The Marches & Mid Wales Freight Strategy

Technical Annex

Cyngor Sir CEREDIGION County Council

Cyngor Gwynedd Council

Herefordshire Council

The Marches Local Enterprise Partnership
Herefordshire - Shropshire - Telford & Wrekin

Powys

Shropshire Council

a co-operative council

Telford & Wrekin Council

Ariennir yn Rhannol gan Lywodraeth Cymru
Part Funded by Welsh Government

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1 INTRODUCTION

The Marches Local Economic Partnership, the Growing Mid Wales Partnership, the Welsh Government, and Ceredigion, Gwynedd, Herefordshire, Powys, Shropshire and Telford and Wrekin Councils jointly commissioned this freight strategy to provide an evidence base to determine the interventions in the freight sector that will support the economic development of the Marches and Mid Wales, while also seeking to enhance the quality of life of the areas' residents and reduce environmental impacts from freight transport activity.

The Marches and Mid Wales have highly dispersed patterns of freight activity, are both relatively peripheral to the economic core of the UK - focused on the major conurbations of London, Birmingham, Manchester and Leeds - and both rely very largely on a single carriageway road network. Given the common economic and geographic context and shared transport issues, this strategy has therefore been developed as a cross-border strategic initiative for both areas.

The commissioning and development of this strategy has been managed by a steering group of officers from the commissioning organisations.

This Technical Annex to the strategy sets out the evidence base for the strategy.

1.1 Scope

The objective of the project is to develop a freight strategy for the Marches and Mid Wales area which finds a balance between the need of the freight and logistics industry to operate efficiently and contribute to the prosperity of the area while also minimising, as much as possible, the impacts of freight and logistics activity on the residents and the environment.

Freight transport in this project is defined as the carriage of goods between an origin and a destination for commercial reasons, largely in heavy goods vehicles; the goods are transported because goods available at one geographic location are required at another location for processing, storage or consumption. This definition includes freight transported in light goods vehicles (LGVs), but it should be recognised that so-called 'white van' traffic is often related to the provision of services or personal travel rather than for the transport of goods. It also includes the transport of freight in farm vehicles which reflects part of the reality of freight transport in a largely rural area. The scope of the study includes the wider concept of logistics and, in particular, warehousing/storage, because of the importance of distribution centres as nodes in the wider freight network, in adding value to the goods stored and in creating employment. Having said that, there are relatively few large distribution centres in the Marches and Mid Wales area, with most

large-scale retail activity being served from distribution centres located in, or close to, the West Midlands conurbation, or in the South Wales/Bristol area, or the North West.

The geographic scope for the project is focused on the Marches and Mid Wales area as an origin or destination for the freight flows and as an area through which transit traffic passes. This therefore incorporates the Ceredigion, Herefordshire, Powys, Shropshire and Telford and Wrekin and the southern part of the Gwynedd local authority areas and their road and rail networks. As some freight activity is 'strategic', in the sense that it moves over relatively long distances compared to other road users, the geographic scope of the study needs to take into account surrounding areas and, in particular, the rest of the West Midlands to where the Marches' and Mid Wales' main east-west road connections are linked and where the main concentrations of warehousing, manufacturing industry and rail terminals in the region are located. In addition, parts of Mid Wales will also be served by distribution centres in the South Wales/Bristol area and the North West. Access to international gateways such as Felixstowe, Dover and the Eurotunnel Shuttle is also likely to be via the strategic road and rail networks through the West Midlands.

1.2 Approach

The overall approach has involved the development of the evidence base (as set out in this report), the appraisal and prioritisation of potential interventions and the development of a strategy.

The strategy development process has involved stakeholder consultation in the form of:

- Interviews with selected businesses and public sector stakeholders, including officers of the six councils and the Marches LEP as well as the Welsh Government and Midlands Connect;
- Online surveys of businesses in the Marches and Mid Wales and town and parish councils in the Marches;
- Stakeholder workshops with the business community in Ludlow and Newtown.

2 DATA ANALYSIS

2.1 Methodology

The data analysis has focused on providing outputs from the MDS Transmodal GB Freight Model (GBFM), which forms the freight module of the DfT's National Transport Model and uses official sources of road and rail freight data to form a multi-modal origin-destination matrix. This has been used to provide bespoke outputs as follows:

- Baseline origin-destination data for road freight for the relevant local authorities in terms of total tonnes by broad commodity;
- Assignments of the associated HGV movements to the road network along the lowest generalised cost routes.

Examples of the tabulated data from the GBFM are provided in section 2.3 below. In addition, the main attractors and generators of freight in the Marches and Mid Wales – manufacturing and processing facilities, retail outlets, hotels and restaurants and warehouses – have been mapped in section 2.2 below.

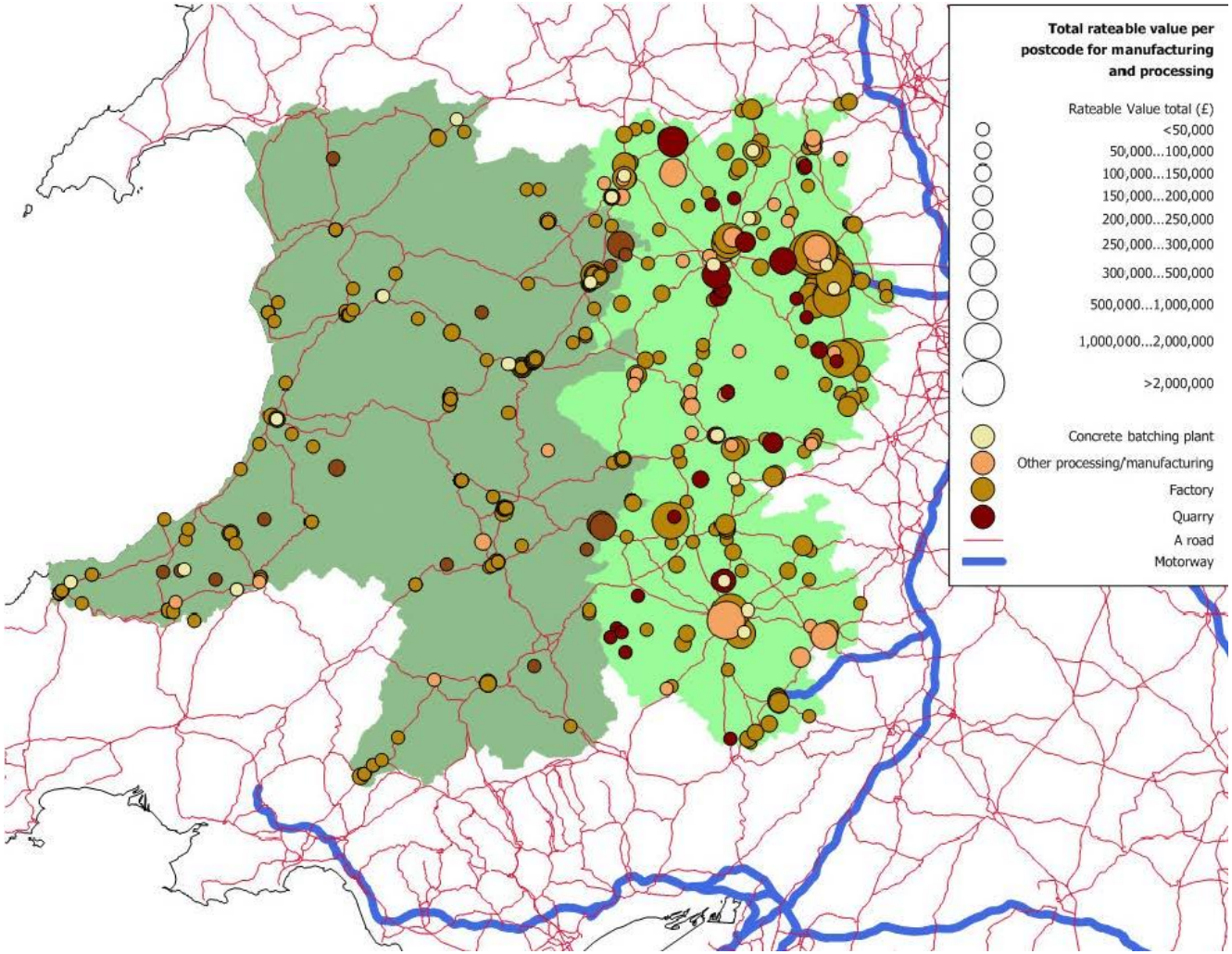
2.2 Freight generators & attractors

Manufacturing & processing

The economy of the Marches that is served by the freight and logistics industry is characterised by its essentially agricultural nature, with a focus on food and drink production and on the processing of agricultural products. Collections are made from highly dispersed locations such as farms, for delivery to processing facilities prior to onward distribution to retailers' distribution centres. There are also important clusters of manufacturing activity, particularly related to the automotive and defence sectors, in and around Telford, Shrewsbury and Hereford. These sites receive raw materials and semi-finished goods from suppliers and despatch finished goods to customers.

The Mid Wales economy is also very reliant on the agricultural sector, but with a cluster of manufacturing activity mainly along the Severn Valley. Other significant sources of freight activity in Mid Wales are related to the collection of timber from forests and then delivery to manufacturing and processing sites.

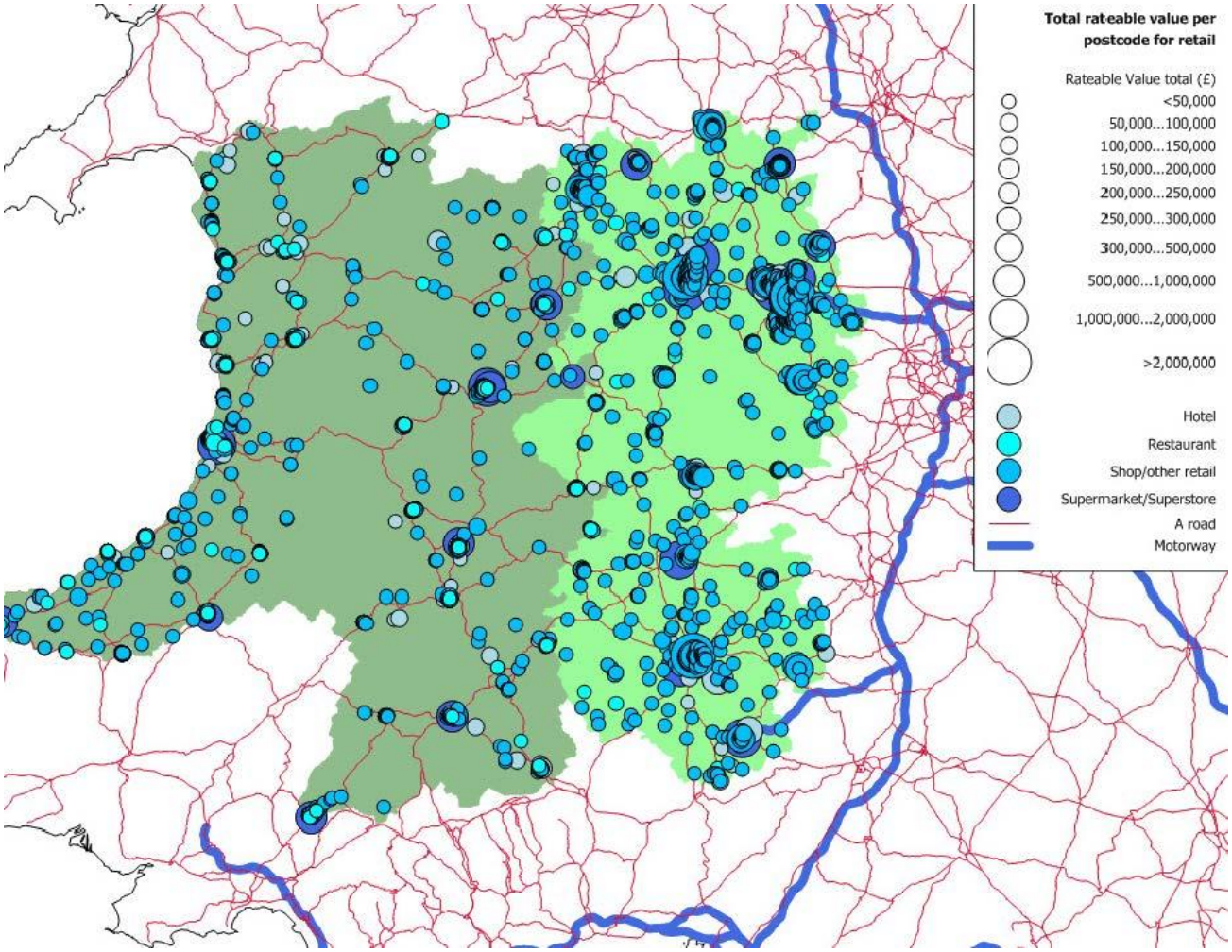
Figure 2.1: Location of manufacturing & processing activity in the Marches and Mid Wales



Retail activity

There are also clusters of retail activity, both superstores/supermarkets and more local stores, as well as restaurants and hotels which receive inbound food and drink and other goods, and despatch waste materials such as packaging. These are closely related to where people live and work. The retail outlets, hotels and restaurants in Marches and Mid Wales will often be supplied from distribution centres located in the Midlands, but outlets in the southern areas of Mid Wales may also be supplied by distribution centres in South Wales or the Bristol area and those in the north of Mid Wales may be supplied by warehouses located in the North West of England.

Figure 2.2: Location of retail activity and hotels and restaurants in the Marches and Mid Wales



2.3 Transport geography

Given its relatively dispersed pattern of origins and destinations for freight movements and its low population density, the area is highly dependent on road freight transport and this means that the quality of the almost entirely single carriageway road network has a significant impact on the economy of the area.

In May 2016 the Marches LEP published a report entitled *Investing in Strategic Transport Corridors in the Marches*, which described the key road/rail transport corridors:

- The 'North–South Spine' corridor consisting principally of the A49 and the Marches Line and linking the North West of England to the South West and South Wales via Shrewsbury and Hereford;
- The 'East West Central' corridor consisting of the M54/A5/A458 route and the Birmingham-Shrewsbury Line, linking the West Midlands conurbation with Mid Wales via Shrewsbury;
- The 'North West Frontier' corridor consisting principally of the M54/A5/A483 route, linking the West Midlands conurbation with Deeside via Shrewsbury and Oswestry;
- The 'Wales and Marches to Midlands' corridor consisting principally of the A44 and the A438 between Worcestershire and Mid Wales via Hereford and Leominster.

