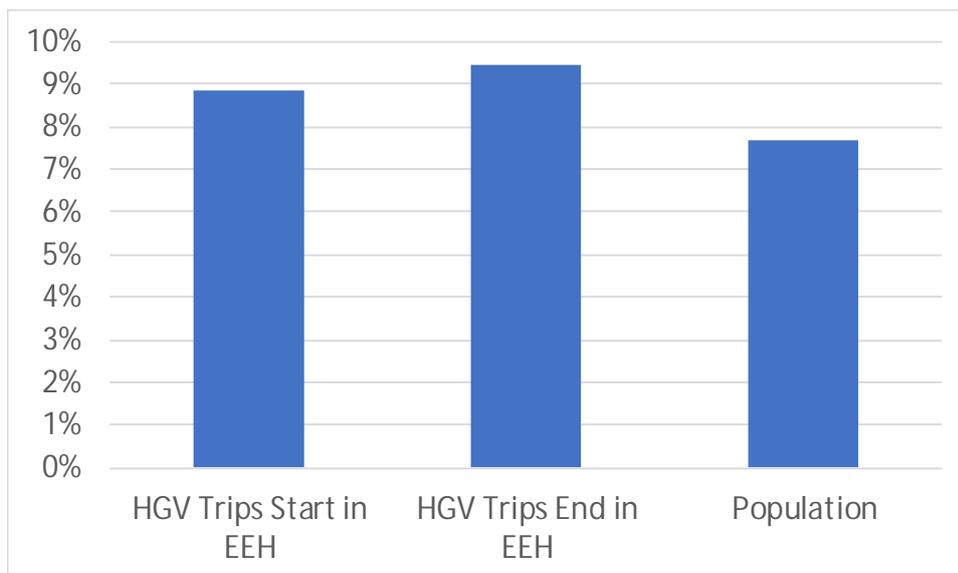


Figure 4-6 - Percentage of UK Total (CSRGT 2016)

- 4.4.5. It is worth noting at this stage that 35% of EEH trips start AND finish their journeys in the region – this reflects the fact that many HGV trips are quite short, with an average trip length of about 100km.

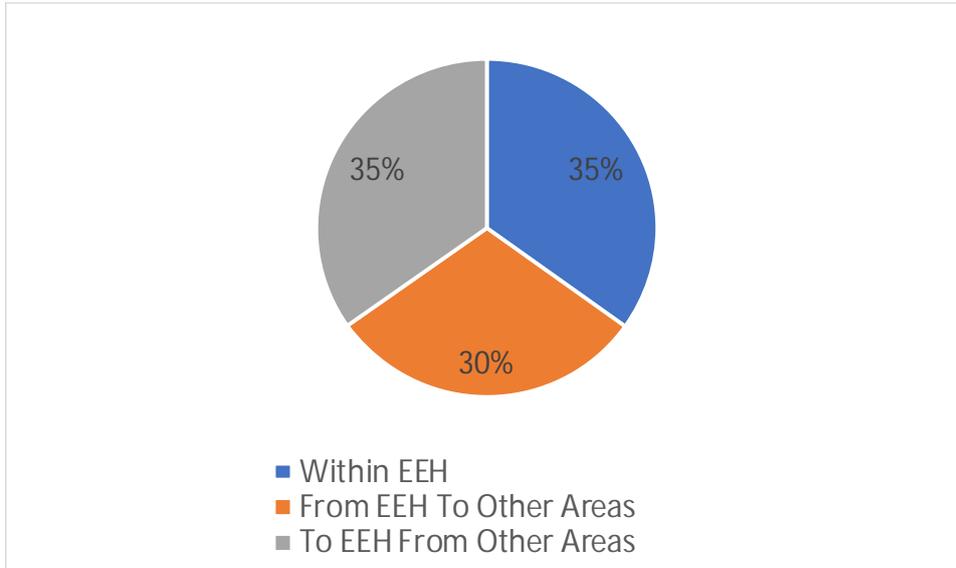


Figure 4-7 - Road Freight Tonnes Lifted (CSRGT 2016)

- 4.4.6. This data does not include the huge volumes of goods which transport THROUGH the region, for example between London and the Midlands.
- 4.4.7. Rail freight volumes to and from the region are less significant, but analysis for this report suggests that approximately 7 million Tonnes of goods arrive into the region by rail each year, which equates to about 10.5% of the road tonnage.
- 4.4.8. The table below breaks down these numbers.

	Million Tonnes	
	Road (CSRGT, 2017/8)	Rail (est, 2018)
Within EEH	66.2	-
From EEH To Other Areas	57.6	1.0
To EEH From Other Areas	66.0	6.2
UK Total	1,396.6	75.0

Table 4-2 - Road and Rail Tonnage Lifted To, From, Within EEH



5

ROAD FREIGHT

5 ROAD FREIGHT

5.1 NATIONAL PICTURE

- 5.1.1. Historically, the volume of goods lifted (tonnes) by road increased in line with increased GDP but this relationship broke down early in the 21st Century, and for several years volume has increased at a slower rate than GDP. This was regarded as a significant decoupling of freight growth from economic growth. Since the 2008 recession, the volume of goods lifted has fluctuated more dramatically, but in 2017 volumes were still significantly down on pre-recession volumes, despite GDP remaining fairly constant.
- 5.1.2. The DfT's Domestic Road Freight Statistics United Kingdom 2016 has summarised historic road freight growth:
- 5.1.3. *“The amount of goods lifted and goods moved by GB-registered heavy goods vehicles (HGVs) operating in the UK has shown a broadly upward trend since 1990 - with notable exceptions during recession periods. The amount of goods lifted (1.89 billion tonnes) and goods moved (170 billion tonne kilometres) in 2016 both reached record highs since recording began in 1990. However, over the same period HGV vehicle kilometres have shown a declining trend, with the 2016 value (19.2 billion vehicle kilometres) 18% lower than 1998's historic peak of 23.3 billion vehicle kilometres. These opposing trends suggest that the road freight sector has become more efficient over time”.*
- 5.1.4. Between 2016 and 2017, the amount of goods lifted decreased by 3% to 1.40 billion tonnes. Over the same period, the amount of goods moved (Tkm) by GB-registered HGVs within the UK decreased by 1% to 147 billion tonne kilometres. As with goods lifted, the distance travelled by HGVs, vehicle kilometres, decreased by 3% to 18.6 billion kilometres.
- 5.1.5. These statistics illustrate the complexity of analysing road freight data, because they exhibit different trends in tonnes lifted, journey length (leading to tonnes moved), and vehicle loads (leading to vehicle kilometres – the key number for congestion).
- 5.1.6. Generally speaking, since 2010, the volume of goods lifted has changed little (although it has fluctuated), the volume of goods moved (tonnes x distance) has increased, and the number of vehicle kilometres has not increased. This suggests longer journeys with heavier average loads.
- 5.1.7. Vehicle kilometres for LGVs and vans have increased more rapidly, growing by 23% between 2006 and 2016 compared to 2% for cars and -7% for HGVs. Much of the growth is not freight movement but the use of vans for servicing or personal transport, nonetheless, growth of LGV traffic is a significant component of overall traffic growth, particularly in urban areas.
- 5.1.8. HGVs accounted for 5% of all vehicle miles in Great Britain in 2017, but HGVs accounted for 11% of miles on motorways and 9% of miles on rural trunk roads.

5.2 EEH ROAD FREIGHT ORIGINS AND DESTINATIONS

- 5.2.1. While the CSRGT data is based on a small sample, it can be used to identify important origins and destinations for goods travelling into or out of the Heartland.

	Destined for EEH	Originating in EEH	Total
Goods Lifted (million tonnes)			
London (combined)	6.5	8.5	15.0
Rest of East Anglia	6.5	5.0	11.5
Gloucestershire, Wiltshire and Bristol/Bath area	5.3	5.0	10.3
Essex	5.8	4.2	10.0
Leicestershire, Rutland	5.0	3.1	8.1
Berkshire	3.7	4.1	7.8
Herefordshire, Worcestershire and Warwickshire	3.6	1.7	5.3
Shropshire and Staffordshire	3.3	2.0	5.3
West Midlands	2.6	2.6	5.2
Kent	2.8	2.1	4.9
Hampshire and Isle of Wight	2.1	2.5	4.6
Derbyshire and Nottinghamshire	2.7	1.5	4.2
Lincolnshire	2.2	1.6	3.8
East Yorkshire and North Lincolnshire	2.0	1.1	3.1
West Yorkshire	1.3	1.6	2.9
Greater Manchester	1.7	1.2	2.9
Merseyside	1.5	0.9	2.4
Surrey, East and West Sussex	1.0	1.4	2.4
Cheshire	0.9	1.3	2.2
South Yorkshire	0.9	1.1	2.0
East Wales	0.8	1.2	2.0

Figure 5-1 Top 20 Flows to or from the Heartland in 2017.

- 5.2.2. Some of the high-volume origins/destinations are, as might be expected when average HGV trip lengths are low, in neighbouring areas. Movements to and from East Anglia, Essex, and Hampshire are likely to include significant flows of goods to and from ports.
- 5.2.3. Placing this data in context, based on an average payload of 12T per truck, the volume transported to and from London equates to approximately 3,600 and to and from East Anglia approximately 2,500 trucks per day.
- 5.2.4. The volume of goods transported to or from other parts of England are shown in the map below.

5.3 ROAD FREIGHT CORRIDORS

- 5.3.1. The maps below are extracts from the EEH ProjectView tool and are based on traffic counts. They show the number of HGVs using roads in the region and the HGV percentage of all traffic on each section.
- 5.3.2. In terms of absolute volume, unsurprisingly the map shows large concentrations of lorries on the busy M25 and M1 corridors, and on the M40 North of Oxford. There are also major flows on the A14 and the A34, which are particularly important for access to ports.
- 5.3.3. Using ProjectView to inspect sections of road, the volume of HGVs on the M25 and M1 is consistently 18,000 to 20,000 per day.
- 5.3.4. To a large extent, the routes which are busy with cars are also busy with HGVs. Turning to the percentage map, a slightly different picture emerges.

Figure 5-3 - Daily HGV Volume

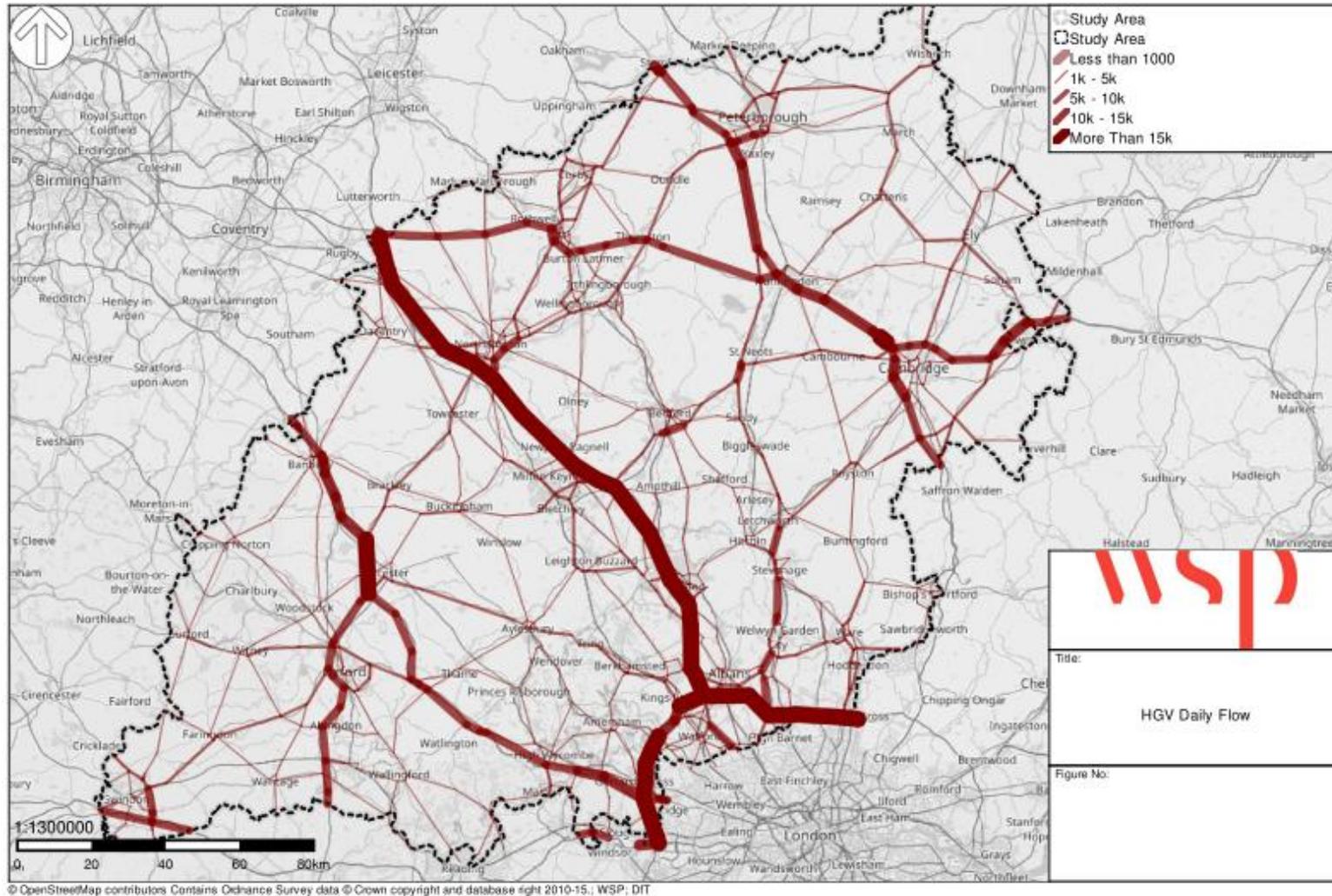
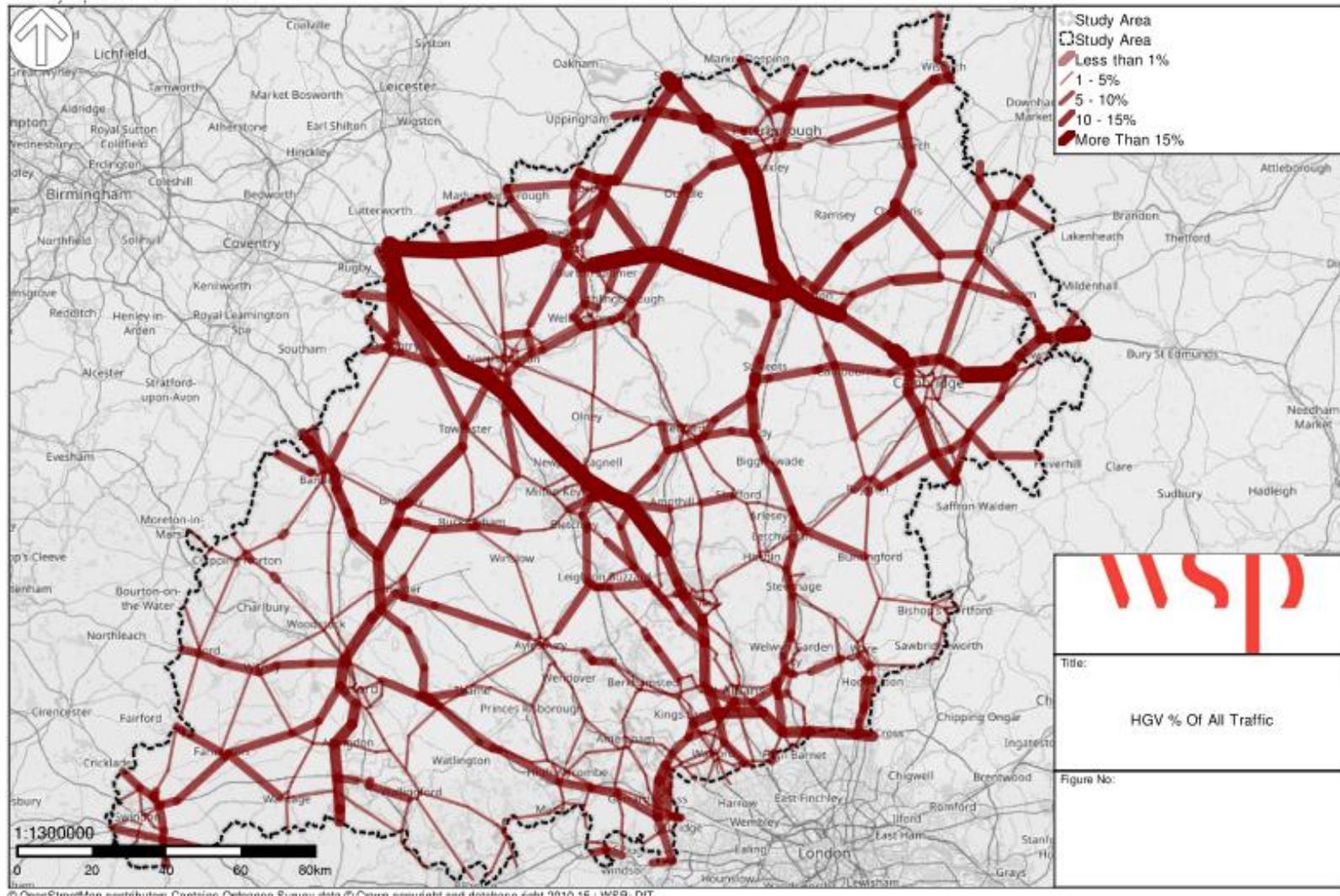


Figure 5-4 - HGV % of All Traffic



- 5.3.5. The percentage map shows the highest percentages on the M1 from J13 northwards, and on the M1 and A14 North of Huntingdon. On the busiest sections of the M1 and A14 the HGV percentage is just over 20% of total traffic.
- 5.3.6. This map also illustrates some of the more minor roads where HGV traffic forms a higher percentage than average. These include:
- A43 Corby to Stamford, 14%
 - A15 and A47 around Peterborough, Spalding, and Wisbech, >10%
 - M11 near Cambridge, 13%
 - A1(M) North of Huntingdon, 16%

5.4 CONGESTION

- 5.4.1. Traffic modellers measure the capacity of roads in terms of Passenger Car Units (PCU), which recognise that different vehicles make a different contribution to congestion based on their size, speed, acceleration, and braking. WebTAG guidance suggests that HGVs should be counted as 2.5 PCU on motorways and dual carriageways. In effect this means that if 20% of vehicles on a motorway are HGVs then HGVs contribute 38% of the demand on the capacity of the motorway.
- 5.4.2. However, HGV traffic is not spread across the day in the same way as car traffic. The chart below, which reflects a typical section of motorway and was sourced for the NIC Future of Freight Study by WSP, shows that the busiest time of day for HGV traffic is between the morning and evening peaks and that a significant percentage of HGV traffic travels at night (40% of HGVs shown as moving between 1900 and 0630). Another analysis of the A14 and A34 shows 36% of HGVs travelling at night.

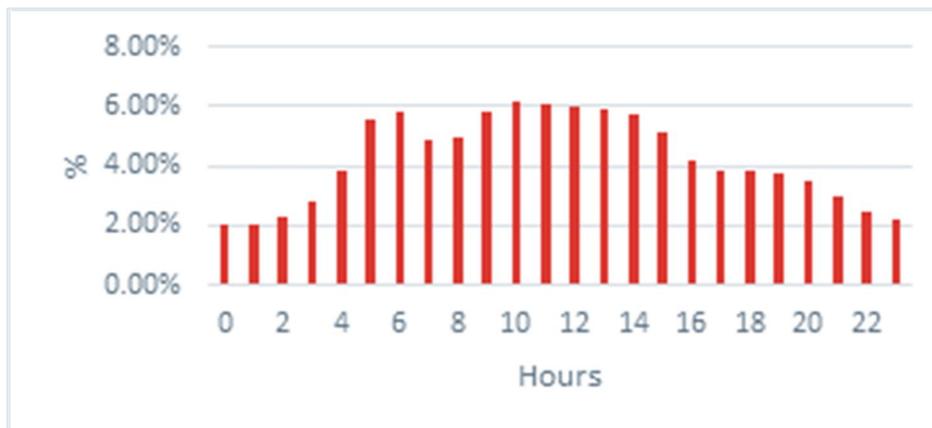


Figure 5-5 - % of HGVs travelling during each hour of the day

- 5.4.3. As a result, HGVs make up a lower percentage of total motorway traffic during the peak hours, when congestion is at its worst.

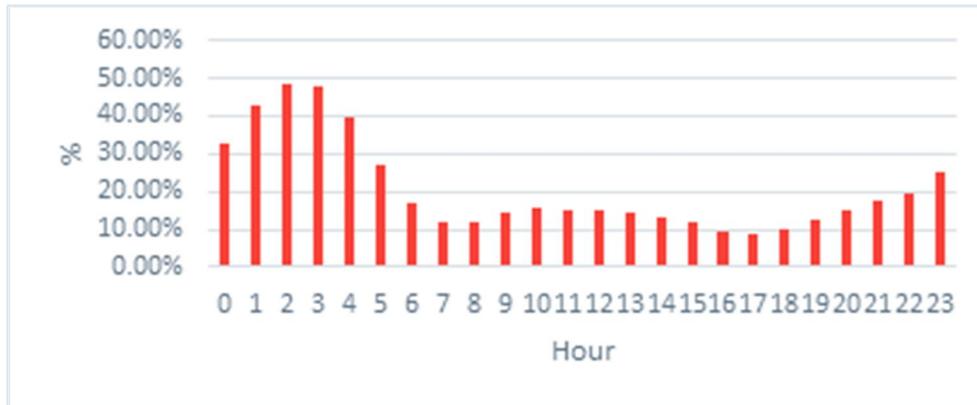
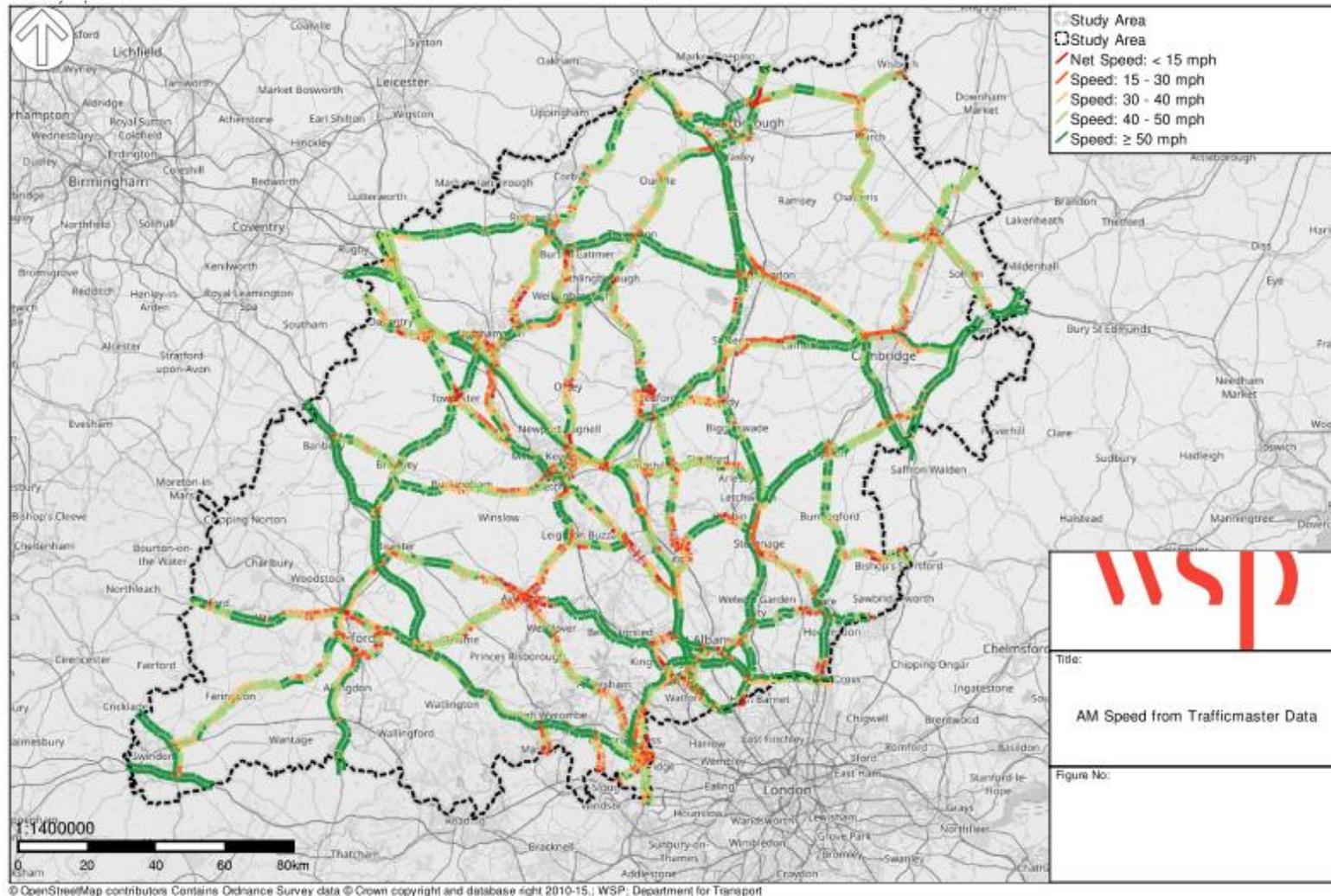


Figure 5-6 - HGV % of all traffic for a typical section of the M6

- 5.4.4. The situation on towns and cities is significantly different. A very high percentage of businesses require deliveries to be made between 0700 and 1000, ensuring that goods ordered are delivered in time for shop opening. Similarly, construction sites (which typically do not operate at night) receive around 25% of daily deliveries during the morning traffic peak.
- 5.4.5. The EEH ProjectView tool can be used to identify congestion hot spots, particularly locations where data shows slow average speeds during the morning peak.

Figure 5-7 - AM Speed – Trafficmaster



5.4.6. At the scale used above, congestion hotspots can be seen around Aylesbury, Milton Keynes, and other towns and cities as might be expected. Correlating congestion with roads which carry high volumes of freight, the following sections stand out:

- A14 around Huntingdon and Cambridge
- A508 into Northampton
- A34 around Oxford

DISRUPTION

- 5.4.7. Predictable congestion – slow traffic – can be managed by HGV operators by leaving earlier and accepting the higher cost in terms of fuel, wages, and vehicle utilisation. Significant congestion may have an impact on locational decisions as it impacts the catchment area of a factory or distribution centre.
- 5.4.8. Disruption – unpredictable delays – is much more of a problem. When a road is blocked for a significant time, HGVs may have difficulties using alternative routes, or alternative routes might pass through residential or rural areas. Drivers hours are strictly limited and monitored, meaning that if disruption risks a driver going over permitted hours the lorry must simply stop – often on a hard shoulder. Deliveries are usually tightly timed, and an HGV arriving late for a delivery may be turned away, or asked to return later, leading to significant costs for the haulier. Ultimately, a late delivery can mean, for example, a car production line being stopped.
- 5.4.9. There are various measures of disruption, but they do not generally capture the impact on goods traffic. Highways England prepares disruption and diversion plans for routes, but there are frequent complaints about the time taken to deal with incident crime scenes or to remove broken down vehicles.
- 5.4.10. HGVs also contribute to disruption. Research by WSP for the NIC found that, in the 20 months up to August 2018, HGVs were involved in 36% of all critical incidents on the SRN, including 43% of those incidents lasting between 5 and 10 hours, and 56% of those lasting over 10 hours. In terms of numbers, this represents an average of 14 incidents in England between 5 and 10 hours and 7 over 10 hours per month throughout the period. While there is no data on the delay minutes attributed to each delay, in 2015 the DfT estimated that the cost of closing two lanes for four hours would be up to £645,000 on a busy road, increasing to £1.7m for closing three lanes for four hours.

5.5 ACCESS TO GATEWAYS AND MARKETS

- 5.5.1. The Heartland is very well served by the Strategic Road Network and is close to London and the Midlands. Chapter 4 considered the importance of access to ports as a focus for the Golden Triangle of distribution centres, including major developments at DIRFT, Northampton, and Milton Keynes.
- 5.5.2. However, access East to West across the region is poor. Goods vehicles are faced with either diverting via the M25 or taking less suitable and slower roads. The analysis below uses the online Freight Journey Planner produced by PIE Mapping. It was used to find the route, distance, journey time, and average speed between key locations across EEH and key gateways and markets.

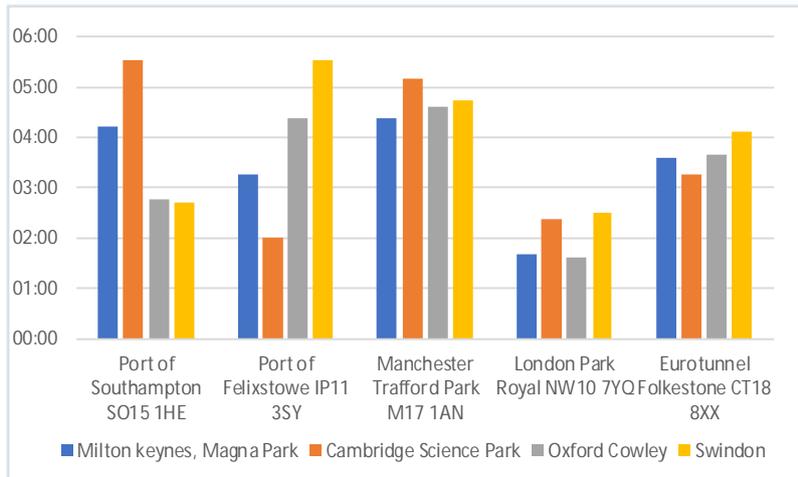


Figure 5-8 - HGV Journey Times To Major Gateways and Markets

- 5.5.3. A sub 4 hour journey time is regarded as essential to be achievable by an HGV out and back in a shift. The chart shows that the main ports are all within 4 hours for most of the region, but that Cambridge to Southampton and Swindon to Felixstowe both take over 5 hours.
- 5.5.4. The average speed for these journeys is between 30mph and 35mph, representing a mix of motorway and non motorway driving.
- 5.5.5. The analysis also looked at how direct each route is by comparing the HGV route with the straight line distance. Most routes were quite direct, being between 10% and 30% longer than a straight line. However, all routes to and from Southampton were found to deviate more, being between 60% and 100% longer than a straight line. This reflects the need to use either the M25 or the A34. For example, the route from Milton Keynes to Southampton is illustrated below.



Figure 5-9 - HGV Route MK to Southampton (Pie Mapping)

- 5.5.6. While the Cambridge to Oxford Expressway would perpetuate this indirect route, it would speed up the section between Milton Keynes and Oxford and so reduce journey times to Southampton.

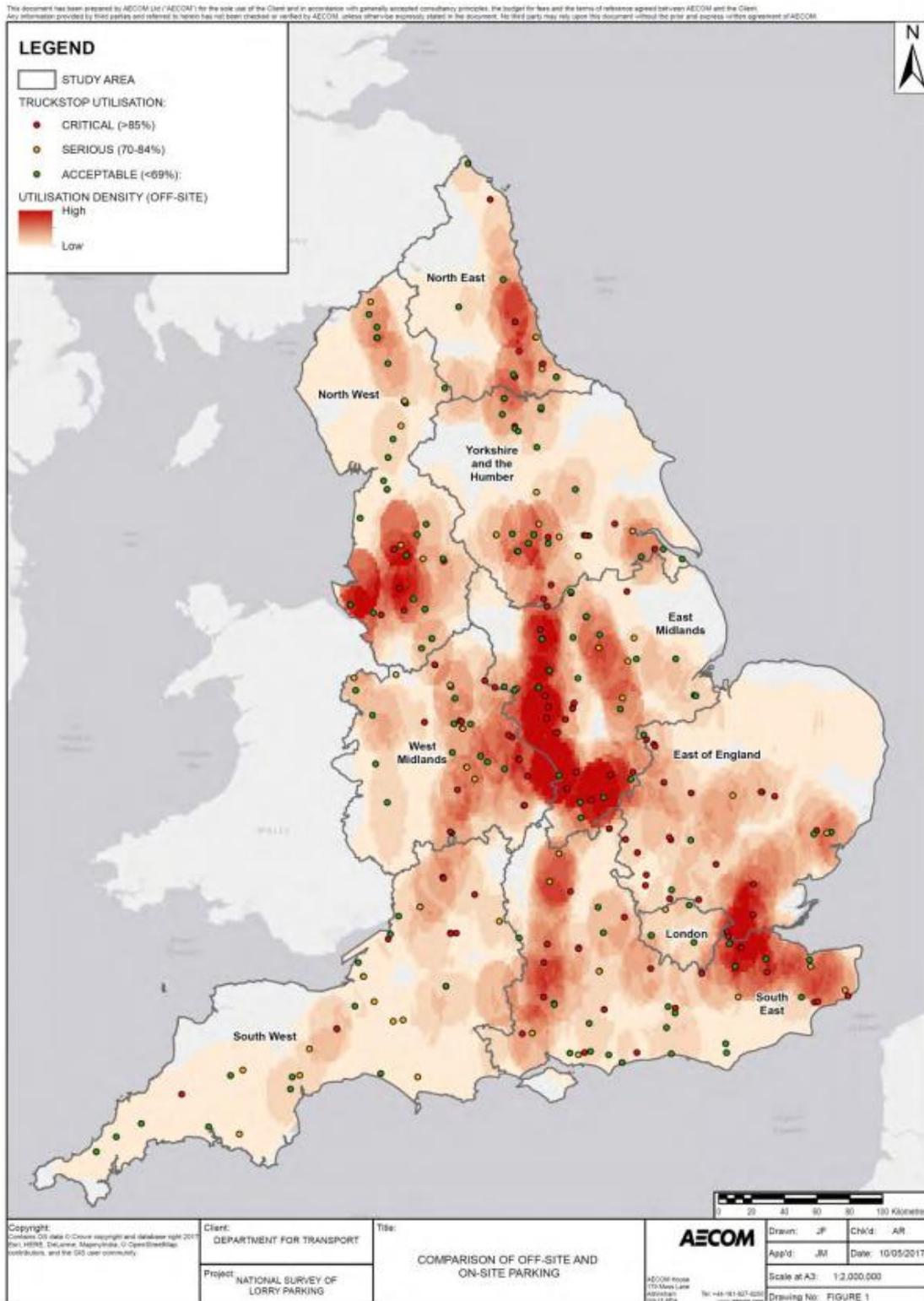
- 5.5.7. In general, existing East – West routes are slow, with the journey from Oxford to Cambridge forecast to take 2 hours 47 minutes at an average speed of 29mph.
- 5.5.8. Another important destination for freight is the golden Triangle of distribution centres around Lutterworth. A similar analysis shows that, while Milton Keynes can be reached in about an hour from Lutterworth, Cambridge, Oxford, and Swindon take 2 to 3 hours, making it challenging to achieve two HGV round trips in a day. Average speeds are also slow on these corridors at around 30mph.
- 5.5.9. In contrast, the route from Milton Keynes to Oxford is only 44 miles but takes an HGV 2 hours and 39 minutes to complete in free flow traffic conditions with an average speed of only 26mph.