Further road-based corridors are to be found in Mid Wales on the north-south axis along the A470/A483 which links North Wales with South Wales via Newtown and Llandrindrod Wells and the A487 coastal route which links Snowdonia with Pembrokeshire via Aberystwyth. The main east-west road-based corridors in Mid Wales are the A44 from Aberystwyth to Worcester via Rhayader and Leominster, the A458 between Mallwyd and Shrewsbury via Welshpool and the A438/A40 between Hereford and Carmarthen via Brecon and Llandovery.

Road network

The road links in the area that are included on the comprehensive network of the Transport Trans-European Network (TEN-T) are limited to the M54/A5/A483 route between Birmingham and Chester via Shrewsbury and the M50/A40/A465 route from the M5 south west of Birmingham to Swansea.

The Strategic Road Network (SRN) in Mid Wales (managed by the Welsh Government) consists of the A470, A483 and A487 north-south routes and the A40, A44, A494, A489, A485 and A5 east-west routes, while the SRN in the Marches (managed by Highways England) is more limited and consists of:

- The M54 and M50 motorway connections;
- The A49 between Ross-on-Wye and Shrewsbury;
- The A5 between Shrewsbury and the Welsh border at Chirk;

- The A483 between Pant and Oswestry;
- The A458 between Shrewsbury and the Welsh border to the west of Wollaston.

Rail network

By comparison with the road network, all four railway lines in the Marches and Mid Wales are included in the TEN-T comprehensive rail network. These are:

- The Marches Line between Newport in South Wales and Crewe in North West England via Hereford and Shrewsbury;
- The Shrewsbury to Birmingham Line via Telford;
- The Cambrian Line from Shrewsbury to Aberystwyth via Newtown;
- The Heart of Wales Line from Craven Arms (south of Shrewsbury on the Marches Line) to Swansea.

Ports

While not technically land-locked, the area contains no commercial ports and the nearest ports are the Irish Sea ferry ports of Fishguard in Pembrokeshire to the south and Holyhead on Anglesey to the north. Access to ports and the Channel Tunnel for importers and exporters to the European continental mainland and other global markets is therefore mainly via the Midlands to reach ports such as Dover, Felixstowe and Southampton.

Canals & airports

There are four canals that pass through the Marches and Mid Wales:

- The Shropshire Union Canal, linking the West Midlands conurbation with the Mersey at Ellesmere Port;
- The Llangollen Canal, linking the Shropshire Union canal at Hurleston with Llantysilio to the west of Llangollen;
- The Monmouthshire and Brecon Canal in South Powys;
- The Montgomery Canal, which originally linked Welshpool with the Llangollen Canal but now has a disused section to the north east of Welshpool.

There are three airports or airfields in Wales within the scope of the strategy, but there are no airports in the Marches. The Welsh airports are:

- Welshpool Mid Wales Airport, which has a 1020 metre tarmac runway;
- West Wales Airport at Aberporth, which has a 1,188 metre tarmac runway;
- Llanbedr Airport in Gwynedd, which has three runways with longest 2,286 metres long.

2.4 Road freight

Introduction

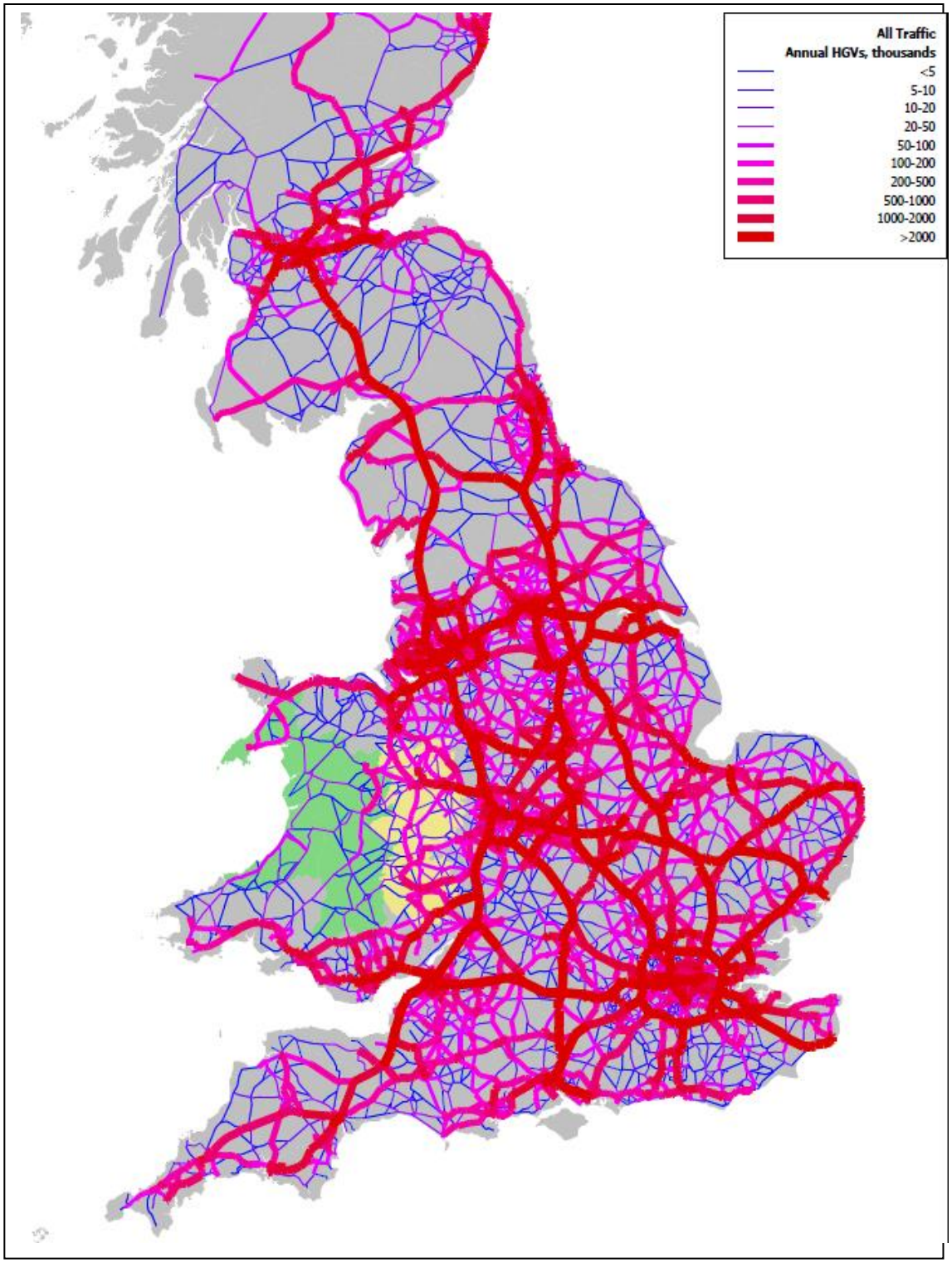
The data analysis is based mainly on outputs from the MDS Transmodal GB Freight Model (GBFM), which forms the freight module of the DfT's National Transport Model (NTM) and uses official sources of road and rail freight data to form an origin-destination matrix. The GBFM includes origin-destination data for road freight from the model, which is based on averaging six years of data from the DfT's Continuing Survey of Road Goods Transport (CSRGT) and other international road haulage traffic data that is not included within the CSRGT. Six years of data are used to provide more representative results for the entire population because the CSRGT is a 1% sample of road haulage movements in any given year.

The traffic between relevant origins and destinations has then been assigned to the road network within the model along the lowest generalised cost routes, so that the number of HGVs on major road links can be analysed; the assignments have been adjusted where possible to match official DfT road traffic counts. The outputs from the modelling for the base year can then be used as the Do Nothing case for modelling of changes in the total user costs (the financial costs to the industry) and non-user costs (external costs to society in terms of congestion, emissions) of the freight activity on the network.

The result of the assignment to the highways network are presented in Figures 2.3 and 2.4 below, which shows the main concentrations of HGV flows of HGVs on the motorway network and other sections of the Strategic Road Network (SRN) in the context of the UK as a whole and at a more detailed level for Wales and the Marches and surrounding regions.

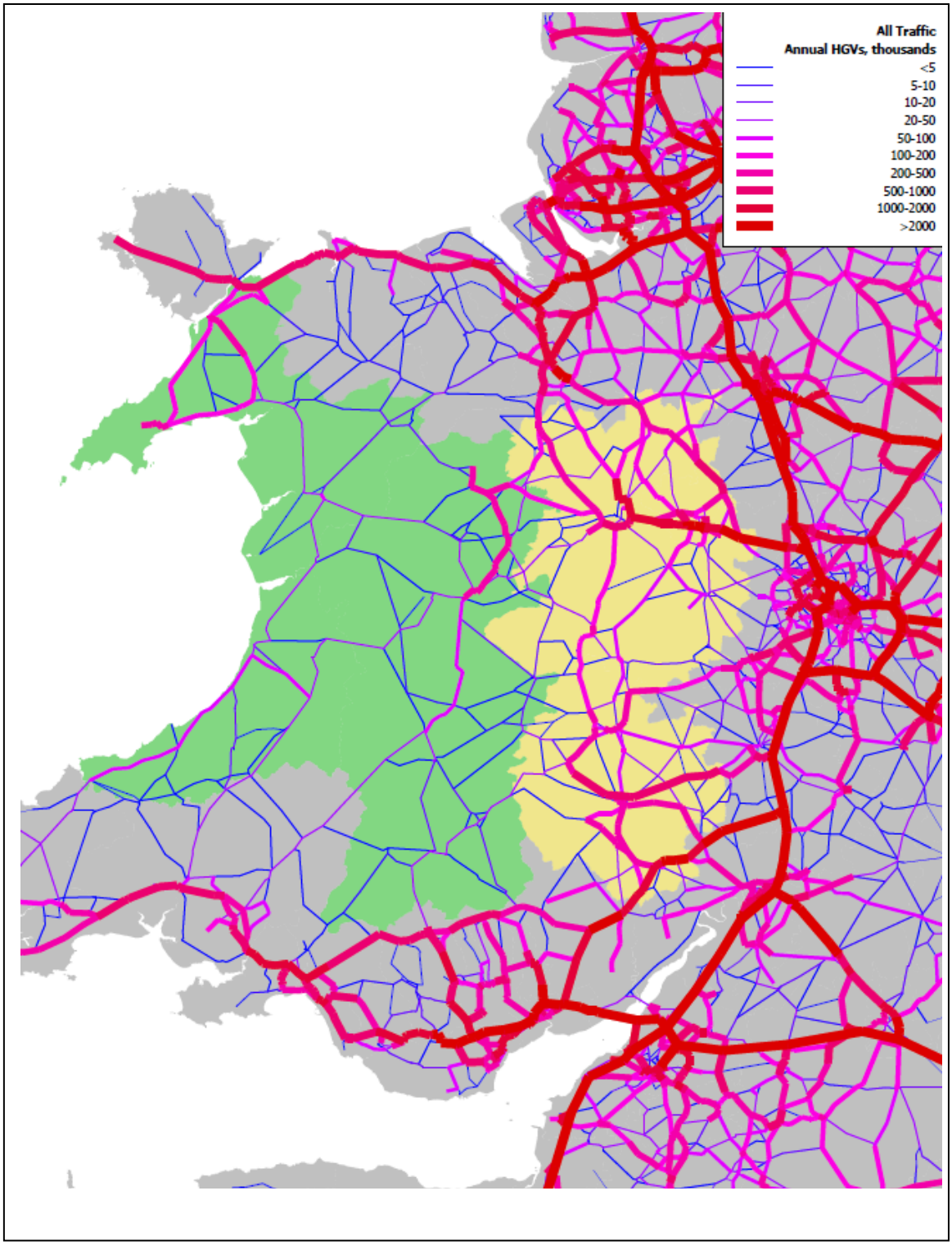
The analysis also includes the estimated origins and destinations of HGVs flows through some locations on the road network that were selected by the client group. While the 1% sample of HGV movements in the CSRGT is designed to be statistically representative of the whole UK population of movements, it cannot be expected to capture the scale of movements at particular locations which are affected by relatively high volumes of flows to and from specific manufacturing facilities at a local level.

Figure 2.3: HGV flows on the Marches and Mid Wales road networks in the UK context



Source: MDS Transmodal GB Freight Model

Figure 2.4: HGV flows on the Marches and Mid Wales road networks



Source: MDS Transmodal GB Freight Model

The Marches

Data from the GB Freight Model (GBFM) in Table 2.1 below shows that some 20 million tonnes of road freight was distributed to the Marches by road in 2014, with 35% of the total traffic being within the Marches area itself and a further 44% from neighbouring regions including the rest of the West Midlands and Wales, the North West and the South West. Only 21% of inbound road freight is travelling longer distances from regions that are not bordering the Marches.

Table 2.1: Road tonnes TO the Marches, 2014

	Telford and Wrekin	Shropshire	Herefordshire	Total
Tonnes transported	8.5 million	5.7 million	6.1 million	20.2 million
Telford and Wrekin	21%	26%	2%	17%
Shropshire	18%	12%	2%	12%
Herefordshire	4%	4%	12%	6%
Rest of W Midlands	15%	16%	35%	21%
North West	12%	12%	6%	10%
South West	3%	3%	10%	5%
Wales	8%	9%	9%	9%
Greater South East	8%	9%	14%	10%
East Midlands	5%	5%	7%	6%
Yorks & Humb & NE	4%	4%	3%	4%
Scotland	1%	1%	0%	1%

Source: MDS Transmodal GB Freight Model

Outbound road freight flows (Table 2.2) are larger with some 23 million tonnes of road freight distributed from the Marches in 2014, with some 30% of the total within the Marches area. Outbound freight to the rest of the West Midlands is particularly important, showing the economic linkages with the rest of the region, facilitated by east-west strategic road links.

Table 2.2: Road tonnes FROM the Marches, 2014

	Telford and Wrekin	Shropshire	Herefordshire	Total
Tonnes transported	8.1 million	6.2 million	8.4 million	22.7 million
Telford and Wrekin	22%	25%	4%	16%
Shropshire	18%	11%	2%	10%
Herefordshire	1%	2%	9%	4%
Rest of W Midlands	13%	21%	45%	27%
North West	13%	16%	7%	11%
South West	3%	3%	9%	5%
Wales	5%	8%	6%	6%
Greater South East	11%	6%	10%	9%
East Midlands	7%	5%	5%	6%
Yorks & Humb & NE	4%	3%	3%	3%
Scotland	2%	1%	1%	1%

Source: MDS Transmodal GB Freight Model

Analysis of the road freight movements by commodity (Table 2.3) shows the extent to which the agri-food industry is important for the area, with outbound flows of food representing just over 50% of total volume. However, the area is also producing manufactured goods and components for factories in other parts of GB, such as the automotive sector in the West Midlands conurbation. Inbound freight appears to relate to retail products and some food products for processing as well as construction materials.

Table 2.3: The Marches: inbound & outbound road freight by commodity, 2014

	Inbound road freight	Outbound road freight
Tonnes transported	20.2 million	22.7 million
Temperature controlled foodstuffs	20%	25%
Other Foodstuffs	25%	26%
Construction & Metals	20%	23%
Crude Materials & Manufactured Items	27%	23%
Petrol and Petroleum Products	5%	1%
Other Bulks	2%	2%
Total	100%	100%
International (imports/exports)	7%	2%

Source: MDS Transmodal GB Freight Model

The data from the GB Freight Model suggests that the Marches is not a major exporting area in terms of volume, with an estimated 2% of tonnage being transported by road to ports and the Channel Tunnel. However, a much higher percentage of total inbound freight relates to imports, which suggests that access to international gateways is important for some importers.

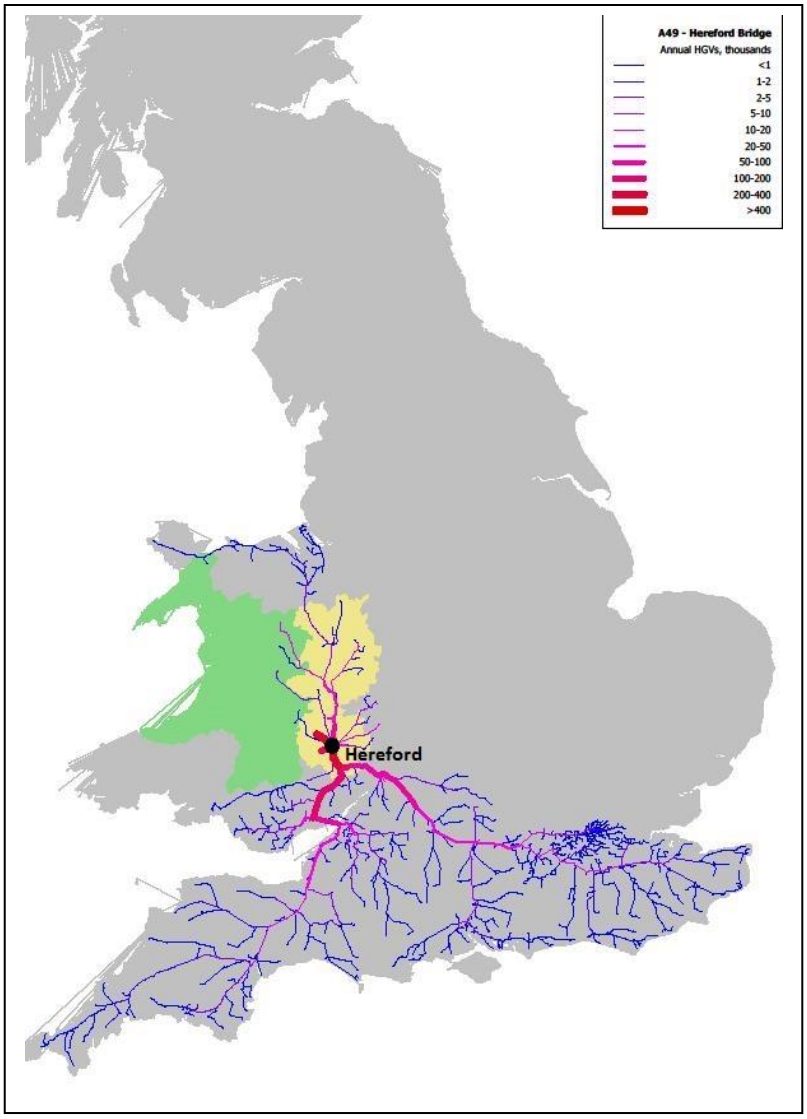
Examples of origins and destinations of traffic

Figures 2.5 and 2.6 and 2.7 shows the estimated origins and destinations of HGVs flows through some locations on the road network in the Marches, which were selected by the client group because of the significance of HGV flows at these locations. The locations were:

- A49 through Hereford; HGV traffic on the A49 has to cross the River Wye in the centre of the city;
- A44 through Leominster: HGV traffic on the A44 between Mid Wales and the West Midlands has to pass through the town of Leominster;
- A44 through Pembridge: HGV traffic on the A44 passes through the village and there is also a manufacturing site located close to the village which requires access to the A44 through Pembridge.

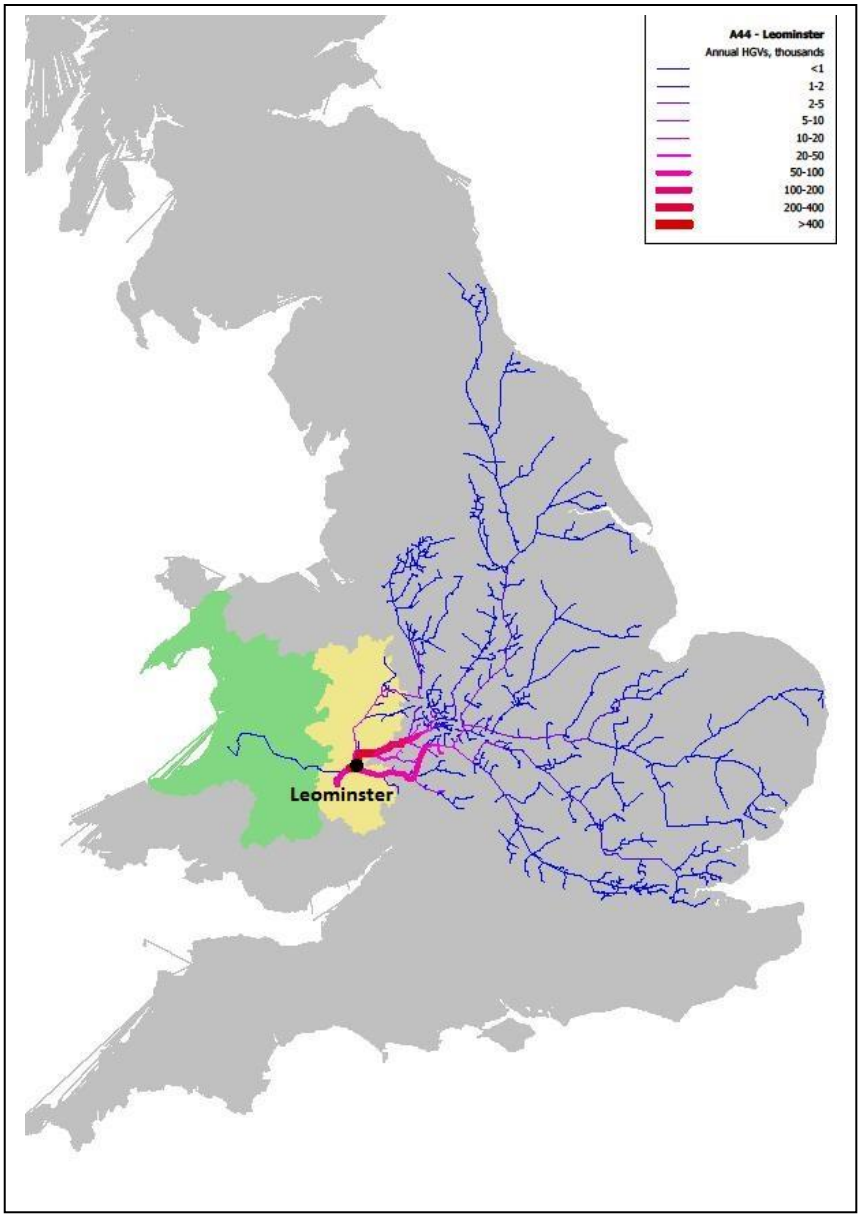
It should be noted that the maps use data from the GBFM origin-destination matrix which excludes the smaller volume flows between origin-destination pairings in order to reduce the computation time required within the model when it is run. This means that the smaller origin-destination flows in the Marches and Mid Wales could not be represented on the maps. In addition, as the origin-destination matrix is based on a sample of total movements throughout Great Britain, it may not include movements to and from specific locations such as individual factories.

Figure 2.5: Origins and destinations of HGV flows on the A49 through Hereford



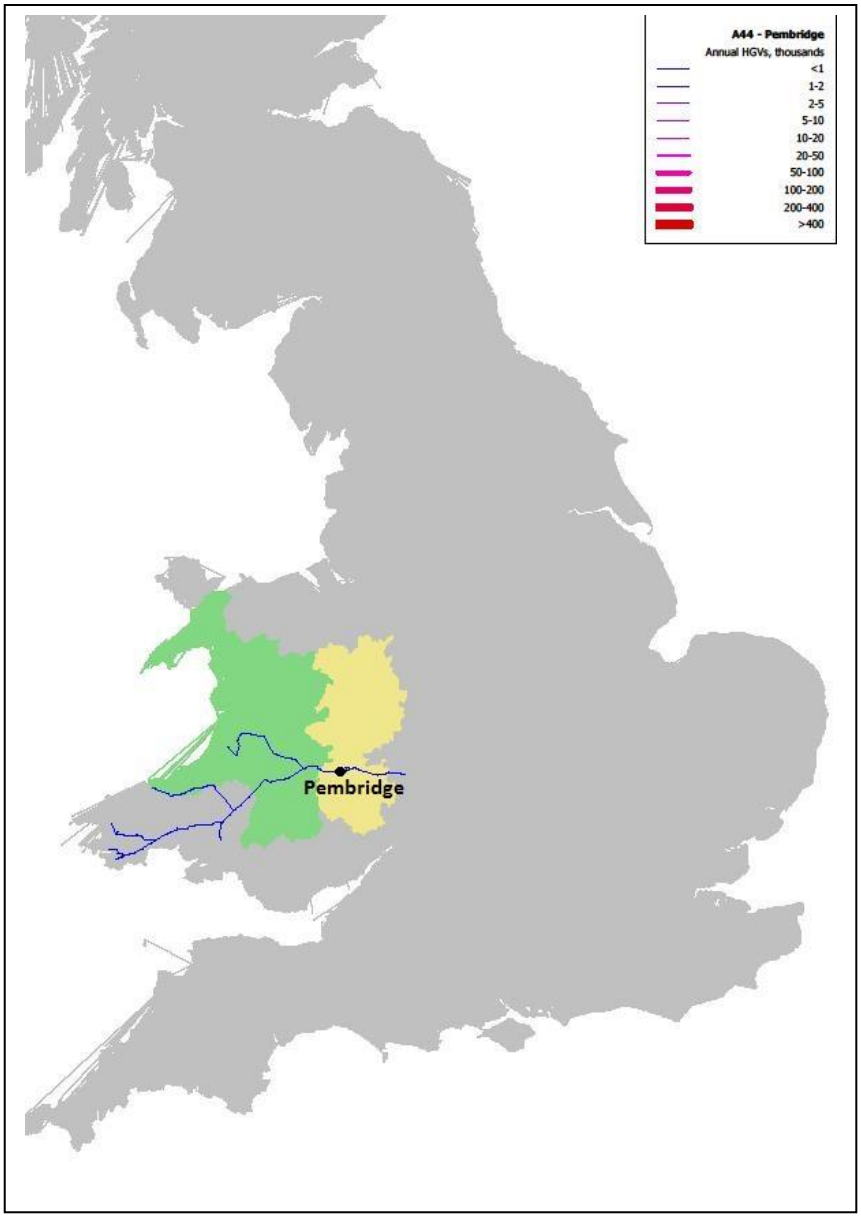
Source: MDS Transmodal GB Freight Model

Figure 2.6: Origins and destinations of HGV flows on the A44 through Leominster



Source: MDS Transmodal GB Freight Model

Figure 2.7: Origins and destinations of HGV flows on the A44 at Pembridge



Source: MDS Transmodal GB Freight Model

Mid Wales

Data from the GBFM (Table 2.4) shows that some 7 million tonnes of road freight was distributed to Mid Wales by road in 2014, with 69% of the total traffic being within the Mid Wales area itself. Inbound freight from outside the area mainly comes from other neighbouring regions, such as the West Midlands and South and North Wales. Only 10% of inbound road freight is from regions that are not bordering Mid Wales.

Table 2.4: Road tonnes TO Mid Wales, 2014

	Powys	Ceredigion	Gwynedd	Total
Tonnes transported	2.8 million	1.5 million	2.9 million	7.2 million
Powys	72%	6%	1%	30%
Ceredigion	6%	67%	1%	17%
Gwynedd	2%	1%	54%	22%
Herefordshire	1%	0%	0%	0%
Shropshire	8%	0%	0%	3%
Telford and Wrekin	1%	0%	0%	0%
Other West Midlands	2%	1%	1%	1%
Other Wales	2%	18%	27%	15%
South & East	3%	4%	2%	3%
North	3%	2%	13%	7%
East Midlands	0%	0%	0%	0%

Source: MDS Transmodal GB Freight Model

Outbound road freight flows (Table 2.5) are smaller with some 6 million tonnes of road freight distributed from Mid Wales in 2014, with some 84% of the total within Mid Wales itself. Outbound freight to the West Midlands and the rest of Wales amounts to a further 11%. Only 7% of outbound road freight is to regions that are not bordering Mid Wales.

Table 2.5: Road tonnes FROM Mid Wales, 2014

	Powys	Ceredigion	Gwynedd	Total
Tonnes transported	2.7 million	1.3 million	2.0 million	6.0 million
Powys	76%	7%	2%	36%
Ceredigion	6%	82%	2%	21%
Gwynedd	2%	2%	75%	27%
Herefordshire	0%	2%	0%	1%
Shropshire	9%	0%	0%	4%
Telford and Wrekin	1%	0%	0%	0%
Other West Midlands	2%	0%	2%	2%
Other Wales	2%	3%	8%	4%
South & East	2%	2%	1%	2%
North	1%	1%	8%	4%
East Midlands	0%	0%	1%	1%

Source: MDS Transmodal GB Freight Model

Analysis of the road freight movements by commodity (Table 2.6) shows that inbound freight relates to retail products and some food products for processing as well as construction materials. The main outbound volumes are raw materials (such as timber) and manufactured goods.