5.6 LORRY PARKING

- 5.6.1. There is a national shortage of spaces for lorries to park, particularly overnight. Drivers have to take rest periods, and the limits on driving time mean that spaces must be near to their destination or along the line of their route.
- 5.6.2. Lack of spaces means that lorries either drive around looking for somewhere to park, or they park in ad hoc laybys or on streets. Such ad hoc parking does not provide drivers with decent facilities for eating, sleeping, or showering, is a source of complaint for local communities, and is insecure leading to the risk of increased crime.
- 5.6.3. There is a serious shortage of HGV drivers in the UK (and much of Europe), and poor working conditions is one factor deterring new recruits.
- 5.6.4. In 2018 the DfT published a detailed national survey of lorry parking based on research in 2017. The report categorises here types of parking:
- Truck stops
 - Parking on industrial estates
 - Parking in laybys
- 5.6.5. The study recorded 311 sites across England allowing overnight parking. These sites had a total capacity of 15,012 parking spaces. The on-site utilisation of these sites varied across regions, from 48% to 97%, with the national average being 76%.
- 5.6.6. Other key findings included:
- Taking just the critical areas >85% utilisation, there is an immediate need for 1,411 more spaces across the country (19%), with the most urgent need found to be in the South East where 37% more overnight parking spaces are required.
 - The highest number of vehicles spotted was in the South East (3,723). 41% of these were foreign registered. This was followed by the East Midlands (3,032).
 - 25% (4,605) of the vehicles parked overnight are foreign registered. This relates to foreign vehicles making up just 3.3% of HGVs on the roads.
 - 39% of vehicles were found to be parking off-site (e.g. in laybys and industrial / retail parks).
 - In terms of the total number of vehicles parked off-site, the East Midlands was top with 1,264 followed by the South East with 890.
 - The North East had the greatest percentage of vehicles parked off-site however (63%) followed by the East Midlands (42%)
 - Just 21% of lorry parking facilities across England provide security features.

5.6.7. The report includes a map reproduced overleaf. This clearly shows that there is a serious issue with offsite parking in the Northamptonshire / M1 area of EEH and also along the A34 corridor.

Figure 5-10 - Map of Off Site Truck Parking Intensity (DfT/AECOM 2017)



5.7 ABNORMAL INDIVISIBLE LOADS

WHAT IS AN ABNORMAL LOAD?

- 5.7.1. A load which exceeds the weight, height, width or length limit(s) outlined in the Road Traffic Regulations (Construction Equipment & Use of Vehicles) Regulations 2003. An Abnormal Indivisible Load (AIL) is a load which cannot be divided or broken down (e.g. containers, large equipment etc.) and exceeds the weight, height, width or length limit(s) set out in the Regulations.
- 5.7.2. An 'abnormal load' is a vehicle that has any of the following, and of course an AIL has the added dimension of not being able to be broken down:
- a weight of more than 44,000 kilograms
 - an axle load of more than 10,000 kilograms for a single non-driving axle and 11,500 kilograms for a single driving axle
 - a width of more than 2.9 metres
 - a rigid length of more than 18.65 metres
- 5.7.3. Abnormal, or indivisible, loads may be carried on vehicles on the public roads provided the carriage is undertaken in line with a section 44 permit (section 44 of the Road Traffic Act 1988). These loads need to notify DfT via EDSAL for approval of the route. AILs will often need special permission from Highways England as they will often exceed 6.1m in width or 30m in length.

WHY ARE AILS IMPORTANT

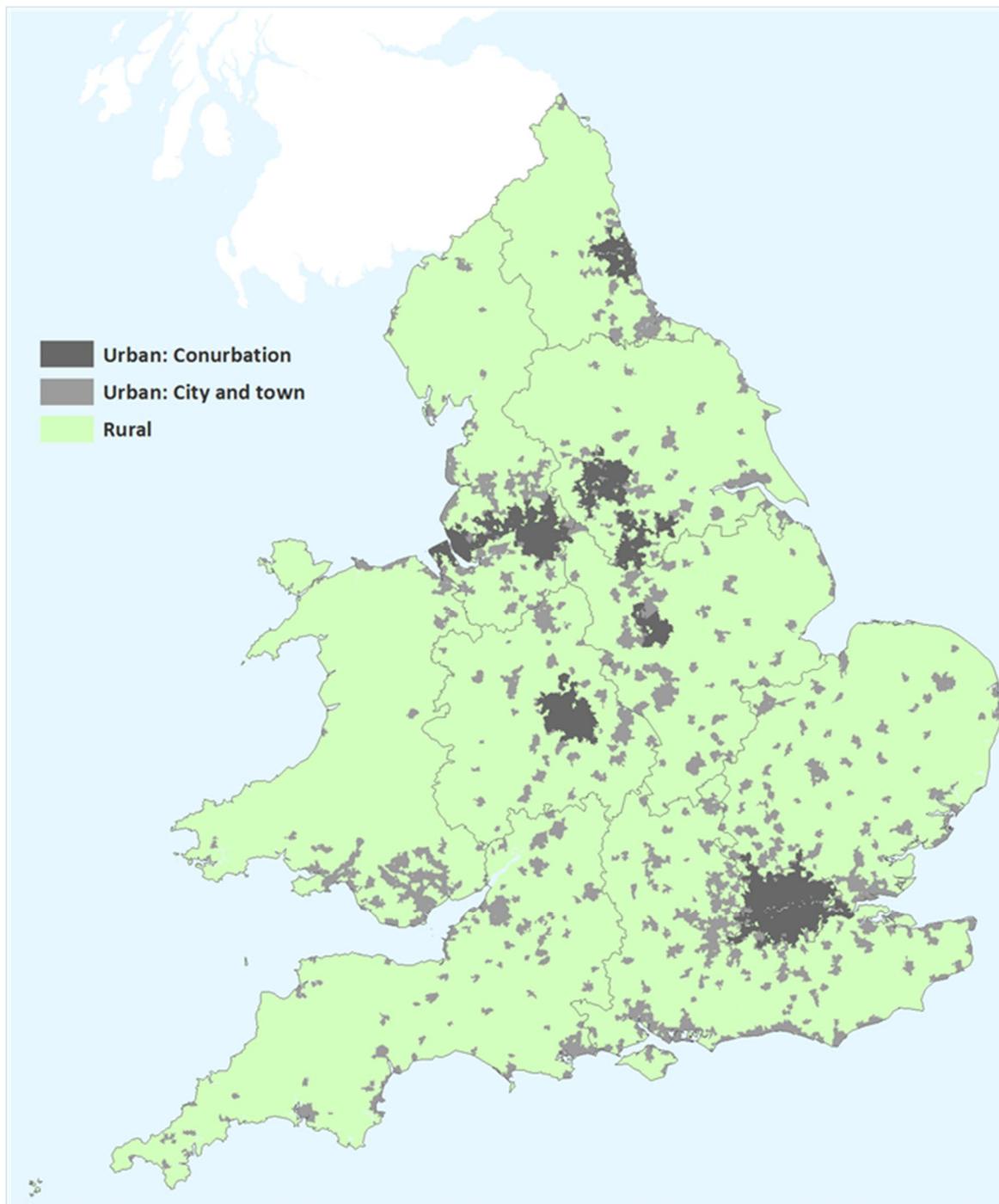
- 5.7.4. AIL movement requirements are infrequent but access needs to be maintained at all times to enable expedient movement in the event of a system failure at a power station or substation resulting in the need for an emergency AIL movement.
- 5.7.5. The importance of ensuring that existing AIL routes are maintained is key to protect the ongoing operation of some industries, in particular the power and marine sectors. It is also essential that consideration is given to ensuring new roads and developments can meet the needs of AILs to protect the long-term stability of essential industries.

STRATEGIC PLANNING

- 5.7.6. It is important that long term strategic transport planning understands the needs of those industries dependant on AILs. This can be achieved by the development of a mutual understanding of how these industries' strategic plans are impacted by local, regional and national transport plans. This requires not just the inclusion of the AIL industry in the initial strategic planning process, but that an ongoing process is developed by highway authorities.
- 5.7.7. This is of particular importance for the Heartland because there are already proposed developments that will need AILs in order to operate including HS2 and upgrades of power supplies to meet housing and related growth.

5.8 ROAD FREIGHT IN RURAL AREAS

- 5.8.1. Whilst the issue of urban freight is well publicised and is discussed below, a freight study needs to also consider the impact of freight on rural areas. In 2017, 11.6 million people lived in a predominantly rural area, 21% of the England population. The EEH area has a higher figure, with 30% of population living in areas defined as rural
- 5.8.2. Figure 5-11 – England's rural and urban areas map, DEFRA



- 5.8.3. In 2016/17 there were 547,000 businesses registered in rural areas, accounting for 24 per cent of all registered businesses in England. These businesses employed 3.5 million people, accounting for 13 per cent of all those employed by registered businesses in England. Interestingly there are more registered businesses per head of population in predominantly rural areas than in predominantly urban areas (excluding London). EEH boasts over 109,000 business in rural areas, 32% of all the businesses registered in the EEH area.
- 5.8.4. Many businesses involved in agriculture, manufacturing, construction supply chains, and road haulage are based in rural areas.
- 5.8.5. The issues associated with rural logistics can be summarised as:
- Impact of HGVs on smaller rural roads and villages
 - Need to maximise efficiency and reduce isolation of rural businesses
 - Need to improve the efficiency of deliveries to homes and businesses
- 5.8.6. Whilst the issue of congestion may be more pronounced in urban areas, HGVs have environmental and social impacts on rural issues. Roads in rural areas are not always appropriate for larger freight vehicles and if deliveries are less frequent then driver familiarity with the roads and delivery points can make nuisance, collisions and road blockages worse.
- 5.8.7. Rural isolation is a social issue that needs to be considered and equally there are a large proportion of businesses in rural areas that need to be served and not unfairly disadvantaged. There are proportionally more small businesses in rural areas.
- 5.8.8. Home delivery and online shopping presents a great opportunity for rural consumers and businesses, who may not have easy access to High Streets. While some of the issues for deliveries into rural areas are the same as for urban areas, the solutions are often different.



6

RAIL FREIGHT

6 RAIL FREIGHT

6.1 UK SITUATION

- 6.1.1. The total volume of rail freight moved in 2017/8 fell to 17 billion net tonne kilometres in 2017-18, a 1.7% reduction on 2016-17. This is the lowest total since the late 1990s. A major factor in this decline in volume has been the rapid reduction in the movement of coal to power stations.
- 6.1.2. 65% of rail freight moved (Tkm) in 2017/19 was either construction materials (25%) or intermodal containers (45%), and these are the fastest growing sectors of rail freight. (Source: ORR Freight Rail Usage 2018).

6.2 EEH TERMINALS

- 6.2.1. Analysis for this report has identified 23 active rail freight terminals in the Heartland. Of these, 16 are associated with construction materials, for example terminals receiving crushed rock or cement. Terminals in Corby and Swindon handle metal products, and a terminal in Cowley loads Minis for export. The busiest location is DIRFT near to Rugby, which currently handles an average of 57-60 trains per week of containers, including 5 trains per night to Scotland.
- 6.2.2. Figure 6-1 maps the locations of rail terminals identified in the region.

6.3 RAIL FREIGHT VOLUME ESTIMATE

- 6.3.1. The volume of goods handled at each rail terminal is commercially confidential. For this report records of trains operated were obtained from a public web site and multiplied by the average tonnage carried in a train depending on the commodity. This very high-level approach provided the following estimate of volumes to / from the EEH area:
- Construction materials: 4.5 million tonnes per annum (mtpa) imported, 0.5 mtpa exported
 - Intermodal: 1.6 mtpa (both directions combined)
 - Domestic waste received at Barrington and Calvert: 1.5mtpa
 - Automotive and metals: 0.7mtpa

6.4 THE IMPORTANCE OF RAIL FREIGHT INTERCHANGES

- 6.4.1. Rail freight interchanges are locations where goods in containers (or other intermodal units) can be transferred from road to rail. Other than ports and some city centres, such terminals are generally located near to distribution parks. Where the distribution park is large enough (>60 Hectares), and other criteria are met, the interchange is considered to be a Strategic Rail Freight Interchange (SRFI), which allows it to be considered infrastructure of national importance and go through the accelerated Development Consent Order (DCO) planning process.
- 6.4.2. SRFIs are acknowledged as being central to the current strength and future growth of intermodal rail freight. Forecasts of rail freight developed by Network Rail and the DfT base forecast demand for intermodal largely on the area of warehousing floor space located in SRFIs. More SRFI floor space leads directly to more rail freight.

- 6.4.3. This is because businesses located on an SRFI benefit from much lower costs to move freight by rail as the typical £100 per load delivery charge can be reduced to as little as £30. This extends the routes for which rail freight is competitive.
- 6.4.4. The main business of SRFIs currently is to receive or despatch containers from and to ports. For example, businesses on SRFIs can receive imported costs more efficiently and more cheaply than other businesses in the region using road freight. A growing market is moving goods between SRFIs within the UK, notably between DIRFT and Scotland. These trains often carry retail products between distribution centres, including for Tesco, Asda, and Sainsbury.
- 6.4.5. Currently there is only one active SRFI in the EEH area: DIRFT. DIRFT has permission to expand and will soon open a new intermodal terminal able to accommodate up to 32 trains per day in each direction, which would make it one of the busiest inland intermodal terminals in Europe.
- 6.4.6. There are other rail terminals and SRFIs just outside the region in the Midlands (notably East Midlands Gateway near Derby), but none in London nor other areas near to EEH. Corby has several rail connected warehouses and development sites, and has been promoted as a location for an RFI or SRFI.
- 6.4.7. At Swindon the Keypoint rail terminals was built to serve both a small distribution park and, potentially, the Honda plant. It was never operated commercially, and has been disconnected from the main line, but remains an important opportunity for an SRFI, particularly if the Honda plant is reconnected or redeveloped.
- 6.4.8. The MOD land at Bicester benefits from good rail access and an extensive internal rail network. While the site is gradually being redeveloped for housing and other uses, it is also potentially a good location for a rail freight interchange.

There are several proposals for SRFIs in the EEH area, of which only two have started the DCO application process, both near to Northampton. Others are at a much earlier stage. Proposals are identified in the following map

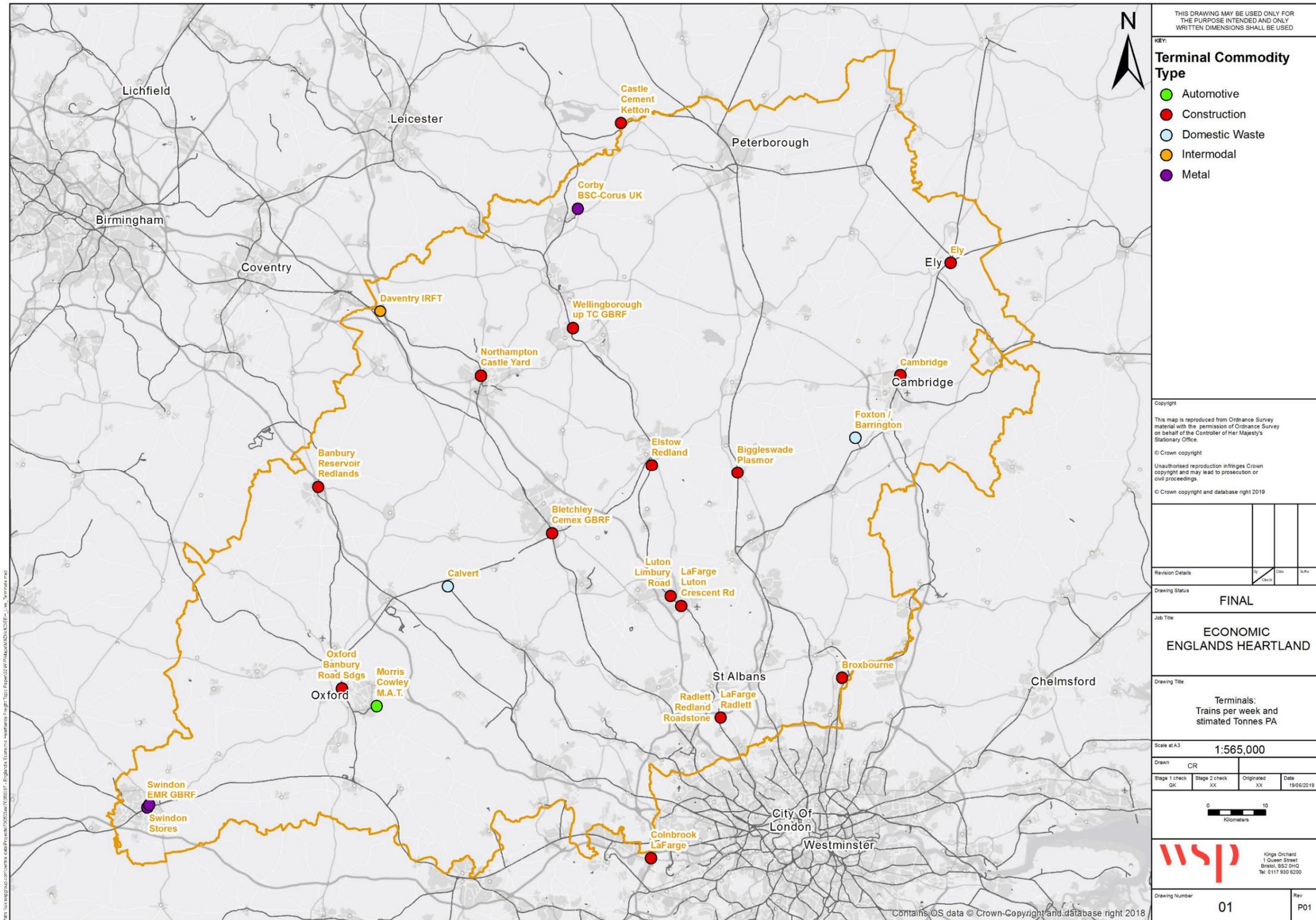


Figure 6-1 - Rail terminals in Heartland

6.5 EEH RAIL FREIGHT CORRIDORS

The Network Rail Freight Market Study of 2013 provided base case and forecast estimates of the number of freight trains along each section of track by commodity. The diagrams produced as part of this study provide a very clear indication of the approximate numbers and types of trains currently using corridors to and through the Heartland.

- 6.5.1. The map in **Figure 6-3** shows the total number of freight trains using each corridor in the Heartland. In this case, red is more than 15 trains per direction per day, orange is 5 to 15 trains, and yellow is between 1 and 5 trains per direction per day.
- 6.5.2. The West Coast Main Line (WCML) and the Reading to Banbury line stand out as being particularly busy, with significant numbers of trains also using the Midland Main Line (MML) via Bedford. The Base Year volume on the WCML was estimated to be 32 trains per day in each direction compared to 21 tpd on the line through Oxford.
- 6.5.3. The second map (**Figure 6-4**) shows intermodal trains only. This continues to highlight the WCML and Oxford route, but shows no trains on the MML. In fact, of the 32 trains per direction per day on the WCML all but 3 trains are intermodal services. Of the 21 trains through Oxford, 13 are intermodal services.
- 6.5.4. Also of note is the route from Felixstowe to Nuneaton which is a key corridor for trains to and from the Port of Felixstowe.
- 6.5.5. The remaining dominant type of train to or through the region is carrying construction materials, particularly on the MML as illustrated in **Figure 6-4**.



Figure 6-3 - All Freight Trains by Corridor 2013

Red = > 15 trains per day per direction Orange = 5-15 trains per day per direction Yellow – 1.25 to 5 trains per day per direction Green = <1.25 trains per day per direction

- 6.5.6. Please note that the map above has a different legend for colours. In this case red is more than 2 trains per day. In fact the MML carries more than 7 construction trains per day, as does the line from Peterborough to Ely. The MML and the F2N route are important corridors for delivering construction materials from the Midlands to the Heartland, to London, and to East Anglia.

6.6 LOADING GAUGE AND TRAIN LENGTH

- 6.6.1. Network Rail's objective is to accommodate 775m long trains on all intermodal corridors. Currently many routes can only handle 600m long trains. The WCML and route to Felixstowe via London is cleared for 775m trains, but the direct F2N route to Felixstowe is not.
- 6.6.2. Similarly, the direct route from Southampton to the Midlands via Birmingham is cleared for 775m trains, but diversionary routes and the route via London (used by DIRFT trains) is not.
- 6.6.3. Loading gauge is the size of bridges and tunnels – larger loading gauges allow taller or wider wagons to be accommodated. W10 is the standard loading gauge for intermodal trains to ports, while W12 is desirable for routes to and from the Channel Tunnel and is the aspirational standard for intermodal routes.
- 6.6.4. Routes between Banbury and Southampton, and between DIRFT and Felixstowe via London or Ely, and the WCML are cleared for W10 gauge. A few routes serving the EEH area are also cleared for W12 gauge including the Great Western Main Line from Reading to London and the entire East Coast Main Line.
- 6.6.5. The East West Railway will be cleared to W12 gauge.

6.7 ACCESS TO PORTS AND KEY MARKETS

- 6.7.1. The West Coast Main line is the primary rail freight artery in England, providing fast services to the main population centres and through London to Southampton, Felixstowe, and the Channel Tunnel.
- 6.7.2. DIRFT is the only intermodal rail terminal in EEH. DIRFT sends trains to a variety of destinations, notably five or six trains per day to Scotland. There are daily trains scheduled to Liverpool (via Ditton), and Purfleet (via Barking), plus a daily train bringing mineral water from the continent via the Channel Tunnel.
- 6.7.3. Perhaps surprisingly, there is only one train per day scheduled to serve each of Southampton and Felixstowe. Both of these services travel via London. The Southampton trains are scheduled to take 4 to 5 hours, while the Felixstowe train takes 6.5 to 7 hours, including several stops to wait for timetable paths en route. DIRFT III is planned to raise the capacity of DIRFT to 32 trains per day each way, with potentially 3-5 trains per day to each of Southampton and Felixstowe.
- 6.7.4. Capacity through London is constrained. In the future, services to DIRFT from Felixstowe could potentially operate via the F2N route, but this would require reversing the train at Nuneaton (a time and capacity consuming operation), or using a circuitous route via Walsall. Similarly, Southampton could be accessed without passing through London, but this would be via Bordesley in the West Midlands.
- 6.7.5. In contrast, the trains exporting Minis from Cowley to Southampton can use a direct route via Reading and Basingstoke taking only 3.5 hours.

6.8 EAST WEST RAIL

BACKGROUND

- 6.8.1. The East West Rail programme will connect Oxford and Cambridge by rail, linking them with Bicester, Bletchley, Milton Keynes, Bedford and many communities in between. As well as connecting places within the Oxford-Cambridge Arc, it will enable quicker journeys to places further afield, including places east of Cambridge, and join up with existing north-south rail lines. It supports economic growth by unlocking opportunities for jobs, new homes and tourism.
- 6.8.2. The section of East West Rail between Oxford and Bedford (often called the Western Section) will re-instate and upgrade railway lines which have been out of use since the early 1990s. It is already underway, with the upgrade of the section between Oxford and Bicester having been delivered in 2016. Major civil and engineering works to construct the next phase (between Bicester and Bedford) are due to start later this year, subject to Network Rail securing the necessary consents.
- 6.8.3. The East West Rail Company has been tasked with delivering the project, and is currently consulting about the section of East West Rail between Bedford and Cambridge (often called the Central Section), which will be connected by a new railway line with new stations.
- 6.8.4. When the Central Section of East West Rail is complete, services will be able to run between Oxford and Cambridge, serving stations along the way and connecting into existing north-south rail lines.
- 6.8.5. The East West Rail Consortium is a forum for local authorities along the route to promote its development, and is closely associated with England's Economic Heartland.

FREIGHT CAPABILITY

- 6.8.6. The East West Rail project has always been promoted as having the capability to accommodate freight trains. The Western section has been specified with W12 loading gauge, which is ideal for intermodal services, and track and structures will be strong enough to carry freight trains and locomotives.

FREIGHT CAPACITY

- 6.8.7. However, there is a risk that capacity for freight trains, in terms of daytime timetable slots, will be limited. Current plans only require capacity to accommodate existing rail freight demand, which is little more than 4 or 5 trains per day, none of which cover long sections of the route.
- 6.8.8. It seems likely that this will be delivered by providing one freight path per hour in either direction (e.g. an eastbound train one hour and a westbound train the following hour).
- 6.8.9. The East West Rail Company has asserted that capacity for more freight trains could be provided as long as demand could be demonstrated and a business case put forward.
- 6.8.10. The Central Section consultation states: "The current indicative cost estimates are based on building a rail link that accommodates all types of rail freight. EWR Co will continue to consider whether providing capability for all types of freight is affordable and provides value for money in the context of anticipated freight demand.". Again, this illustrates the difference between accommodating freight trains and providing capacity.

CONNECTIVITY

- 6.8.11. A key feature of EWR is that it provides links between the various London radial routes (Oxford corridor, WCML, MML, and ECML). To maximise freight potential, ideally each route should provide connections in all directions, although this aspiration could be refined by researching freight opportunities in more detail.
- 6.8.12. This aspiration would suggest that proposals which provide interchanges between EWR and other routes without any form of rail connection should be avoided.

POTENTIAL DEMAND

- 6.8.13. There are several potential flows of rail freight that might use the newly opened railway:
- Existing Trains: There are one or two trains per day currently using the route, with potential for growth to and from Calvert (up to 8 trains per day, but these only use a short section of EWR).
 - Diverted Trains: trains which currently use alternative routes but which could be diverted to use EWR. It is not clear which services might benefit, but East West Rail could improve access to terminals in Northamptonshire from Southampton, and a new Eastern Section could improve access to Felixstowe.
 - Construction Materials: Building up to 1 million new homes and associated infrastructure will require huge volumes of materials. The aggregates industry would favour using rail to bring bulk materials to rail terminals. New and expanded communities are likely to be near to EWR. This could also cover major infrastructure projects such as HS2 and the Cambridge – Oxford Expressway
 - Intermodal: Opportunities to build intermodal terminals (container terminals) close to new or existing distribution parks. This could include already identified locations such as Bicester and the Bedfordshire brickfields, plus possibly new locations providing employment and better freight access to new communities. In addition, as stated earlier, EWR could improve access to ports from terminals in the EEH area.
 - Intra EEH: The completed line would offer a faster route between Cambridge and Oxford for parcels and other goods. These could be carried on passenger trains. There are opportunities here for innovation – but unlikely to form a strong component of a freight business case.
- 6.8.14. Construction materials alone could generate several trains per day, and any intermodal terminal located on or near the EWR line could generate 6-12 trains per day. In addition, the line could be used by some diverted intermodal services, improving access to the East Midlands from Southampton or the west of the region from Felixstowe. This could suggest a combined opportunity of potentially 20 or more trains per day – at least one per hour in each direction.



7

AIR FREIGHT

7 AIR FREIGHT

7.1 DOMINANCE OF HEATHROW

7.1.1. As the table below illustrates, Heathrow handles 65% of all UK air freight.

2017	Thousand Tonnes	% Of UK Total
Heathrow	1,698	64%
East Midlands Int	324	12%
Stansted	237	9%
Manchester	120	5%
Gatwick	97	4%
Birmingham	42	2%
Luton	21	1%
Edinburgh	21	1%
Glasgow	16	1%
Belfast Int	31	1%

Table 7-1 – Airport freight volumes

7.1.2. However, it is also worth noting the significance of East Midlands International and Stansted, both of which are close to the EEH boundary. These three airports handle 85% of all UK air freight, meaning that EEH is very well positioned to benefit from air freight services.

7.1.3. The four major sub-markets within air freight are General cargo, Express, Specialist and niche products and Mail. Heathrow is by far the largest general cargo market using the forwarder business model and the overwhelming majority of cargo is transported in the bellyhold of passenger aircraft, mostly on long-haul routes. East Midlands, by contrast, is dominated by express freight using the integrator business model, with freight carried in freighter aircraft, often overnight on routes to mainland Europe, but also on intercontinental routes. Stansted has a combination of integrators and other freighters.

ECONOMIC SIGNIFICANCE

7.1.4. The importance of Heathrow has led to the development of surrounding freight facilities, with most forwarders having major consolidation centres in the vicinity of the airport. Very significant volumes of air freight are trucked to such facilities near Heathrow, processed and then trucked to another airport, either in the UK or in continental Europe, without ever flying in or out of Heathrow itself.

7.1.5. The 2018 report “Assessment of the value of air freight services to the UK” found that air freight is particularly important to the pharmaceuticals, computer, electronic & optical, and creative arts and entertainment industries, which are particularly well represented in the EEH area.

HEATHROW ROAD FREIGHT TRAFFIC

7.1.6. HGV movements generated by the airport include:

- Airline Servicing: this refers to vehicle trips related to inflight catering. Only 6 main operators undertake this, high load factors on this element of the supply chain. Airline servicing makes up around 15.7% of trips.

- Airport Servicing: this refers to vehicle trips related to Heathrow's continuous construction, maintenance and improvement projects as well as fuel rigs and other miscellaneous trip categories not included elsewhere. This is taken to Colnbrook logistics centre and security screened and consolidated. High load factors on this element of the supply chain. This makes up around 7.8% of trips.
- Retail: this refers to vehicle trips to and returns from the retail units located inside the passenger terminals. There is a retail consolidation centre just north of the M4 where these are security screened. This makes up around 1.8% of trips
- Waste: this refers to collections of waste generated by the airport. One operator does this. It is taken to Colnbrook logistics centre and split into recyclable and non-recyclable. This makes up around 0.7% of trips.
- Cargo and Mail: this refers to vehicle trips associated with exports, imports and transshipments and is by far the largest generator of Heathrow related freight traffic. This makes up around 74% of freight vehicle trips to and from the Heathrow. This is the least efficient in terms of vehicle trips.

- 7.1.7. Heathrow airport receives circa 11,000 goods vehicle trips per day, with air freight related movements accounting for 6% of these. The remainder would include vehicles servicing or taking provisions to aircraft or the airport terminals and construction traffic. The vast majority are short distance journeys, with further trips generated by associated warehouses, hubs, and businesses.
- 7.1.8. There are 4 million trips per year to and from the airport currently, without an expanded airport. With a new third runway, and without taking measures, the airport would expect to see 6.3 million trips per year.
- 7.1.9. Construction of the third runway and new terminals will generate huge volumes of construction traffic. During construction of Terminal 5 Heathrow used a successful construction consolidation centre at Colnbrook which included a rail freight connection.

7.2 LUTON AIRPORT

- 7.2.1. Luton's Cargo Centre handles around 28,000 tonnes of cargo each year. DHL, MNG Airlines and British Airways all use LLA Cargo Centre for their dedicated freighter operations on a scheduled basis. El Al Israel Airlines, Blue Air and Tui carry commercial freight from Luton to numerous destinations.
- 7.2.2. The constraints of Luton's runway limit the size and capacity of aircraft and potential to expand air freight. Another constraint is land space, with some options for passenger expansion reducing land available for air freight.
- 7.2.3. While air freight through Luton is an important business, its impact and benefits are likely to be mainly local compared to the regional significance of Heathrow, Stansted, and EMA.



8

CONSTRUCTION LOGISTICS

8 CONSTRUCTION LOGISTICS

8.1 BACKGROUND

8.1.1. It is worthwhile giving special consideration to construction logistics in the Heartland for three reasons:

- The region will host major infrastructure projects including HS2, East West Rail, and the Oxford to Cambridge Expressway
- The region will be a focus for significant population and employment growth, with potentially a million new homes being constructed and including entire new communities
- Construction logistics is undergoing significant progress in terms of reducing impacts and improving efficiency.

8.2 CONSTRUCTION LOGISTICS

- 8.2.1. The movement of goods and materials to and from building sites is a major component of road and rail freight traffic. For example, in London 35% of daytime HGV traffic is associated with construction.
- 8.2.2. Efficient movement of construction materials can play a large part in keeping construction costs down and avoiding delays in construction. But on the other hand, construction traffic contributes to congestion and poor air quality, and is hazardous for pedestrians and cyclists in towns.
- 8.2.3. A particular issue is that most construction sites near to residents do not operate at night. This leads to up to 25% of deliveries to sites being made in the morning peak hour – the worst time for impacts on congestion and vulnerable road users.
- 8.2.4. Dealing with construction logistics impacts has been complicated by the structure of the construction industry and the way that major projects are delivered. In construction “logistics” is often meant as activities in and around the construction site, including reception of vehicles, but also including providing catering and other ancillary services on site. Transport of materials to and from the site may be referred to in the planning application, but once a project has started it is left to contractors and suppliers to manage, with a focus on keeping costs down but, above all, avoiding construction delays or any risk of construction delays.
- 8.2.5. On major projects, the project client may develop sophisticated logistics plans during the planning phase, but projects are then almost always packaged up into lots which are the responsibility of various contractors.
- 8.2.6. The logistics industry has made great progress in addressing these issues, through the Chartered Institute of Logistics and Transport’s Construction Logistics Forum, and TfL’s Construction Logistics Improvement Group.

8.3 CONSTRUCTION LOGISTICS PLANS

- 8.3.1. Construction Logistics Plans have been developed by the industry, lead by Transport for London.
- 8.3.2. An important management tool for planners, developers and construction contractors, a CLP forms part of the planning application. They are developed early in the planning process and

focus specifically on construction supply chains and how to reduce impact on the road network. The construction supply chain covers all movements of goods, waste and servicing activity to and from site.

- 8.3.3. A CLP provides the framework for understanding and managing construction vehicle activity into and out of a proposed development. It must include a full assessment of all phases of construction and give detail on:
- The amount of traffic generated
 - The routes vehicles will use and consideration of local impacts
 - The impact on relevant community considerations
 - Any traffic management that will be in place
- 8.3.4. There are two types of CLPs that may be required, an Outline CLP or a Detailed CLP.
- 8.3.5. Ultimately if CLPs are used correctly across all construction activity they will:
- Reduce the volume and impact of construction road freight
 - Consolidate and control material and waste movement
 - See deliveries retimed to less congested times of day
 - Shift road freight to rail and water

8.4 MAJOR PROJECTS

HS2

- 8.4.1. HS2 will pass through the heart of the region, starting in tunnel under the Chilterns then passing close to Aylesbury before crossing East West Rail at Calvert before passing Brackley and leaving the region North of Banbury.
- 8.4.2. Creating the new line will involve huge volumes of movements of materials, particularly from tunnels and cuttings and to embankments. HS2 is seeking to contain as much as possible of this movement along the line of route – for example from tunnels to embankments. HS2 will also maximise the use of rail freight to take away spoil from tunnels and to bring in materials where possible.
- 8.4.3. As it currently stands, none of the suppliers of freight services have been procured. Instead the main contractors and Network Rail are tasked with working through the detail. Network Rail is beginning to identify the types of track access paths that may be required for construction related freight along the network. More recently packages of work in Euston Station and Old Oak Common were awarded to Mace and Balfour Beatty respectively.
- 8.4.4. In terms of construction, Phase 1 of the scheme is currently split into Southern, Central and Northern sections. The Southern Section (s1 and s2) is focused on getting spoil out, and the Central Section (c2 and C3) is focused on getting spoil in. The Colne Valley Viaduct separates the Southern and Central Section.
- 8.4.5. By the end of February 2019, all civil contractors should have reported back on how they intend to approach the movement of construction materials. As it stands, the construction window of 2020-2024 could generate around 50 trains per day on the network, with an equal split between those construction trains loaded and unloaded.

- 8.4.6. Finding a place to dispose of spoil will be a top priority. These sites, and their respective origin and destinations are beginning to be put forward to Network Rail and some are viable in the 2019 timetable. Millions of tonnes of bulk and spoil will need to be transferred and this could mean that the network, on which materials are carried, stretches to the Great Western and Great Anglia routes.
- 8.4.7. Another opportunity may be the need for temporary construction terminals being developed as part of HS2, then being transferred to support with the construction of EEH infrastructure schemes such as the Ox-Cam Expressway. Potentially some of the source and end points are already connected by existing terminals, (including quarry's and ports) but some will require significant investment.

8.5 OTHER PROJECTS

- 8.5.1. The development of the Expressway is at too early a stage to understand construction volumes and locations, but it will be a major project with potential to use rail freight to bring in aggregates.
- 8.5.2. The Central Section of East West Rail may also be a major project with potential to use rail freight.
- 8.5.3. With projects such as these, the challenge is to enable aspirations for optimised construction logistics to be delivered by contractors.

8.6 NEW AND EXPANDED COMMUNITIES

- 8.6.1. While some construction materials are available locally (including sand, gravel, and chalk), high volumes of bulk aggregates and most "fit out" materials need to be imported over longer distances. Typically rail freight is used to bring in aggregates, with a good variety of rail terminals in place to serve existing demand.
- 8.6.2. The Rail Delivery Group has estimated that one freight train can carry the material required to build 30 houses. In addition, materials will be needed for employment, service sectors, new roads, and associated infrastructure such as sewerage.
- 8.6.3. Extrapolating from the housing requirement along, a million homes over 20 years could require six or seven loaded trains per day. If new development is concentrated along rail routes, notably EWR, there is an opportunity to construct new rail terminals to serve clusters of new development, minimising road freight mileage. Such terminals could also be used for other commodities, for example to serve business clusters once development is complete.
- 8.6.4. Such a large volume of potential development would benefit significantly from rigorous application of Construction Logistics Plans and coordination of supply chains on an area basis rather than project by project.
- 8.6.5. Modular construction is recognised as a major opportunity to reduce costs and speed up construction, but implications on freight movements are less well understood. The huge volume of development proposed for EEH might justify construction of modular building factories in locations with good road and rail access.



9

STAKEHOLDER ENGAGEMENT

9 STAKEHOLDER ENGAGEMENT

9.1 AIMS

9.1.1. The aim of this section of the report is to outline some of the key themes identified during stakeholder discussions that have been undertaken as part of this study. Stakeholder views have influenced other elements of this report; however, this section explores some of the recurrent themes that came across during these discussions.

9.2 METHODOLOGY

9.2.1. A key component of the overall freight study is to develop an understanding the stakeholder perspectives on some of the key questions review in this study.

9.2.2. The Stakeholder plan contained 4 key stages:

- Agreement of key stakeholders
- Stakeholder workshop
- 121s with agreed stakeholders
- Identification of key themes

9.3 WORKSHOP

9.3.1. This was undertaken on 5th December in Milton Keynes with the following attendees:

- | | |
|--------------------------------------|-----------------------------|
| ■ EEH Freight Steering Group | ■ Tarmac |
| ■ Freight Transport Association | ■ Manchester Airports Group |
| ■ Road Haulage Association | ■ UKWA |
| ■ Local Enterprise Partnerships | ■ Northants Logistics Forum |
| ■ National Infrastructure Commission | ■ UPS |
| ■ Network Rail | ■ TNT |
| ■ Connected Places Catapult | ■ Midlands Connect |
| ■ Sainsburys | ■ Highways England |
| ■ BMW/Mini | ■ Luton Borough Council |
| ■ Malcolm Logistics | ■ WSP |

9.3.2. The focus of the group was to allow for discussion with feedback recorded. The feedback gained has been recorded in this summary and used to influence this report.

9.4 ONE TO ONE

9.4.1. A number of 121 interviews were undertaken across a wide range of stakeholders, each with a project file note written and a summary of these views are recorded below. These were a mix of face to face meetings, telephone interviews and email exchanges.

One to ones	
C Butt Freight Transport Association Tarmac	Heathrow Starship Smart Robots Freight on Rail

HS2	BMW/Mini
CILT Rail Freight Forum	Midlands Connect Rail
Road Haulage Association Ltd	Highways England
Meachers	John Lewis
TfL	Magway
CILT Logistics and Freight Forum	Agricultural Industries Confederation
Rail Freight Group	Nestle
Wincanton	Network Rail
Debenhams	Northampton University
East West Rail Consortium	Gazeley
Connected Places Catapult	Arrival

9.5 KEY STAKEHOLDER THEMES

FUTURE TRENDS	
<p>Stakeholders have generally found it difficult to consider the future as far as 2050: there are so many variables and shorter-term priorities to consider that a longer-term view was extremely difficult. This in part, is due to the uncertainties with skills, consumer demand and how new technology will be embedded into the industry.</p>	<p>In discussions stakeholders felt that whilst there have been some radical changes in the last 10 years, some felt that the future will be a process of evolution rather than revolution.</p>
<p>There was recognition that there are both environmental and economic drivers of change. If commercial factors are the driver then saving fuel and new fuels will be the outcome, if there is a consumer 'enlightenment' regarding the environment, like plastic, then we might see smaller packages, less waste and consolidated deliveries. From a retail perspective there have been two retail trends driving change in transport strategy:</p> <p>Online – an online sale takes 60% more space on a like for like sale because of the need for packing benches on each site as you “deconsolidate” i.e. break things down to smaller routes. 25 vans are needed for every 44-tonne vehicle and this has an implication on congestion.</p> <p>Decline of store square footage in towns and the new role of town centres. Becoming less retail centric and more community centric. Deliveries are still needed – albeit perhaps at different times.</p>	<p>Stakeholders felt that both trends have a huge impact on transport and neither are being incorporated into scenario planned sufficiently. For example, changing needs combined with more daily rather than weekly shopping and the introduction of Clean Air Zones etc could result in a move towards smaller local distribution centres, which whilst this decanting into smaller “cleaner” vehicles can help air quality it puts pressure on congestion.</p>
<p>Given the changes facing the industry, some felt that the future of freight would be dominated by a demand responsive model, part of the growing 'Sharing Economy':</p>	<p>There was a mixed view on future supply chains; There was a view that supply chains will lengthen, rather than shorten, which will allow for greater linkages to allow for consolidation, facilitated by the sharing economy. However, in some businesses such</p>

<p>Assets (vehicles and warehousing) would increasingly be leased rather than owned</p> <p>They would be data-driven operations</p> <p>There is an opportunity for community collaboration – a shared economy where people can use data to make smarter delivery choices</p>	<p>as car manufacturing, supply chains have been moving further away to better cost countries. Changes in production e.g. autonomous production could mean that those added costs are reduced which could shorten the supply chain and reduce transport costs and risk. This could mean a need for more land needing to be available to allow for a focus on localised, high tech production which lends itself to manufactures. However, there was an overriding feeling that in freight the basic principle is still the same from 30 years ago – the volume of ‘stuff’ we need is the same (or increasing) and that as such we are still going to need lorries and vans, even with a degree of modal shift.</p>
<p>The future of construction will have an impact of freight movements. Modern building techniques are changing with moves to modular construction. Building off site does mean there is some fresh air moving around but does reduce traffic. That said elements of construction, such as foundations, there is little else you can do other than use bulk aggregates. Could be changes to the material being used or the sourcing locations, but cement, unlikely to change. In other areas some products may change such as in different types of tarmac – longer lasting, lighter, reliability of supply – so they could do a continuous lay then could use less vehicles. But for this to happen we will need much more reliable network.</p>	<p>Feedback noted that the nature of freight in the future would be a key decider on the innovations in transport and the resulting infrastructure required to support it. The diversity of freight types is expanding and so traditional road and rail freight options may not be the only options to consider.</p>
<p>Decisions on fuel types in order to maintain operational viability (in view of CAZ and ULEV developments) concerned the industry: battery technology is still slow to develop and have their own environmental impacts. Industry felt that hydrogen shouldn't be dismissed.</p>	<p>There was little consensus of the fuel solutions of the future for freight, but agreement that whichever way it goes, there will be a for need the infrastructure to support it together with the energy capability. It seems increasingly likely to be electric in the urban environment where smaller vehicles can be used but inter urban electric unlikely. However, given investment requirements from both the public and private sector, any change would be more of an evolution than a rapid transition to a favoured fuel type (away from diesel).</p>
<p>That said, industry recognises that there would still be the need for bulk transport so rail and HGVs would still be required and would need to be provided for. It was noted that changing mode within a chain or breaking bulk, adding complexity does add cost and this needs to be reflected in the cost of delivery. Reflecting the true cost of delivery was a reoccurring theme.</p>	

INNOVATION AND TECHNOLOGY

<p>Stakeholders noted that the presence of innovators and academia could be a USP for EEH, with the region becoming a demonstrator for innovation for example new fuel infrastructure. In addition to technology trials, the region could offer up the opportunity for new practices e.g. night time delivery trials.</p>	<p>Some felt that platooning is likely to become a reality by 2050 so need to ensure the infrastructure is suited to this technology. However, others felt that it may be that not many companies require that kind of freight solution unless this is forced through regulation/legislation etc. Autonomous vehicles are more likely to be seen on major trunk roads and could drive a need for local distribution centres that an autonomous vehicle could get into. Fully autonomous HGV's may not be seen in the next 10 years; however, the industry could make use of greater levels of autonomy. Autonomous features are already in place but there are lots of stepping stones to get to a utopian place of full autonomy.</p>
<p>Industry noted that if consignments and vehicle sizes were getting smaller, the pressure on the road network would only become greater. Traffic management systems is required and increasingly connected vehicles.</p>	<p>Drones have been discussed as option, but this will lose the human effect of delivering a parcel, a driver (human) can function as a brand ambassador. Other options such as pipelines need also the be considered as part of the mix.</p>
<p>In the short term, the main means by which technology improvements will made (from an efficiency perspective) is through better engines – fuel economy.</p>	<p>Technology will enable the better use of KPIs, allowing for sharing of data to make efficiencies through greater collaboration (next generation of pallet exchanges).</p>
<p>Some stakeholders said that technology changes in manufacturing will allow for reduced haulage movements.</p>	
<p>FREIGHT DEMAND</p>	
<p>As mentioned in the “future section”, consumer behaviour (and economy) is the driver of change. The amazon impact on customers has meant that deliveries are faster and cheaper now – this has led to customer expectations changing. The delivery of a million new homes by 2050 along the Oxford-Cambridge Corridor is effectively a million new home deliveries routes generating demand and congestion.</p>	<p>There was some consensus that government should consider how it can incentivise both the public and operators through regulation to encourage more responsible delivery/consumer choices, i.e. paying less for a delivery that is consolidated but takes longer or a delivery that is delivered through a sustainable mode.</p>
<p>Some stakeholders felt that there is a need to better understand the value of freight passing through the region rather than just within. Smart road pricing to lever value and divert freight or attract logistics companies to have a base in the Heartland.</p>	<p>Some felt that the demand for same day delivery may have reached saturation i.e is it possible to do more than same day? But in terms of number of deliveries this could continue to rise.</p>
<p>PEOPLE CHALLENGES</p>	
<p>Operators felt that access to workers is a vital element of the operation of any business. It is not only important that there is a large labour market</p>	<p>Concerns were raised about a skills shortage of low skilled labour; this might see a rise in innovation and technologies at warehouses</p>

<p>within the businesses' catchment area; it is also important that the workers are suited and qualified for the jobs on offer at an appropriate cost to the firm.</p>	<p>which will fill the void in labour through new technology. Some felt that because of the skills shortage in the industry, including drivers, the ripple effect has meant it is an employee's market. Many workers are leaving for larger companies such as Amazon which offer slightly higher salaries. This has resulted in continuity challenges for medium size companies which are not able to compete with salaries and can't retain staff.</p>
<p>The reverse may also be true that whilst some roles may no longer be needed there may be a shift in high skilled workers being required because of new technology coming online and the need to operate this.</p>	<p>Stakeholders acknowledged that there is a national skills shortage, mainly of class one drivers and this especially prevalent in the region where there is such a large amount of logistics activity. Reasons for the shortage were identified as: Age entry point too late, expensive insurance for newly qualified drivers and training costly 3-5K needs to be paid in advance before getting a job.</p>
<p>FREIGHT AWARE PLANNING</p>	
<p>There was a common theme of a greater need for more 'freight aware' planning decisions by planning authorities, transport authorities and the planning inspectorate. As part of this there needs to be more flexibility over future land use, and regulation should be flexible too to allow the industry to adapt.</p>	<p>It was felt that the UK planning regulation has not kept pace with the increase in tempo within purchasing models that result in higher vehicle flows in and out of the distribution centre or processing plants as well as speculative distribution parks in prime locations. Some felt until the revised National Planning Policy Framework (NPPF) there has been no statutory requirement within planning regulation for developers or operators to provide marshalling and lay-over parking related to logistics "hot spots" or port approaches, relying on overspill into the surrounding road network. The New NPPF should help if it is enforced. Feedback suggested that current planning does not adequately address the need for industrial and logistics land as well as the need for freight as part of construction. It takes 34 freight vehicles to build an average-sized three-bedroom house. And those new residents will increase demand on the supply chain. It is essential that new logistics and industrial land is earmarked and protected in the right location to serve new communities and that existing land is safeguarded including rail freight sites and wharves to enable modal shift. Stakeholders acknowledged that land will have a higher value for residential over industrial/logistics uses, so it is important that all avenues are explored before any release for other purposes.</p>

<p>It was repeatedly noted that national and local planning policy was a constraining factor, such new employment sites and warehousing can wait a long time (12 month wait) for utility infrastructure to be delivered, utilities and power from the national grid are key and need to be embedded early in the planning stage.</p>	<p>Feedback suggested that training for planners is needed, where an understanding of logistics is needed. Whilst there is a policy push for housing but there isn't a support around it. As a result, there are unintended significant consequences for freight and logistics.</p>
<p>Further to this, some felt that because the planning authority is often different to the highway authority there is a silo mentality rather than thinking about the whole infrastructure.</p>	<p>As the planning and management of infrastructure becomes more critical – especially in urban areas, so the need for more data would become ever-more critical. Data sharing agreements between planning authorities and business should be established as a pre-condition to planning authorisations and access rights being given.</p>
<p>Some feedback suggested a business-planning authority partnership model could be envisaged to bring a more appropriate approach to all types of major planning. Such planning and co-ordination of plans and operations should extend to the major international gateways (ports and airports) to ensure trade links would not be impeded but would actually stimulate economic activity and as such there needs to be a co-ordinated planning approach with neighbouring regions.</p>	<p>It was noted by stakeholders that logistics developments need to be considered in some form of sub-national context. Strategic distribution facilities service regional or national markets. Their functional economic areas in terms of product markets, labour markets, supplier markets and transport impacts extend well beyond a single local authority boundary. Location decisions are driven by the catchment areas they can serve and the strategic transport network.</p>
<p>CONSTRUCTION</p>	
<p>Construction Logistics Plans (CLPs) are seen by many as the basic tool to improving efficiency, but currently they are London focussed, and should be rolled out and effectively monitored. Regional CLP's could cover larger areas and allow for all the plans to be knitted together. Coordination of construction in regions, especially when there are such grand visions for new homes. Phasing, so it is a steady process which needs to be cascaded through the application of CLPs. Croydon was identified as best practice for CLP with holding areas, vehicles being tracked and it was noted that it is the Local Authority driving and policing it.</p>	
<p>LORRY PARKING</p>	
<p>A consistent theme in all discussions was the issue of lorry parking. Potential technologies can support this by showing available spaces, but there needs to be a much a more fundamental conversation with the planning inspectorate about making land use available. New rest facilities in the Heartland in light of the AECOM national lorry parking study needs to be considered.</p>	<p>Some stakeholders noted that as a result of improvements to the major road network some HGV parking and driver amenity facilities have closed. The NPPF reopens the opportunity for on-site overnight HGV parking with driver amenities, to provide off-site HGV parking close to the logistics hot spots as partnerships between the developers and the local authority and to expand the motorway service areas:</p>

Rest facilities are important otherwise business run the risk of:

- Breaking regulations
- Extra mileage
- Inappropriate parking if none available
- Impacts the image of the of the industry, our ability to recruit and keep people, and the reputation with the public as being a “problem” that needs solving
- Causing nuisance to residents
- Some key things need to be considered:
 - Good information about spaces available so that brakes can be planned
 - Strategies to avoid inappropriate parking is important
 - Need some free parking but with less facilities (e.g. French service areas) for those drivers who are more self-sufficient
 - Enforcement is difficult when there isn't anywhere for them to go
 - Anywhere that is going to draw more HGV's e.g. new distribution areas
 - Increasingly laybys are being closed for the storage of plant of equipment meaning that HGV's cannot make the stops
 - Facilities where they exist are poor – and not very female friendly.

	many were capped at 120 HGVs and are still considered expensive and unwelcoming.
Operators noted as well as protecting existing facilities, any new road infrastructure need to have proposals for new services which includes secure facilities HGVs. This also includes appropriately priced parking which reflects the serviced offered not simply the cost of land.	

REGULATION

Efficiency would be created by reduced regulatory barriers to HGV vehicle innovation and trials. There was a view that the industry wanted certainty over regulation decisions and specific legislation and that regulatory pressures on operating haulage and managing their operations were causing many hauliers to quit the business.

Regulatory changes are needed for example to slacken restrictions on early morning deliveries in planning consents to stores. However, regulatory examples such as London lorry control scheme adds complexity.

Operators felt that road pricing could work, so long as it's for all road users then it will reduce congestion and then make improvement, however, this may be more of a national issue.

Some operators felt to improve efficiency vehicles need to be heavier and longer. This may impact the local infrastructure and needs to be considered as part of the potential solutions.

INTERDEPENDENCIES (WITH OTHER POLICY DECISIONS)

There was an acknowledgement that locations implementing DEFRA targets and clean air zones to manage air quality management areas should

In terms of other road users there is a feeling that there no deterrent for poor driving standards. Feedback suggest that if congestion

<p>also consider how these targets impact on freight operators, particularly cost and practicality. It was felt that often policy, land use planning and the freight industry is disconnected. Urban management generally is noted as needing a well thought out strategy as this filters throughout the wider supply chain.</p>	<p>causes 9 billion per year if road policing was in place this cost can be reduced and reinvested in policing. 85% of collisions by HGV are by human error – 75% of the are third person (i.e. not the driver).</p>
<p>ROAD INFRASTRUCTURE</p>	
<p>Discussions highlighted that the infrastructure requirements could be very different than that needed today: infrastructure should, therefore, be designed with these new models in mind. Future-proofing the infrastructure would likely require national co-ordination of plans e.g. we do not yet know if the future is truly an electric-powered one or hydrogen: given the fact that we have a comprehensive gas pipeline network in place nationally, this could be utilised in the future for hydrogen, supplying fuels to homes and transport; before ripping the pipelines out of the ground, consider leaving them for a potential hydrogen-fuelled future.</p>	<p>There was some agreement that there is a fundamental question about the need to tackle the rise in car ownership and number of trips made by single occupancy car users. There was a general sentiment that something fundamental needs to change regarding car use demand and we cannot build ourselves out of congestion.</p>
<p>One such consideration was the potential for tunnel-like (or pipelines) freight systems being put into place at far lower cost than new road and rail infrastructure; such tunnels might serve directly into new manufacturing and large out of town retail centres; they might even supply services (goods delivery) in new settlements/towns that were being envisaged. Older towns might prove more difficult to introduce such infrastructure however.</p>	<p>Business want and need improvements in the road network but it needs to be better managed. There is a need to understand, holistically the impact of numerous roadworks on operators. There is recognition for the investment but the pain (and cost) can be lessened with better communications.</p>
<p>There was agreement generally that the public and the private sector need to work together so that the investment is appropriate, the M6 Toll was quoted an example of public sector not addressing industry needs.</p>	<p>A key issue for the operation are roadworks and collisions. Roadworks need to be coordinated between to ensure that there are not multiple major routes with restrictions at the same time. Authorities needs to understand the impact of what they do on business and plan to minimise disruption e.g. breakdown roadworks into more manageable chunks to reduce length of disruption. Advance notice and staggering lane closures could reduce the impacts and reduce business costs.</p>
<p>Stakeholders feel that the reliability of roads is important – but also is the provision of extra capacity to provide HGV appropriate direct routes between key locations. The appropriate routes for HGV's on major routes are needed as well as need to be kept flowing to avoid HGV's get pushed on to potentially inappropriate routes. SLAs on timeliness need to be in place for roadworks and incident management to allow for greater transparency.</p>	<p>Often discussed is the further encouragement of HGVs using SRN at night however, overnight using the chance to maintain the motorway so if you push vehicles into the night then that will cause problem. To what extent can you push vehicles into the night and not simply transfer the issue.</p>

The link between transport investment and productivity is well established; Transport impacts such as travel time savings, cost reductions and greater reliability impact on users such as businesses and commuters. These in turn generate economic benefits through business efficiency; business investment and innovation; agglomeration; and labour market benefits among others. Standard transport appraisals monetise the value of transport impacts but do not capture all the wider economic impacts and hence there is under-investment relative to the real economic gains that could be realised.

Reoccurring feedback suggests that there are 7 key priorities for the freight industry:

- Free flow
- Congestion free: businesses just handle congestion but they shouldn't have to.
- Reliable journey times (need to be able to plan): Having a reliable network is essential: some industries only hold 5-10 hours stock in some highly customised items. There is a high dependence on network. Contingency is in place and trigger points to make decisions to make changes but that costs and builds in inefficiency.
- Faster would be nice but not as important as reliable: Reliability is most importantly but need to also consider speed. In order to achieve an ideal optimised network, needs the infrastructure in place. Based on travel time not necessarily distance, speed and reliability rather than the technical distance.
- Resilience
- Electricity and power capacity (warehousing and EV potential)
- Long term investment towards renewables and sustainable growth.

There were a number of specific pinch points noted:

- Whilst the UK is dependent on imports, there are still lots of goods manufactured and moved domestically. For example, the A46– stretching Newark – Leicester/Lincoln earns 115 billion for the UK economy each year. Almost half of this is total is coming from industries that rely on the road network, including road-reliant manufacturing logistics and food distribution (22% of goods and services are exported on the corridor). Note a corridor study being undertaken by Midlands Connect will examine how to futureproof this vital trade corridor.
- Southern access from Southampton port to EEH is a key issue (A34) – only 2 lanes wide.
- There is so much animal feed produced in East Anglia (Suffolk and Norfolk) with the vast amount of the UK's Cattle and sheep in Wales and South West England so there is always the need to travel across EEH
- If we wish to get to the West, South West, without using the already busy M25 the A14 corridor can take traffic across the country via the A428/A421 but after Milton Keynes the road infrastructure is not capable of allowing swift travel.
- Perhaps the development of the A14/428/421 East-West highway would not only serve East Anglia but relieve the Northern M25 also. EEH is a key transit route for East-West animal feed.

Specifically, EEH needs to understand if there is there really demand for a new road corridor. The A14 might become the new bottleneck – this highlights the impact of unintended consequences and taking a wider regional perspective.

PORTS AND RAIL

Some felt that access to key ports was important to enable new markets to be developed (eg Southampton to DIRFT or Felixstowe access through East West rail), this includes the

Stakeholders note that EEH is a major consuming area of aggregates and cement, reflecting the high level of construction activity and likely to rise as well as HS2 construction. As

possibilities of East-West rail in developing new markets.	well as considering construction freight by road, there is the opportunity to use rail.
There are no intermodal rail heads south of Daventry. There are two SRFI proposals in the planning system for sites just south of Northampton. Some opinions suggested there is opportunities for rail freight in the Bicester/MK/Bedford area and Corby which could take vehicles of EEH roads.	Some rail freight advocates noted that the East West Rail is an important development for freight as it links Southampton to the Golden Triangle, which will make rail more competitive against road for that route as well as allowing Southampton to connect more directly with NW and Scotland. The section east of Bedford has some relevance for freight, in potentially providing a more direct route from Felixstowe to the Golden Triangle.
There is also a need, according to some stakeholders for improved capacity between the GWR main line at Didcot and Oxford. A solution could be a four/five track to Didcot North Jn, two through Culham to Radley and four from there through Oxford. This could release a lot of capacity.	Rail freight supports noted that HS2 should create capacity for extra freight on the WCML through EEH, as long as a fair proportion of the released capacity is reserved for freight. HS2 Phase 2B will relieve the MML and ECML, and more capacity will be needed on MML to meet the demand for aggregates from the East Midlands to London and consumer goods from Corby. Some felt this would help to favour EEH as an alternative RDC location to the South East.
In general, there was a consensus from the group that due to EEHs varied geography, future solutions would need to be multi-modal and that any operations need to be allowed to operate 24 hour – e.g. rail heads.	
SOLUTIONS	
Consensus overall was that no one solution – different cities (and areas) require different solutions with however, an overarching approach that provides consistency for operators.	Fully autonomous HGV's not in the next 10 years, however, that's not to say the industry won't be able to make use of greater levels of autonomy.
The main means by which improvements will made (from an efficiency perspective) is through better engines – fuel economy. Improved Euro standards will be achieved which will also allow for improvements in MPG.	Technology will allow for the better use of KPIs and better sharing of data to allow for efficiencies to be made.
The next generation of pallet networks will allow for greater collaboration. Smaller operators (under 100 vehicles) days are numbered with more co-ordination (joining forces) between competitors – such as Jigsaw examples.	Expanding the opportunity to work through the removal of restrictions which results in adding cost and is a rather draconian approach.
Clustering of logistics provision; to generate the opportunity to share resources, infrastructure, encourages competition, creating value added services and overall economic efficiencies.	

COMMUNICATION AND COLLABORATION	
<p>There is a need for a joined-up strategy – includes all councils and LEPS. Solving transport problems in one area can often result in causing a problem somewhere else and therefore need to look at routes more holistically. Some felt that often there is not a lack of understanding, but political will. Stakeholders felt that EEH needs to work with those outside of the region, looking at other parts of the country and how they are handling the pressure.</p>	<p>Feedback suggested that there is little business engagement generally. Therefore, it is difficult to see how are they pulling the strategy together as well as feeling able to input into the process. Industry has a lot to give in terms of the strategic planning process. But industry has a notoriously short-term view – so they need educating too in term so the strategic planning process. Engaging with the right people within a business who have longer term strategic plans.</p>
<p>Both Transport and Local Authorities planning departments need to work better together to avoid restrictions – there needs to be a plan to support the construction phase and then goods deliveries phase of new developments and in many cases the network needs to be in place first.</p>	
ROLE OF THE STB	
<p>Feedback suggests that the role of the STB is valued. Their local knowledge of the area and the specific demands placed on it is important. There needs to be a recognition that not everywhere is like London and some things that work there may not work elsewhere. Knowing the region problems mean that they probably know the solutions better than anyone.</p>	<p>Whilst the STB's may feel it needs to “intervene”, what they need to do to enable the logistics industry to do what it needs to do, but better.</p>
<p>EEH need to understand the impact of future trends and they need to be bold. In line with that, STBs need to recognise where the GVA is it coming from and how the freight industry needs to respond to those industries and growth.</p>	<p>Data is a key starting point and critical – both industry to EEH and EEH/public bodies to Industry. Also sharing information between industry meaning there could be a role for EEH to be a data broker. Industry often has the information, but often commercially sensitive but could be shared under certain circumstances or could be mandated.</p>

9.6 CONCLUSIONS

- 9.6.1. Whilst operators found it difficult to predict the longer-term future of the freight and logistics industry, some of the trends currently impacting the industry provide insights into the more immediate industry responses. Trends such as online shopping and the change in use of town centres have impacted many facets of freight and logistics – especially in land use needs, lead times and vehicle types. Ongoing changes in customer behaviours (both business to business and business to consumer) will have a continued impact on freight and logistics, which always has to react to consumer changes. Feedback suggested that design of policy and infrastructure needs to be based on allowing for a level of uncertainty and to build in flexibility.
- 9.6.2. What is clear from stakeholders is that they felt that technology has a significant role to play, although there is a level of scepticism about how much platooning, for example, will impact the logistics industry. There is consensus that data is key to the next level of evolution of the freight

industry. Autonomous technology to support drivers was seen as positive, however the move to a completely “driverless” HGV was taken with a degree of disbelief, but that data sharing will offer more benefit.

- 9.6.3. It is difficult to have a discussion with anyone in the freight industry without mentioning the skills shortage and its potentially damaging impact on the industry.
- 9.6.4. Planning has been a reoccurring theme in discussions with stakeholders, and the term “freight blindness” first used in the National Infrastructure Commission’s Future of Freight Interim report seems to best describe how stakeholders feel about the planning process and its understanding of the needs of such a critical industry as logistics. This ranges from the protection of space for appropriately designed and located warehousing for the changing needs of the industry through to the need for lorry parking to more substantially be considered as part of the planning process. The need for logistics to be considered in other developments is also considered by stakeholders’ as being key. Both construction logistics and deliveries and servicing of new sites once built are not, in the opinion of a number of stakeholders, sufficiently considered.
- 9.6.5. To enhance logistics efficiency and therefore potentially attract logistics activity or reduce the impact of logistics, better regulation is seen to be a key enabler. The removal of restrictions, for example, could allow for moving goods at more appropriate times or could be used to encourage consolidation through tax incentives. Mentioned a number of times was the “unintended consequences” of related policies – for example, incentivising cycling which has the potential of increasing conflicts between HGV and vulnerable road users.
- 9.6.6. Feedback has generated a couple of specific highway pinch points; however, these do not appear to be freight specific issues, rather than comments on well documented areas of challenge. Priorities for infrastructure for freight include a need to focus on reliability of goods movements, resilience of the network rather than speed per se. The management of roadworks and collisions or breakdowns was raised, and noted that this is about the culture of different interested parties working together as well as having the data and technology to share knowledge in a timely way.
- 9.6.7. There was some agreement that there is a fundamental question about how we tackle the issue of capacity on the network, freight feels like a core need, and as such needs to use the road network (SRN/MRN)– but government needs to tackle the rise in car ownership and number of trips made by single occupancy car users.
- 9.6.8. In general stakeholders saw that the role of STB is key; having a body that is local enough to understanding the specific needs of the region, yet large enough to ensure consistency and enable greater change was important. What was clear is that whilst consistency is important that the implementation of policies needs to consider local needs and what works in one place doesn’t not means it will work everywhere and so a more local approach through the STB was supported.