Table 2.6: Mid Wales: inbound & outbound road freight in HGVs by commodity

	Inbound road freight	Outbound road freight
Tonnes transported	7.2 million	6.0 million
Temperature controlled foodstuffs	19%	14%
Other foodstuffs	13%	4%
Construction & metals	44%	19%
Crude materials & manufactured items	13%	64%
Petrol and petroleum products	8%	0%
Other bulks	3%	0%

Source: MDS Transmodal GB Freight Model

Examples of OD of traffic

Figures 2.8 and 2.9 shows the estimated origins and destinations of HGVs flows through locations on the road network in Mid Wales, which were selected by the client group because of the significance of HGV flows at these locations. The locations were:

- A470 at Rhayader: HGVs have to pass through the town centre and the A470 on this section has to accommodate traffic on both the A44 east-west route and the A470 north-south route;
- A44 at Llanbadarn Fawr: HGVs have to pass through the village on the A44 between Aberystwyth and the West Midlands and the A44 on this section also accommodates HGV traffic on the A487 north-south coastal route that is avoiding the centre of Abersytwyth.

It should be noted that the maps use data from the GBFM origin-destination matrix which excludes the smaller volume flows between origin-destination pairings in order to reduce the computation time required within the model when it is run. This means that the smaller origin-destination flows in the Marches and Mid Wales could not be represented on the maps. In addition, as the origin-destination matrix is based on a sample of total movements throughout Great Britain, it may not include movements to and from specific locations such as individual factories.

Figure 2.8: Origins and destinations of HGV flows on the A470 at Rhayader

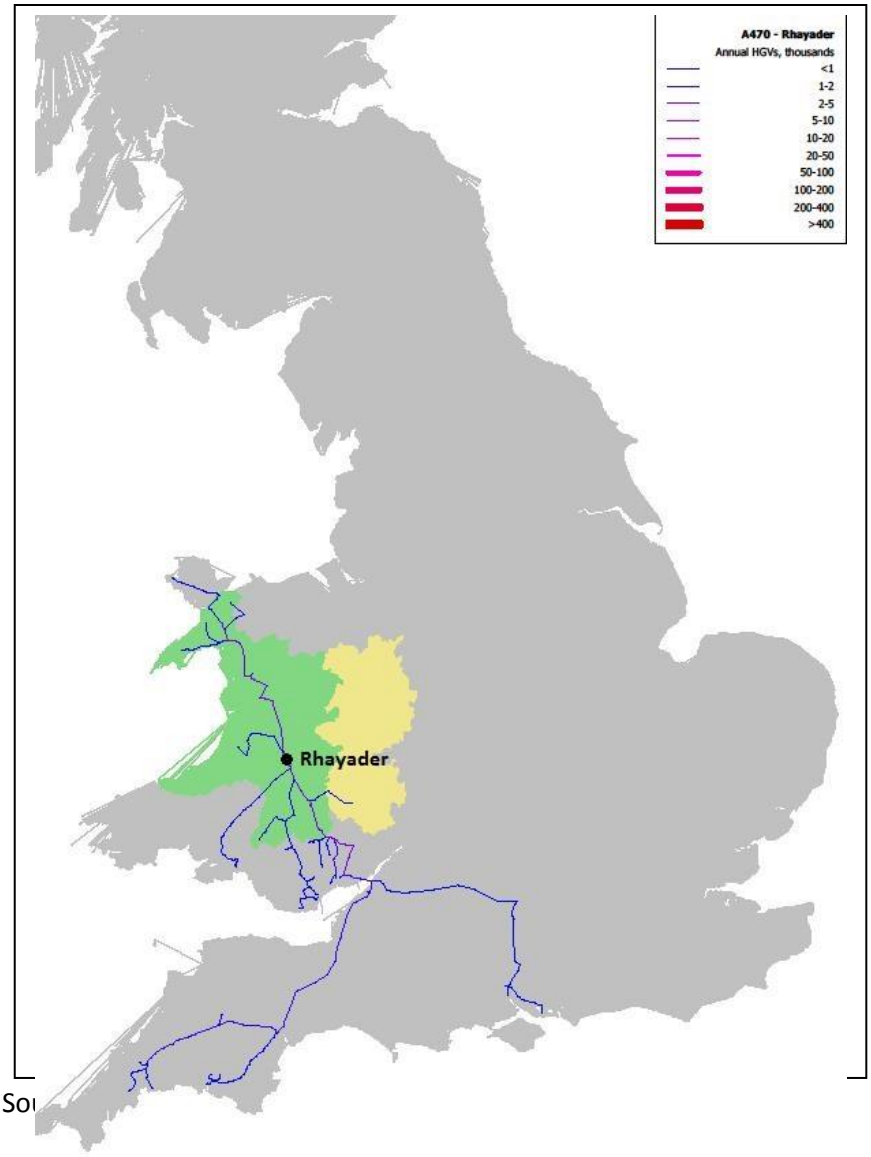


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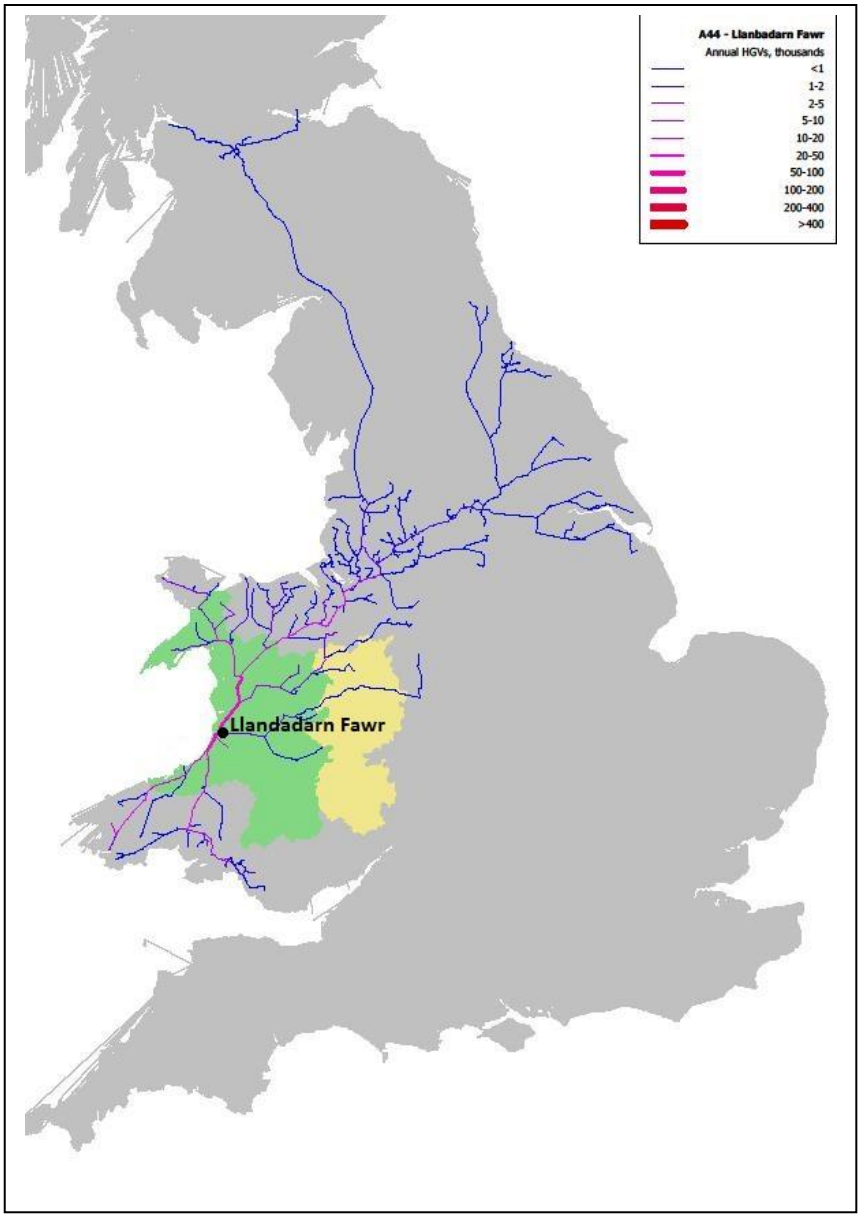
Figure 2.9: Origins and destinations of HGV flows on the A44 at Llandadarn Fawr



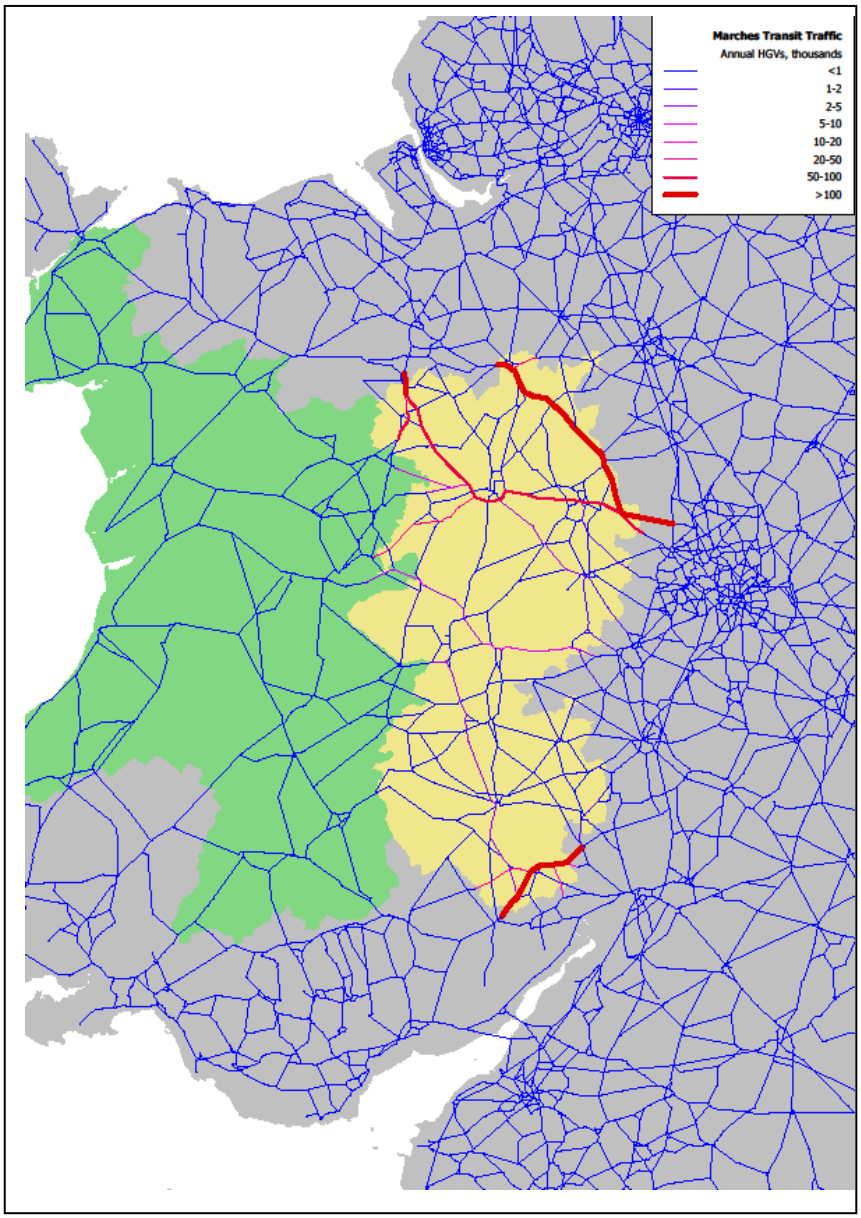
Source: MDS Transmodal GB Freight Model

Transit traffic

Analysis from the assignments to the road network from the GBFM was used to establish the HGV flows that related only to transit traffic. These transit traffic flows are shown in Figures 2.10 and 2.11 below. The maps suggest that, as well as traffic within, to and from the Marches and Mid Wales area, there are also significant volumes of HGV traffic that transit the area, to and from South Wales and West Wales via the M50/A40, and to and from Deeside and the North West via the A41

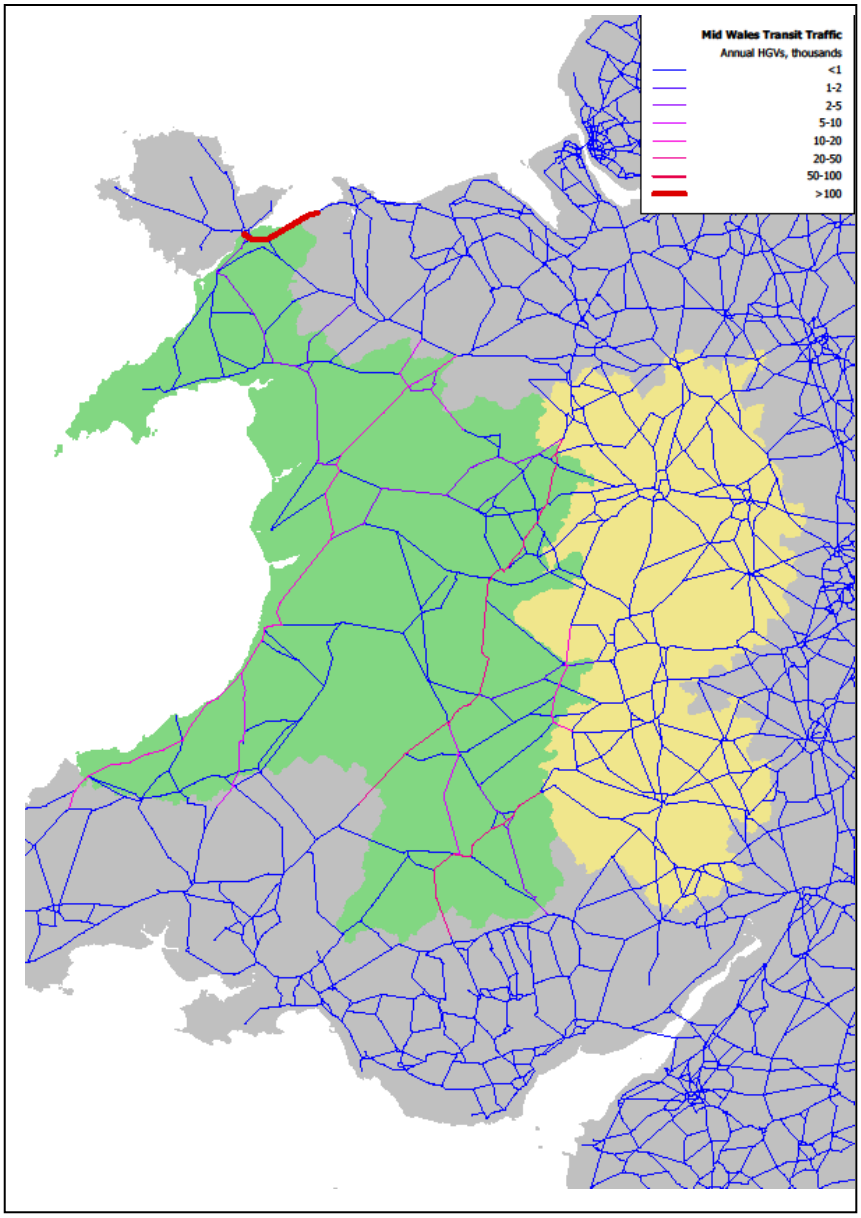
and the A5/A483. An estimated 2.16 million annual HGV movements out of a total of 10.56 million in the Marches (20%) are transit movements. An estimated 0.93 million annual HGV movements out of a total of 2.64 million in Mid Wales (35%) are transit movements.