10

FUTURE TRENDS

10 FUTURE TRENDS

10.1 ROAD FREIGHT DEMAND FORECASTS

- 10.1.1. National Road Traffic Forecasts (NRTF) can be used to obtain growth rates for various types of vehicle by road type and region. HGV forecasts in the NRTF are derived using the Great British Freight Model which has a wide range of variables include demand forecasts for various commodities and road and rail freight costs. LGV forecasts, in contrast, are extrapolations of recent rapid growth as drivers of demand are much more poorly understood.
- 10.1.2. The tables below show the forecast growth in vehicle numbers for LGVs (<3.5T) and HGVs for the regions which cover EEH and compare these to growth rates for England and Wales as a whole.
- 10.1.3. The final column in each table shows the forecast growth in demand for all vehicles to 2050 for comparison.

HGVs

Road Type	Region	HGV % Increase Over 2015							All Traffic
		2020	2025	2030	2035	2040	2045	2050	2050
Motorway	East Midlands	1.5%	0.0%	0.6%	2.6%	4.8%	6.8%	8.8%	43.5%
Motorway	Eastern England	2.9%	4.8%	5.9%	9.8%	14.0%	18.0%	21.7%	40.2%
Motorway	South East	2.6%	4.8%	7.5%	11.7%	16.0%	20.1%	24.1%	41.9%
Motorway	All	1.2%	1.7%	2.9%	5.5%	8.3%	11.0%	13.6%	41.0%
Trunk A	East Midlands	1.2%	-0.2%	-0.2%	1.4%	3.2%	4.9%	6.5%	38.2%
Trunk A	Eastern England	2.5%	4.6%	7.7%	11.6%	15.6%	19.6%	23.5%	38.3%
Trunk A	South East	2.8%	3.4%	6.0%	9.5%	13.4%	17.2%	20.7%	38.9%
Trunk A	All	0.6%	0.9%	2.0%	4.0%	6.3%	8.6%	10.6%	37.9%
Principal A	East Midlands	-2.4%	-2.7%	-2.3%	-1.7%	-1.0%	-0.4%	0.3%	31.8%
Principal A	Eastern England	-0.7%	0.2%	2.1%	3.9%	5.9%	7.8%	9.7%	31.2%
Principal A	South East	-1.8%	1.2%	3.1%	5.5%	8.1%	10.6%	13.2%	31.8%
Principal A	All	-2.4%	-2.1%	-1.3%	-0.6%	0.3%	1.3%	2.3%	31.4%
Minor Roads	East Midlands	-4.3%	-4.3%	-4.6%	-5.0%	-5.1%	-5.4%	-5.4%	33.1%
Minor Roads	Eastern England	-1.9%	-1.5%	0.5%	1.6%	2.7%	4.0%	5.3%	34.1%
Minor Roads	South East	-0.4%	-2.0%	-1.0%	-0.1%	0.7%	1.7%	3.1%	34.3%
Minor Roads	All	-2.9%	-3.5%	-3.5%	-3.4%	-3.2%	-2.9%	-2.5%	34.1%
All	East Midlands	-0.1%	-1.1%	-0.8%	0.4%	1.9%	3.3%	4.6%	35.3%
All	Eastern England	1.5%	3.1%	5.2%	8.4%	11.7%	15.0%	18.1%	35.0%
All	South East	1.5%	3.2%	5.7%	9.1%	12.7%	16.2%	19.5%	36.2%
All	All	-0.1%	0.2%	1.1%	3.0%	5.0%	7.0%	8.8%	35.2%

Table 10-1 - HGV% increase from 2015

- 10.1.4. For HGVs, it is notable that growth will be much slower than for general traffic, with growth across all roads in the three regions amounting to between 5% and 20% by 2050 compared to 35% to 36% for all traffic combined.
- 10.1.5. The fastest growth is forecast to be on motorways, between 9% and 25%.

- 10.1.6. Across the UK, the NRTF forecasts that HGV traffic will fall from 5.3% of all traffic to 4.3% between 2015 and 2050.
- 10.1.7. Growth in the East Midlands is forecast to be slower than other regions covering EEH, potentially due to saturation in the regional warehouse market and faster growth to and from ports.

LGVS

Road Type	Region	LGV % Increase Over 2015							All Traffic	
		2020	2025	2030	2035	2040	2045	2050	2050	
Motorway	East Midlands	8.6%	16.3%	23.5%	32.5%	41.1%	48.3%	53.9%	43.5%	
Motorway	Eastern England	5.0%	7.9%	12.9%	20.4%	27.9%	34.2%	39.1%	40.2%	
Motorway	South East	10.5%	15.6%	21.9%	30.6%	39.2%	46.3%	51.9%	41.9%	
Motorway	All	8.9%	13.3%	19.2%	27.5%	35.7%	42.6%	48.0%	41.0%	
Trunk A	East Midlands	11.8%	16.0%	21.5%	29.5%	37.8%	44.7%	50.2%	38.2%	
Trunk A	Eastern England	10.2%	14.2%	19.8%	27.9%	36.1%	43.0%	48.5%	38.3%	
Trunk A	South East	9.0%	13.6%	19.6%	27.5%	35.6%	42.4%	47.7%	38.9%	
Trunk A	All	9.8%	14.2%	19.9%	28.0%	36.2%	43.1%	48.5%	37.9%	
Principal A	East Midlands	11.0%	15.5%	21.4%	29.8%	38.1%	45.1%	50.7%	31.8%	
Principal A	Eastern England	9.3%	13.7%	19.3%	27.4%	35.5%	42.3%	47.6%	31.2%	
Principal A	South East	8.9%	13.4%	19.2%	27.4%	35.6%	42.5%	47.9%	31.8%	
Principal A	All	9.5%	14.8%	20.8%	29.0%	37.3%	44.1%	49.6%	31.4%	
Minor Roads	East Midlands	10.5%	17.5%	24.4%	33.3%	42.2%	49.6%	55.5%	33.1%	
Minor Roads	Eastern England	11.8%	19.3%	26.4%	35.5%	44.5%	52.1%	58.1%	34.1%	
Minor Roads	South East	12.0%	19.9%	27.2%	36.4%	45.5%	53.1%	59.2%	34.3%	
Minor Roads	All	11.5%	19.1%	26.2%	35.3%	44.3%	51.8%	57.8%	34.1%	
All	East Midlands	10.6%	16.4%	22.7%	31.3%	39.9%	47.1%	52.7%	35.3%	
All	Eastern England	9.7%	14.9%	21.0%	29.4%	37.8%	44.8%	50.3%	35.0%	
All	South East	10.4%	16.2%	22.6%	31.2%	39.8%	46.9%	52.6%	36.2%	
All	All	10.1%	16.0%	22.3%	30.8%	39.3%	46.4%	52.1%	35.2%	

Table 10-2 - LGV% increase from 2015

- 10.1.8. In contrast, LGV traffic is forecast to grow faster than general road traffic, particularly on minor roads (many of which are in cities).

10.2 RAIL FREIGHT DEMAND

- 10.2.1. Construction traffic and intermodal rail freight volume is forecast to continue to grow strongly. There are three sets of forecasts to consider:
- Network Rail Freight Market Study (FMS) 2013
 - DfT Rail Freight Strategy (RFS) 2016
 - MDS Transmodal Freight Growth Final Report 2018
- 10.2.2. The FMS provided forecasts to 2043 and suggested strong growth of intermodal traffic, with some growth for construction traffic and limited growth or decline for other commodities. The FMS is a non-constrained forecast - it assumes that the railway will have both the capacity and the capability (loading gauge in particular) to carry forecast demand.

- 10.2.3. The DfT RFS, in contrast, is a constrained forecast, taking into account network capacity and other constraints. The RFS forecast uses a different time base for its forecasts (2030 as opposed to 2033 used in the FMS). It does not provide a simple total rail freight forecast, but it does provide forecasts by commodity group.
- 10.2.4. The MDS Transmodal Rail Freight Growth report revisits the 2013 FMS and considers the causes of actual rail freight growth which has been lower than forecast between 2013 and 2017. The report then produces a scenario-based revised forecast to reflect future uncertainty.
- 10.2.5. The main conclusion that can be drawn from these three approaches to forecasting is the broad agreement that there will be continued strong growth in the rail movement of containers to and from ports and construction traffic, but that there is divergence between the forecasts about the future potential for domestic container movements (between non port terminals).
- 10.2.6. The change in the mix of commodities carried by rail has had a major impact on requirements for freight capacity. While declining coal traffic did not release many useful paths for passenger services, many of the fast-growing flows of rail freight are along routes which are already used by large, and growing, numbers of passenger trains. For example, container trains from Southampton use the busy South West Main Line and Reading to Oxford corridors, while construction materials from the Peak District and Leicestershire use the Midland Main Line.
- 10.2.7. The 2018 MDS forecasts are the most recent, but only cover the period to 2023/24. They forecast total growth in rail freight from 85.8 million Tonnes in 2016/7 to 102 million Tonnes by 2023/4. The forecast tonnage is actually the average of four scenarios, reflect different levels of market growth and factors favourable to rail or road. The values for these scenarios range from 78 million Tonnes to 128 million Tonnes in 2023/4.
- 10.2.8. The table below from the MDS forecast shows the forecasts for Tonnes lifted by commodity for the fastest growing commodities. Most other commodities are forecast to be stable or, in the case of coal, decline.

Rail freight TONNES forecast for 2023/24 scenarios by sector. Thousand tonnes per year					
Sector	2016/17	2023/24 A2	2023/24 B2	2023/24 C2	2023/24 D2
Ports Intermodal	16,213	24,252	27,133	15,320	17,077
Domestic Intermodal	2,481	8,009	8,606	3,281	3,493
Channel Tunnel Intermodal	374	529	578	420	458
ESI Coal	6,284	-	-	-	-
Biomass	6,470	8,464	13,045	8,464	13,045
Waste	1,226	1,165	1,287	1,165	1,287
Construction materials	24,286	33,133	43,383	22,887	29,967
of which spoil	735	997	1,306	733	960

Table 10-3 - Rail freight tonnes forecast for 2023/24

- 10.2.9. This clearly shows strong growth potential for ports intermodal freight and construction materials. The forecast for domestic intermodal is notably lower than previous Network Rail forecasts, but still strong.

- 10.2.10. A key driver behind growth in intermodal traffic is the area of warehousing which is located on Strategic Rail Freight Interchanges. More SRFIs leads to a higher intermodal forecast.
- 10.2.11. It is important to note that these forecasts are unconstrained – they assume that capacity can be provided to meet demand. The MDS report includes an initial estimate of the impact of constrained capacity on growth which suggest that a capacity constrained forecast would be 3% to 8% lower than the two “rail favourable” scenarios.
- 10.2.12. Network Rail provided the study team with a model illustrating forecasts in terms of trains per direction per day for all rail routes in the Heartland. The data underlying this is considered to be confidential, but headline numbers can be published. In addition, forecasts here relate to the 2013 Network Rail Freight Market Study of 2013 which are, in some cases, higher than the revised 2018 forecast. Nonetheless the numbers below can be seen as an aspirational maximum potential freight requirement for capacity on the regions routes.

Route Section	Trains per direction per day			
	Base Year	2023	2033	2043
MML Bedford to Kettering	8	21	35	55
MML Leicester	13	34	50	80
F2N Peterborough to Ely	15	47	59	85
ECML Huntingdon	4	12	20	28
WCML Northampton	32	39	54	85
Oxford	20	34	39	48

Table 10-4 - Trains per direction per day

- 10.2.13. The table shows significant growth potential on the West Coast Main Line and the Felixstowe to Nuneaton (F2N) main line. Leicester is shown because it is a crossroads between flows of aggregates into the Heartland and intermodal flows to and from Felixstowe.
- 10.2.14. Broadly, 85 trains per day suggests a need for 5 to 6 paths per hour during the day time and possibly more at night. For the WCML this would require an allocation of released capacity once HS2 has opened. For the F2N route Network Rail has a rolling programme of capacity enhancements designed to provide the required number of paths, but with significant obstacles around Ely and through Leicester (where aspirations for more freight trains conflict most directly with aspirations for more passenger services).
- 10.2.15. It should not be assumed that Network Rail and the rail freight industry are simply operating in the mode of “predict and provide”. There are a number of measures being pursued which will reduce the number of paths required while allowing continued growth. These include:
- Longer and heavier trains, with 775m intermodal trains and much heavier aggregates trains becoming the norm.
 - Use of standard paths between freight nodes – allowing pathing on each route to be optimised
 - Eradication of unused freight paths
 - Possibly higher freight train speed to minimise impacts on passenger services

10.3 CHANGES IN LOGISTICS

10.3.1. Chapter 2 introduced the factors impacting logistics businesses and driving change. These included:

- Customer driven changes
- Government driven changes
- Industry driven change
- Technology

This is detailed a bit further in the figure below which identifies where transformation may come from.

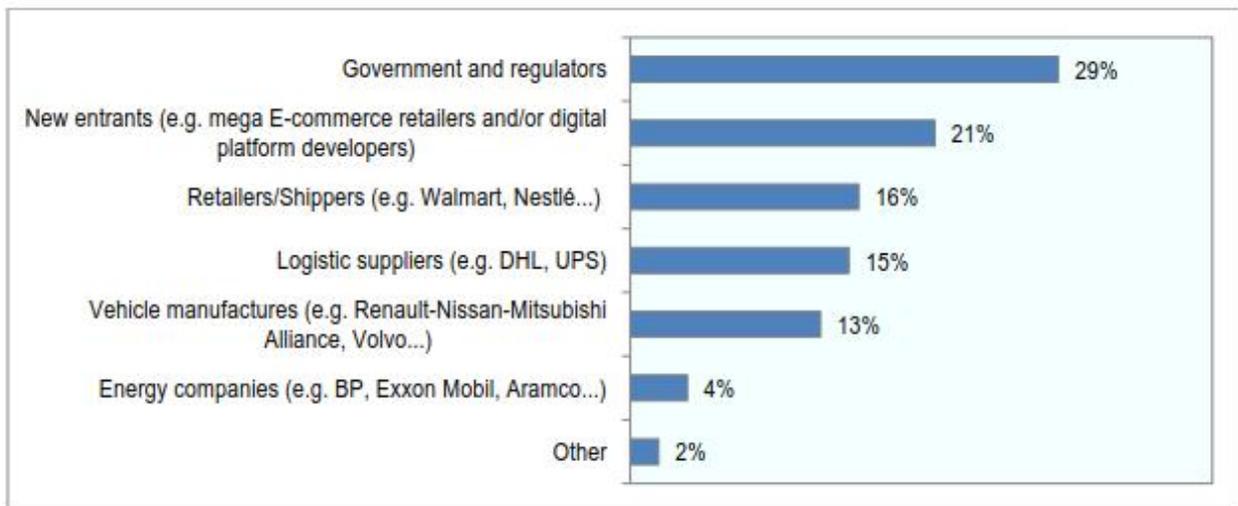


Figure 10-1 - Agents who will lead transformations in the sector (OCED/ITF, 2018)

Customer driven changes

10.3.2. The NIC Managing Congestion report noted “The move towards e-commerce is clear, with almost 20% of UK retail sales being recorded online. This is driving other changes such as increased home deliveries, same day and same hour deliveries, and click and collect. Other consumer deviations include changes in the way we use cities, with less shopping, more at-home eating and entertainment, and a shift of purchasing power from material things to virtual things or experiences e.g. declining record sales and growing use of online streaming. The consequences of this on freight are significant for urban areas, with very low load factors for delivery vehicles in cities (e.g. 38% for vans in London)”.

10.3.3. Other consumer behaviours are also driving change that has impacts along the supply chain; this includes concerns about waste, preference for locally sourced products, or pressure to reduce greenhouse gas emissions. It is worth noting that these changes are prompted by wider societal changes such as population growth, urbanisation and new working and living demands.

Government driven changes

10.3.4. Again, the NIC report notes “Goods traffic has always been seen in two ways, both as a concern due to environmental impacts and as a necessary means to sustain the economy and grow

businesses. This dichotomy is summarised, for example, in the Minister's introduction to the DfT's Freight Carbon Review (DfT, 2017): "Road freight's positive contribution to our economy extends beyond its direct employment and financial benefits - the sector is a critical enabler of wider business across the UK - of all sizes, from internet entrepreneurs to large distribution businesses. However, I am also aware that heavy goods vehicles (HGVs) account for a significant portion of the UK's air quality impacts from transport, and am committed to working collaboratively with industry to address these issues."

- 10.3.5. Two major changes in approach from Government over the last twenty years have been the increased recognition of the impact of freight emissions, particularly greenhouse gases, and appreciation that efficient freight transport is an enabler of economic growth.
- 10.3.6. In cities, local and city Governments have had a much more direct impact on freight movements. While there is a clear understanding of the importance of efficient deliveries to local economies, cities see the urgent need to tackle air quality and congestion. In a positive light, many cities wish to become more pleasant, healthy, and safer places to live and work – this has led to proactive policies such as Low or Zero Emissions Zones and pedestrianisation.

Industry driven change

- 10.3.7. At the same time as market driven changes and the legislative environment evolves, the logistics industry continues to develop and innovate to deliver solutions which meet those competing needs and drives cost improvements. Logistics is a low margin activity, with highly competitive businesses ranging from owner operators to major multinational businesses, but with a dominance in SMEs. Initiatives driven by industry range from collaborative approaches to reduce empty running to last mile solutions such as cycle deliveries.

Technology driven change

- 10.3.8. Technology can act as a driver and enabler of change and the logistics sector is already taking on board technological change, from automation of warehouses to real time monitoring of haulage fleets. Where available, the industry has been quick to adopt changes in vehicle technology, whether in the form of more fuel efficiency, driver assistance / awareness devices, or safety monitoring devices. The way that freight is managed is being changed by delivery management systems (that can plan and monitor every delivery end-to-end), online collaboration tools, and sophisticated fleet management systems.
- 10.3.9. In the future, change is expected to be even more rapid and potentially more dramatic. Connected and automated / autonomous vehicles, low or zero emission vehicles for trunking operations, technology, and better availability of data has the potential to revolutionise the way that supply chains are managed.
- 10.3.10. The NIC report noted that the application of technology in the freight sector could deliver benefits for example improve just in time deliveries and reduce the impacts of movements with regards to other users and neighbours. However, the application of technology should not be considered in isolation and must be part of wider policy and strategy considerations and where appropriate be built into future programmes.

10.3.11. Technology needs to be considered at the earliest possible stage within a strategic plan – retrospectively changing infrastructure is less efficient than building in options at the start.

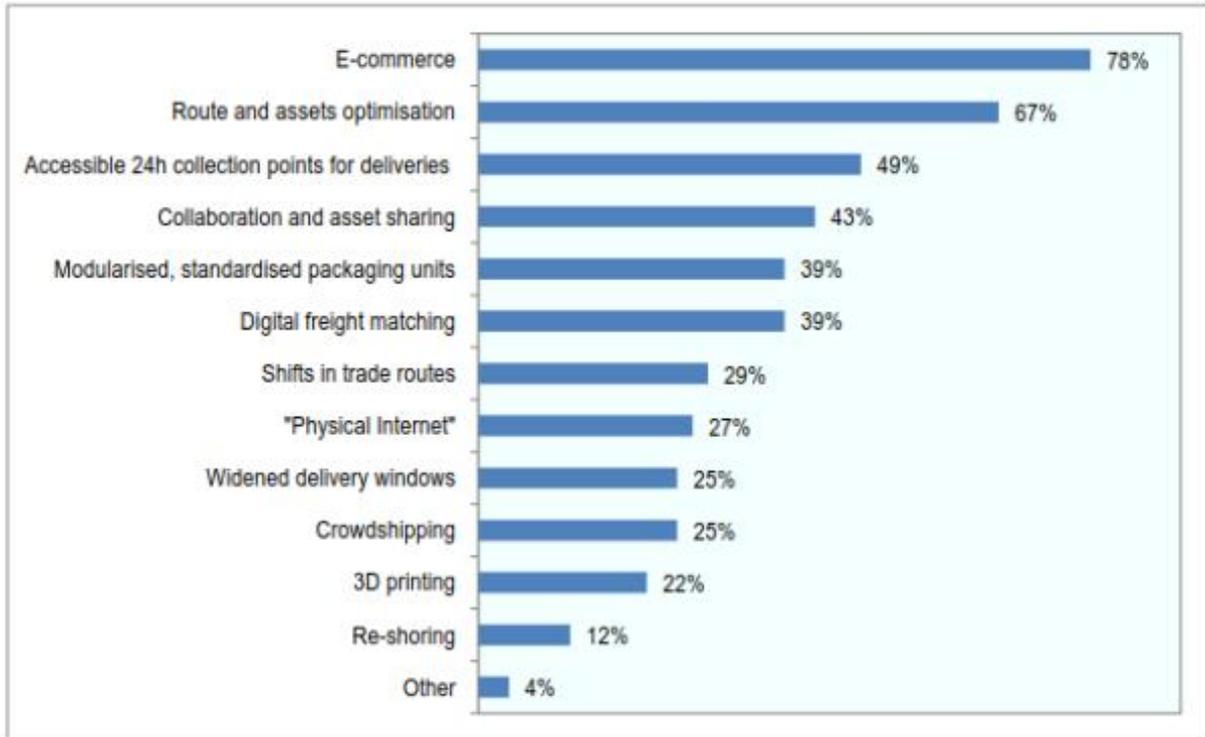


Figure 10-2 - Likely trends and innovations by 2030 (OCED/ITF, 2018)

10.4 OTHER GROWTH FACTORS

POPULATION GROWTH

- 10.4.1. The NIC report Partnering For Prosperity suggests that growth of around 1% per annum could see the population in the EEH area grow by between 1.4 million and 1.9 million by 2050 from the current level of 3.3 million people, representing growth of around 40% to 60%. Without action to decouple freight growth from population and economic growth, there is a risk that demand for HGV traffic to, from, and within the region could grow by 50% by 2050 rather than the NRTF forecasts of around 20%, suggesting up to 50% more local freight traffic on roads. (As motorways carry high volumes of through traffic, total HGV growth on motorways would be lower).
- 10.4.2. This would be in line with the Transport Strategy Evidence Report forecast of 51% growth in demand for movement of people by 2050. (This is a very approximate indication as different freight commodities would grow at different rates, and future employment in EEH is likely to focus on industries which are not freight intensive such as science and education.)



11

ISSUES AND OPPORTUNITIES

11 ISSUES AND OPPORTUNITIES

11.1 INTRODUCTION

11.1.1. This chapter uses information from the policy review, data collection exercise, and stakeholder engagement to summarise the main logistics issues and opportunities in the Heartland. The issues and opportunities are presented in the following classifications:

- Strategic (issues or opportunities which are relevant across the Heartland covering all modes)
- Roads
- Rail
- Air freight
- Towns and cities
- Construction logistics
- Rural
- Other

11.2 STRATEGIC

THE CHALLENGE OF GROWTH

- 11.2.1. With population growth of potentially 50% by 2050, there is an associated risk that movements of goods to and from EEH will also grow substantially. In addition, growth will need construction of new communities and infrastructure that will generate more freight movement.
- 11.2.2. As well as being a risk in terms of freight generation, rapid growth provides an opportunity to plan communities and business areas in ways which minimise freight demand, maximise efficiency, and minimise impacts on the environment and communities.

Opportunity:

Deliver growth in population and employment but increase freight movements at a significantly slower rate.

PLANNING FOR FREIGHT

- 11.2.3. The NIC interim report concluded that *“An absolute focus on delivering homes without consideration of how freight will service growth will be of detriment to both housing and freight. Without better recognition of the value of freight in planning, the freight system will encounter more pinch points, restricting its capacity to operate efficiently and deliver goods in the most sustainable way possible.”*
- 11.2.4. The NIC Final Report “Better Delivery” made the following comments:
“Availability of land for freight distribution centres and other infrastructure is crucial for the efficient operation of the sector, and will be even more important in future for enabling optimised last mile operations. The most effective way of managing freight’s impacts on congestion while allowing efficient operations is by planning for the needs of freight at an early stage of statutory planning processes. For major new developments, this should be part of the thinking from the outset, recognising freight as an essential part of enabling and supporting infrastructure.”
- 11.2.5. Recommendation 4 from the NIC is that “*Government should produce new planning practice guidance on freight for strategic policy making authorities. The guidance should better support these authorities in planning for efficient*

freight networks to service homes and businesses as part of their plan making processes. This new planning practice guidance, which should be prepared by the end of 2020, should give further detail on appropriate considerations when planning for freight.”

Opportunity:

Optimise freight movements in a growing region by ensuring that freight needs are taken into consideration more thoroughly throughout the planning process.

LOGISTICS INNOVATION

11.2.6. Innovation in logistics provides a means to improve efficiency and reduce impact, including a range of solutions and technologies. As well as providing solutions, logistics innovation is potentially a major opportunity in the Heartland, where there is a real opportunity to develop a centre of excellence in the field. This arises from two factors:

- The growth of EEH allows for innovative logistics solutions to be applied from the planning stage and throughout development of new communities
- The Heartland is a centre for a wide range of businesses and institutions with expertise and capabilities to research and deliver innovative solutions.

11.2.7. SEMLEP in particular has identified logistics innovation as a key objective, and other areas of EEH have centres of excellence such as motor sport in Oxfordshire.

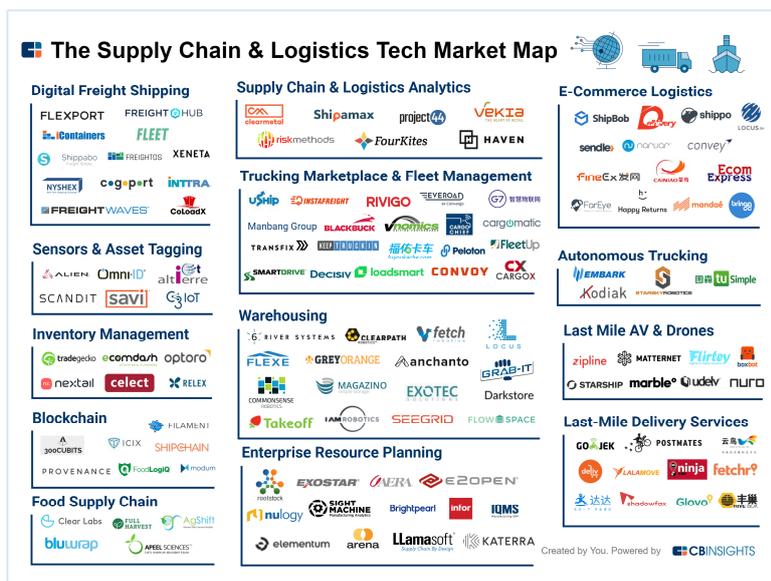
Opportunity:

Encourage investment by supporting logistics innovation across the region, with EEH becoming recognised as an international leader in the field.

THE RAPID DEVELOPMENT OF SUPPLY CHAIN TECHNOLOGY

11.2.8. As much as any other sector of industry, deliveries and supply chains have been recognised as providing an opportunity for new technology, apps, and tech start-ups. The diagram below, from CB Insights, illustrates a small sample of businesses offering new solutions in this field.

Figure 11-1 - Supply Chain Start Ups - CB Insights



- 11.2.9. From blockchain to robot delivery vehicles, any one of these technologies could lead to market disruption of the type that Uber has delivered for the movement of people. Technology change manufacturing from 3D printing to enhanced use of robotics will also have an impact on the wider supply chains and the transport solutions that support them.
- 11.2.10. The challenge for planners is to be aware of such developments, to nurture and encourage those which are viable and address targeted issues or opportunities, but to avoid “solutions in search of a problem” or unviable technologies. By including freight operators in the generation of these solutions will help to validate the viability and operation of new technology and EEH could be the facilitator of such relationships.
- 11.2.11. Many of these new businesses will generate user data which can be valuable for planners and can support more informed decision making.

Opportunity:

Optimise efficient deliveries and freight transport across the region by supporting businesses in EEH to adopt new logistics solutions and technologies.

LACK OF DATA

- 11.2.12. The NIC identified lack of freight data as being another constraint. A lack of data prevents authorities to plan investments which focus on the priority areas and inhibits businesses from collaborating to improve their operations.
- 11.2.13. The NIC freight report highlights the low quality of data in the logistics sector. This includes government data. Vehicles can be tracked by satnav or ANPR, but this information is of little use without the vehicle type, commodity, and payload. This information is collected by the Continuing Survey of Road Goods Transport (CSRT) which is a valuable source of information but with a sample size that is too low to obtain useful origin/destination (OD) data. Such low quality of data is a constraint for infrastructure planners and traffic planners.
- 11.2.14. Within the industry there has been a rapid development of logistics management software which collects some of the “missing” information, including OD and journey time. However, in this case the data is confidential and not generally shared.
- 11.2.15. A lack of data prevents authorities to plan investments which focus on the priority areas and inhibits businesses from collaborating to improve their operations.
- 11.2.16. Lack of suitable data is considered to be a constraint on sharing or loads (a potential solution to low payloads). In this case it's not only the availability of data which is the issue, it is the way different businesses describe their products and capacity.
- 11.2.17. On the other hand, new data sources are likely to become available, for example from Delivery Management Systems or from satellite navigation goods vehicle monitoring technology. Utilising this information in a user friendly and non-competitive arena is an opportunity that EEH will be well placed to consider, with the chance to foster real innovation in this area for the benefit of both the public and private sector.
- 11.2.18. EEH is developing a Regional Evidence Base which consists of a Data Bank and Project View – an online GIS tool. These have already been populated with freight data obtained for this study.

Opportunity:

To build on EEHs Regional Evidence Base, by identifying and utilising new sources of data to support planning and traffic management. Ultimately, new types of goods data will provide significant new opportunities to use high quality information for both long term planning and day to day traffic management.

REGULATORY CERTAINTY AND CONSISTENCY

11.2.19. On this issue the NIC Interim Report concludes:

“Enabling a low emissions freight system that manages its impacts on congestion will require change and innovation. It is important that regulations encourage developments in operations and technology and drive change for the better.”

11.2.20. The NIC Final Report recommended that:

“To help manage peak time congestion on the urban transport network, local authorities should include a plan for urban freight within the infrastructure strategies they are developing. These plans should review local regulations to incentivise low congestion operations, consider the case for investments in infrastructure such as consolidation centres, and identify the land and regulatory requirements of new and innovative low congestion initiatives.”

Opportunity:

There is a clear opportunity to use EEH to review and coordinate freight regulation and restrictions across the region, making the region a more attractive location and destination for businesses and improving logistics efficiency.

LOGISTICS SKILLS GAP

11.2.21. In discussions with operators the issue of the skills gap in logistics was consistently expressed – this could be seen at a number of levels:

- Driver shortages – there is an acute Europe wide shortage of HGV drivers (and warehouse staff) due to the age profile of the workforce and poor working conditions, made worse in the UK by issues around Brexit.
- Skills for the future driven by changes in technology – rapidly skills such as maintaining diesel HGVs will need to be replaced by skills in battery and electric propulsion and sophisticated connected and autonomous vehicle technology. Workers in distribution centre will specialise in data handling rather than handling of goods.
- Knowledge of logistics for planners to help develop freight sympathetic spatial planning.

Opportunity:

To address skills and workforce gaps in the region, enabling continued growth and providing opportunities for residents and attracting new business

LAND FOR DISTRIBUTION

11.2.22. The biggest growth in distribution space has been for “big sheds” with excellent road access, generally in the Midlands or further North.

11.2.23. The Heartland adjoins the Golden Triangle area for logistics development, and Northampton and Milton Keynes are both considered to be prime locations for distribution buildings. This is a benefit for EEH, as businesses can be served quickly and efficiently by road. It also poses

challenges as more and more distribution development takes place near busy junctions on the M1.

- 11.2.24. There are also important clusters of distribution development around Swindon and, increasingly, along the M40 corridor.
- 11.2.25. In contrast, there is a lack of major distribution parks in Cambridgeshire, and Hertfordshire, and generally around the M25. While the model of distribution is centralised, this has not caused significant economic issues for the region (but it does drive up traffic volumes), but future logistics patterns are likely to see the need for more space, possibly in smaller buildings, closer to population centres.
- 11.2.26. This can already be seen by the growth of buildings for Amazon, including for example the site at Dunstable and other online businesses around cities across the UK, enabling same day and same hour deliveries. Another factor is the move towards electric delivery vehicles and other last mile solutions. Increasingly, distribution companies may transfer goods from vehicle to vehicle (cross dock) along the line of route or as a hub and spoke operation.
- 11.2.27. Lack of space for distribution can lead to increased supply chain costs and to more traffic. This could include moving to different parts of the country, where lower land costs and better availability could outweigh the additional vehicle mileage.

CLUSTERING

- 11.2.28. Related to the need for land for distribution, the NIC Future of Freight study and other reports have identified the desirability of clustering businesses together both to promote economic growth and to reduce freight movements. It encourages economies of scale and the development of supporting skills and supply chains. At a large scale, there are already successful clusters of businesses in EEH, such as the High-Performance Engineering cluster.
- 11.2.29. Strategic Rail Freight Interchanges are also examples of clusters, with businesses on each estate trading with each other, or service companies and suppliers serving several customers in one journey.

Opportunity

To enable investment and growth and to reduce surplus freight movements by ensuring that land is available for logistics needs, provided with innovation in mind.