Figure 2.10: Estimated transit HGV flows through the Marches



Source: MDS Transmodal GB Freight Model

Figure 2.11: Estimated transit HGV flows through Mid Wales



Source: MDS Transmodal GB Freight Model

Average length of haul

Based on the assignments of HGV flows to the road network from the GB Freight Model the distribution of the length of road haul by HGVs was calculated for both the Marches and Mid Wales and the results are shown in Table 2.7 below.

Table 2.7: Distribution of length of haul by HGVs

Length of haul (km)	Marches		Mid Wales	
	Number of HGV movements	% of HGV movements	Number of HGV movements	% of HGV movements
<50	4.11	39%	1.26	48%
50-100	2.07	20%	0.38	15%
100-200	2.21	21%	0.51	19%
200-300	1.24	12%	0.17	7%
>300	0.93	9%	0.32	12%
Total	10.56	100%	2.64	100%

Source: MDS Transmodal GB Freight Model

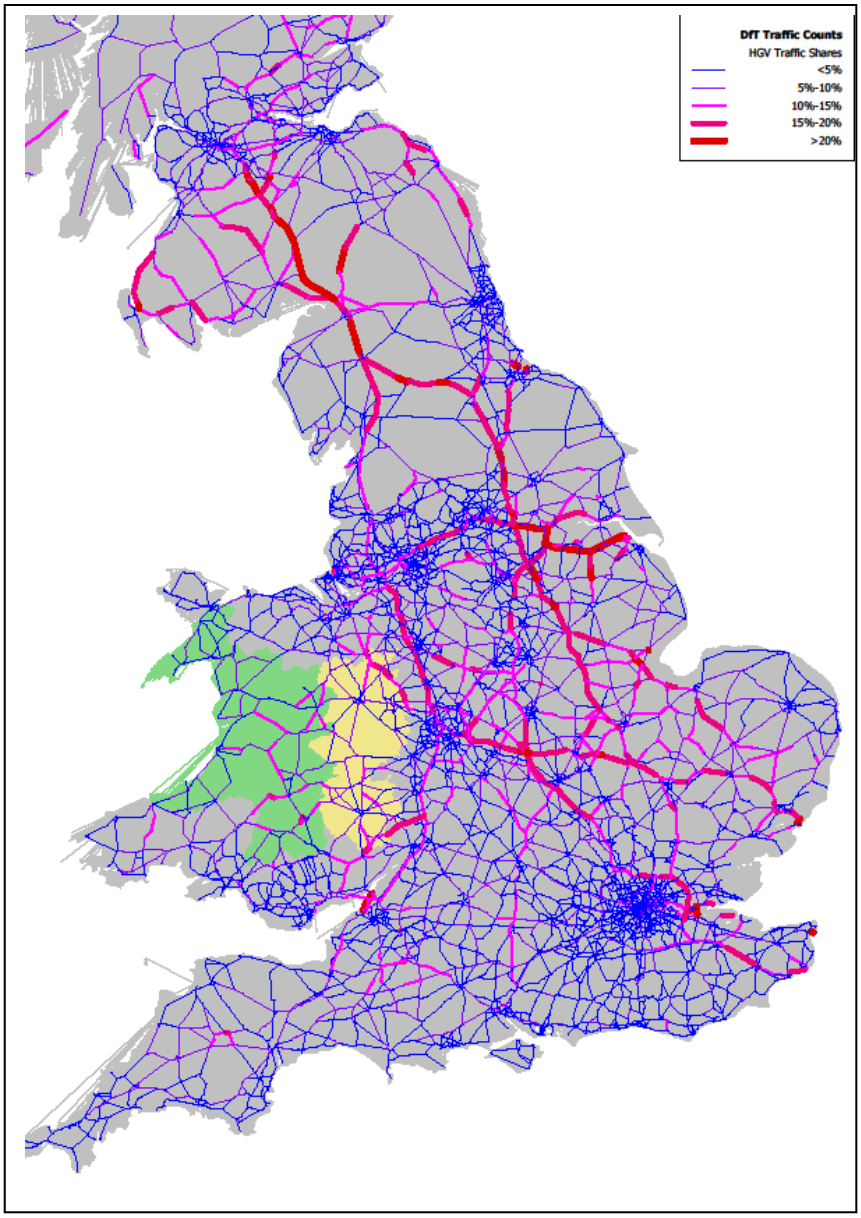
The average length of haul for HGV movements within, to, from, and through, the Marches is relatively short, with 39% less than 50km; a total of 59% less than 100km and 80% less than 200km. Similarly for Mid Wales, 48% of HGV movements are over distances of less than 50km, a total of 62% less than 100km and 81% less than 200km. This reflects in general terms the UK pattern of HGV movements, which is dominated by relatively short distance movements.

Concentration of HGVs on the road network

Figure 2.4 above shows that the greatest volumes of HGV movements in the Marches and Mid Wales are accommodated on the motorway network and other links on the SRN, while Figure 2.10 shows there are also significant volumes of HGV traffic that transit the area to and from South Wales and West Wales via the M50/A40 and to and from Deeside and the North West via the A41 and the A5/A483.

Another measure of the potential significance of HGV flows on links is their relative importance compared to total traffic. Figure 2.12 shows the HGV movements as a proportion of total movements based on DfT traffic count data. This shows that a significant proportion of the road network in the Marches and Mid Wales accommodates traffic where HGV movements represent more than 10% of total traffic volumes.

Figure 2.12: Estimated transit HGV flows through Mid Wales



Source: MDS Transmodal GB Freight Model

Road haulage costs

Table 2.7 sets out estimated one-way road haulage costs for two manufacturers located in Newtown and Hereford respectively that need to transport a trailer-load of goods to Daventry, the latter being a typical location for a National Distribution Centre in the logistics 'golden triangle'. The analysis of road transport costs is designed to illustrate the relative cost of peripherality for companies in Hereford or Newtown compared to a third manufacturer located in the West Midlands conurbation. A manufacturer located in Hereford would be charged an estimated additional £30 per trailer load (or about £1 per pallet), while the additional cost for a manufacturer located in Newtown would be some £70 (or about £2 per pallet).

Table 2.7: Estimated one-way road haulage costs for a trailer-load between selected locations, 2017

Origin	Destination	Distance (km)	Total estimated cost	Additional cost compared to a manufacturer based in Wolverhampton
Newtown	Daventry	194	£220	£70
Hereford	Daventry	145	£180	£30
Wolverhampton	Daventry	106	£150	

Source: MDS Transmodal, based on industry costs

Agricultural vehicles

Agricultural vehicles, sometimes with trailers and other equipment, need to use the public highway to move between farms and fields. In 2015 the speed limit for these vehicles was increased to 25 mph and the gross vehicle weight was increased to 31 tonnes. These regulatory changes should help to reduce, if only marginally, the time these vehicles have to spend on the public highway. However, while these movements on the single carriageway network of the Marches and Mid Wales are necessary and important for the economy of the area they can also lead to tailbacks and increased driver frustration and will lead to longer journey times and an increased risk of accidents.

The drivers of agricultural vehicles are subject to the Highways Code and the relevant rule is as follows:

Rule 169: Do not hold up a long queue of traffic, especially if you are driving a large or slow-moving vehicle. Check your mirrors frequently, and if necessary, pull in where it is safe and let traffic pass.

Failure to comply with this rule can lead to a charge of inconsiderate driving which can result in 3-9 points on a driving licence and a fine of up to £5,000. There does not appear to be a clear UK-wide definition of a 'long queue of traffic', but it has been interpreted by the police in Dyfed-Powys as

being more than six cars. At this point a slow-moving agricultural vehicle should seek to find a safe place to pull in, such as a lay-by which is long enough to accommodate the whole length of the vehicle.

2.5 Rail freight

The network

As explained above there are four relevant railway lines within the geographic scope of the project, which are:

- The Marches Line between Newport in South Wales and Crewe in North West England via Hereford and Shrewsbury, which is a double track route with a reasonably generous loading gauge (W8) for the carriage of containers by rail;
- The Shrewsbury to Birmingham Line via Telford, which is a double track route with a W8 loading gauge between Shrewsbury and Donnington, but a more limited gauge (W6) from Donnington to Birmingham which is insufficient for the carriage of containers by rail;
- The Cambrian Line from Shrewsbury to Aberystwyth via Newtown;
- The Heart of Wales Line from Craven Arms (south of Shrewsbury on the Marches Line) to Swansea.

The loading gauge on both lines in Mid Wales is restricted to W6, which limits the potential for the development of intermodal services and settlements are geographically dispersed so there is a lack of critical mass of traffic for any particular location. Both lines are mainly single track (with passing loops in some stations) with long sections between signals which restricts their capacity.

None of the routes within the scope of the strategy are electrified. Electrification of the Shrewsbury-Birmingham Line has been discussed and would probably provide a suitable loading gauge to transport containers on intermodal wagons in an economic way, but given the difficulties that Network Rail is experiencing in completing the electrification of the Great Western Main Line in a cost-effective manner and announcements by the UK Government in July 2017 that electrification schemes in South Wales, the Midlands and across the Pennines have been abandoned or delayed, it seems unlikely that this will proceed in the medium to long-term.

Existing flows

There are no rail freight flows in on the network in Mid Wales and rail freight flows with origins and destinations in the Marches have declined in recent years with the loss of coal and biomass flows to the Ironbridge coal-fired powered station following its closure in November 2015. The main existing flows are of construction materials; these are principally limestone from Derbyshire to Donnington

rail freight terminal and construction materials from Moreton-on-Lugg in Herefordshire to various locations around the country, but mainly to London and the South East. Total tonnes arriving and departing were about 0.5 million tonnes in 2015-16 (less than 1% of total non-coal tonnes lifted in GB) and about 40% of that traffic has now ceased because it was related to Ironbridge power station. Overall we estimate that the modal share for rail in the Marches is relatively low at less than 2% of total tonnes lifted.

The rail freight network in the Marches area is primarily accommodating transit flows on the Marches Line between South Wales and North Wales and the North West. The only significant flows of rail freight with a local trip end are aggregates from Moreton –on-Lugg and Coton Hill, mainly to Greater London and to Donington respectively.

Total transit rail freight volumes on the Marches Line (based upon 2014–15 data) per annum were 10 million tonnes. The largest volumes are steel flows in both directions between Margam (Port Talbot) and Dee Marsh (Shotton). There were also flows of steam coal from Portbury (Port of Bristol) to Rugeley and Fiddlers Ferry Power station, but these tonnages will now have dwindled. There is also a flow of limestone from Cumbria to Port Talbot.

Potential flows

Up to around a decade ago there were two 'multi-user' trains in each direction per day on the Marches Line - an intermodal service between Wentloog (Cardiff) and Crewe and a conventional wagon service between Newport and Warrington. These two services provided the opportunity to link smaller cargo generators in the Marches area into wider networks. The loss of these services reflects a consolidation of rail freight volumes towards the West Coast Main Line. The Marches route via Shrewsbury and Hereford could be regarded as an important parallel route that has the capacity to relieve WCML congestion.

The main challenge faced in developing rail freight volumes in the Marches and in Mid Wales is that rail freight's development will be based increasingly on rail linked distribution parks and occupiers of large distribution centres are unlikely to locate their distribution centres in the Marches or Mid Wales because they are so far distant from major centres of population. The only potential exception would be when the MOD leaves Donnington (near Telford) and thereby releases a rail linked site which already has large modern distribution buildings.

If rail freight is to play a significant further role in the Marches area or within Powys, Ceredigion or Gwynedd via Shrewsbury then some degree of intervention by the public sector will be required. The population of the Marches plus the three Welsh authorities served through Shrewsbury is 821,000 (2011 census). This can be compared with just 699,000 for the Highlands and Islands and Aberdeenshire combined whose principal administrative centres of Inverness and Aberdeen both

enjoy daily intermodal services from Grangemouth, just 250 km and 200 km respectively distant. In both cases, collaboration between a train operator and the container hauliers for the supermarkets has generated the required critical mass, despite the short distances involved. By comparison, Shrewsbury is 155 km from Northampton (the centre of gravity for distribution in the Midlands and southern England), and Machynlleth is 247 km away. Daily 'supermarket' services are running between Daventry and Cardiff (232 km) and Barking (153 km). The services to NE Scotland deliver containers direct to supermarkets (secondary distribution); the Daventry service serves a logistics shed to logistics shed role (primary distribution). The key difference between NE Scotland and, in particular, Mid Wales is that Aberdeen and Inverness are sizeable urban areas whereas the population of Mid Wales is more dispersed across a number of smaller settlements.

The most realistic approach to developing intermodal services for the Marches and Mid Wales areas would be to divert existing intermodal services onto the Marches Line to serve terminals at (say) Donnington and a new terminal on the Cambrian Line in Mid Wales. It might be possible to extend the existing trains from Daventry to Cardiff to serve terminals in the Marches and Mid Wales and ideally backload cargo would be sought from local producers for the supermarket sector for delivery back to National Distribution Centres in the Daventry/Northampton area. This concept of a 'supermarket train' would need to be the subject of further more detailed feasibility work to consider the demand for such services (including liaison with the supermarkets), the implications for the railway network (particularly in relation to loading gauge and network capacity), the location of potential terminals taking into account the cost of onward road distribution and rail network infrastructure costs, the rail freight operating costs and the nature and extent of any public sector support.