SUMMARY OF STRATEGIC OPPORTUNITIES

Issue	Opportunity
The challenge of growth	Deliver growth in population and employment but increase freight movements at a significantly slower rate.
Planning for freight	Optimise freight movements in a growing region by ensuring that freight needs are taken into consideration more thoroughly throughout the planning process.

Logistics innovation	Encourage investment by supporting logistics innovation across the region, with EEH becoming recognised as an international leader in the field.
Rapid development of supply chain technology	Optimise efficient deliveries and freight transport across the region by supporting businesses in EEH to adopt new logistics solutions and technologies.
Lack of data	To build on EEH's regional evidence base, by identifying and utilising new sources of data to support planning and traffic management.
Regulatory certainty and consistency	To use EEH to review and coordinate freight regulation and restrictions across the region, making the region a more attractive location and destination for businesses and improving logistics efficiency.
Logistics skills gap	To address skills and workforce gaps in the region, enabling continued growth and providing opportunities for residents and attracting new business.
Land for distribution and clustering	To enable investment and growth and to reduce surplus freight movements by ensuring that land is available for logistics needs, provided with innovation in mind.

11.3 ROAD

CONGESTION HOT SPOTS

- 11.3.1. In earlier sections of this study congestion was reviewed and identified hot spots that coincide with HGV concentrations. This report (Section 5.4) identifies that congestion hotspots can be seen around Aylesbury, Milton Keynes, and other towns and cities as might be expected. Correlating congestion with roads which carry high volumes of freight, the following sections stand out:
- A14 around Huntingdon and Cambridge
 - A508 into Northampton
 - A34 around Oxford (as well as being a corridor to connect to Southampton port)
 - The M1 generally
- 11.3.2. The normal process of corridor and highway studies will identify congestion hotspots largely based on peak hour car movements, and providing additional capacity may be proposed in mitigation.
- 11.3.3. As identified by the NIC, planners do not generally take full account of the particular needs and opportunities of the freight industry when planning new or improved road capacity. For freight, for example, traffic is spread more evenly across the day, and freight users suffer far greater impacts from major incidents and unpredictability than from general “slow traffic” congestion.
- 11.3.4. As part of the process of developing interventions needed to address hot spots, EEH needs to ensure that freight costs and needs are fully taken into account in the general process of strategy development and planning. This may change the priority and sequencing of programmes of works.

Opportunity:

To refocus investment in capacity improvements to address freight needs as well as the needs of people, leading to enhanced benefits for businesses from infrastructure investment.

RELIABILITY AND DIVERSIONARY ROUTES

- 11.3.5. Reviewing policy and stakeholder discussion we know that reliability, over speed, is one of the most important features for businesses. Lorries faced with an unforeseen delay may miss delivery slots, the driver may run out of tightly controlled driving hours, or products on the lorry may perish.
- 11.3.6. Unpredictability on networks cost businesses, directly through rising fuel costs, driver costs and penalties for missed delivery slots, but also indirectly by increasing mileage as a result of logistics hubs being in suboptimal locations (some business may choose logistics hubs locations that are further away from the customer but have better, more reliable infrastructure).
- 11.3.7. An additional issue is the suitability of alternative routes, which may pass through communities, using inappropriate roads or extend journeys significantly. We know for example that bridge strikes by HGVs is still an all too frequent event. A frequent complaint is the amount of time it takes to clear incidents, although this is being addressed by Highways England.
- 11.3.8. On the other hand, HGVs are disproportionately involved in incidents which cause extended road closures – improvements in HGV safety and maintenance can have a beneficial impact on journey reliability for all users.

Opportunity:

Improve the reliability and resilience of road journeys, reducing costs for businesses and impacts on communities.

INFORMATION

- 11.3.9. Goods vehicle drivers have different information needs to other road users. At the most basic level, signage needs to provide clear directions to important goods delivery locations and to give good and accurate warning of weight, width, or height restrictions.
- 11.3.10. Some local authorities, particularly at county level, addressed these concerns by working with businesses through Freight Quality Partnerships to improve signage and create freight routes. However, usefulness was limited by the challenge of disseminating information, and by varied approach taken by different councils. Modern satnav systems are available and widely used by hauliers, including up to date information on restrictions (although the quality of information for HGVs is variable).
- 11.3.11. As well as direction finding and warning of restrictions, freight efficiency can be improved when hauliers have good quality real time information on traffic, restrictions, parking, and alternative routes. This could include availability of delivery bays at the destination.

Opportunity:

Improve end to end journey times for goods vehicles while reducing the impact of goods vehicles using inappropriate routes.

LOW PAYLOADS AND EMPTY RUNNING

- 11.3.12. Improving vehicle payloads can potentially reduce congestion. This is an issue which is central to supply chain management and a key objective for many supply chain managers. However, payload for the freight journey is only one of many KPIs that managers and planners will be considering, and other objectives sometimes have the opposite impact and reduce payloads.
- 11.3.13. There are three relevant measures of freight payload to consider:
- Total payload per vehicle: this is generally measured in tonnes
 - Percentage empty running: vehicle kilometres driven empty, defined as carrying zero tonnes, as a percentage of all vehicle kilometres
 - Loading factor: the amount of goods that were moved, as a proportion of the total amount of goods that could have been moved if HGVs were fully loaded. This can be measured as a percentage of the tonnage payload or a percentage of the cubic payload. Tonnage is more commonly used because data on the cubic loading factor is very difficult to record.
- 11.3.14. Over the last 50 years the total weight allowed for heavy goods vehicles has increased, culminating in the maximum weight being increased from 38T to 44T in 2001. Since the increase to 44T payloads, payloads have generally continued to improve, for example due to businesses backloading empty lorries, or better supply chain management. Average payloads in HGVs increased by 28% from 1990 to 2017.
- 11.3.15. From a road perspective, around a 30% of UK registered HGVs on the UK's roads are running empty, typically when they return to their depots after having completed a delivery job, or onwards to collect another load. Empty running, and part loads, equate to wasted money through excess fuel use and resources and contributes to the congested road network. According to the DfT, HGVs covered 16 billion miles on the Great Britain road network in 2014 and 29% of those miles were empty trucks.
- 11.3.16. In 2018 the FTA published a report showing empty running is at 30.2%, which is an increase from 2006 where it sat at 20.8%. This could, in part, be due to the increase in multi-drop, shorter journeys, making backloading more challenging to achieve. Reducing empty running to the 2001 level of 26% would equate to industry savings of around 480 million miles, 270 million litres of fuel costing around £340 million and 720 million tonnes of CO₂ (DfT, 2016).
- 11.3.17. For the 70% of trucks that ran loaded in 2016, the average loading factor was only 68% of the full potential tonnage payload. This had improved over the previous 10 years, with the loading factor in 2006 being only 56%. Filling every vehicle to its maximum tonnage or cubic payload would result in further huge reductions in vehicle miles, fuel used, and emissions.
- 11.3.18. This issue is particularly important in the EEH area where there is a risk of rapidly growing road freight movements as a consequence of economic and population growth. EEH have the opportunity to respond quickly to the recommendations in the NIC report given where it is in the Strategy development journey.

Opportunity:

Slow the growth of HGV movements in the EEH region by making more efficient use of vehicles.

ROAD ACCESS TO PORTS AND GATEWAYS

- 11.3.19. Businesses in EEH benefit from a location which provides good access to London and to the major population centres of the North and Midlands. For example, the average speed for HGVs from most locations to Manchester is 35mph according to the PIE Freight Journey Planner.
- 11.3.20. Most locations in EEH have good journey times to the major ports, which is a major factor attracting distribution companies to Northamptonshire and Milton Keynes. An important “break point” is the ability to access a port and return to origin within a single shift, suggesting a maximum journey time of 3.5 to 4 hours. However, access from the East of EEH to Southampton is slow, taking over 5 hours from Cambridge, and access to Felixstowe from Swindon is also slow. Both of these journeys involve using the M25 with inherent unreliability.
- 11.3.21. The key ports are Felixstowe, Southampton, London, and Dover / Eurotunnel. However, access to Liverpool and the Humber ports is also strategically important.

Opportunity:

Maintain the attractiveness of the region for investment by reducing journey times to ports where practicable.

POOR ACCESS EAST / WEST

- 11.3.22. Part of the issue of access to ports is poor East West connectivity across the region. For many journeys the fastest route for HGVs involves using the M25. Other routes are useful, such as the A43 and the A428, but East West road access is particularly poor between Milton Keynes and Oxford. Along this section average HGV speeds are only 26mph in good traffic conditions. Furthermore, much of the route is single carriageway, making disruption common (and also meaning that slow goods vehicles cause delays for other users).
- 11.3.23. The proposed East West Expressway may alleviate this issue, but detailed planning will be needed to ensure that it delivers improved freight journeys along corridors with significant freight movement.

Opportunity:

Improve East to West road access for HGVs, providing journey improvements to key markets.

COLLABORATION

- 11.3.24. Maximising loads requires businesses to collaborate to fill empty space. Building trust between supply chain partners can be a reason why collaborative working for mutual benefit may not be undertaken, including concerns that the distribution of costs and benefits achieved through collaboration are not fairly apportioned.
- 11.3.25. Often a lack of collaborative interventions (such as backhaul and consolidation) are due to a lack of common standards of load description, in particular the availability of weight and volume data would enable more collaborative ventures to form. National standards for road freight data could facilitate collaboration and provide a more robust foundation for the calculation of logistics efficiency and more meaningful insights into best practice. Transparency and timely access to data creates a disconnect between parties within supply chains, preventing an agile supply chain and one that allows for driving efficiencies through for example reducing empty running.

This was also reflected in the ability to have comparable IT systems, especially when considering the ability of SMEs to share data.

- 11.3.26. A DfT collaboration study in 2017 found that collaboration could be anti-competitive and therefore businesses may avoid collaboration so as not to contravene competition law. The CO3 project investigated this issue and found that the EU law condones collaboration, if it benefits consumers and the wider community.

Opportunity:

Despite the barriers, encouraging greater collaboration in supply chains to and from EEH will be an important step towards decoupling freight growth from the population growth of the region. By creating an environment with industry engagement, collaboration can be nurtured in the region.

EMISSIONS

- 11.3.27. HGVs only constitute five per cent of the total vehicle mileage in Great Britain but they contributed 16 per cent of the UK's greenhouse gas emissions from transport in 2014.
- 11.3.28. In addition to greenhouse gas emissions, freight traffic also contributes to poor air quality, which is particularly concentrated in urban areas. 13 per cent of nitrogen oxide (NOx) pollution from road transport sources came from HGVs and 32 per cent from LGVs. In 2016, HGV and LGV tailpipe emissions together accounted for 11 per cent of PM10 and 17 per cent of PM2.5 pollution from road transport.
- 11.3.29. According to the NIC Future of Freight Interim Report, emissions from road freight – greenhouse gases, NOx, and particulates – are all expected to fall over the next five to six years mainly because of improvements in engine technology such as EURO VI compliant engines and better fuel efficiency. The Government's Road to Zero strategy outlines a number of schemes that aim to further reduce road freight emissions – such as a voluntary 15 per cent reduction of greenhouse gas emissions by 2025, research projects with Highways England assessing the opportunities for zero emissions technologies for HGVs, and potential reform to Vehicle Excise Duty (VED) to encourage uptake of the cleanest vans.
- 11.3.30. There are a number of Air Quality Management areas in the Heartland. There will be implications on HGVs and particularly for deliveries into towns, as Local Authorities try to address the issue. EEH has an opportunity to influence these strategies to ensure a consolidated approach which addresses the air quality issues, whilst at the same time not imposing overly restrictive practices on freight operations or creates unintended consequences (e.g. causing more congestion by pushing freight into other areas or a multiplication of smaller vehicles).

Opportunity:

Improve air quality across the region, and particularly in towns and cities by reducing HGV emissions per tonne moved.

ALTERNATIVE FUELS

- 11.3.31. There is currently no alternative to diesel or carbon-based fuel engines for HGVs, despite advances in battery and hydrogen technology. Gradual introduction of alternative fuels will have

implications for fuel infrastructure and, potentially, on range and payload. This will impact on existing operational regimes. Duty cycles could change in terms of where vehicles need fuelling, and where supporting infrastructure is, thereby disrupting long established commercial models.

- 11.3.32. One example is that more goods will be transferred at the edge of cities, requiring new facilities and may enable the quicker adoption of alternative fuels in the freight industry (but using smaller vehicles that are able to utilise alternative fuels).
- 11.3.33. There are opportunities to support innovation in alternative fuelled vehicles, not only for vehicle technology but for the supporting infrastructure (e.g. smart charging) and for the way that the new vehicles are used in supply chains.
- 11.3.34. EEH is well placed to become a centre of excellence for alternatively fuelled goods vehicles due to the cluster of automotive and technical businesses and organisations in the region, but if it is to do this not only does it need to look at the fuels themselves, but future proofing infrastructure developments now by incorporating the need for refuelling this into new development plans.

Case Study: Arrival



control software.

Arrival is a technology company based in Banbury. It has developed an electric delivery van which is being trialled by Royal Mail, UPS and others. The van is expected to be competitive on price with existing diesel-powered equivalents, an objective which is made more deliverable by the fact that the van has been designed from scratch rather than adapting from an existing model. Arrival is also implementing new manufacturing techniques and

Opportunity:

Improve air quality and reduce GHG emissions across the region, while making the region more attractive to businesses and supporting innovation in vehicle and infrastructure.

SAFETY

- 11.3.35. While HGVs are involved in a similar number of incidents per mile of driving as other vehicles, incidents involving HGVs are far more likely to cause fatalities as the table below illustrates.

	HGV traffic	All motorised traffic	HGV %	% fatalities involving at least 1 HGV	Ratio of HGV to all motor vehicles
Motorway	12.4	109.2	11.4%	33.3%	292%
A	12.2	231.5	5.3%	17.0%	320%
Minor	2.3	180.3	1.3%	8.9%	685%
All	26.7	521.2	5.1%	14.9%	292%

Source: Traffic statistics table TRA0104, Accident statistics Table RAS 30017, both DfT

Table 11-1 - HGV incidents

- 11.3.36. A particular issue is that HGVs are involved in a significant number of serious collisions involving pedestrians or cyclists in towns and cities – with the risk magnified by increased cycling and walking.
- 11.3.37. The SRN Road Casualty report of 2016 identifies the M1, M25, A14 and A1(M) as being four of the top ten roads for serious incidents involving HGVs.
- 11.3.38. While collisions involving cars and taxis are the most common cause of death and injury for pedestrians and cyclists, incidents involving HGVs are much more likely to result in death or serious injury.
- 11.3.39. The risk is increased as cities evolve to encourage more walking and cycling.

Opportunity:

Reduce the number of collisions and injuries involving HGVs.

AUTONOMOUS FREIGHT VEHICLES AND PLATOONING

- 11.3.40. Significant research effort is being put into the potential for Connected or Autonomous Vehicles (CAVs) of all types, including HGVs and LGVs. CAV is a range of solutions, and does not inevitably mean driverless cars or lorries. For example, many modern lorries already include features such as Automatic Emergency Braking (AEB) which is likely to be mandatory across the EU.
- 11.3.41. The main benefit of CAV HGVs and LGVs is likely to be improved safety. Cost reduction will only be an opportunity if vehicles can become fully driverless.
- 11.3.42. Platooning involves two or more vehicles connected with ‘vehicle to-vehicle communication’, allowing them to effectively communicate with each other and operate as a single unit. The lead vehicle takes control of the speed and direction of all the vehicles in the platoon, when the lead vehicle brakes the following vehicles automatically brake with zero reaction time significantly increasing road safety. The constant controlled speed delivers fuel savings and environmental benefits through the reduction of CO2 emissions, whilst the ability to decrease the distance between vehicles increases road network capacity.
- 11.3.43. The Department for Transport (DfT) and Highways England has commissioned TRL to lead the first real-world operational trial of platooning vehicles on UK roads. The £8.1m trial will see TRL lead a consortium of partners including DAF Trucks, the UK market leader of heavy goods vehicle (HGV) sales, Ricardo, who worked with TRL to deliver the HGV Platooning feasibility study for the DfT in 2014 and DHL, the global market leader in the logistics industry.
- 11.3.44. There is industry scepticism about the benefits and practicability of platooning, and reductions in fuel consumption and CO2 emissions will become less important as the vehicle fleet becomes decarbonised.

Case Study: Starship



A scheme being pioneered by Starship Technologies is delivering packages to addresses across Milton Keynes by robot. This is one of the first full-scale uses of such technology. Residents get parcels sent to a robot depot, which will notify them when they arrive and then deliver the item to their door.

The firm has already partnered with the Co-op in Milton Keynes to deliver

groceries there.

The new service is available through a mobile phone app, with residents living in the neighbourhoods covered in Milton Keynes able to have packages delivered to an address of their choice. Customers will pay a monthly subscription of £7.99 for an unlimited number of deliveries. Once signed-up on the app, people will receive a "personal address" at the depot where parcels can be sent, to then be delivered by the robots.

Opportunity:

The primary opportunity associated with autonomous vehicles is to use the skill base in EEH and the opportunity of significant growth to place EEH at the forefront of innovation in autonomous freight vehicles. Ultimately this could lead to more efficient deliveries and freight transport.

LORRY PARKING

- 11.3.45. Section 5.6 identifies that lack of lorry parking is a significant issue in the Heartland, particularly around Northamptonshire and Milton Keynes and along the A34. Lack of parking capacity leads to lorries driving extra miles to park up, and to lorries parking in unsuitable locations. Lack of decent facilities at parking sites is a major deterrent to people seeking careers as truck drivers. Having better facilities encourages high standards in the industry and may encourage operators to the region.

Opportunity:

To reduce the impact of lorry parking in unsuitable locations, reduce haulage costs, and improve working conditions for drivers through providing more and better lorry parking.

ABNORMAL INDIVISIBLE LOADS

- 11.3.46. Section 5.7 highlights the importance of developing and safeguarding routes for AILs. This will be particularly important in the Heartland as new infrastructure, particularly for electrical power, is developed.

Opportunity:

Improve the competitiveness of the region for investment and reduce costs for new developments by maintaining a fit for purpose AIL network.

SUMMARY OF ROAD FREIGHT OPPORTUNITIES

Issue	Opportunity
Congestion hot spots	To refocus investment in capacity improvements to address freight needs as well as the needs of people, leading to enhanced benefits for businesses from infrastructure investment.
Reliability and diversionary routes	Improve the reliability and resilience of road journeys, reducing costs for businesses and impacts on communities.
Information	Improve end to end journey times for goods vehicles while reducing the impact of goods vehicles using inappropriate routes.
Low payloads and empty running	Slow the growth of HGV movements in the EEH region by making more efficient use of vehicles.
Road access to ports and gateways	Maintain the attractiveness of the region for investment by reducing journey times to ports where practicable.
Poor access East / West	Improve East to West road access for HGVs, providing journey improvements to key markets.
Collaboration	Encourage greater collaboration in supply chains to and from EEH as an important step towards decoupling freight growth from the population growth of the region.
Emissions	Improve air quality across the region, and particularly in towns and cities by reducing HGV emissions per tonne moved.
Alternative fuels	Improve air quality and reduce GHG emissions across the region, while making the region more attractive to businesses and supporting innovation in vehicle and infrastructure.
Safety	Reduce the number of collisions and injuries involving HGVs.
Autonomous freight vehicles and platooning	The primary opportunity associated with autonomous vehicles is to use the skill base in EEH and the opportunity of significant growth to place EEH at the forefront of innovation in autonomous freight vehicles. Ultimately this could lead to more efficient deliveries and freight transport.
Lorry parking	To reduce the impact of lorry parking in unsuitable locations, reduce haulage costs, and improve working conditions for drivers through providing more and better lorry parking.
Abnormal Indivisible Loads	Improve the competitiveness of the region for investment and reduce costs for new developments by maintaining a fit for purpose AIL network.

11.4 RAIL FREIGHT

CONSTRUCTION MATERIALS

- 11.4.1. EEH is well served by rail terminals handling construction materials, mainly crushed rock, cement, and sand. 16 terminals in the area handle an estimated 5 million tonnes of product per annum. This demonstrates that materials suppliers find rail a cost-effective mode to bring in materials, despite relatively short distances from, for example, Mountsorrel near Loughborough.
- 11.4.2. Use of rail freight reduces construction costs and removes HGV trips from the road network.
- 11.4.3. With significant levels of new construction planned, including homes, employment, and infrastructure, there is a need to ensure that development locations are served with construction material rail terminals whenever possible, including possibly new terminals on the EWR route. Any construction rail routes created could have a legacy impact on serving these communities once established.

Opportunity:

Educe construction costs and reduce the impact of construction by using rail to transport materials whenever possible.

LACK OF CAPACITY

- 11.4.4. It is rarely the case that a proposed new rail freight service is prevented from operating due to capacity constraints. Sometimes rail freight services must compromise to find an available path from origin to destination. This might include retiming or rerouting the train to avoid urban areas in peak hours, neither of which is desirable.
- 11.4.5. A particular issue for freight services is that they nearly always cross the grain of passenger services. This means that typical freight trains use several different passenger routes during its journey. Finding a gap in services in one passenger route that matches a gap in the next route can be challenging.
- 11.4.6. Network Rail uses its long-term Planning Process and its investment programme to plan to provide capacity for forecast levels of passenger and freight services. For example, the Felixstowe Branch is currently being upgraded to increase capacity from 37 trains per day to 45 trains per day to meet growing demand for container trains.
- 11.4.7. In the longer term, there are some locations on the rail network where additional infrastructure investment may be required to provide capacity for forecast growth in passenger and freight services. Network Rail monitors such locations and proposes enhancements through the long-term planning process. The DfT then decides which projects to fund. Network Rail's Freight Network Study identifies capacity constraints on a route by route basis.
- 11.4.8. Neither the Network Rail Freight Network Study, nor the DfT Rail Freight Strategy quantify the impact of not providing the capacity required at these major pinch points.
- 11.4.9. The MDS revised 2023/4 rail freight forecasts do attempt to estimate the impact of constrained capacity. Their report acknowledges that the approach is crude, and currently only forecasts up to 2023/4. It is understood that similar forecasts for 2033 and 2043 are being prepared with Network Rail.

- 11.4.10. The MDS study estimates that capacity constraints at key locations could constrain growth in their highest growth scenario to 120 million tonnes from 128 million tonnes, a reduction of 6.6%. In tonne kilometre terms the reduction would be 9%. In future years, as potential demand grows, the impact of these pinch points would be even greater.
- 11.4.11. A key step to provide required rail freight capacity is completion of HS2 Phase 1 which will create additional paths on the WCML, provided that at least two additional paths per hour are used for rail freight.

Opportunity:

Continue to grow rail freight market share to, from, and through EEH, reducing road congestion and improving safety and air quality.

LONGER FREIGHT TRAINS

- 11.4.12. Longer trains have a double benefit: they provide more capacity on the rail network, and they reduce the cost of rail freight per tonne.
- 11.4.13. Network Rail aims to provide capability for 775m long trains on all main freight routes. EEH is well served by such routes, but there is a need to provide more 775m routes including:
- WCML North of Crewe (to serve EEH to Scotland)
 - Felixstowe to Nuneaton and Stoke on Trent
 - Southampton diversionary routes
 - East West Rail
- 11.4.14. For aggregates traffic the requirement is more to provide for heavier trains. The industry aspiration is for 400m long trains able to carry 2,000T of material. This should be the objective for the key aggregates corridors including:
- Midland Main Line
 - F2N route
 - East West Rail including connecting routes to the main quarries.

Opportunity:

Reduce rail freight costs and improve rail freight track capacity utilisation by operating longer trains

LACK OF INTERMODAL TERMINALS

- 11.4.15. Businesses on sites with rail access benefit from a genuine choice of modes and from significantly reduced rail freight costs. Communities and the environment benefit from fewer goods vehicles on the road.
- 11.4.16. Providing more warehousing / distribution centre buildings on sites which include an intermodal terminal is critical to growing rail freight and shifting goods from road to rail. Strategic Rail Freight Interchanges also provide opportunities for employment and improve access to goods, including exports and imports, for local businesses.
- 11.4.17. An SRFI benefits its own occupiers most, as they can achieve significant cost savings through very low collection and delivery costs between the occupier and the rail terminal. But all SRFI

also provide a service for companies in the surrounding area, providing an opportunity to use rail freight.

- 11.4.18. Currently DIRFT is the only SRFI located in EEH (and is currently being expanded to accommodate up to 32 trains per day each way). Two proposals near Northampton have started the DCO application process, and other proposals have included locations in Corby and near Banbury.
- 11.4.19. Any major development of distribution or manufacturing should be provided with a rail freight facility, but provision will be even more useful if it expands the area that benefits from rail access. Gaps in provision include Swindon, Oxford, Cambridgeshire, and any locations around the M25.
- 11.4.20. Significant opportunities include Bicester (MOD) and Swindon (former rail terminal). With the threatened closure of the Swindon Honda plant, the rail terminal there, despite being disused, may offer an opportunity to open up a large area as a potential rail freight interchange.
- 11.4.21. Intermodal terminals do not have to be huge SRFI sites. A new opportunity could be for more localised rail terminals serving cities or clusters of towns. This could include new terminals along the EWR route.
- 11.4.22. Currently the EEH area is only served by a daily train to each of Southampton, Liverpool (via Ditton), Purfleet, and Felixstowe from DIRFT. Other than Ditton, all these trains are routed via London, where there is limited capacity and journey times are extended waiting for paths.
- 11.4.23. The Oxford main line is directly served by services to Southampton, although more capacity may be needed in the future. This is of particular benefit to Mini for exports of cars.
- 11.4.24. Growth of rail services to and from ports is likely to be hampered by capacity and lack of intermodal terminals in EEH other than DIRFT. There is also a possibility that some parts of EEH may be too close to ports for rail freight to be cost effective for example, Cambridge to Felixstowe.

Opportunity:

Increase the market share for rail freight, reduce road freight volumes, and provide businesses with a cost-effective alternative to road haulage by maximising the volume of new distribution development located at or near to an SRFI and by developing local rail terminals where practicable.

EAST WEST RAIL OPPORTUNITY

- 11.4.25. Section 6.8 identifies, in principle, several potential rail freight uses for the EWR route, including new terminals for construction materials or general goods serving new communities, and use of EWR to improve access to ports.
- 11.4.26. This report also raises concerns about the availability of capacity on the EWR route to deliver opportunities to carry significant volumes of freight.

Opportunity:

Reduce the impact of growth and reduce HGV movements by maximising use of EWR for rail freight.

GENERALLY LOW AVERAGE RAIL FREIGHT SPEED

11.4.27. Other than for services that keep to one main line such as the WCML, the average speed of freight trains is quite low, notably between EEH and Southampton or Felixstowe, as noted in Section 6.7. The cause is not necessarily the maximum speed of freight trains (most are scheduled to operate at 60mph or 75mph), but the time taken in loops to allow passenger trains to pass, or in yards waiting to access a particular route.

Opportunity:

Encourage good to transfer to rail by offering shorter journey times. This will also reduce rail freight costs through better asset utilisation.

FREIGHT ON PASSENGER TRAINS

11.4.28. There is increasing interest in the potential to move small consignments quickly and reliably between stations on passenger trains. There are already some services in operation, for example bringing seafood to London from Cornwall.

11.4.29. A potential obstacle is reluctance of passenger operators to become involved in something different or complicated, given the strong pressure to deliver passenger services.

Opportunity:

Reduce LGV movements by transferring some transport of packages from road to rail.

FREIGHT INTO LONDON

11.4.30. There is a lack of intermodal terminals serving London, and none near to the Central Area. This has created interest in opportunities to move goods from distribution centres in the Midlands to central London using spare platform capacity at passenger termini to transfer goods for final delivery. Whilst some trials have been undertaken both in the UK and in Europe, the use of rail for urban deliveries has not made it mainstream options for urban delivery.

Case Study: Colas Rail and TNT Express



In June 2014 Colas Rail and TNT Express operated a trial freight train from Rugby to London Euston, carrying express parcels and perishable products for distribution in central London.

Organised by consultancy Intermodality, the train was intended to demonstrate the feasibility of using rail for 'high-speed, low-carbon deliveries into the heart of towns and cities'. The train was formed of former First Great Western motor-rail car carriers, which are suitable for carrying traffic in roll cages.

TNT delivered the roll cages to Colas Rail's Rugby depot, where the transfer from road to rail took 20 min. After a 132 km trip, the train arrived at Euston at 02.38, and the goods were transhipped into a fleet of TNT electric and low-emission road vehicles in less than an hour. At the time of the trial it was understood that TNT is understood to be looking at introducing a

regular overnight service each way between London and Glasgow, avoiding the need to route traffic through its road distribution hub at Kingsbury. However, Network Rail has expressed concern that night operations at Euston might be difficult after 2016, when the station is due to be rebuilt to accommodate HS2 services.

Opportunity:

Reduce the volume of road freight on motorways into London, with improvements in safety and emissions, through offering new rail freight services into city centre terminals.

HS2 IMPACTS

11.4.31. The construction and opening of HS2 will present two opportunities for rail freight:

- Transport of construction materials (dealt with under the heading “Construction Logistics”)
- Use of released capacity on the West Coast Main Line

11.4.32. Although the new service pattern for HS2 and West Coast Main Line (WCML) services will not be developed for at least another few years, as part of the West Coast Partnership (WCP) Franchise Shadow Operator remit, it is likely that the service patterns on the WCML will change significantly as a result.

11.4.33. The rail chapter forecasts that up to 6 rail freight paths per hour will be required on the WCML compared to 3 paths per hour today. Without these additional paths, most intermodal rail freight growth will be stalled due to lack of capacity, leading to more lorries on corridors through EEH.

Opportunity:

Maximise use of rail freight and reduce HGV volumes through EEH by ensuring that adequate capacity is provided on the WCML. Particularly once HS2 is operational.

SUMMARY OF RAIL FREIGHT OPPORTUNITIES

Issue	Opportunity
Construction materials	Reduce construction costs and reduce the impact of construction by using rail to transport materials whenever possible.
Lack of capacity	Continue to grow rail freight market share to, from, and through EEH, reducing congestion and improving safety and air quality.
Longer freight trains	Reduce rail freight costs and improve rail freight track capacity utilisation by operating longer trains.
Lack of intermodal terminals	Increase the market share for rail freight, reduce road freight volumes, and provide businesses with a cost-effective alternative to road haulage by maximising the volume of new distribution development located at or near to an SRFI and by developing local rail terminals where practicable.
East West Rail opportunity	Reduce the impact of growth and reduce HGV movements by maximising use of EWR for rail freight.

Generally low average rail freight speed	Encourage good to transfer to rail by offering shorter journey times. This will also reduce rail freight costs through better asset utilisation.
Freight on passenger trains	Reduce lgv movements by transferring some transport of packages from road to rail.
Rail freight into London	Reduce the volume of road freight on motorways into London, with improvements in safety and emissions, through offering new rail freight services into city centre terminals.
HS2 impacts	Maximise use of rail freight and reduce HGV volumes through EEH by ensuring that adequate capacity is provided on the WCML. Particularly once HS2 is operational.

11.5 AIR FREIGHT

- 11.5.1. Chapter 7 demonstrates that air freight traffic in the UK is dominated by Heathrow Airport. Fortunately, the Heartland is well placed to benefit from excellent access to Heathrow.
- 11.5.2. Heathrow generates huge volumes of road traffic, including 11,000 goods trips per day. Most of these are short distance, then generating secondary traffic to other locations.
- 11.5.3. It is likely that little of the direct traffic from Heathrow is destined to agents in the EEH area because the part of EEH which is closest to Heathrow (South Buckinghamshire) has a lack of suitable buildings or land. The key destinations are in West London and around Slough.
- 11.5.4. This underlines the importance of securing reliable road access from towns and cities in the region to the Heathrow / West London area.
- 11.5.5. It seems that opportunities to increase air freight through Luton are likely to be limited by lack of land space, particularly after construction of the proposed second terminal, however there may be opportunities to investigate this.

Opportunity:

Maintain the competitiveness of businesses in the region by improving access to the key freight airports, particularly Heathrow.

11.6 URBAN LOGISTICS

NEW COMMUNITIES, HOMES, AND EMPLOYMENT

- 11.6.1. Developing up to a million new homes along with associated employment offers a huge opportunity to plan and implement best practice for urban deliveries. However, an associated challenge is that urban logistics is rapidly changing, and new approaches and technologies are continually being developed.
- 11.6.2. New communities and developments should enable efficient deliveries to businesses and homes while minimising congestion, emission, and noise and keeping roads safe for pedestrians and cyclists.

- 11.6.3. While existing communities are constrained to some extent or another by the arrangement of highways and pavements, design of buildings, and lack of provision for delivery bays or logistics uses, such provision could be “designed in” to new communities.
- 11.6.4. An obstacle to best practice is the piecemeal process of major developments, with lots packaged out to multiple developers or contractors. This can hinder collaboration and the development of are wide innovative delivery systems.

Opportunity:

Ensure that new communities can be served by efficient zero carbon logistics delivery systems.

SUPPORT FOR URBAN FREIGHT INITIATIVES IN LOCAL STRATEGIES

- 11.6.5. Local authorities are increasingly constrained by budget and lack of expertise in logistics, which consequently doesn't receive a high priority in transport and local plans. This is most notable in the area of urban logistics and last mile deliveries, where only two authorities in the EEH address this issue at all in the transport plans.
- 11.6.6. A consequence of this is a focus on restrictions such as parking and delivery restrictions to manage urban freight in response to residents' complaints. The possibility of positively addressing last mile issues to achieve reduced impacts but to maintain efficiency cannot be delivered without local commitment.
- 11.6.7. While every community has unique challenges, there is a role for a body such as EEH to coordinate initiatives and promote best practice.

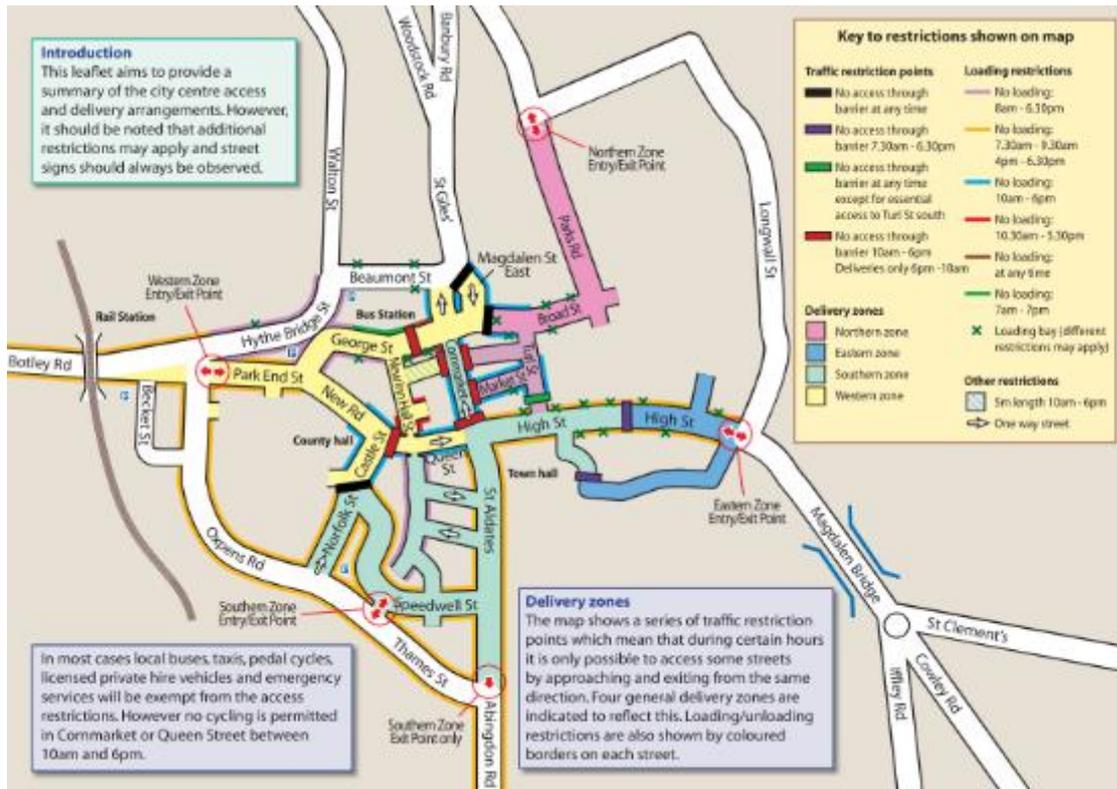
Opportunity:

To improve the efficiency of deliveries into towns and cities and reduce impact by coordinating and supporting initiatives as part of an urban freight strategy.

HISTORIC CITY CENTRES: OXFORD / CAMBRIDGE

- 11.6.8. The university cities of Oxford and Cambridge have challenges in common in dealing with city centre deliveries to historic city centres with large numbers of pedestrians and cyclists.
- 11.6.9. Oxford has a well-established but complex set of delivery restrictions show in the Oxfordshire County Council flyer below.

Figure 11-2 - Oxford City Centre Delivery Restrictions



- 11.6.10. In central Cambridge a pedestrian priority area operates 24 hours a day, 7 days a week, and access is further restricted between 10am and 4pm Monday to Saturday. Between these hours there is no access for vehicles except for emergency vehicles or drivers who have been issued with an access permit.
- 11.6.11. Legitimate loading and unloading of a vehicle can take place outside of the 10am to 4pm restricted access hours. However, within those hours the historic centre has a 'no loading/no waiting' restriction.
- 11.6.12. Such restrictions are inevitable, but produce risks of high volumes of deliveries outside of restricted times, and increased costs for businesses in the city centres.

Opportunity:

Share expertise and address the unique challenges of delivering into historic city centres.

HIGH PERCENTAGE OF DELIVERIES IN THE MORNING PEAK

- 11.6.13. Related to this, there is evidence that a significant percentage of deliveries into towns and city are made during the morning peak – the worst time for congestion and conflict with vulnerable users.
- 11.6.14. There are two factors driving this:
- Customer preference – for example fresh goods into stores as they open
 - Night time restrictions on deliveries – often as a planning constraint
- 11.6.15. Lifting restrictions and encouraging deliveries outside of peak hours can reduce congestion, improve air quality, reduce conflicts with vulnerable road users, and reduce transport costs.

Opportunity:

Reduce peak hour goods traffic in towns and cities leading to reduced congestion and reduced conflicts with pedestrians and cyclists.

INCREASING LGV TRAFFIC

- 11.6.16. Light Goods Vehicle (LGV) movements are the fastest growing sector of traffic, and already make up 15% of traffic movements in urban areas across the UK.
- 11.6.17. According to DfT 2018 Traffic Forecasts: “Car traffic is forecast to grow between 11% and 43% by 2050, whilst LGVs are forecast to continue growing significantly in all scenarios (between 23% and 108%).”
- 11.6.18. The challenge with LGV traffic is that it is very poorly researched or understood. In particular, many journeys are for servicing or even for personal transport. Factors such as ecommerce, home deliveries, restrictions on HGVs, and lower costs compared to HGVs are known to be driving growth.

Opportunity:

Improve understanding of the nature of LGV traffic in order to consider opportunities to reduce the growth in volume and reduce the impact on congestion and the environment.

AIR QUALITY

- 11.6.19. Despite improvements in emissions due to the EURO standards for diesel engines, goods traffic remains a major cause of poor air quality in cities, leading to the development of Low and Ultra Low Emissions Zones.

Case Study: Oxford LEZ



Oxford City Council, together with Oxfordshire County Council have developed an LEZ over a number of years, including assessments highlighting the need to reduce the impact of vehicle generated emissions. A joint City-County feasibility study identified the process leading to the development of the LEZ, which currently only affects buses.

- 11.6.20. Oxford City Council and Oxfordshire County Council have also published updated proposals for a Zero Emission Zone (ZEX) in the city centre.
- 11.6.21. The aim of the ZEX is to tackle Oxford's toxic air pollution and protect the health of everyone who lives in, works in and visits the city. From 2020, under the proposals, all non-zero emission vehicles could be banned during certain hours from parking and loading on public highway in an inner zone, while in a larger zone the requirement will be Euro 6 for buses.

Opportunity:

Improve air quality in towns and cities through coordinated initiatives.

NEW DELIVERY APPS AND TECHNOLOGY

- 11.6.22. In recent years the rapid development of technology has been evidenced across the logistics field. Urban delivery is probably the field in which there is most competition for new apps and technology. While the headline focus may be on consolidation centres, zero emission vehicles, or automated vehicles, some of the most interesting developments are in the area of delivery planning and management. Examples include Delivery Management Systems which plan and monitor deliveries, and delivery bay booking systems, which can involve pre- booking of kerbside space.

Opportunity:

Support local businesses to understand the potential of new delivery apps and information systems to improve efficiency. Maximise opportunities to use data to reduce the impact of freight and improve efficiency.

LACK OF CONSOLIDATION CENTRES AND FRAGMENTED PROCUREMENT

- 11.6.23. "Consolidation Centre" is an overused term. It should only refer to operations which receive multiple small deliveries and convert them into fewer deliveries (often in zero emission vehicles) to the destination. The most usual examples are Urban Consolidation Centres (UCC) and Construction Consolidation Centres (CCC).
- 11.6.24. There are very few examples of successful self-sustaining UCCs. The critical success factors generally include some form of compulsion – for example, all deliveries to Heathrow Airport pass through a consolidation centre mainly for security reasons. However, when in operation there is clear evidence that consolidation centres both benefit the local environment and can lead to cost reductions and service improvements in the supply chain. A key reason that UCCs

are not generally developed voluntarily is that allocating costs and savings is a challenge – often the costs fall on businesses who do not benefit from the savings.

- 11.6.25. Whilst forcing consolidation centres on private industry has often resulted in unintended consequences, their use in the public sector has been more successful, including local government, hospitals, and universities. In these cases, consolidation is usually delivered at the same time as rationalised procurement, where dozens of uncoordinated purchasers, suppliers, and delivery points can be reduced significantly, resulting in significant cost and vehicle mile savings. EEH has the opportunity to consider this for key areas of public sector procurement in the area.

Opportunity:

Reduce the number of vehicles making deliveries into urban areas, with deliveries being in zero emission vehicles. Reduce additional mileage due to drivers not knowing the area or delivery bays not being available.

SUMMARY OF URBAN LOGISTICS OPPORTUNITIES

Issue	Opportunity
New Communities, Homes, And Employment	Ensure that new communities can be served by efficient zero carbon logistics delivery systems.
Support for urban freight initiatives in local strategies	To improve the efficiency of deliveries into towns and cities and reduce impact by coordinating and supporting initiatives.
Historic city centres Oxford / Cambridge	Share expertise and address the unique challenges of delivering into historic city centres.
High percentage of deliveries in the morning peak	Reduce peak hour goods traffic in towns and cities leading to reduced congestion and reduced conflicts with pedestrians and cyclists.
Increasing LGV traffic	Improve understanding of the nature of lgv traffic in order to consider opportunities to reduce the growth in volume and reduce the impact on congestion and the environment.
Air quality	Improve air quality in towns and cities through coordinated initiatives. Support local businesses to understand the potential of new delivery apps and information systems to improve efficiency. Maximise opportunities to use data to reduce the impact of freight and improve efficiency.
Lack of consolidation centres and fragmented procurement	Reduce the number of vehicles making deliveries into urban areas, with deliveries being in zero emission vehicles. Reduce additional mileage due to drivers not knowing the area or delivery bays not being available.

11.7 CONSTRUCTION LOGISTICS

MAJOR INFRASTRUCTURE PROJECTS

- 11.7.1. Section 8.4 highlights the potential impacts of major projects on the EEH area. Impacts can be mitigated by early and close cooperation with developers and contractors, but this can be challenging given the role of contractors and their late involvement in some major projects.
- 11.7.2. As with all construction activity, adherence to best practice, including use of Construction Logistics Plans can also reduce impacts.
- 11.7.3. The biggest impacts of construction can be avoided by using rail freight to bring materials to and from sites. There may also be opportunities to reuse temporary construction terminals for general freight traffic or to repurpose for lorry parking.

Opportunity:

Improve the efficiency of construction of major infrastructure projects and reduce impacts on the environment and local communities.

THE IMPACT OF CONSTRUCTION TRAFFIC

- 11.7.4. Section 8 highlighted that the significant growth proposed for EEH would lead to large numbers of HGV movements. Modern construction logistics management includes a range of tools and techniques which can reduce vehicle movements and impacts, from specialised vehicles to Delivery Management Services. Construction Logistics Plans have an important role to play in encouraging developers to demonstrate that they have planned and implemented measures to reduce impacts.

Opportunity:

Reduce construction traffic impacts and reduce construction costs through applying the most appropriate measures.

NEED AND OPPORTUNITY TO UPSKILL CONSTRUCTION LOGISTICS

- 11.7.5. While Chapter 12 recommends implementation of construction logistics best practice through Construction Logistics Plans (CPLs), this requires the industry to take a fresh look at offsite manufacture and logistics, and this will require new skills and approaches.
- 11.7.6. Similarly, for CLPs to be effective, there must be expertise and resources at the local government level.

Opportunity:

Reduce the impact of construction HGV movements by ensuring that developers and local government staff are trained and qualified.

11.8 RURAL LOGISTICS

- 11.8.1. This is a frequent concern of residents in rural areas, and a cause of costly damage to roads and roadside structures. The issue was specifically raised during stakeholder engagement for this project.

- 11.8.2. On rare occasions problems can be identified as being caused by misleading satnav instructions, or by drivers without satnav. HGVs drivers and operators overwhelmingly prefer to stay on trunk roads where good speeds can be maintained. Therefore, it would seem that the majority of HGV movements on most rural roads are actually vehicles making deliveries to businesses or homes in the area.
- 11.8.3. Because of concerns about HGV access, it might be tempting to discourage freight intensive businesses from locating in rural areas, but such businesses can be important sources of employment for local people, and often support the viability of farms.
- 11.8.4. Businesses in rural areas should be encouraged to plan for goods movements, and to work with local communities and road authorities to improve delivery efficiency where possible.
- 11.8.5. Research by Citizen's Advice found that people in rural areas rely heavily on postal services. They're 50% more likely than urban residents to use a post office at least weekly. Online shopping can offer huge benefits, including more choice, cheaper prices and greater convenience. PricewaterhouseCoopers estimate households save £560 a year by shopping and paying bills online.
- 11.8.6. People who live in rural areas have the most to gain—they don't have a wide range of shops on their doorstep so shopping online gives them access to a wider range of products. It's important they're able to receive parcel deliveries as easily as anybody else, no matter where they live.
- 11.8.7. Citizen's Advice looked at a range of evidence to see how the parcel delivery service differs in rural compared to urban areas. They found 3 key areas of interest.
- Rural consumers have different preferences to those in urban areas
 - Rural consumers experience some problems more than other groups
 - Even when the problems are the same, the solutions will be different.

Opportunity:

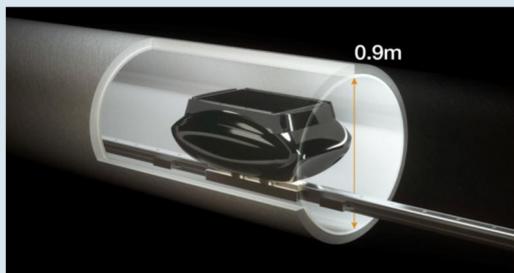
Reduce the impact of HGVs on rural communities while maintaining or improving the efficiency of deliveries to support communities and businesses.

11.9 NEW MODES

FREIGHT PIPELINES

- 11.9.1. Hyperloop has hit the headlines, with proposals for long distance high speed freight variants of their passenger systems. But there are several other technologies that claim to be able to deliver viable movements of goods with no impact on congested roads or air quality.
- 11.9.2. While some solutions are aimed at strategic long-distance freight, others are more suitable for shorter distance deliveries into cities or even just within large buildings or developments, such as the Envac system for domestic refuse collection via vacuum pipelines.

Case Study: Magway



Goods bought online could be transported into cities through pipes similar to those used by utility companies.

Magway promote that their solution addresses the multiple environmental and infrastructure challenges caused by the explosive growth in e-commerce deliveries. Magway is a “delivery utility”, delivering

parcels between distribution centres and consolidation centres via underground pipelines similar to those used by water, gas and electricity companies. The solution will significantly reduce Heavy Goods Vehicles (HGVs) from the road network and substantially decrease the resultant emissions, accidents and road maintenance costs. At the same time, it enables e-tailers to better service customers, improving flexibility and reliability at a reduced cost for outwards orders, as well as returns.

Opportunity:

Transfer goods away from roads to zero emission pipeline systems. Establish EEH as a leader in logistics technology.

SUMMARY OF OPPORTUNITIES FOR CONSTRUCTION LOGISTICS, RURAL LOGISTICS, AND NEW MODES

Issue	Opportunity
Major infrastructure projects	Improve the efficiency of construction of major infrastructure projects and reduce impacts on the environment and local communities.
The impact of construction traffic	Reduce construction traffic impacts and reduce construction costs through applying the most appropriate measures.
Need and opportunity to upskill construction logistics	Reduce the impact of construction hgv movements by ensuring that developers and local government staff are trained and qualified.
Rural logistics	Reduce the impact of hgvs on rural communities while maintaining or improving the efficiency of deliveries to support communities and businesses.
New modes	Transfer goods away from roads to zero emission pipeline systems. Establish EEH as a leader in logistics technology.



12

SOLUTIONS - LONG LIST

12 SOLUTIONS - LONG LIST

12.1 INTRODUCTION

12.1.1. This section proposes solutions intended to address the issues and opportunities identified in Section 11 and elsewhere in the report. Solutions are primarily aimed at interventions which are within the remit of England's Economic Heartland to address or influence, including solutions which may actually be delivered by other bodies, whether at a more national level or locally.

12.2 STRATEGIC

Issue	Opportunity
The challenge of growth	Deliver growth in population and employment but increase freight movements at a significantly slower rate.
Planning for freight	Optimise freight movements in a growing region by ensuring that freight needs are taken into consideration more thoroughly throughout the planning process.
Logistics innovation	Encourage investment by supporting logistics innovation across the region, with EEH becoming recognised as an international leader in the field.
Rapid development of supply chain technology	Optimise efficient deliveries and freight transport across the region by supporting businesses in EEH to adopt new logistics solutions and technologies.
Lack of data	To build on EEH's regional evidence base, by identifying and utilising new sources of data to support planning and traffic management.
Regulatory certainty and consistency	To use EEH to review and coordinate freight regulation and restrictions across the region, making the region a more attractive location and destination for businesses and improving logistics efficiency.
Logistics skills gap	To address skills and workforce gaps in the region, enabling continued growth and providing opportunities for residents and attracting new business.
Land for distribution and clustering	To enable investment and growth and to reduce surplus freight movements by ensuring that land is available for logistics needs, provided with innovation in mind.

DEVELOP AN ONGOING ENGAGEMENT PLAN

12.2.1. It is established good practice that freight policy is delivered best when government works closely with industry and other stakeholders (including community groups). This was also recognised in the NIC freight report. The freight officer needs a structured and comprehensive approach to working with stakeholders to understand needs and develop solutions.

- 12.2.2. An engagement plan needs to consider the issues that are a priority for the industry and as such the engagement activity undertaken as part of this study for a good baseline. A plan needs to consider timely and appropriated communications, that are two way; ensuring that any feedback received is considered. In addition, engagement must not to be over burdensome, which may result on “engagement fatigue”.
- 12.2.3. Engagement can include a Logistics Forum (see below), one to one meetings, surveys, and attendance at industry groups such as regional meetings of the Freight Transport Association, Rail Freight Group, and the Road Haulage Association.

CREATE AN EEH LOGISTICS FORUM

- 12.2.4. Building on the need to work with stakeholders, Freight Quality Partnerships (FQPs), introduced in the 1990s, were the first formalised format for collaboration on freight issues at a local level. Most FQPs were briefly successful but difficult to sustain due to cost and the challenge of maintaining business interest. There are outstanding exceptions, including the Northamptonshire Logistics Forum.
- 12.2.5. A regional forum would be strongly placed to secure interest from businesses if it can be seen to have power and resources to deliver change. Some businesses would prefer to work with a regional forum than multiple local groups.
- 12.2.6. Any logistics forum must genuinely meet a need that is not met by any existing forum.
- 12.2.7. The forum would be the lead body for planning and delivering many of the actions identified in this report, working in part through focussed working groups covering areas such as construction or rural deliveries.
- 12.2.8. The Forum requires a number of features to make it sustainable. This includes:
- Strong support from the organising authorities, which identifies the Forum as a key component in developing and delivering logistics policies
 - Funding for meets, secretariat services, and potentially to deliver target research or project development
 - Making sure that the membership includes people who bring experience and commitment
 - Delivering projects through Working Groups to ensure that full Forum meetings are not diverted with detail
 - Making Forum meetings manageable, measurable, worthwhile and interesting – and keeping participants, particularly industry, engaged in overseeing and delivering a tangible work programme. Early tangible deliverables will reinforce industry commitment.
- 12.2.9. An essential initial phase of the set-up of the Forum will be to establish its governance, its objectives, key outputs and measures of success and how it contributes to the overall Freight Strategy.
- 12.2.10. Over time, this group could be the main governance body for all freight engagement, and could lead to specialist sub groups to deal with specific issues or opportunities such as skills shortage or innovation (see Innovation Forum).

APPOINT AN EEH FREIGHT OFFICER

- 12.2.11. Appointing an officer with specific and undivided responsibility for logistics issues across EEH would be a significant step to enable the delivery of all other solutions identified in this report,

and would be an indication that EEH is seriously addressing logistics issues – a key requirement from the NIC.

- 12.2.12. The importance of a nominated officer is increased in an environment where local authorities rarely have the resources for a freight officer at a local level – the role is sometimes undertaken part time. An EEH freight officer would be able to coordinate and support local colleagues.

CREATE A LOGISTICS INNOVATION WORKING GROUP AND INNOVATION CLUSTER

- 12.2.13. The EEH area is already a leader in technology, innovation and learning and so would appear to be a great place where Government can ‘test’ some unique approaches which serve the national interest and help continue to develop the Heartland to meet the needs and aspirations of the current and growing population.
- 12.2.14. Innovation is an important opportunity for the region and the logistics industry and as such to be successful will need a collaboration between government, industry, technology providers and academia. Reporting to the Forum, this group would need have some key features to be successful, including close links with technical groups such as Transport Systems Catapult (TSC).
- 12.2.15. The TSC or Connected Places Catapult model for managing such an Innovation Working Group, would be a good potential template, but the Logistics Innovation Group could be an EEH organisation, reflecting EEH’s strong role in logistics innovation and technology. The Catapult networks would work in support and continue to help break down the barriers to innovation that the market cannot; they would be a part of the provision of knowledge and network required.
- 12.2.16. An EEH logistics innovation cluster would bring together industry, academia/RTOs, consultancies for aiding delivery of projects and providing required information and data. EEH members, schools and colleges (for skills development) and, significantly, private investors (Angels, PEs, VCs, banks etc.) would provide the lion’s share of investment into the innovating companies developing in EEH.
- 12.2.17. An EEH Innovation Cluster could become self-financing and not require subsidy; but it would require some form of fiscal incentive to draw companies into the region, or stay in the region, and join the Innovation Cluster programme.
- 12.2.18. A key task for the Innovation Working Group would be to identify any regulatory constraints on logistics innovation and support EEH to work with other STBs to lobby for regulatory change. This might include researching the implication of competition policy for projects which foster collaboration between businesses.

PILOT A SYNCHROMODALITY TRIAL

- 12.2.19. The EEH area is already a leader in technology, innovation, and training and is a nationally important centre for logistics. As such EEH is well placed to host trials of logistics technology and systems. For example, innovation work programmes could focus on developing and establishing Sychromodality – connecting logistics hubs, corridors, and the businesses and customers they serve.
- 12.2.20. Sychromodality is defined by the European Technology Platform – Alliance for Logistics Innovation through Collaboration in Europe (ALICE) as synchronizing intermodal services

between modes and with shippers, aligning equipment and services on corridors and hubs and integrating these into networks. It represents a field of research and development that is considered critical to the delivery of the Physical Internet. The Physical Internet (PI) is a concept envisioning the application of a digital internet to the physical world to optimise logistics. In the Physical Internet consignments of goods are treated in the same way as data packages in the internet.

12.2.21. Intelligent Road Management of Freight, Adaptive and Collaborative logistics platforms, linking to a more developed trusted trader-like programme, greater automation across all modes, embedded into the planning system and process: all are key features of the areas of R&D and demonstrations that should be pursued. This is a massively important and growing area of research, yet investment into this area from the private sector remains limited. This is holding back development and innovation.

12.2.22. A Logistics Innovation Working Group would help create EEH as a centre of excellence in this field and provide the living lab for demonstration projects and a show-case for the economic development, jobs and growth it creates.

TRAINING AT A LOCAL LEVEL FOR PLANNERS

12.2.23. A complementary action to improve the standard of integration of freight into land use and transport planning is to train planners in best practice techniques such as specifying and monitoring Delivery and Service Plans. Transport for London has delivered a major programme to train planners and people from the construction industry in the completion and use of Construction Logistics Plans.

ESTABLISH BEST PRACTICE STANDARDS TO INTEGRATE FREIGHT NEEDS INTO PLANNING AND DECISION MAKING

12.2.24. This solution is intended to address the key challenge identified by the NIC Future of Freight Interim Report of “freight blindness” among planners and further discussed in their final report published in Spring 2019. The NIC found that this has resulted in policy makers or planners being unable to take account of, or plan effectively for, the needs of freight and that Government’s current approaches to policy making for freight are piecemeal, fragmented into individual modes and have struggled to proactively confront future challenges.

12.2.25. Relevant recommendations from the NIC final report include:

- Recommendation 3: to help manage peak time congestion on the urban transport network, local authorities should include a plan for urban freight within the infrastructure strategies they are developing.
- Recommendation 4: government should produce new planning practice guidance on freight for strategic policy making authorities. The guidance should better support these authorities in planning for efficient freight networks to service homes and businesses as part of their plan making processes. This new planning practice guidance, which should be prepared by the end of 2020, should give further detail on appropriate considerations when planning for freight .

12.2.26. EEH should work closely with the NIC and other STBs to identify and promote Best Practice in this area, making full use of the EEH Logistics Forum, building on existing Forums in the region.

An early objective should be to provide a standard approach to including freight needs in corridor and highway studies.

- 12.2.27. Currently, land use corridor studies and highway studies in particular identify the importance of efficient freight movement to the economy, but then deliver solutions focussed mainly on rectifying capacity constraints on the road network during the morning peak (this is a simplification of complex planning processes). While freight also benefits from capacity improvements, other improvements may be more beneficial such as improving resilience. There are many reasons for this, including the dependence on traffic or transport models which provide quantifiable outputs such as congestion impacts and direct and indirect costs of solutions.
- 12.2.28. Freight needs and impacts are much more difficult to model than the needs of people and the impacts of car or public transport journeys. Initially, this might mean that planners need to take more account of qualitative freight findings rather than quantitative measures. Eventually, effort in this area should include finding new sources of data and better information on needs, decision making process, and the value of impacts and benefits to businesses.
- 12.2.29. A Best Practice process for including effective consideration of freight needs and benefits for planners could take the form of a standardised format for formalised “Freight Impact Assessments” for all major projects and corridor studies.

CREATE AN EEH FREIGHT DATA REPOSITORY

- 12.2.30. The NIC’s final report on freight made the following recommendation:

“Recommendation 5: government should develop a data standard for freight data collection to support local authorities, outlining the requirements for technological capability, data requirements, and data format. Such a standard must seek to ensure consistent data quality and format across technologies to allow regional and national aggregation, and should be complete by the end of 2020.”

- 12.2.31. Again, EEH should work with the NIC and other STBs to ensure that data and formats meet needs identified by the Logistics Forum and are useful to a region planning major growth.
- 12.2.32. EEH can build on its Regional Evidence Base, particularly using the Project View GIS tool. This should include a programme of data collection including:
- Extracts and bespoke data sets from government and infrastructure providers (such as the Continuing Survey of Road Goods Transport)
 - Population and employment data to a detailed level
 - Databases of major employers and businesses
 - Focussed data from traffic counts
 - Data on emissions
 - Data on collisions and incidents involving goods vehicles
 - Data on the reliability of the road and rail networks
- 12.2.33. EEH should participate in or commission research into:
- Appropriate freight industry performance measures
 - The cost of incidents and congestion for freight
 - The value of freight and logistics to the region

12.2.34. EEH should work closely with industry and technology providers to understand and collect where possible freight data from new sources such as Delivery Management Systems. EEH should work with other STBs, the DfT, Network Rail, and Highways England to identify barriers to efficient data collection and sharing. An early task should be to develop a specification for data and an initial sharing of data to identify gaps and inconsistencies between different sources. This work should consider whether regulatory changes are required, including limited but mandatory data sharing with Government. EEH could potentially play a “broker” role in this – as an independent and trusted third party.

12.2.35. EEH should commit to publishing freight data in an open source format wherever possible.

PILOT PROJECT FOR THE COLLECTION AND USE OF FREIGHT DATA

12.2.36. EEH should use the Logistics Forum to create new approaches to sharing data between the public sector and businesses, including, possibly, a Logistics Data Sharing forum where potentially sensitive data can be shared and compared.

12.2.37. Various technology and logistics companies are beginning to think about how new types of logistics data can be used to support freight planning at a strategic level and also at a day to day traffic management level. Such ideas combine collected data with transport and traffic models to provide a much more sophisticated and potentially real time understanding of freight movements.

12.2.38. Such systems could feed data in to and receive data from, for example, smart motorways, adaptive signals, or city centre interactive delivery bays.

12.2.39. Given the very large percentage of goods vehicles fitted with active logistics planning and journey systems, there are opportunities to trial such approaches at a local or regional level, with a view to potentially integrating new logistics information systems into planning new communities and highways in EEH.

12.2.40. The EEH Logistics Forum should work with industry to deliver a pilot project within 5 years.

COLLECT AND MONITOR DSP AND CLP DATA

12.2.41. Interventions proposed include requiring new developments to prepare and report on Delivery and Service Plans (DSPs) and Construction Logistics Plans (CLPs).

12.2.42. At the planning stage, DSPs and CLPs provide extremely useful data on goods traffic generation. Many businesses use Delivery Management Systems to plan and monitor deliveries and so can be used to assess achievement of DSP and CLP objectives.

12.2.43. Under this proposed intervention, EEH would initially collate DSP and CLP inputs which could be provided through the freight data portal which is discussed earlier in this section (this is generally publicly available information forming part of a planning application).

12.2.44. Effective DSPs and CLPs are ones that are monitored and as such EEH should be monitoring (and potentially collect) data post implementation, although such data would have to be treated in confidence.

SUPPORT THE DEVELOPMENT OF “FUTURE LOGISTICS” TRAINING AND UPSKILLING BY LOCAL COLLEGES AND BUSINESSES

12.2.45. The study identifies the issue of skills gaps within the industry and the opportunity this presents for EEH to both preserve the industry already in operation in the region, but also to attract new business. Whilst this is a national issue there is a local opportunity to plug a gap in the market by addressing:

- A lack of understanding in the industry how to utilise existing funding streams e.g. apprentices
- Developing an understanding of future logistics skills and routes to address these
- Promotion of the industry as a destination for new starters through colleges
- Transfer of skills and encouraging people back into the industry.

12.2.46. The Logistics Forum should work with LEPs and training and education providers to identify skills gaps and develop and promote new courses where possible.

12.3 ROAD

Issue	Opportunity
Construction materials	Reduce construction costs and reduce the impact of construction by using rail to transport materials whenever possible.
Lack of capacity	Continue to grow rail freight market share to, from, and through EEH, reducing congestion and improving safety and air quality.
Longer freight trains	Reduce rail freight costs and improve rail freight track capacity utilisation by operating longer trains.
Lack of intermodal terminals	Increase the market share for rail freight, reduce road freight volumes, and provide businesses with a cost-effective alternative to road haulage by maximising the volume of new distribution development located at or near to an SRFI and by developing local rail terminals where practicable.
East West Rail opportunity	Reduce the impact of growth and reduce HGV movements by maximising use of EWR for rail freight.
Generally low average rail freight speed	Encourage good to transfer to rail by offering shorter journey times. This will also reduce rail freight costs through better asset utilisation.
Freight on passenger trains	Reduce lgv movements by transferring some transport of packages from road to rail.
Rail freight into London	Reduce the volume of road freight on motorways into London, with improvements in safety and emissions, through offering new rail freight services into city centre terminals.
HS2 impacts	Maximise use of rail freight and reduce HGV volumes through EEH by ensuring that adequate capacity is provided on the WCML. Particularly once HS2 is operational.

12.3.1. Solutions dealing with freight on roads needs to cover:

- Planning for freight (largely dealt with under the Strategic section above)
- Improving the efficiency of freight transport for example by improving payloads
- Reducing congestion and dealing with capacity constraints
- Dealing with emissions and other negative impacts

FOSTERING COLLABORATION

12.3.2. As considered within this study, empty and underutilised vehicles are still a feature of our roads. Whilst some of the quick wins have been addressed, there remains opportunity to maximise load fill, using empty running and sharing space in warehousing. The DfT's study into collaboration identified some of the barriers preventing the full utilisation and EEH could use the Logistics Forum to develop a "safe" environment in which to address some of those barriers in the region. Features of any collaborative efforts would need to be confidential with agreed sharing of benefits and reporting but there are case study examples, such as the Institute of Grocery Distributions (IGD) Efficient Consumer Response (ECR) programme, where there have been major successes in this area.

12.3.3. Initially the Logistics Forum should deliver local area based collaboration groups. Such groups would initiate a survey of major businesses the selected area (for example Milton Keynes) identifying what each business moves, approximate volumes, and origins and destinations. The collaboration group would then bring together businesses operating along common routes to identify opportunities to share loads.

12.3.4. In the longer term, collaboration would be delivered at a pan EEH level including consideration of data sharing standards and platforms.

IMPROVING STRATEGIC ROAD ACCESS

12.3.5. This report highlights the strength of the Heartland in having excellent road and rail access to all major markets in the UK via the radial motorways which pass through the region.

12.3.6. Whilst access to ports is also good, poor access East – West makes journeys to Southampton or Felixstowe quite slow from some part of the region. Many of the key issues facing businesses in the region are actually on parts of the network outside EEH, emphasising the need to work with other STBs and Highways England.

12.3.7. Other than emphasising the importance of the Oxford to Cambridge Expressway to improve connectivity within the region, at this stage it is not appropriate to develop a list of pinch points to be addressed simply because the quality of data on freight issues and benefits is not high enough to distinguish "freight pinch points" from general traffic pinch points addressed by existing transport planning approaches.