Another potential traffics is timber from Welsh forests, but the origins of the traffic require use of road transport and then delivery to a rail head; as the distance between Chirk and even Aberystwyth is only 75 miles it is unlikely to be economic to transport timber by rail over such a short distance even when the receiving point is rail-connected. Other traffics, where sufficient critical mass of traffic exists to justify a trainload from a private railhead, would need to be considered on a case-by-case basis.

2.6 Warehousing

There are relatively few 'large' distribution centres (more than 8,000 square metres of space) located in the Marches and Mid Wales (Figure 2.3), which means that distribution flows for the major retailers are to and from large distribution centres located in the Midlands and, for parts of Mid Wales, North West England, the South West and South Wales. However, there is a significant amount of smaller scale warehousing and other storage located in the Marches and in Mid Wales, along with depots for road haulage businesses (see Figure 2.4).

Figure 2.3: Location of large warehouses in the Marches and Mid Wales and surrounding areas

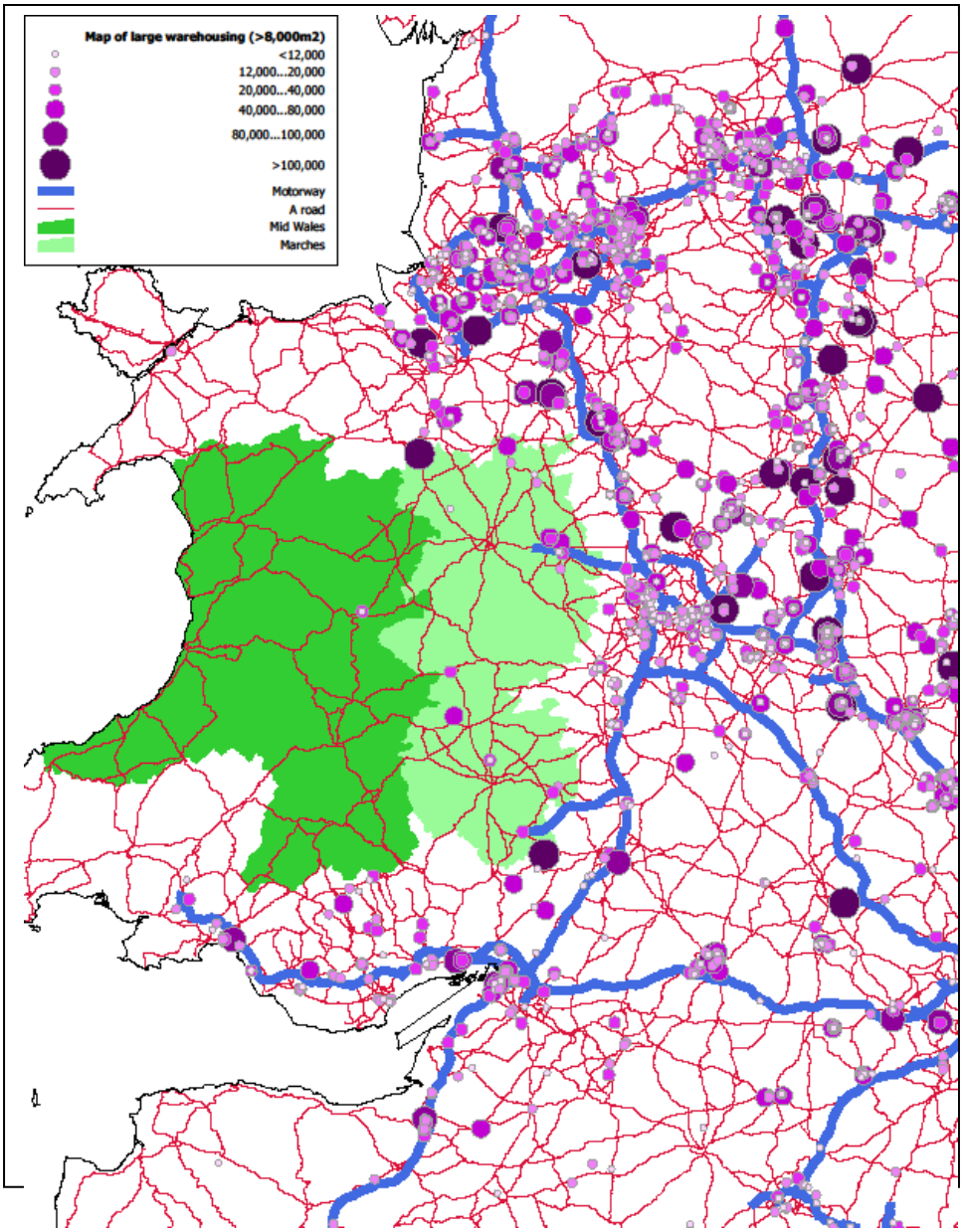
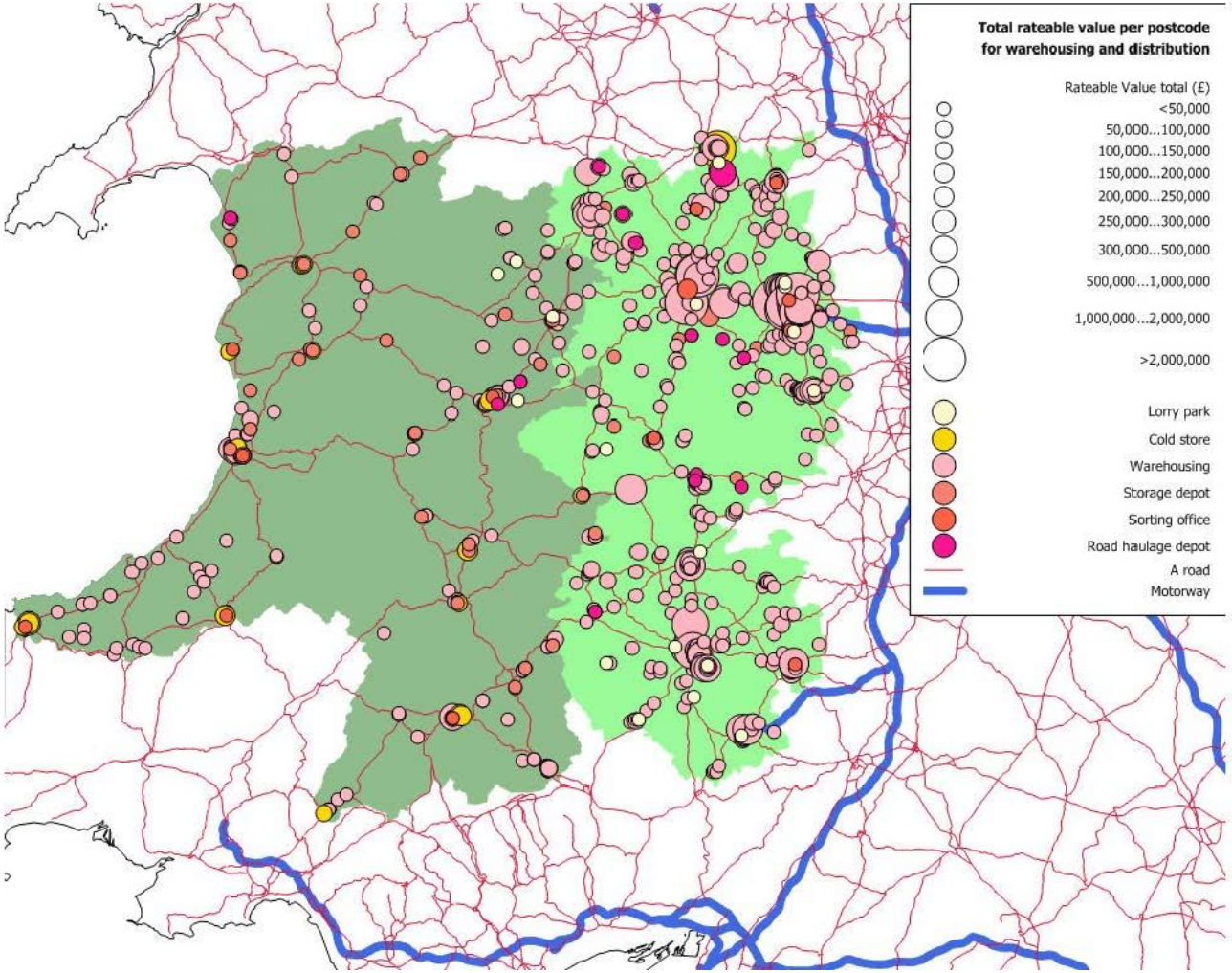


Figure 2.4: Location of warehousing and distribution in the Marches and Mid Wales



2.7 Summary of key conclusions

- The dispersed pattern of settlement and economic activity in Mid Wales and the Marches leads to reliance on road freight using a mainly single carriageway road network.
- Most road hauls are over relatively short distances. Some 35% of inbound flows to and 30% of outbound flows from the Marches are within the area, while some 69% of inbound flows and 84% of outbound flows are flows within Mid Wales.
- Slow-moving agricultural vehicles are required by the Highways Code to pull off the road in a safe location if a long queue (interpreted by the police in Mid Wales as more than 6 vehicles) has formed.
- There are no rail freight flows on lines in Mid Wales, while the rail modal share for traffic to and from the Marches is estimated at 2%. There are, however, more significant transit flows of rail freight on the Marches Line between North and South Wales.
- The relative peripherality of the Marches and Mid Wales leads to additional road haulage costs of £1-2 per pallet being incurred by businesses in the area compared to businesses located in the West Midlands.
- While the Marches and Mid Wales has distribution activity and warehouses, particularly related to the agricultural sector, the retail and hotel and restaurant sector is likely to be mainly served from large distribution centres located mainly in the Midlands, but also in the North West and South Wales/Bristol area.

3 BEST PRACTICE, POLICY AND FUNDING REVIEW

3.1 Methodology

We have carried out a best practice review of freight strategies that have been developed for mainly rural areas, such as West Berkshire and Central Bedfordshire (section 3.2 below). We have also carried out a review of relevant policy documents at UK, Welsh and local level to ensure that the objectives of the strategy are in line with policy and to draw out potential future policy issues that should be taken into account in developing the strategy (sections 3.3, 3.4, 3.5 and 3.6 below). Finally, the project team has considered the available sources of funding at UK, Welsh national and local levels (section 3.7).

3.2 Best practice review

Central Bedfordshire Local Transport Plan: Appendix D Freight Strategy	
Author	Central Bedfordshire Council
Date of publication	April 2011
Policy objectives	Strategy provides the policy framework to support the management of freight transport in Central Bedfordshire, covering the carriage of goods by road, rail and pipeline. Freight is one of six journey purpose themes covered in the Local Transport Plan (LTP). Through a combination of approaches and interventions, the Strategy aims to shift freight to more sustainable modes such as rail and water, but recognises that there is limited scope for this.
Key issues identified in relation to freight transport	Key issues regarding freight are identified as the following: - Managing freight on roads; - Freight facilities for road based transport; - Servicing and deliveries; - Information and working with stakeholders; and - Non-road freight modes
Key interventions in relation to freight transport	For managing freight on roads, a Designated Road Freight Network (DRFN) of primary and secondary routes will be maintained. This will be achieved by reviewing of roads in Central Bedfordshire and periodically reviewing the DRFN. For freight facilities, the authority will ensure provision of lorry parking and driver facilities by designation lay-bys along the DRFN. All new industrial units will be required to cater for lorry parking on site. Restrictions of deliveries in town centres will be reviewed with a focus on the current and future needs of existing businesses. Through planning conditions and obligations, the authority will ensure delivery is addressed in travel plans for all new major development proposals. The authority will also work with stakeholders to communicate freight management measures. This will be achieved by distributing information and

	enhancing the role of the Regional Freight Quality Partnership. They will also ensure that new businesses are aware of relevant freight programmes. Switching to alternative modes will also be encouraged for new developments by actively promoting advice from the DfT, including its Freight Best Practice Programme.
Implications for Marches Freight Strategy: interventions that represent 'best practice'	• Formulation of designated Freight Route Network (FRN). • Parking for vehicles and rest areas on designated FRN • Provision of parking for HGVs through the development planning process • Addressing issues of deliveries in town centres

Transport Policies: Freight Strategy	
Author	Somerset County Council
Date of publication	December 2011
Policy objectives	- **Manage**: Get the best out of the existing network, particularly by encouraging the use of rail freight and strategic routes - **Rethink**: Encourage hauliers, businesses and residents to take a more balanced view of freight transport - **Understand**: Improve our knowledge of freight issues and solutions - **Collaborate**: Work with stakeholders to develop new policies and solutions
Key issues identified in relation to freight transport	Strategy needs to account for growing levels of freight transport, particularly on the roads and with more of a focus on vans than in the past.
Key interventions in relation to freight transport	Options range from five different packages, from a Do-minimum to an area-wide restrictions package. The preferred strategy is as follows: **Manage**: By developing and promoting a package of interactive routing resources and free downloads for existing sat nav units. This forms the core of the strategy. These resources will be available on a webpage designed as a hub that stimulates demand for freight information. **Rethink**: Through a second set of measures we will help residents, communities and businesses rethink each other's roles (and their perceptions of them). These will include formalising the processes used for establishing dialogues between stakeholders, providing information on the benefits of freight, workshops for different groups of road users, and 'up our street' delivery packs. **Understand**: By developing a dataset detailing Traffic Regulation Orders to underpin the routing resources mentioned above and a programme of studies to inform the development of future policy (and responses to local issues). **Collaborate**: Working with other stakeholders to improve commercially available routing resources and increase integration with other policies, land use planning and the travel planning process. Exploring the potential for promoting (and protecting) rail freight with neighbouring and district authorities. New developments should minimise the impact of any freight they generate. Developments which generate significant levels of freight should be located in a way that promotes the use of rail, water and the strategic network. Nationally significant developments are likely to have to be more innovative in doing this, due to the size of their potential impacts.
Implications for Marches Freight Strategy: interventions that	• Interactive routing information for HGVs, accompanied if necessary by TROs

represent 'best practice'	• Focus on development control process and impact of additional freight movements • Awareness-raising at a local level involving residents and businesses and encouraging dialogue between them.

West Berkshire Local Transport Plan: Freight Strategy	
Author	West Berkshire Council
Date of publication	November 2014
Policy objectives	The Freight Strategy is West Berkshire's vision for balancing the requirement for efficient distribution of goods around the District with the social and environmental effects of freight movement over the period of the Council's Local Transport Plan (LTP) to 2026. It builds upon the Freight Strategy developed for the previous Local Transport Plan 2006/7- 2010/11.
Key issues identified in relation to freight transport	Freight movement by road adds to problems like congestion, road safety implications and harms the environment. Complaints are made by local communities regarding vibration, intrusion, noise and air pollution and damage by HGVs to rural roads. In West Berkshire there is a particular emphasis on rural communities. Freight policies and strategic plans together with their implementation and delivery are needed to help protect the environment and communities whilst ensuring freight can move efficiently with limited adverse effect and disruption to all users. The strategy reflects the state of public finances and states that it is unlikely that there will be any significant investment in freight-related infrastructure. The majority of freight movements have neither an origin nor destination in the District itself. This reduces the influence that the authority can place on partnership working with freight users in order to encourage more responsible freight routeing or to promote alternative means of moving freight by road. Overnight lorry parking away from formal lorry parking areas is viewed as a key issue by many parish councils, particularly in residential areas and leads to increased levels of crime and environmental problems. Informal lorry parking is an issue in Berkshire, despite the three motorway service stations with lorry parking being on the SRN.
Key interventions in relation to freight transport	An action plan has been developed, with policies and a timescale for each action. Freight policies include: - Using the development plan process to protect the strategic rail freight site at Theale and to encourage development at other locations (ongoing) - Ensure issues relating to freight routing agreements and controls are considered as part of the planning process (ongoing) - To investigate the feasibility of a freight consolidation centre to serve Newbury town centre (2016/2017) - Refresh the Freight Route Network (FRN) and maps to reflect changes to highway network (2014/15)

	- Develop a clear framework for the Council's Network Management plan to outline the approach to be used for dealing with local freight issues (2015/2016) - A policy specific to freight movements on a specific road (A339 through Newbury). Involves quantifying the volume, type and origin/destination of freight, which will lead to options for routing and implementing a scheme for managing freight movement. (TBC) - Encouraging greater use of motorway services for overnight lorry parking through FRN maps, advisory signing and information (ongoing) - Seek opportunities for increasing enforcement of weight restrictions (ongoing) - To communicate the FRN information through the internet, electronic applications and promotion within the industry (long term).
Implications for Marches Freight Strategy: interventions that represent 'best practice'	• Establishing an FRN • Encouraging the use of existing lorry parking at locations away from residential areas

Wiltshire Local Transport Plan 2011 -2026: Freight Strategy	
Author	Wiltshire Council
Date of publication	March 2011
Policy objectives	The efficient distribution of goods and services is crucial for all the basic essentials of everyday life, such as food, drink, clothing and fuel. However, a balance has to be found between the efficient distribution of freight and the effect that this distribution has on the society it serves. There is a need to maintain economic vibrancy and growth, with the realisation that we have to transport our goods and services in the most sustainable way. The current goals for both the coalition government and Wiltshire Council have been identified as 'supporting economic growth and reducing carbon emissions'. The difficult balance that the council has to achieve is to recognise these priorities whilst still attempting to deliver where possible the sustainable distribution of freight. The objectives linked to the above are as follows: - Reduce HGV movements on inappropriate routes - Minimise the impact of HGV movements on local communities and the environment - Enhance road safety - Provide good quality information with regards to freight, to all relevant stakeholders - Provide suitable and well placed short term and overnight lorry parking facilities - Encourage the use of alternative forms of transporting freight, in particular by rail - Identify and safeguard sites for possible rail freight interchange facilities - Maintain the Wiltshire and Swindon FQP.
Key issues identified in relation to freight transport	The need to support economic growth, reducing transport emissions of carbon dioxide and other greenhouse gases, to contribute to better safety, security and

	health and to promote equality of opportunity. The main difficulties in Wiltshire associated with freight distribution include traffic congestion, environmental and social effects, reliance on road based freight movements, need for adequate places for lorry stops and to protect sites that have the potential for rail interchange use. As part of the strategic options outlined the following freight themes have been identified: - Freight consolidation/break bulk - Routing - Management - Information - Parking - Rail For the above themes, three defined approaches have been considered (conventional, balanced and radical).
Key interventions in relation to freight transport	18 separate options based on the above themes were then appraised, with the chosen 6 listed below: - Freight consolidation (conventional); work with freight operators and businesses on a voluntary and ad-hoc basis to achieve shared deliveries where possible - Freight routing (balanced); develop and adopt an advisory freight network based on national, regional and county routes (or equivalent) with local routes to town centres and business/industrial estates. - Freight management (balanced); manage local freight issues through the freight assessment and priority mechanism. - Freight information (radical); utilise a package of traditional (e.g. paper mapping) and electronic (e.g. interactive mapping) measures to disseminate Wiltshire specific freight information to hauliers, businesses, stakeholders and the public. - Freight parking (conventional); maintain a minimum standard of lorry parking facilities on a requirement basis. - Rail freight (conventional); support the development of a freight interchange facility at Westbury railway station including all necessary associated highway infrastructures.
Implications for Marches Freight Strategy: interventions that represent 'best practice'	• Balance sought between economic and environmental issues • The need to consult and communicate with other stakeholders • Provision of parking facilities for HGVs • Developing freight routing information for HGV drivers

3.3 Policy review: UK documents

The Logistics Growth Review – Connecting People with Goods	
Author	Department for Transport
Date of publication	November 2011
Scope of document	Geographically the review covers the United Kingdom and focuses on all modes with the potential to carry freight, notably road, rail, air and sea.
Policy objectives	The review is designed to create the right conditions to leverage short term private sector investment in critical pieces of logistics infrastructure and a longer term efficient, competitive and low carbon logistics sector that can service and support growth across the economy as a whole. Overall objectives: -Leveraging short term private sector investment - Improving the longer term capacity, performance and resilience of congested road and rail networks - Promoting the image of the sector at the local level - Reducing unnecessary regulation - Attracting and retaining high calibre recruits - Low carbon growth
Freight issues	In order to facilitate projected logistics growth, the industry needs to develop modern distribution centres in appropriate locations to serve major conurbations and to provide integration between rail and trunk roads, namely Strategic Rail Freight Interchanges (SRFIs). Network capability and congestion can create significant barriers to growth, both on the road and rail networks. Market barriers also exist in the uptake of low emission HGV technologies. The review also suggests a reduction in unnecessary legislation.
Freight measures & policies	Publication of SRFI guidance and investment in the strategic road and rail network. The delivery of recommendations to ensure a reduction of incidents and delays to HGVs.
Implications for Marches and Mid Wales Freight Strategy	Investment in the strategic road network, reducing congestion and an emphasis on emissions will have an impact on the Marches and Mid Wales area.

National Planning Policy Framework	
Author	Communities and Local Government
Date of publication	March 2012
Scope of document	This document is concerned with setting out planning policy in England. It covers all modes of transport, although it is primarily concerned with promoting sustainable transport.
Policy objectives	The document sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.
Freight issues	Solutions should be sought which reduce greenhouse gas emissions and reduce congestion and promote sustainable modes of transport.
Freight measures & policies	Local authorities should work with neighbouring authorities and transport providers to develop strategies for the provision of viable infrastructure necessary to support sustainable development, including large scale facilities such as rail freight interchanges, roadside facilities for motorists or transport investment necessary to support strategies for the growth of ports, airports or other major generators of travel demand in their areas. The primary function of roadside facilities for motorists should be to support the safety and welfare of the road user.
Implications for Marches and Mid Wales Freight Strategy	The framework promotes sustainable growth, focusing on reducing congestion, supporting modal shift where possible and reducing emissions.

National Policy Statement for National Networks	
Author	Department for Transport
Date of publication	December 2014
Scope of document	The National Networks National Policy Statement (NN NPS) 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.
Policy objectives	The Government will deliver national networks that meet the country's long-term needs, supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system. This means: • Networks with the capacity and connectivity and resilience to support national and local economic activity and facilitate growth and create jobs. • Networks which support and improve journey quality, reliability and safety. • Networks which support the delivery of environmental goals and the move to a low carbon economy. • Networks which join up our communities and link effectively to each other.
Freight issues	Forecast increase on use of road and rail networks will put pressure on networks: rail freight has the potential to nearly double by 2030.
Freight measures & policies	At a strategic level there is a compelling need for development of the national road and rail networks to meet the forecast need. The need for development of SRFIs is also set out, citing the fact that they are a key element in reducing the cost to users.
Implications for Marches and Mid Wales Freight Strategy	This policy statement recognises the compelling need to invest in future road and rail networks and sees the potential for modal shift to rail and reducing congestion and emissions.

National Infrastructure Plan 2014	
Author	HM Treasury
Date of publication	December 2014
Scope of document	Covers the United Kingdom and looks at the long-term economic need for infrastructure for all modes.
Policy objectives	The infrastructure 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.
Freight issues	The plan discusses major infrastructure projects that will be required in the future to meet growing passenger and freight demand. Notable issues include increased airport capacity for the South East, HS2, road investment strategy and cutting congestion on the road network.
Freight measures & policies	The implementation of SRFIs is a priority, as is the Felixstowe to Nuneaton line. Road and rail connectivity to ports and airports is also listed as a priority. The rail investment strategy, which covers improvements to the Midland Main Line, East-West Rail and Electric spine, Great Western Programme and East Coast Main Line.
Implications for Marches and Mid Wales Freight Strategy	While the UK Government's emphasis on investing in infrastructure remains, there is now less emphasis on rail infrastructure investment (beyond HS2) due to delays and cost overruns on major projects carried out by Network Rail.

In January 2017 the UK Government published its *Building our Industrial Strategy* Green Paper, with the objective of improving living standards and economic growth by increasing productivity and driving growth across the whole of the UK. The Government has set out 10 pillars which evidence suggests will drive that growth and the 3rd pillar relates to upgrading infrastructure, including aligning infrastructure investment with local growth priorities. In support of the 3rd pillar, the Government announced a new National Productivity Investment Fund (NPIF) in autumn 2016 that will add £23 billion in investment from 2017-18 to 2021-22, including £2.6 billion for improvements in transport projects to reduce journey times.

In July 2017 the Department for Transport announced there will be a ban on the sale of diesel and petrol cars in 2040. This policy is designed to signal that there will be a shift towards greater use of electric cars and LGVs and also reflects the UK Government's increasing confidence that electric propulsion technology is now sufficiently mature to meet the future requirements of mobility in smaller vehicles.

Midlands to Wales and Gloucestershire Route Strategy	
Author	Highways England
Date of publication	March 2017
Scope of document	Covers the Strategic Road Network between the Midlands and Wales and Gloucestershire.
Policy objectives	To provide a high level view of the current performance of the SRN as well as issues perceived by stakeholders that affect the network and to shape investment priorities within RIS2.
Freight issues	While the two motorways on the route are perceived as performing well, the A5 is regarded as being an important route for freight from the Midlands towards North Wales, while the A49 is seen as an alternative north-south route to the M50/M5/M6 route. The A49 is mostly single carriageway with limited overtaking opportunities and there is a collision hotspot in Hereford. Congestion issues on the A49 are generally due to it being a single carriageway route with limited overtaking opportunities, exacerbated by slow moving agricultural vehicles and the number of HGVs. There is an increasing number of HGVs using the A5 route between West Cheshire/NE Wales and the Midlands. The major capacity issues are focused on the major towns and cities, which are also key centres for economic growth. Hereford Enterprise Zone is important for development in the region but there is currently a cap on development next to the SRN. There are a number of local AQMAs along the route, including in Hereford, Shropshire, Shrewsbury and Leominster. There are high levels of HGV traffic on the A483 through the villages of Pant and Llanymynech.
Freight measures & policies	The only major improvement project which has been announced in the area is the M54 to M6/M6 Toll Link Road.
Implications for Marches and Mid Wales Freight Strategy	The Route Strategy raises a number of issues in the Marches that are relevant to freight movements such as safety issues on the A49, likely worsening air quality in the larger towns and cities and congestion problems near the Hereford Enterprise Zone; congestion is worsening on the A5 between Shrewsbury and the Welsh Border, with potential environmental problems at Pant and Llanymynech. The only scheme that has been announced to address these issues is the M54 to M6/M6 Toll Link Road, which improves network connectivity but does not address the capacity, safety and environmental issues that are raised in the strategy.

3.4 Policy review: Wales

The Wales Freight Strategy – One Wales: Connecting the Nation	
Author	Welsh Assembly Government
Date of publication	May 2008
Scope of document	Covers the whole of Wales and all transport modes.
Policy objectives	The programme which this freight strategy fits into aims to achieve a nation with access for all, where travelling between communities in different parts of Wales is both easy and sustainable, and which will support the growth of the economy through transport of both people and goods. An overall aim of the freight strategy is to transfer freight from road to rail.
Freight issues	Particularly in the context of roads and shipping, transport connections with Ireland and England feature heavily and the idea of road user charging. Discusses reviewing current system of freight grants with a view to increasing availability of subsidies that encourage modal shift.
Freight measures & policies	Promote policies that support the transport of freight in the most environmentally sustainable manner, and in particular encourage freight to transfer from road to rail and water-borne transport wherever practical. Consider the potential for developing inter-modal freight interchanges in Wales to facilitate and stimulate easier modal shift to more sustainable modes. Exploring a 'freight direct' information service for Wales. This could provide information on alternative journey options for moving freight. This includes developing localised lorry route maps, use of ITS and telematics to improve efficiency, considering specific parking for drivers' rest area and considering port-related rail freight path availability.
Implications for the Marches & Mid Wales Freight Strategy	The strategy generally makes the case for modal shift and greater collaboration in moving freight, potentially reducing the amount of HGV trips on the road. The use of consolidation centres is suggested in general terms, although the viability of such centres would likely be more appropriate for serving large urban centres in other areas of Wales, such as Cardiff, Swansea or Wrexham.