12.3.8. As EEH leads the development of best practice to integrate freight into planning, it will be able to prioritise and sequence infrastructure investment from a freight perspective. Much infrastructure benefits both freight and people but it may be that some interventions should have their priority increased if freight benefits were better taken into account. The EEH Logistics Group can undertake studies to identify any freight needs not highlighted by other studies.

OPTIMISE EXPRESSWAY DESIGN TO MAXIMISE FREIGHT BENEFITS

12.3.9. Development of the Oxford to Cambridge Expressway offers an opportunity to plan and design a route that is optimised to meet freight needs as well as the needs of car users.

12.3.10. The shape this takes will depend partly on demand forecasts for freight use of the Expressway. The objective would be to create a highway which:

- Is flexible and ready for diverse development is logistics technology
- Uses real time freight data to optimise capacity and service quality
- Provides capacity and service quality needed by freight users
- Is resilient, but with suitable diversionary routes for freight (including possible rapid implementation of alternate lane operation)
- Provides real time information for HGV operators to plan and re-plan journeys
- Provides parking and refuelling for goods vehicles, including any new fuel technologies
- Provides excellent access to freight generators / freight hubs
- Supports connected and autonomous goods vehicles as appropriate

SAFETY IMPROVEMENTS

12.3.11. DfT figures reveal that in 2015, 282 people were killed in road collisions involving HGVs in the UK. That's up from 268 the previous year. On motorways, 42 per cent of crashes in 2015 involved HGVs, with 45 people killed in these incidents. Fatalities in car crashes is just shy of twice as many, at 81 people. However, cars covered six and a half times more motorways miles than HGVs.

12.3.12. It's clear that lorries are proportionally over-represented and as such this needs to be tackled, not just for a moral perspective, but collisions and breakdowns in themselves can cause significant delays on our roads. Options that can be considered are:

- Implementation of Direct Vision standards in city centres
- Cycle awareness scheme (for cyclists to be aware of HGV movements) – in particular for areas of high cyclists eg Oxford and Cambridge
- Driver parking area to allow for proper breaks for drivers
- Using the Logistics Forum to explore technology solutions for HGVs, although it must be noted that whilst HGVs do pose risks, the increase number of van drivers need also be addressed from a safety awareness perspective

12.3.13. A key step in improving safety is to encourage and reward hauliers for implemented best practice in fleet and driver management, for example by requiring accreditation to best practice programmes such as FORS or ECO Stars for businesses trading in the Heartland.

DELIVERING RELIABILITY AND RESILIENCE

12.3.14. The ability to predict journey times with some confidence is more important for freight users of the road network than for other users. Unexpected delays can lead to significant cost increases, magnified by limitations on drivers' hours and the "Just In Time" nature of modern supply chains.

12.3.15. EEH should work in partnership with highways authorities and member local authorities and LEPs to:

- Identify priority freight routes as a resilient network

- Encourage highways authorities to focus on designs and maintenance regimes to make these routes more resilient to bad weather
- Identify approaches to maximise recovery times from collisions and other incidents
- Identify and publicise alternative routes for goods vehicles
- Identify communication channels to provide HGV drivers with real time information about incidents.

ABNORMAL INDIVISIBLE LOADS (AIL)

12.3.16. AILs, whilst not as common as standard HGV movements, do have special needs that should be considered as part of the planning process of new developments, in particular in the energy sector. Therefore, it is important to understand the impact of these on the EEH area:

- To commission a review of all known, planned, proposed and conceptual AIL needs in the region over the next 30 years and how this impact infrastructure proposals being developed with the Transport Plan.
- To consider potential AIL needs in plans for highways upgrades or construction.
- To work with industry, through the EEH Freight Forum with the potential to create a specialist AIL sub group.



CASE STUDY: AIL COLLABORATION.

Movement Along Welsh Routes (MAWR) is a group consisting of companies with a requirement to move Abnormal Indivisible Loads (AIL) in the North Wales area. Member companies include First Hydro Company, National Grid and Magnox. Horizon Nuclear Power have also attend meetings in recent years. Each of these companies has a requirement for heavy load access to their associated power stations and substations in North Wales. MAWR meets every year, with representatives of the Welsh Government and local authority highway departments also in attendance, with a remit to discuss issues impacting on heavy load access to power stations and substations. This applies to routes that require AIL access and as such are regarded as being strategically important by MAWR. AIL movement requirements are infrequent but access needs to be maintained at all times to enable expedient movement in the event of a system failure at a power station or substation resulting in the need for an emergency AIL movement.

MAWR has spent considerable time and resources over the years in ensuring that access for heavy loads is maintained to member company's sites. Typically, heavy load requirements are necessary from the ports of Holyhead, Port Penrhyn and Porthmadog to power station and substations sites at Dinorwig, Pentir, Wylfa, Trawsfynydd and Ffestiniog. As part of the work of the group the new A55 DBFO scheme across Anglesey has been constructed as being able to accommodate the existing MAWR company requirements. MAWR has also been involved with plans related to the redevelopment of the approach roads into the port of Holyhead.

The group has worked well over the years due to the specific logistical challenges of its geographical location in North West Wales but the principle of a collaborative approach to discussing future movement requirements of end users and upgrades and changes to infrastructure on known heavy load routes being advised by highway authorities to these end users has been proven to be beneficial to all parties in the past.

Whilst each area of the UK will of course be different the principle works well and there may be other areas where a similar forum could offer benefits to long term planning of infrastructure schemes from both a marine and road perspective as it relates to AILs.

LORRY PARKING

- 12.3.17. As identified in Section 5.6 of this report, a shortage of lorry parking in some parts of EEH was identified in the 2017 DfT Lorry Parking Survey.
- 12.3.18. Lack of parking leads of lorries driving additional miles, complaints from residents and others impacted by unsuitable parking, and unacceptable conditions for lorry rivers.
- 12.3.19. As well as addressing existing supply gaps, EEH needs to ensure that sufficient lorry parking is provided during the development of new and expanded communities, particularly on or near to the proposed Expressway.
- 12.3.20. The EEH logistics Forum should commission a lorry parking survey, and should work with planners and private sector developers to ensure that gaps are addressed and future needs catered for. EEH needs to work with other STBs, Highways England and DfT in order to influence the wider issues of lorry parking, as well as dealing with lorry parking gaps within the region.
- 12.3.21. The EEH logistics forum should support hauliers and operators by clearly identifying suitable parking, including on satnav mapping and by clear signposting.
- 12.3.22. Planning Authorities within EEH should ensure that any new industrial development should have adequate good quality HGV parking facilities adjacent. If these do not already exist then new HGV parking should be included as an integral part of the development.

ALTERNATIVE FUELS SUPPORT PROGRAMME

- 12.3.23. The way forward for zero emission HGVs is a current focus of research for the DfT, the NIC, Midlands Connect and others and with no clear outcomes to date. Progress for LGVs has been more positive, with many businesses already switching to electric LGVs, and new models being unveiled regularly.
- 12.3.24. Key objectives for EEH should be:
- To ensure that businesses in the area are among the first to uses zero emission HGVs and LGVs
 - That local businesses and industry lead or are involved in development and design
 - That energy networks are ready for new demands
 - That hydrogen filling stations or recharging points are available where required.

12.3.25. Oxfordshire is already progressing a study of the implications of electric vehicles for local charging points and connections to the power grid. EEH should build on this research by looking more deeply at the needs of goods vehicles.

12.3.26. This work should be led by the Logistics Forum by monitoring research and innovation, and working with business and other groups to develop programmes to provide support where required.

12.4 RAIL FREIGHT

Issue	Opportunity
Construction materials	Reduce construction costs and reduce the impact of construction by using rail to transport materials whenever possible.
Lack of capacity	Continue to grow rail freight market share to, from, and through EEH, reducing congestion and improving safety and air quality.
Longer freight trains	Reduce rail freight costs and improve rail freight track capacity utilisation by operating longer trains.
Lack of intermodal terminals	Increase the market share for rail freight, reduce road freight volumes, and provide businesses with a cost-effective alternative to road haulage by maximising the volume of new distribution development located at or near to an SRFI and by developing local rail terminals where practicable.
East West Rail opportunity	Reduce the impact of growth and reduce HGV movements by maximising use of EWR for rail freight.
Generally low average rail freight speed	Encourage good to transfer to rail by offering shorter journey times. This will also reduce rail freight costs through better asset utilisation.
Freight on passenger trains	Reduce lgv movements by transferring some transport of packages from road to rail.
Rail freight into London	Reduce the volume of road freight on motorways into London, with improvements in safety and emissions, through offering new rail freight services into city centre terminals.
HS2 impacts	Maximise use of rail freight and reduce HGV volumes through EEH by ensuring that adequate capacity is provided on the WCML. Particularly once HS2 is operational.

CORRIDOR APPROACH TO CAPACITY AND CAPABILITY

12.4.1. Section 6.5 identified the following important rail freight corridors within EEH and serving EEH:

- The West Coast Main Line (WCML) for intermodal freight

- The Cherwell Valley Line, Great Western Main Line, and Reading to Southampton network for intermodal
- The Felixstowe to Nuneaton line (F2N) and connecting routes for intermodal
- The Midland Main Line and F2N for aggregates

12.4.2. EEH should work with Network Rail and partner STBs to develop a corridor approach to specifying and providing capacity (paths per hour), capability (loading gauge, train length, and route availability), and service quality (journey times, diversionary routes) along these routes.

12.4.3. Capacity provided for freight should be at least equivalent to Network Rail market forecasts.

12.4.4. EEH should work with other STBs and stakeholder groups to ensure that some capacity released on the WCML by the opening of HS2 should be reserved for freight use, providing at least 5 freight paths per hour in the daytime on the WCML south of Crewe.

FELIXSTOWE TO NUNEATON IMPROVEMENTS

12.4.5. In the long term, all of these routes should be electrified to 25kv ac. EEH should work with partners to seek to prioritise capacity enhancements and electrification for the Felixstowe to Nuneaton route. Without electrification, electrically hauled trains from Felixstowe via London will be replaced by diesel hauled trains via Nuneaton.

12.4.6. Electrification offers opportunities to operate longer trains with better acceleration, reducing the impact of freight trains on capacity.

12.4.7. EEH should work with Network Rail to identify connectivity improvements to the Heartland from Felixstowe, allowing F2N services to reach terminals in EEH without reversing en route. This should include planning and specification of the EWR Eastern Section.

CONSTRUCTION MATERIALS TERMINALS

12.4.8. The growth of communities in EEH should be supported by new rail freight terminals to bring construction materials as close as possible to construction sites, notably along the EWR route.

12.4.9. EEH should work with land use planners to identify potential locations for rail terminals near to possible new developments. The potential for rail freight services should be one factor in determining the location of new communities.

12.4.10. EEH should work closely with materials suppliers to forecast potential demand for rail freight services, and to ensure that capacity is provided by Network Rail / EWR.

12.4.11. New construction terminals should be designed flexibly to accommodate a range of commodities, and possibly to share rail connections with local intermodal or general merchandise rail terminals, including over the long term once construction activity has declined.

12.4.12. Projects such as HS2 will generally seek to provide rail accessed construction materials sites at key locations. EEH should work with planners to investigate opportunities for longer term use of such terminals once construction has been completed.

ENCOURAGE THE DEVELOPMENT OF SRFIS

12.4.13. Strategic Rail Freight Interchanges (SRFIs) are a key driver of rail freight growth. They provide major benefits by reducing strategic road traffic and reducing costs for local businesses to access markets and supplier.

- 12.4.14. An SRFI is a distribution park of over 60 Hectares with an active intermodal terminal and rail access to some of the warehouses. The premier example in England is DIRFT in EEH.
- 12.4.15. EEH should support and encourage the development of new SRFIs, particularly where they address gaps in provision, including in Cambridgeshire and towards the west of the Heartland.
- 12.4.16. EEH should work with planners to encourage the developers of all major industrial and distribution parks to provide rail connections to their developments where possible.
- 12.4.17. EEH should work with Oxfordshire County Council and land owners to investigate opportunities to provide rail freight facilities as part of the redevelopment of MOD land t Bicester.
- 12.4.18. EEH should work with land owners and Honda to protect rail access to the Honda site, including supporting any plans to reinstate the rail connection. If Honda were to close the plant at Swindon, any new development on the site could then potentially benefit from rail freight services. This could include developing an SRFI on the site. The EEH Logistics Forum could work with the rail freight industry to monitor opportunities to develop smaller intermodal terminals in the longer term.

LINK SRFIS TO DELIVERY TERMINALS IN LONDON.

- 12.4.19. Section 11.4.30 identifies an opportunity to operate rail freight services between terminal in the Heartland and central London rail terminals, possibly associated with London passenger rail termini.
- 12.4.20. DIRFT would provide a potential source for such services, potentially delivering supermarket goods into Central London for the major retailers located at DIRFT. EEH should work with freight operators and businesses to research such opportunities including considering appropriate rail / intermodal technology.

ENCOURAGE FREIGHT USE OF EWR

- 12.4.21. There appears to be potential for freight use of the East West Railway (EWR). However, it is not clear whether the new and upgraded route will have adequate capacity to meet this demand. In addition, new sections need to be designed to provide connectivity to other routes to maximise freight potential.
- 12.4.22. EEH should support EWR to investigate the demand for rail freight services, to promote EWR as a freight as well as passenger route, and to provide capacity and connectivity for freight services.
- 12.4.23. In particular, EWR should promote the development of terminals along EWR to provide construction materials to support growth in EEH.

12.5 AIR FREIGHT

Issues and Opportunities

- Maintain the competitiveness of businesses in the region by improving access to the key freight airports, particularly Heathrow.

IMPROVE CONNECTIVITY TO HEATHROW

- 12.5.1. Heathrow airport generates 11,000 goods vehicle trips every day, but most of these will be destined for the surrounding industrial estates and business parks. There is no significant area land in the EEH area close to Heathrow suitable for warehousing or related uses.
- 12.5.2. However, EEH businesses are likely to be very reliant on good access to the airport. Organisations in engineering, technology, research, pharmaceuticals, and the media are among those making greatest use of air freight. There is some risk that parts of the EEH area depend on hubs in the Midlands to access air freight services in a typical hub and spoke operation.
- 12.5.3. The EEH Logistics Forum should work with air freight operators, consolidators, and local businesses to research service needs and delivery from the region in order to develop a plan to improve access.

12.6 URBAN LOGISTICS

Issue	Opportunity
New Communities, Homes, And Employment	Ensure that new communities can be served by efficient zero carbon logistics delivery systems.
Support for urban freight initiatives in local strategies	To improve the efficiency of deliveries into towns and cities and reduce impact by coordinating and supporting initiatives.
Historic city centres Oxford / Cambridge	Share expertise and address the unique challenges of delivering into historic city centres.
High percentage of deliveries in the morning peak	Reduce peak hour goods traffic in towns and cities leading to reduced congestion and reduced conflicts with pedestrians and cyclists.
Increasing LGV traffic	Improve understanding of the nature of lgv traffic in order to consider opportunities to reduce the growth in volume and reduce the impact on congestion and the environment.
Air quality	Improve air quality in towns and cities through coordinated initiatives. Support local businesses to understand the potential of new delivery apps and information systems to improve efficiency. Maximise opportunities to use data to reduce the impact of freight and improve efficiency.
Lack of consolidation centres and fragmented procurement	Reduce the number of vehicles making deliveries into urban areas, with deliveries being in zero emission vehicles. Reduce additional mileage due to drivers not knowing the area or delivery bays not being available.

- 12.6.1. While Urban Logistics could be seen as a local issue, there are benefits in developing common solutions across EEH. These including reducing the risk of uncoordinated regulation (as suggested by the NIC), and supporting local government and LEPs by providing a central resource.

RESEARCH AND PLAN FOR IMPROVED LAST MILE LOGISTICS SOLUTIONS IN NEW AND GROWING COMMUNITIES

- 12.6.2. EEH should work with planners, developers, technology companies, freight operators, and research groups to identify potential for new and expanded communities to be designed and built to enable new technologies and techniques in the fields of last mile and last metre logistics.
- 12.6.3. The objective should be to develop communities and business locations which:
- Are easy and inexpensive for deliveries
 - Minimise freight vehicle movements on roads
 - Can be completely served and serviced using zero emission vehicles, including cargo bikes
 - Provide land and buildings needed for logistics, including local micro consolidation centres
- 12.6.4. For example, while there are trials of delivery robots underway in Milton Keynes (Case Study: Starship), such services may be of limited value in older cities and where pavement space is limited. Potential could be maximised if provision was made for driverless vehicles at the planning stage.
- 12.6.5. Even then, such technologies only make deliveries to the frontage of buildings, meaning that residents and businesses need to be available to go outside to collect their packages. A newly designed building could include automated access to lifts or to drop boxes inside buildings.
- 12.6.6. Data is as important as technology, and new communities could be built to fully take advantage of new and real-time freight data.
- 12.6.7. The EEH Logistics Forum Innovation Cluster should have a particular objective to research and nurture new urban delivery systems.

EMBED DELIVERY AND SERVICING PLANS INTO THE PLANNING PROCESS

- 12.6.8. Delivery and Service Plans are a fundamental tool to improve urban deliveries and minimise their impact. A Delivery and Servicing Plan (DSP) is a logistics management tool for a development to reduce the impacts of delivery and servicing activity at a site. An effective DSP should incorporate a mixture of measures including those targeted at procurement, delivery booking systems, consolidation, re-timing, marketing and management measures.
- 12.6.9. Several local authorities require planning applications of certain types and scales to include a DSP as part of the planning process, including London Boroughs who use DSP guidance drawn up by TfL.
- 12.6.10. EEH should work with local authorities to enable DSP's to become a planning requirement for every planning authority in the area. This should include suggesting best practice, training businesses and local government staff, and collecting, collating, and monitoring data provided as part of the process.

- 12.6.11. TfL has extended the use of DSP's to the scale of the High Street rather than individual businesses, enabling communities to look at delivery issues across a large area in a structured way.
- 12.6.12. The EEH logistics working group should work with local authorities to identify towns and cities where a "High Street DSP" could appropriately be delivered.

RESEARCH AND DEVELOP SOLUTIONS FOR DELIVERIES INTO HISTORIC CITIES AND TOWNS

- 12.6.13. Deliveries into Oxford and Cambridge present particular challenges (and opportunities) for delivery companies, to improve air quality, and to reduce congestion and conflicts with vulnerable road users.
- 12.6.14. Solutions to maintain the efficiency of deliveries are likely to include smart procurement and some type of consolidation.
- 12.6.15. Through the Logistics Forum EEH will be well positioned to support local government, LEPs and businesses to address these issues by researching the issue and supporting solutions.

ENSURE THAT LAND IS AVAILABLE FOR URBAN LOGISTICS

- 12.6.16. For new and existing towns and cities, as deliveries into the centres become more restricted, businesses will seek to transfer goods to zero emission vehicles for final delivery.
- 12.6.17. It may be several years before zero emission HGVs are a reality, and providing transfer facilities will allow businesses to decouple trunk haulage by HGV or rail from final delivery in electric or human powered vehicles.
- 12.6.18. Such facilities do not need to be warehouses, and don't need to be located in industrial areas. The City of Paris has already created transfer facilities in under used multi storey car parks, and it seems that the City of London will soon do the same. A transfer facility or micro consolidation centre could be located in underused storage space, or within new multi-functional buildings. This will be eased if traditional land use designations could be more flexible.
- 12.6.19. EEH should work with industry and planners to forecast demand for such facilities and to provide specifications for the types of building needed. Designs for new or expanded communities should include such provision.

REVIEW DELIVERY RESTRICTIONS ACROSS EEH

- 12.6.20. This is, again, a response to a frequent complaint from businesses that has been taken up by the NIC in the Future of Freight Interim Report, namely that regulations are prone to change, and are not applied uniformly across different areas.
- 12.6.21. Recommendation 3 in the NIC report includes: "to help manage peak time congestion on the urban transport network, local authorities should include a plan for urban freight within the infrastructure strategies they are developing. These plans should review local regulations to incentivise low congestion operations".
- 12.6.22. An example provided is the introduction of Clean Air Zones which have been applied differently in different cities. Similarly, while London has developed the Direct Vision Standard for HGVs, there is a real danger that different standards could be applied in different cities.

- 12.6.23. Regulatory uncertainty and inconsistency adds to costs for businesses and can deter innovation.
- 12.6.24. EEH, as a Sub National Transport Body, has an opportunity to coordinate regulation across its area and also to set a longer-term direction for regulation to encourage innovation and best practice. The EEH Logistics Forum should be responsible for providing advice and guidance on the direction of freight regulation across the region.
- 12.6.25. The first task should be to review existing delivery and freight restrictions across the EEH area.

PROMOTE RETIMING OF DELIVERIES

- 12.6.26. Many businesses receive deliveries during the morning peak as it suits their operational model. But many also do so because they are prevented from making deliveries by planning or other restrictions, or simply because it is what they have always done.
- 12.6.27. Transport for London has developed a delivery retiming toolkit that provides a structured process to identifying opportunities to retime and lift restrictions. A number of businesses have undergone the process and changed delivery times to off peak times – often at night. Businesses who have made the change reported significant cost reductions. Precautions against noise have been rigorously applied, and generally local residents are unaware that the change has taken place.
- 12.6.28. However, the TfL process takes time and is costly as it needs detailed study of noise sources, plans for mitigation, and monitoring of changes.
- 12.6.29. EEH should promote retiming, but develop solutions either on an area by area basis or by working with larger businesses company by company across the region. This will require some funding for an ongoing programme, but the benefits in terms of reducing the impacts of urban deliveries can be significant.

PUBLIC SECTOR CONSOLIDATION AND PROCUREMENT

- 12.6.30. Members of EEH and other government and academic bodies can play a leading role to demonstrate the benefits of consolidation and smart procurement. There are several good case studies of local government, NHS trusts, or universities significantly reducing the number of deliveries by comprehensively reviewing procurement systems and planning deliveries across the organisation.
- 12.6.31. Smart procurement can mean reducing the range of suppliers and delivery points, or simply decreasing the frequency of deliveries (for example paper supplies twice per week instead of daily). Many organisations are already developing such approaches, for example the University of Oxford's Sustainable Procurement Strategy.
- 12.6.32. The EEH Logistics Forum should identify an organisation or group of organisations to undertake a trial, including researching demand and proposing the best approach. Outcomes should be publicised and guidance produced to spread best practice across the region.

12.7 CONSTRUCTION LOGISTICS, RURAL LOGISTICS, AND NEW MODES

Issue

Opportunity

Major infrastructure projects	Improve the efficiency of construction of major infrastructure projects and reduce impacts on the environment and local communities.
The impact of construction traffic	Reduce construction traffic impacts and reduce construction costs through applying the most appropriate measures.
Need and opportunity to upskill construction logistics	Reduce the impact of construction hgv movements by ensuring that developers and local government staff are trained and qualified.
Rural logistics	Reduce the impact of hgv's on rural communities while maintaining or improving the efficiency of deliveries to support communities and businesses.
New modes	Transfer goods away from roads to zero emission pipeline systems. Establish EEH as a leader in logistics technology.

REQUIRE CONSTRUCTION LOGISTICS PLANS AS PART OF THE PLANNING PROCESS

- 12.7.1. As explained in Section 8.3, CLPs are a fundamental tool to encourage and require developers and contractors to consider logistics and implement best practice at all stages of planning and construction.
- 12.7.2. Most planning authorities require some kind of assessment of construction traffic as part of the planning process. A formal CLP provides a systematic approach that can be assessed objectively and monitored, and EEH should work with all planning authorities across the region to ensure that CLPs in a consistent format are required for all major planning applications.
- 12.7.3. TfL guidance on CLPs is available online and is adequate as a template for other areas such as EEH.
- 12.7.4. In order to be most effective, those involved in writing, appraising, and implementing CLPs should undertake accredited training.
- 12.7.5. A key role for EEH is to encourage consistent application across the region, and to correlate outcomes, including collecting data and monitoring and publishing KPIs such as the number of deliveries per unit of development.

IMPROVED APPROACHES TO INFRASTRUCTURE DELIVERY

- 12.7.6. It is difficult for EEH to influence the processes used in delivering major national projects such as HS2. However, for regional scale projects such as the proposed Oxford to Cambridge Expressway, EEH should work with project delivery bodies from the earliest stages to ensure that best practice in construction logistics is implemented.

- 12.7.7. A key challenge is that construction is often packaged out to contractors with a focus on cost and schedule. As part of this process, plans to minimise logistics impacts, including plans to use rail freight, are often lost or diluted as the focus on cost and deliverability sharpens.
- 12.7.8. EEH should work with project delivery bodies to develop procurement processes that highlight the importance of best practice construction logistics both to minimise impacts and to reduce delivery costs.

COORDINATED LOGISTICS AND CONSTRUCTION CONSOLIDATION CENTRES

- 12.7.9. Major land developments, such as new towns or regeneration zones, are usually packaged out to a range of developers and over a long period of time. This is to ensure that large areas can be developed effectively, but also at a rate that the market can bear.
- 12.7.10. A common outcome is that development of each area then takes place separately from neighbouring developments. This reduces the potential to implement effective construction consolidation centres, and risks lack of coordination that can result in combined peaks of construction vehicles on local roads or even to a lack of needed resources such as cranes or tippers.

Case Study: Royal Seaport Stockholm



The Royal Seaport is a major regeneration of an area formerly occupied by heavy industry. Eventually it will include 10,000 homes and 30,000 jobs. Development is focussed on providing an attractive environment which is highly sustainable.

Unusually, the Royal Seaport has packaged out development into quite small blocks. This is intended to foster diversity in design.

A key feature during the construction phase is a Construction Consolidation Centre. This facility is located on the site. All developers and contractors must join the consolidation centre and undertake an introductory course. All construction deliveries must be booked via the consolidation centre. Each site is gated, with access electronically controlled.

However, deliveries can be direct to the construction site unless the delivery is for less than 1/3 of a full vehicle. For such cases delivery must be to the consolidation centre premises where goods are stored for delivery in consolidated loads. All waste must also be collected by the consolidation centre for transfer via the consolidation centre building.

- 12.7.11. EEH should require each new community to develop a coordinated CLP as well as individual CLPs for each development. Large areas should be encouraged to follow the Royal Seaport model, with a requirement to join a central delivery management organisation.

RESEARCH AND PLAN FOR THE IMPACT OF MODULAR CONSTRUCTION

- 12.7.12. While new approaches to logistics best practice have been researched and are being implemented by contractors across the country, these are almost always in the context of traditional construction techniques.

- 12.7.13. It would seem likely that development of the scale envisaged for EEH will require innovation in construction methods, including the use of modular construction, where building elements are constructed in a factory and assembled on site.
- 12.7.14. The implications for logistics are not yet well understood. One way of minimising impacts may be for the factories making buildings to be located within EEH, and close to construction sites.
- 12.7.15. EEH should monitor the development of new techniques closely, and potentially research implication for logistics.

RURAL DELIVERY AND SERVICE PLANS

- 12.7.16. Any regional approach to the issue of rural deliveries needs to carefully balance impacts on communities and the environment with the need to support rural businesses and ensure that rural communities are not disadvantaged by extra delivery costs or unhelpful restrictions.
- 12.7.17. This is an issue which has received little attention, other than imposition of HGV bans and weight or width restrictions.
- 12.7.18. As with other areas of logistics management, the best approach is for EEH and its partners to work closely with businesses and communities.
- 12.7.19. One solution may be to develop a new type of Rural Delivery and Service Plan for specific rural areas within the region. Like urban Delivery and Servicing Plans these would collect data on delivery needs and provision and seek to reconcile these by encouraging better planning and management of deliveries, smarter procurement by businesses, and potentially the use of environmentally friendly vehicles operating from rural consolidation centres.
- 12.7.20. EEH's role would be to develop an approach for rural DSPs and pilot a rural DSP for a selected area.

RURAL CONSOLIDATION CENTRES

- 12.7.21. As part of the development of rural logistics best practice, understanding the need and appropriateness of rural consolidation centres is needed. It seems logical that consolidation in rural areas would support an efficient delivery and service solution for rural areas, however, the practicalities to make this an efficient and cost-effective solution needs to be considered.
- 12.7.22. EEH should work closely with partners in an identified area to research potential for a Rural CC and possibly to support a pilot operation.

MONITOR AND SUPPORT FREIGHT MODAL INNOVATION FEASIBILITY STUDIES

- 12.7.23. While this study warns against technologies which are “solutions looking for a problem”, there are several companies in the UK seeking to demonstrate the potential for freight pipeline. This is an area that central Government and the Connected Places Catapult has identified as having a good fit with technology businesses in the UK, particularly in the EEH area.
- 12.7.24. However, few if any of the promoters have developed business cases, nor even identified with clarity what the function of freight pipelines within supply chains would be.
- 12.7.25. As well as monitoring technological developments through the Innovation Cluster, EEH should investigate market potential for pipeline technology, including case studies and an outline business case for potential applications.

12.8 SOLUTIONS CONCLUSION

- 12.8.1. Taken together these solutions provide a comprehensive toolkit to address the issues identified in this report. In particular, the solutions identified should enable EEH to effectively include efficient, low impact, logistics in planning for growth in the Heartland.
- 12.8.2. It is recognised that these solutions represent a major programme of work for EEH. The following chapter addresses approaches to prioritising solutions and proposes a work programme for the first five years on the new approach to logistics planning.

13

DEVELOPING AN EEH LOGISTICS STRATEGY

13 DEVELOPING AN EEH LOGISTICS STRATEGY

13.1 OVERVIEW

- 13.1.1. This chapter develops a vision and objectives for logistics and freight in the Heartland. The long list of solutions is then reviewed against those objectives to develop a prioritised set of recommended actions which are then developed into an action plan. The solutions also need to be considered in terms of their effectiveness in different areas of the industry reflecting the wide variety of business types and sizes within the freight and logistics industry.
- 13.1.2. The freight strategy and freight solutions are intended to be considered for inclusion in the EEH Transport Strategy, and so this section also reviews the development of the wider transport strategy.

13.2 EEH OUTLINE TRANSPORT STRATEGY

- 13.2.1. EEH is publishing an Outline Transport Strategy in order to begin a wider conversation with people – businesses, local communities and partners - across the region and beyond. This will inform the development of the Transport Strategy, to be consulted on in spring 2020.
- 13.2.2. The primary purpose of the Transport Strategy for the Heartland will be to set the framework for investment required to improve connectivity and to identify the pipeline of infrastructure capacity that is required to both support the delivery of current plans, and enable further growth to take place.
- 13.2.3. In developing detailed proposals, EEH's approach to connectivity will be shaped by three factors:
- Local connectivity – ensuring that connectivity offers convenient, attractive and safe choices for movement and supports the underpinning principles of being active and inclusive
 - Freight and logistics – the continued success and growth of the EEH economy will be dependent upon our businesses having access to labour and access to markets
 - National / international connectivity – ensuring that connections beyond the region operate as a system, one that aligns with the strategies of our neighbouring regions.
- 13.2.4. In December 2018 the EEH Strategic Transport Forum adopted a vision that focusses on
- “To connect people and places with opportunities and services”***
- 13.2.5. In addition, the Outline Transport Strategy asserts that region should set itself the ambition for its transport system to be zero-carbon by 2050.
- 13.2.6. In developing the detail of the Transport Strategy, EEH proposes to focus on three key principles:
- Enabling Economic Growth
 - Accessibility and Inclusion
 - Quality of Life and Environment
- 13.2.7. Of the three principles, economy and quality of life are most relevant for a freight strategy, although logistics also plays a role in accessibility and inclusion by ensuring that people and businesses in rural economies have access to the same goods and services as those in more

urban areas. In particular the December 2018 document makes the following comments in the Economy principle:

“The function of a Sub National Transport Body is to drive economic growth, including managing the opportunities for transformative growth and inclusive growth. The EEH Strategy will be embedded within, and support the delivery of the cross corridor Economic Vision for the Ox-MK-Cam corridor as well as also individual LEPs’ Local Industrial Strategies and, where appropriate, strategic economic plans.

The Strategy is intended to stimulate innovative and creative business via strategic, long term policy making and will improve safety, reliability, and resilience of the network to maximise productivity of goods, services, and commuters.”

LOCAL PRIORITIES CENTRAL SUPPORT

- 13.2.8. While EEH has a strategic focus, it can unlock opportunities and address issues at a local level by working with local authorities and LEPs. In particular, in logistics terms EEH has an important role to play in supporting efficient, low impact, local deliveries – “the last mile”.

NATIONAL PRIORITIES: NIC BETTER DELIVERY REPORT

- 13.2.9. It is also important to address the concerns raised in the NIC Better Delivery report. EEH can work with other STBs to help to convert the aspirations and recommendations of the NIC report into policies and actions at sub national and local levels.
- 13.2.10. In particular, EEH and other STBs need to lead the way to improve the consideration of freight needs and opportunities in land use and transport planning. This means making better use of data, involving businesses more in developing and considering options, and improving the consideration of freight benefits and impacts.
- 13.2.11. Many of the issues and solutions to achieve the vision for logistics in EEH will require national policy changes or working with partners for delivery.
- 13.2.12. Where required, EEH should lobby national government and infrastructure operators (English Highways and Network Rail) to adopt policies that encourage more efficient low impact freight operations.
- 13.2.13. EEH should work with neighbouring STBs on cross boundary issues, in particular to provide capacity and allow for efficient freight operations on the main freight corridors such as the M1, WCML, A34, A14 and Felixstowe to Nuneaton route.

13.3 PROPOSED EEH LOGISTICS VISION AND OBJECTIVES

- 13.3.1. A slightly different vision will be needed for the freight strategy in order to focus action. It is suggested that the following alternative wording for the vision is adopted for the freight strategy:

“Efficiently connecting our businesses and people with goods and services”.

- 13.3.2. This would be supported with logistics objectives that reflect the principles behind the EEH Transport Strategy, the objectives of the EEH LEPs and Highways Authorities, and the NIC recommendations. The following objectives are proposed for an EEH Logistics Strategy. Under each objective set of performance measures is suggested.

IMPROVE THE CONSIDERATION OF FREIGHT IN PLANNING

- Land use planning
- Infrastructure planning
- Traffic management

ENHANCED DATA FOR INFORMED DECISION MAKING

- Improve public sector data
- Improve private sector data
- Data for transport planning
- Data for traffic management

ENABLE EEH GROWTH

- Enable growth
- Attract investment

REGULATORY CERTAINTY AND CONSISTENCY

- Influencing common standards for regulation nationally
- Consistent application of regulation locally
- Regulations to enable innovation

BOOST THE EEH ECONOMY

- Encourage business efficiency through:
 - Reduce freight costs
 - Improve access to markets
 - Reduce congestion
 - Improve business collaboration

SUPPORT LAST MILE SOLUTIONS

- Working with local authorities, LEPs, and businesses
- Reduce the impact of deliveries on communities
- Enable efficient deliveries

REDUCE FREIGHT IMPACTS ON THE ENVIRONMENT

- Reduce CO2
- Improve air quality
- Reduce noise
- Reduce impact on natural environment

REDUCE FREIGHT IMPACTS ON COMMUNITIES

- Improve road safety
- Reduce impact on rural communities
- Make cities more liveable

IMPROVE LOGISTICS SKILLS AND OPPORTUNITIES

- Improve skills for logistics

- Improve technical skills for vehicles
- Improve working conditions for drivers

ESTABLISH EEH AS A CENTRE OF LOGISTICS INNOVATION

- Establish EEH as a centre for logistics innovation
- Support innovation in operations
- Support innovation in equipment
- Support innovation in data

13.4 LONG LIST OF SOLUTIONS

13.4.1. This list includes all of the recommended solutions discussed in Chapter 12 and potentially to be addressed by EEH and its partners. Clearly this would be an ambitious programme, and therefore solutions have been appraised to identify those which are most likely to be deliverable and which meet the objectives of EEH.

- **Strategic**
 - Synchromodality Trial
 - Training for planners
 - Best Practice standards for logistics in planning
 - EEH freight data repository
 - Pilot data project
 - Collect DSP and CLP data
 - “Future Logistics” training and upskilling
 - Appoint an EEH freight officer
 - Stakeholder engagement programme
 - EEH Logistics Forum
 -
- **Roads**
 - Fostering collaboration to improve utilisation
 - Improving strategic road access
 - Optimise Expressway design to maximise freight benefits
 - Safety improvements
 - Delivering reliability and resilience
 - Abnormal Indivisible Loads (AIL)
 - Lorry parking
 - Alternative fuels support programme
- **Rail**
 - Corridor approach to capacity and capability
- Felixstowe to Nuneaton Improvements
- Rail served construction terminals
- Encourage the development of SRFIs
- Intermodal services to London
- Promote freight use of EWR
- **Airports**
 - Improve connectivity to Heathrow
- **Towns and Cities**
 - Improved last mile logistics in new communities
 - Delivery and Service Plans
 - Deliveries into historic cities
 - Land for urban logistics
 - Standard and consistent delivery restrictions
 - Promote retiming of deliveries
 - Public sector consolidation and procurement
- **Construction**
 - Construction Logistics Plan implementation
 - Improved approaches to infrastructure delivery
 - Coordinated construction logistics
 - Impact of modular construction
- **Rural**
 - Rural Delivery and Service Plans

- Rural consolidation centres
- Monitor and support feasibility studies.
- Other Modes

13.5 APPRAISAL OF SOLUTIONS

- 13.5.1. Solutions were appraised using a multi criteria approach based on an assessment of the impact on each of the performance measures. The results of the appraisal are provided in the appendices. This is particularly useful when considering the cost and deliverability of each solution.
- 13.5.2. Solutions were appraised using a multi criteria approach based on an assessment of the impact on each of the performance measures scored as follows:
- 2 = Strong Positive
 - 1=Positive
 - 0=Neutral
 - -1=Negative
 - -2=Strong Negative
- 13.5.3. Very few negative scores were recorded in large part because the list of interventions had been selected to include those that are known to be beneficial. The purpose of the scoring in this case is largely to ensure that the interventions delivered across the full range of objectives and that there is some effort to identify priority interventions.
- 13.5.4. Solutions were also appraised for deliverability using the following factors:
- Timescale (<5, 5-10, >10 years)
 - Capital cost to EEH / public sector (£0,<£100k,£100k to £1m, >£1m)
 - Annual operational cost for EEH / public sector (£0,<£100k,£100k to £1m, >£1m)
 - Financial Impact on EEH Businesses (Between High Benefit and High Cost)
 - Acceptability to Society (Between Strongly Positive and Strongly Negative)
 - Acceptability to Business (Between Strongly Positive and Strongly Negative)
 - General Risk (From high to zero)
- 13.5.5. A table of all of the results is provided in Appendix 1.

13.6 SUMMARY OF FINDINGS AND RECOMMENDATIONS

- 13.6.1. At first glance the opportunities facing logistics and freight in EEH could be identified by looking at a map: excellent strategic roads and rail links; good access to London and the Golden Triangle, but little in the way of East – West strategic road or rail routes.
- 13.6.2. But the view of a map shows the situation today, and the EEH area is expected to change significantly. HS2, East West Rail, and the Oxford – Cambridge Expressway will traverse the region. Potentially a million new homes and associated employment and infrastructure, including completely new large communities, provide a challenge, but also a major opportunity to rethink logistics and develop places where efficient low impact logistics is built in.
- 13.6.3. While the region is not heavily industrialised, it does include major generators of freight such as a number of major distribution centres and several automotive plants.

- 13.6.4. The region's biggest strengths are the scientific, academic, and technical organisations and businesses. These businesses depend on good quality logistics services but also offer opportunities for the region to spearhead innovation in logistics.
- 13.6.5. The solutions need also to be considered in terms of their effectiveness in different areas of the industry reflecting the wide variety of business types and sizes within the freight and logistics industry within EEH.
- 13.6.6. The region epitomises the challenges identified by the NIC report "Better Delivery: The Challenge for Freight". The recommendations in the NIC report outline new approaches to planning for freight, and the EEH Transport Strategy has an opportunity to pioneer these new approaches. This includes pushing forward the decarbonisation of freight transport, including freight issues and solutions in land use and transport planning in a more rigorous way, improving access to and use of freight data, and working with businesses to reduce the impact of freight on congestion and communities.

13.7 ROLES AND RESPONSIBILITIES

STRATEGIC

- 13.7.1. EEH has a clear role to play in developing strategic transport solutions which address key issues such as connectivity with UK and international markets and enabling growth. The function of EEH will evolve as the organisation evolves, but will certainly including participating in planning and lobbying for and securing funding.

NATIONAL

- 13.7.2. Nationally EEH will need to work with the DfT, Highways England, and Network Rail to ensure joined up delivery of improvements and solutions. EEH should also work with the NIC and fellow Sub National Transport Bodies to directly address issues identified by the NIC including developing new approaches to integrating freight needs and issues into planning and improving freight data.
- 13.7.3. A particular focus will be on providing high quality links to ports and key markets by road and rail.

LOCAL

- 13.7.4. As discussed in Chapter 12, EEH can also play an important role supporting local authorities and LEPs to develop common approaches to "last mile" and more local freight issues, including urban logistics and rural logistics. Local solutions, where EEH can collate evidence and support partners in implementing solutions include:
- A review of delivery restrictions
 - Development of common standards for regulation
 - Coordinating introduction of Delivery and Service Plans and Construction Logistics Plans
 - Setting standards for infrastructure in new developments to improve freight efficiency and reduce impact
 - Encouraging innovation in last mile logistics

13.8 FREIGHT ACTION PLAN

13.8.1. This proposed programme identifies the key actions that need to take place within the first five years of agreement of a freight strategy, and identifies longer term projects that will need to evolve as the shape of development across EEH becomes clearer.

YEAR ONE: SETTING UP THE STRUCTURES

13.8.2. Whilst this study has comprehensively reviewed the data available, there are some areas where there are gaps in evidence and as such the first phase may be to address some of the information gaps where this will progress meeting the freight strategy objectives.

13.8.3. In order to deliver significant improvements in logistics across the EEH area, to support delivery of more housing, jobs, and infrastructure, and to address the gaps identified by the National Infrastructure Commission, EEH will need to work closely with its members, regional stakeholders, neighbouring authorities and nationally.

13.8.4. In the first year the focus will inevitably need to be on developing a formal transport strategy, and creating the structures and governance to delivery freight solutions. Much of this can be achieved as the role of EEH develops naturally. But delivery of freight initiatives will be most effective if partnership with industry is formalised and supported with resources and policies.

13.8.5. Therefore in the first year it is recommended that EEH should:

- Ensure that freight opportunities and solutions are addressed in the emerging Transport Strategy and in any other plans and strategies developed by EEH
- Refine wording of vision and objectives, defining KPIs for each objective
- Create freight governance structure within EEH (including progress reporting requirements)
- Develop a freight engagement strategy
- Define and establish a Logistics Forum, with potential sub groups, building on existing Forums in the region and designed to address gaps
- Specifically to work with the Connected Places Catapult and other stakeholders to establish a group focussed on logistics innovation
- Define a specification for an EEH freight officer and seek partner and government support to make an appointment as soon as practicable
- Identify and address key evidence gaps
- Agree a work programme for 18 months (including KPI's and reporting requirements) which includes
- Start implementation of the work programme

YEARS TWO - FIVE: DELIVERING BEST PRACTICE

13.8.6. These will be the critical years for freight policy and delivery, where EEH will need to demonstrate nationally, to its stakeholders, and to the freight industry that it has an important and unique role to play in fostering innovation and developing policies and solutions to deliver more efficient low impact logistics.

- Ongoing freight engagement
- Identifying and prioritising the medium-term work programme
- Implementation and monitoring of work programme
- Identification of target projects for the innovation cluster

- Update work plan beyond 18 months

YEAR 5 ONWARDS: INTEGRATING FREIGHT INTO GROWTH

- Strategy refresh (based on years 1-5 work programme success)
- Ongoing freight engagement
- Implementation and monitoring of work programme

13.8.7. Taken together, this programme should support EEH and businesses to adapt to changes in the Heartland and develop a better understanding of the ways in which plans should include logistics.

Appendix A

MULTI CRITERIA APPRAISAL
APPROACH AND RESULTS

1 APPRAISAL OF SOLUTIONS

1.1 STRATEGIC

Table 1-1 - Strategic interventions

Solution	Timescale	Capex	Opex Per Annum	Financial Impact on EEH Businesses	Acceptability to Society	Acceptability to Business	General Risk	Freight Blindness	Data	Enable Growth	Regulatory	Economy	Environment	Communities	Skills and Work	Innovation	Overall
Overarching																	
1.1 EEH freight officer	<5 Years	-£0	<£100k	Negligible Cost	Positive	Positive	Zero	2.0	1.5	1.0	2.0	1.0	-	1.0	1.0	1.0	1.2
1.2 Stakeholder engagement programme	<5 Years	-£0	£100k-£1m	Negligible Cost	Positive	Positive	Zero	2.0	1.5	1.0	1.0	1.0	-	1.0	1.0	1.0	1.1
1.3 EEH Logistics Forum	<5 Years	-£0	£100k-£1m	Negligible Cost	Positive	Positive	Zero	2.0	1.5	1.0	1.0	1.0	-	1.0	1.0	1.0	1.1
1.4 EEH innovation cluster	<5 Years	£100k-£1m	£100k-£1m	Moderate Benefit	Positive	Strongly Positive	Low	-	1.5	1.0	-	1.4	0.8	0.7	1.3	2.0	1.0
1.5 Synchromodality Trial	<5 Years	£100k-£1m	<£100k	Moderate Benefit	Positive	Positive	Low	0.7	1.5	2.0	-	1.6	1.0	-	0.7	1.3	1.0
1.6 Training for planners	<5 Years	<£100k	£100k-£1m	Negligible Cost	Positive	Positive	Zero	1.7	0.5	0.5	1.0	0.4	-	0.7	0.3	-	0.6
1.7 Best Practice to standard for logistics in planning	<5 Years	<£100k	£100k-£1m	Negligible Cost	Positive	Strongly Positive	Low	2.0	0.8	0.5	2.0	0.8	1.0	1.0	-	0.7	1.0
1.8 EEH freight data repository	<5 Years	<£100k	<£100k	Negligible Cost	Positive	Positive	Zero	2.0	1.8	-	-	0.4	-	-	-	0.7	0.5
1.9 Pilot data project	<5 Years	£100k-£1m	£100k-£1m	Moderate Benefit	Positive	Positive	Low	2.0	1.8	0.5	-	0.8	-	-	-	0.7	0.6
1.10 Collect DSP and CLP data	<5 Years	<£100k	<£100k	Negligible Cost	Positive	Positive	Zero	1.0	2.0	0.5	-	0.8	1.0	1.0	-	0.7	0.8
1.11 "Future Logistics" training and upskilling	5 - 10 years	£100k-£1m	£100k-£1m	Moderate Cost	Positive	Positive	Low	2.0	1.0	-	1.0	0.2	-	-	1.0	0.7	0.7

- 1.1.1. These interventions underlie the whole proposed freight strategy, and are particularly focussed on addressing the issues raised by the NIC and fostering innovation.
- 1.1.2. Recruiting a freight officer, setting up a Logistics Forum, and developing a stakeholder engagement programme are the key steps that should be initiated as soon as a freight strategy has been agreed. This will form the foundation of implementing the freight strategy.

1.2 ROAD

Solution	Timescale	Capex	Opex Per Annum	Deliverability				General Risk	Freight Blindness	Data	Enable Growth	Regulatory	Economy	Environment	Communities	Skills and Work	Innovation	Overall
				Financial Impact on FEH Businesses	Acceptability to Society	Acceptability to Business												
Roads																		
2.1 Fostering collaboration	<5 Years	-£0	£100k-£1m	Negligible Cost	Positive	Positive	Low	0.3	1.3	1.0	-	2.0	1.0	0.7	-	0.3	0.7	
2.2 Improving strategic road access	10 to 30 years	>£1m	-£0	Moderate Benefit	Positive	Strongly Positive	Moderate	0.7	-	2.0	-	1.0	-0.3	0.7	-	-	0.5	
2.3 Optimise Expressway design to maximise freight benefits	<5 Years	>£1m	<£100k	Negligible Cost	Negative	Positive	Moderate	2.0	-	1.0	-	1.2	1.3	0.7	-	-	0.7	
2.4 Safety improvements	5 - 10 years	<£100k	<£100k	Negligible Cost	Strongly Positive	Positive	Low	-	0.3	-	-	-	-	2.0	0.7	-	0.3	
2.5 Delivering reliability and resilience	5 - 10 years	>£1m	£100k-£1m	Large Benefit	Positive	Strongly Positive	Low	-	1.0	2.0	-	1.2	1.0	1.0	-	0.7	0.8	
2.6 Abnormal Indivisible Loads (AIL)	5 - 10 years	<£100k	<£100k	Moderate Benefit	Positive	Positive	Zero	1.0	0.3	1.0	1.0	0.6	0.3	0.7	-	-	0.5	
2.7 Lorry parking	<5 Years	<£100k	-£0	Moderate Benefit	Strongly Positive	Strongly Positive	Zero	0.7	1.0	1.0	-	0.8	0.3	0.7	0.7	-	0.6	
2.8 Alternative fuels support programme	<5 Years	£100k-£1m	£100k-£1m	Moderate Benefit	Positive	Positive	Low	0.7	0.3	1.0	1.5	-	1.3	0.3	1.0	1.7	0.9	

Table 1-2 - Road interventions

- 1.2.1. The proposed road interventions form an approach to integrating freight management into planning and management of highways. There is no list of pinch points to be addressed, although as data improves it should be possible to appraise the impact of issues such as congestion on freight movement.

1.3 RAIL

Figure 1-1 - Rail interventions

Solution	Timescale	Capex	Opex Per Annum	Deliverability				General Risk	Freight Blindness	Data	Enable Growth	Regulatory	Economy	Environment	Communities	Skills and Work	Innovation	Overall
				Financial Impact on FEH Businesses	Acceptability to Society	Acceptability to Business												
Rail																		
3.1 Corridor approach to capacity and capability	5 - 10 years	>£1m	-£0	Moderate Benefit	Neutral	Positive	Low	0.7	-	2.0	-	0.8	1.0	0.3	-	-	0.5	
3.2 Felixstowe to Nuneaton Improvements	5 - 10 years	>£1m	-£0	Moderate Benefit	Neutral	Positive	Low	0.7	-	2.0	-	0.8	1.0	0.3	-	-	0.5	
3.3 Rail served construction terminals	5 - 10 years	<£100k	-£0	Moderate Benefit	Neutral	Positive	Zero	0.7	-	1.0	-	0.6	1.0	0.7	-	-	0.4	
3.4 Rail terminals for major projects	5 - 10 years	>£1m	-£0	Moderate Benefit	Positive	Positive	Low	0.7	-	1.0	-	0.6	1.0	0.7	-	-	0.4	
3.5 Encourage the development of SRFIs	5 - 10 years	-£0	-£0	Moderate Benefit	Positive	Positive	Low	1.0	-	2.0	-	1.2	1.0	0.7	-	-	0.7	
3.6 Intermodal services to London	5 - 10 years	>£1m	£100k-£1m	Moderate Benefit	Positive	Positive	Moderate	-	-	1.0	-	0.8	1.0	1.0	-	1.0	0.5	

- 1.3.1. The rail interventions back up interventions proposed in the various Network Rail strategies, and are a combination of improving capacity and performance and providing more opportunities for modal shift. The strategy should strongly support the development of Strategic Rail Freight Interchanges as

well as new construction terminals and innovative solutions such as rail deliveries into London. This will enable modal shift, releasing local capacity.

1.4 AIRPORTS, 5: TOWNS AND CITIES

Solution	Deliverability							Freight Blindness	Data	Enable Growth	Regulatory	Economy	Environment	Communities	Skills and Work	Innovation	Overall
	Timescale	Capex	Opex Per Annum	Financial Impact on EEH Businesses	Acceptability to Society	Acceptability to Business	General Risk										
Airports																	
4.1 Connectivity to Heathrow	<5 Years	-£0	£100k-£1m	Negligible Cost	Positive	Positive	Zero	1.7	-	2.0	-	1.2	1.0	-	-	-	0.7
Towns and Cities																	
5.1 Last mile logistics in new communities	<5 Years	-£0	£100k-£1m	Negligible Cost	Positive	Positive	Zero	1.7	1.5	1.0	1.5	1.4	1.0	1.3	-	0.3	1.1
5.2 Delivery and Service Plans	<5 Years	-£0	£100k-£1m	Negligible Cost	Positive	Positive	Low	1.3	1.5	1.0	1.5	1.4	1.0	1.3	-	-	1.0
5.3 Area wide Delivery and Servicing Plans	<5 Years	-£0	£100k-£1m	Negligible Cost	Positive	Positive	Low	1.3	1.5	1.0	1.5	1.4	1.0	1.3	-	-	1.0
5.4 Deliveries into historic cities	<5 Years	£100k-£1m	<£100k	Moderate Benefit	Strongly Positive	Positive	Low	1.3	1.3	1.0	1.5	1.4	1.0	1.3	-	-	1.0
5.5 Land for urban logistics	5 - 10 years	-£0	-£0	Negligible Cost	Neutral	Positive	Low	1.7	1.5	1.0	2.0	0.8	1.0	1.3	-	0.3	1.1
5.6 Standard and consistent delivery restrictions	<5 Years	<£100k	<£100k	Negligible Cost	Positive	Positive	Low	0.3	-	0.5	2.0	0.8	1.0	1.7	-	-	0.7
5.7 Promote retiming of deliveries	5 - 10 years	<£100k	<£100k	Moderate Benefit	Positive	Positive	Low	-	-	1.0	2.0	1.0	1.0	1.3	0.3	-	0.7
5.8 Public sector consolidation and procurement	5 - 10 years	£100k-£1m	<£100k	Negligible Cost	Positive	Neutral	Moderate	0.3	-	-	1.0	1.2	0.8	1.0	-	0.7	0.6

Figure 1-2 - Airports, towns and cities interventions

- 1.4.1. EEH can play an important supportive role in improving the management of urban logistics, working in partnership with its members but also driving a programme to ensure that new communities are places where efficient freight exists alongside liveable places and people focussed street. As noted in the main study, there is no one solution to last mile or urban deliveries: solutions are dependent on the local circumstances and are a combination of interventions that will deliver a result.

6: CONSTRUCTION, 7: RURAL, 8: OTHER

Solution	Deliverability							Freight Blindness	Data	Enable Growth	Regulatory	Economy	Environment	Communities	Skills and Work	Innovation	Overall
	Timescale	Capex	Opex Per Annum	Financial Impact on EEH Businesses	Acceptability to Society	Acceptability to Business	General Risk										
Construction																	
6.1 Construction Logistics Plan implementation	<5 Years	-£0	£100k-£1m	Negligible Cost	Positive	Positive	Low	1.7	1.0	1.0	1.0	2.0	2.0	-	-	-	1.1
6.2 Improved approaches to infrastructure delivery	<5 Years	<£100k	<£100k	Negligible Cost	Positive	Positive	Low	1.0	-	1.0	-	0.4	1.0	1.0	-	0.3	0.5
6.3 Coordinated construction logistics	5 - 10 years	<£100k	<£100k	Moderate Benefit	Positive	Positive	Low	-	0.8	2.0	1.0	1.0	1.0	1.0	-	0.3	0.8
6.4 Impact of modular construction	5 - 10 years	<£100k	£100k-£1m	Negligible Cost	Positive	Positive	Low	1.7	0.3	1.0	-	0.8	1.0	1.0	0.3	0.3	0.7
Rural																	
7.1 Rural Delivery and Service Plans	<5 Years	-£0	<£100k	Negligible Cost	Positive	Positive	Low	1.3	-	0.5	1.0	1.0	2.0	1.3	-	-	0.8
7.2 Rural consolidation centres	<5 Years	-£0	<£100k	Negligible Cost	Positive	Positive	Moderate	1.3	-	0.5	1.0	1.0	2.0	1.3	-	-	0.8
Other																	
8.1 Monitor and support feasibility studies.	<5 Years	-£0	<£100k	Negligible Cost	Positive	Positive	Low	-	-	1.0	-	0.8	1.0	1.0	-	1.0	0.5

Figure 1-3 - Construction, rural and other interventions

- 1.4.2. With a massive programme of construction activity being proposed, EEH needs to take a lead to support developers and contractors to implement construction logistics best practice. Coordinating major projects allow for efficiencies to be gained with least disruption and allows for the effective use of best practice. In addition, rural communities have often been under represented in recent logistics debate and the EEH freight strategy allows for the opportunity to redress the balance to enable fair and efficient services to rural people and businesses.

		Scoring: 2 = Strong Positive, 1=Positive, 0=Neutral, -1=Negative, -2=Strong Negative																																							
Solution	Timescale	EEH / Public Capex	Opex Per Annum	Deliverability				Address Freight Blindness		Data for informed decision making			Enable EEH Growth		Regulatory	Economy			Environment			Communities		Skills and Work			Innovation														
				Financial Impact on EEH Businesses	Acceptability to Society	Acceptability to Business	General Risk	Land use planning	Traffic management	Infrastructure planning	Improve public sector data	Improve private sector data	Data for planning	Enable Growth	Attract investment	Enable Innovation	Common standards for regulation	Reduce freight costs	Improve access to markets	Reduce congestion	Improve business collaboration	Reduce CO2	Improve Air Quality	Reduce Noise	Natural Environment	Reduce impact on Safety	Rural Communities	Reduce Impact On Liveable	Make cities More	Improve technical skills for vehicles	Improve working conditions for drivers	Improve innovation	Centre for logistics	Support innovation in operations	Support innovation in equipment	Support innovation in data					
Overarching																																									
1.1	EEH freight officer	<5 Years	~£0	<£100k	Negligible Cost	Positive	Positive	Zero	2	2	2	1	1	2	2	1	1	2	2	1	0	1	1	2	0	0	0	0	1	1	1	1	1	1	1	1	1				
1.2	Stakeholder engagement programme	<5 Years	~£0	£100k-£1m	Negligible Cost	Positive	Positive	Zero	2	2	2	1	1	2	2	1	1	1	1	1	1	0	1	1	2	0	0	0	0	1	1	1	1	1	1	1	1				
1.3	EEH Logistics Forum	<5 Years	~£0	£100k-£1m	Negligible Cost	Positive	Positive	Zero	2	2	2	1	1	2	2	1	1	1	1	1	1	0	1	1	2	0	0	0	0	1	1	1	1	1	1	1	1				
1.4	EEH innovation cluster	<5 Years	£100k-£1m	£100k-£1m	Moderate Benefit	Positive	Strongly Positive	Low	0	0	0	1	2	1	2	0	2	0	0	2	2	1	0	2	2	1	1	1	1	0	1	0	1	2	2	2	2				
1.5	Synchromodality Trial	<5 Years	£100k-£1m	<£100k	Moderate Benefit	Positive	Positive	Low	0	0	0	2	1	2	2	2	2	0	2	2	2	0	2	2	1	1	1	1	0	0	0	0	2	2	2	0	2				
1.6	Training for planners	<5 Years	<£100k	£100k-£1m	Negligible Cost	Positive	Positive	Zero	2	2	1	1	0	1	0	1	0	1	1	0	0	1	1	0	0	0	0	0	1	1	1	0	0	1	0	0	0				
1.7	Best Practice to standard for logistics in planning	<5 Years	<£100k	£100k-£1m	Negligible Cost	Positive	Strongly Positive	Low	2	2	2	1	0	1	1	1	0	2	2	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1				
1.8	EEH freight data repository	<5 Years	<£100k	<£100k	Negligible Cost	Positive	Positive	Zero	2	2	2	2	1	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			
1.9	Pilot data project	<5 Years	£100k-£1m	£100k-£1m	Moderate Benefit	Positive	Positive	Low	2	2	2	2	1	2	2	1	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	2			
1.10	Collect DSP and CLP data	<5 Years	<£100k	<£100k	Negligible Cost	Positive	Positive	Zero	2	1	0	2	2	2	2	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	2			
1.11	"Future Logistics" training and upskilling	5 - 10 years	£100k-£1m	£100k-£1m	Moderate Cost	Positive	Positive	Low	2	2	2	1	1	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1			
Roads																																									
2.1	Fostering collaboration	<5 Years	~£0	£100k-£1m	Negligible Cost	Positive	Positive	Low	1	0	0	0	2	1	2	2	0	0	0	2	2	2	2	2	1	1	1	1	0	1	1	0	0	0	0	0	0	1			
2.2	Improving strategic road access	10 to 30 years	>£1m	~£0	Moderate Benefit	Positive	Strongly Positive	Moderate	0	1	1	0	0	0	0	2	2	0	0	0	1	2	2	0	0	0	0	-1	1	1	0	0	0	0	0	0	0	0			
2.3	Optimise Expressway design to maximise freight benefits	<5 Years	>£1m	<£100k	Negligible Cost	Negative	Positive	Moderate	2	2	2	0	0	0	0	1	1	0	0	2	1	1	2	0	2	2	0	1	1	1	0	0	0	0	0	0	0	0			
2.4	Safety improvements	5 - 10 years	<£100k	<£100k	Negligible Cost	Strongly Positive	Positive	Low	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	0	1	0	0	0	0			
2.5	Delivering reliability and resilience	5 - 10 years	>£1m	£100k-£1m	Large Benefit	Positive	Strongly Positive	Low	0	0	0	1	1	0	2	2	2	0	0	0	2	2	2	0	1	1	1	1	1	2	0	0	0	0	0	1	1	0			
2.6	Abnormal Indivisible Loads (AIL)	5 - 10 years	<£100k	<£100k	Moderate Benefit	Positive	Positive	Zero	1	1	1	0	0	1	0	1	1	1	1	0	1	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0			
2.7	Lorry parking	<5 Years	<£100k	~£0	Moderate Benefit	Strongly Positive	Strongly Positive	Zero	1	1	0	1	1	1	1	1	1	0	0	2	1	0	1	0	0	0	0	1	0	1	1	0	0	2	0	0	0	0			
2.8	Alternative fuels support programme	<5 Years	£100k-£1m	£100k-£1m	Moderate Benefit	Positive	Positive	Low	1	1	0	0	0	1	0	1	1	1	1	2	0	0	0	0	0	0	0	2	2	1	0	0	0	1	1	2	0	2	2	2	1
Rail																																									
3.1	Corridor approach to capacity and capbility	5 - 10 years	>£1m	~£0	Moderate Benefit	Neutral	Positive	Low	0	1	1	0	0	0	0	2	2	0	0	0	1	2	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0			
3.2	Felixstowe to Nuneaton Improvements	5 - 10 years	>£1m	~£0	Moderate Benefit	Neutral	Positive	Low	0	1	1	0	0	0	0	2	2	0	0	0	1	2	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0			
3.3	Rail served construction terminals	5 - 10 years	<£100k	~£0	Moderate Benefit	Neutral	Positive	Zero	1	1	0	0	0	0	0	2	0	0	0	0	0	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0			
3.4	Rail terminals for major projects	5 - 10 years	>£1m	~£0	Moderate Benefit	Positive	Positive	Low	1	1	0	0	0	0	0	2	0	0	0	0	1	1	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0		
3.5	Encourage the development of SRFIs	5 - 10 years	~£0	~£0	Moderate Benefit	Positive	Positive	Low	1	1	0	0	0	0	0	2	2	0	0	1	1	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0			
3.6	Intermodal services to London	5 - 10 years	>£1m	£100k-£1m	Moderate Benefit	Positive	Positive	Moderate	0	0	0	0	0	0	0	1	1	0	0	0	1	2	1	0	1	1	1	1	1	1	0	2	0	0	0	1	2	1	0		
Airports																																									
4.1	Connectivity to Heathrow	<5 Years	~£0	£100k-£1m	Negligible Cost	Positive	Positive	Zero	2	2	1	0	0	0	0	2	2	0	0	1	1	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0			
Towns and Cities																																									
5.1	Last mile logistics in new communities	<5 Years	~£0	£100k-£1m	Negligible Cost	Positive	Positive	Zero	2	1	2	2	1	2	1	1	1	2	1	2	1	1	2	1	1	1	1	1	1	1	1	1	2	0	0	0	1	0	0		
5.2	Delivery and Service Plans	<5 Years	~£0	£100k-£1m	Negligible Cost	Positive	Positive	Low	1	1	2	2	1	2	1	1	1	2	1	2	1	1	2	1	1	1	1	1	1	1	1	1	2	0	0	0	0	0	0		
5.3	Area wide Delivery and Servicing Plans	<5 Years	~£0	£100k-£1m	Negligible Cost	Positive	Positive	Low	1	1	2	2	1	2	1	1	1	2	1	2	1	1	2	1	1	1	1	1	1	1	1	1	2	0	0	0	0	0	0		
5.4	Deliveries into historic cities	<5 Years	£100k-£1m	<£100k	Moderate Benefit	Strongly Positive	Positive	Low	1	1	2	2	1	1	1	1	1	2	1	2	1	1	2	1	1	1	1	1	1	1	1	1	2	0	0	0	0	0	0		
5.5	Land for urban logistics	5 - 10 years	~£0	~£0	Negligible Cost	Neutral	Positive	Low	2	1	2	2	1	2	1	1	1	2	2	1	1	0	1	1	1	1	1	1	1	1	1	1	2	0	0	0	1	1	0		
5.6	Standard and consistent delivery restrictions	<5 Years	<£100k	<£100k	Negligible Cost	Positive	Positive	Low	0	0	1	0	0	0	1	0	2	2	1	1	0	1	1	1	1	1	1	1	1	1	2	2	0	0	0	0	0	0	0		
5.7	Promote retiming of deliveries	5 - 10 years	<£100k	<£100k	Moderate Benefit	Positive	Positive	Low	0	0	0	0	0	0	0	1	1	2	2	2	1	0	2	0	1	1	2	0	2	0	2	1	0	0	0	0	0	0			
5.8	Public sector consolidation and procurement	5 - 10 years	£100k-£1m	<£100k	Negligible Cost	Positive	Neutral	Moderate	0	0	1	0	0	0	0	0	0	1	1	1	1	1	2	1	1	1	1	0	1	0	2	0	0	0	0	1	1	0	1		
Construction																																									
6.1	Construction Logistics Plan implementation	<5 Years	~£0	£100k-£1m	Negligible Cost	Positive	Positive	Low	2	2	1	1	1	2	0	1	1	1	1	1	1	1	0	2	1	2	2	2	2	2	2	2	2	2	2	0	0	0	0		
6.2	Improved approaches to infrastructure delivery	<5 Years	<£100k	<£100k	Negligible Cost	Positive	Positive	Low	1	1	1	0	0	0	0	1	1	0	0	1	0	0	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0		
6.3	Coordinated construction logistics	5 - 10 years	<£100k	<£100k	Moderate Benefit	Positive	Positive	Low	0	0	0	0	0	2	1	2	2	1	1	1	0	0	2	2	1	1	1	1	1	1	1	1	0	0	0	1	1	0	0		
6.4	Impact of modular construction	5 - 10 years	<£100k	£100k-£1m	Negligible Cost	Positive	Positive	Low	2	2	1	0	0	1	0	1	1	0	0	1	0	0	2	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1		
Rural																																									
7.1	Rural																																								

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