Report of the Wales Freight Task and Finish Group	
Author	Wales freight task and finish group
Date of publication	March 2014
Scope of document	The report is mainly concerned with the key issues effecting freight carried by all modes within Wales
Policy objectives	The group's remit was to advise the Minister on key freight issues from the perspective of the Minister's economic development priorities. Its focus was on the key drivers of demand, any capacity issues and the appropriate interventions needed to support the development of Enterprise Zones, City Regions and commercial and business centres in Wales more widely.
Freight issues	The group worked on the basis that: • Rail, road and shipping are all important to Wales as freight modes; • The key objective should be to ensure the modes are as inter-connected as practicable along major routes in Wales • Whilst recognising the importance of road freight to the market, opportunities for further modal shift should be maximised • Maximum use should be made of existing infrastructure
Freight measures & policies	The group found key interventions or actions that should be taken to support sustainable economic growth : - The Welsh Government should ensure that the need to take into account the role of freight when considering all significant development in Wales is integrated more effectively in the planning system in Wales - The Welsh Government should ensure that the need to take into account the potential for effective inter-modal freight networks when developing land use plans, and the value added processes inter-modal interchanges can attract, is integrated more effectively in the planning system in Wales - The Welsh Government asks the UK Government to issue guidance for ports to take into account when drawing up master plans and disposing of port land, the potential role of the port in inter-modal freight networks, and the opportunities for freight processing activities on port land.
Implications for the Marches & Mid Wales Freight Strategy	The report calls for an approach where freight is considered more in planning decisions and encourages the development of intermodal freight facilities.

Report of the Wales Freight Working Group	
Author	Wales Freight Working Group
Date of publication	March 2016
Policy objectives	Initially the remit of the group was to advise the Minister on key issues affecting the future of freight traffic in Wales, with a particular focus on inter-modal hinterland connections to ports and the balance between passenger and freight needs. The remit was later expanded to give advice on proposals from the UK Government's Rail Freight Strategy from a Welsh perspective.
Key issues identified in relation to freight transport	Issue of loading gauge being upgraded along the South Wales Main Line to allow for the transportation of intermodal container traffic. Bottlenecks forming between Anglesey and the rest of North Wales due to traffic from Holyhead port.
Key interventions in relation to freight transport	In relation to freight, the report makes four recommendations: 1. Welsh Government to commission an up to date, integrated analysis of opportunities and challenges for growing intermodal freight networks and out of town hubs in Wales, taking as long-term view as evidence supports. 2. Welsh Government should consider the need for appropriate loading gauge capability along the entire South Wales Main Line to efficiently accommodate intermodal container traffic. Welsh Government should continue to lobby the UK Government to ensure the appropriate works are undertaken during electrification of the Great Western Main Line. 3. Welsh Government should continue to explore development of a business case for a third Menai crossing in relation to freight, including identifying the current constraints and reflecting sufficient capacity to meet projected growth. 4. The Freight Working Group should continue to advise Welsh Government on proposals under development within the UK Freight Strategy, and the Welsh Government should give consideration towards developing a strategy for Wales.
Implications for Marches Freight Strategy	The work of the Wales Freight Working Group was very focused on issues in South and North Wales rather than considering the context of Mid Wales.

3.5 Policy review: regional & local policy documents for the Marches

At a regional level in England the *Midlands Engine Strategy* sets out how the Government's Industrial Strategy will be applied in the region, with a focus on improving connectivity to raise productivity, strengthening skills, supporting enterprise and innovation, promoting the Midlands nationally and internationally and enhancing quality of life. The Government will invest in local transport projects to enhance regional connectivity and has invited Midlands Connect, the proposed Sub National Transport Body, to develop proposals for improving connectivity across important corridors in the region, including east-west transport links.

The *Midlands Connect Strategy: Powering the Midlands Engine* sets out proposals to use a rolling 25-year programme of strategic road and rail improvements to help secure additional employment and more trade and investment for the Midlands. The strategy provides support for a new bypass for Hereford to relieve congestion in the city on the A49 and facilitate the strategic movement of goods through the Marches. Midlands Connect has also published a strategy for freight, which has the objective of providing congestion-free motorways/expressways radiating in all directions from the two hubs for freight and distribution activity around Leicester/Coventry and Birmingham/Black Country. The process within Midlands Connect of identifying the major road and rail schemes is an ongoing process which will affect the investment priorities of various sections of the transport network and it is now carrying out a Midlands Connect Major Road Network Review.

At a sub-regional level in the Marches, a report published for the Marches LEP and entitled *Investing in Strategic Transport Corridors in the Marches*, describes the key road/rail transport corridors for freight and passengers on both the east-west axis – linking the area to Wales and the rest of the West Midlands – and the A49 on the north-south axis. The report sets out an investment project pipeline, including the M54/M6/M6 Toll Link Road, the A49/A5 Dobbies Island Junction, the Hereford Bypass and Southern Link and the Shrewsbury North West Relief Road.

Local Transport Plan (2016-2031) Policy	
Author	Herefordshire Council
Date of publication	March 2016
Scope of document	2016-31
Policy objectives	The LTP has two five key objectives: - Enabling economic growth by building roads linking new developments to the existing transport network - Providing a good quality transport network for all users - Promoting healthy lifestyles - Making journeys safer, easier and healthier - Ensure access to services for those living in rural areas.
Freight issues	Freight enables the transport and delivery of goods to businesses, construction sites, retail, premises and households, although there are also environmental implications as a result of freight movement, particularly by road. Rail freight only plays a limited role in the county, with the Tarmac quarry making use of a railhead to the North of Hereford. The use of rail freight instead of road freight is beneficial as it reduces pollution and congestion on roads.
Freight measures & policies	Policy LTP FR1 – Managing Freight Movements This policy will plan for and enable the efficient movement of freight to, from, through and within Herefordshire whilst reducing the negative impacts of freight movements were possible. This will involve: • Reviewing the outcomes of the Marches Strategic Corridor work and the implications for cross border movements, potential access to rail freight and the approach to the Transport Asset Management Plan (TAMP) • Working with Highways England, DfT and neighbouring authorities to ensure that freight routes are clearly identified on signs and maps and that these routes are fed into information portals for access by the freight industry and those served by it • Ensuring that the potential impact of new developments on freight movements are fully identified through the Development Control process including restricting delivery vehicle access to specific times • Engaging with local communities affected by freight movements to develop and agree suitable mitigation measures.
Implications for Marches & Mid Wales Freight Strategy	The LTP has an emphasis on reducing congestion due, in part, to freight movements and increasing the efficiency and reliability of the road network. It also addresses the issue of engaging with stakeholders and local communities to reduce the impact on residents in areas were HGVs are present.

Shropshire Local Transport Plan: Provisional LTP Strategy 2011-2026	
Author	Shropshire Council
Date of publication	March 2011
Scope of document	2011-26
Policy objectives	LTP objectives most relevant to freight include: - Improve connectivity and access, particularly by sustainable transport modes - Improve journey time and reduce unforeseen delays - Support growth and ensure new housing and employment areas encourage more sustainable travel behaviour - Reduce transport related carbon emissions - Minimise the impacts of transport on our local environment and communities - Maintain the condition of the highway network - Reduce the risk of death or injury due to transport accidents - Help people feel safe and secure when travelling and protected from traffic in their communities.
Freight issues	Freight is referenced in section 2.8 on the environment, notably the noise generated from HGVs being a cause of annoyance and detracting from the quality of the local environment. Under the carbon reduction and environment objectives, there is a desire for more long distance freight to be moved by rail, reducing the impact of HGVs on communities. Inappropriate use of minor roads by heavy goods vehicles causes accelerated road damage and additional maintenance costs.
Freight measures & policies	Policy C4: Managing freight Shropshire will accommodate the necessary movement of freight to and through Shropshire, while seeking to reduce the impacts of HGVs on the environment and local communities. This will be achieved by: •Facilitating the movement of freight on strategic routes and enabling necessary access to rural sites such as quarries and farms. •Ensuring sufficient provision of HGV parking and rest areas on identified routes. •Managing the potential impact of goods movements associated with new development through the planning process, particularly for rural developments. •Encouraging greater movement of goods by rail, including promotion to local business of the Telford Rail Freight Terminal at Donnington, Telford. •Using signing to encourage HGV traffic to use the most appropriate available routes where impacts on local communities and sensitive environmental areas can be minimised. •Work with the DfT and other local authorities to improve the data used by satellite navigation systems; the aim would be for 'Sat Nav' systems to identify routes unsuitable for HGVs and promote the most appropriate freight routes. •Considering the introduction of weight restrictions where communities are impacted by significant HGV movements and there are reasonable and more suitable alternative routes available.
Implications for Marches & Mid Wales Freight Strategy	The transport plan has an emphasis on reducing congestion due to freight movements, through developing mitigation measures, route management and modal shift. The plan also seeks to manage HGV movements and recognises the need to set aside sites for parking and rest areas for HGVs.

Local Transport Plan 2011-2026	
Author	Telford and Wrekin Council
Date of publication	2010
Scope of document	2011-26
Policy objectives	The Local Transport Plan has 6 major goals: 1. Making travel more reliable and efficient, to attract jobs and support growth and regeneration. 2. Maintaining highways effectively and efficiently. 3. Reducing carbon emissions to help tackle climate change. 4. Allowing everyone to access jobs, education, healthcare, shops and leisure. 5. Improving safety and security on the transport network and promote active travel choices which encourage people to be healthier. 6. Improve the quality of life by reducing the visual, noise, air quality and other impacts of transport on people and the local environment.
Freight issues	Covered in general terms under economic issues, such as 'improving transport links to international gateways and key domestic markets' and 'providing sustainable access to existing industrial and planned industrial estates.' The LTP states that there are no significant problems in terms of freight in the area, although challenges include: - Increasing the use of the existing Railfreight Terminal - Improving road condition in response to increasing HGV traffic - Avoiding 'rat running' of HGV traffic through sensitive areas as traffic congestion increases - Potential shortage of off road overnight lorry parking facilities as HGV traffic increases Freight is also referenced under the Transport Asset Management Plan with regard to maintaining carriageways against a background of traffic growth.
Freight measures & policies	'3.1.2 Improving Connectivity: Telford is already well placed to develop the sustainable movement of freight through the Telford Freight Terminal at Donnington and the Council will continue working with local businesses to further enhance use of this highly accessible and quality facility.' The electrification and upgrade of the Shrewsbury to Birmingham line could have implications for rail freight. LTP Policy 1: To work with partners to improve surface access to international gateways and key economic hubs both by road and rail. LTP Policy 3: To support the provision of a new motorway standard link between the M54, M6 North and M6 Toll.
Implications for the Marches & Mid Wales Freight Strategy	The support for a new motorway link will have implications for freight movements throughout the Telford area, as will the promotion of sustainable movement of freight. Avoiding freight movements through smaller settlements and congestion in general are cited as important in the LTP.

Investing in Strategic Transport Corridors in The Marches	
Author	The Marches Local Enterprise Partnership
Date of publication	May 2016
Policy objectives	To establish a better understanding of the key transport corridors which are vital to deliver growth across the Marches. The report focuses on the strategic road and rail networks and sets out a high level strategy to address key issues to deliver medium and longer term sustainable economic growth.
Freight issues	West of the M50 and M54 pinch points and missing links occur on the mainly single carriageway inter-urban road network. Congestion is an issue in the three urban centres of Hereford, Shrewsbury and Telford. The document also cites the untapped potential for moving long distance rail freight both for bulk goods and intermodal. There are issues on the A49 as a result of there being only one major bridge crossing of the River Wye in Hereford. The A483 is highlighted as it is regarded as having inadequate capacity for the volume of traffic travelling from Ireland and the industrial areas of North East Wales.
Freight measures & policies	Category 1: A49/A5 Dobbies Island Junction Improvement – To reduce congestion at key intersection, delivering faster and more reliable journey times for freight traffic (opening by 2019 subject to funding). Category 1: Hereford Relief Road – Western bypass to remove through traffic from the city centre and to enable full build of the Hereford Enterprise Zone (open by 2027). Category 2: A49 Road Corridor Strategy – Integrated package of junction improvements and localised link widening enhancements, to reduce cost of transport to freight operators and their customers (5-7 years dependant on funding and scheme identification).
Implications for Marches & Mid Wales Freight Strategy	The schemes listed in the document, once completed, will have a likely positive effect on freight flows in the Marches, aimed at reducing congestion and encouraging modal shift of freight from road to rail.

The Marches Rail Study: Final Report	
Author	Atkins
Date of publication	March 2014
Scope of document	Geographic focus is on the Marches Line between Abergavenny and Wrexham, the Shrewsbury to Birmingham New Street Line, the Hereford to Birmingham New Street Line and the Shrewsbury to Crewe Line.
Policy objectives	The study lists a range of enhancements to rail services and infrastructure in the Marches region that will be required to accommodate potential growth up to 2024. These include: - Installing double track on sections between Shelwick Junction and Great Malvern to allow 3 trains per hour, per direction - Possible re-signalling on the Marches route - Revisit the business case for line speed improvements and electrification, taking into account the potential future growth in passenger traffic.
Freight issues	Loading gauge is regarded as being important to rail freight, particularly intermodal, with a minimum requirement of W8. The report highlights the demand for coal, steel and automotive moved by rail on the Hereford to Shrewsbury line and steel carried on the Shrewsbury to Birmingham line to the Wolverhampton Steel Terminal.
Freight measures & policies	Re-signalling of the Marches Line (Newport-Shrewsbury) under CP5 will allow for 100mph line speed running. This will be achieved through reducing the headway between services, allowing freight paths to be timetabled in around passenger services.
Implications for the Marches & Mid Wales Freight Strategy	The study is focused on passenger rail but recommended measures, such as re-signalling, would help to provide increased capacity for freight in the future.

3.4 Policy review: Mid Wales

Regional Transport Plan	
Author	TraCC (Trafnidiaeth Canolbarth Cymru or Mid Wales Transportation)
Date of publication	September 2009
Scope of document	The document was written by the regional transport consortium (TraCC) and covers the Mid Wales region, made up of the counties of Ceredigion, Powys and part of Gwynedd (the former Meirionnydd district), as well as parts of the Snowdonia and Brecon Beacons National Park.
Policy objectives	To plan for and deliver in partnership an integrated transport system in the TraCC region that facilitates economic development, ensures access for all to services and opportunities, sustains and improves the quality of community life and respects the environment.
Freight issues	Road freight has a disproportionate impact on the road network and on the communities through which it passes, given that much of the network is substandard with limited overtaking opportunities and passes through the centre of many towns and villages. Nearly all freight within, to and from Mid Wales travels by road, with the east-west routes being of strategic importance. There is seen to be potential for developing the role of rail freight, thus reducing the pressure of heavy goods movements on the road network – particularly for timber, slate, and waste and supermarket supplies.
Freight measures & policies	Planning objectives include managing and reducing the need for freight movements and improving the efficiency of freight movements. A possible intervention is seen as considering the opportunities for a consolidated freight distribution centre serving Mid Wales and use of rail for the transportation of freight.
Implications for the Marches & Mid Wales Freight Strategy	The plan generally makes the case for modal shift and greater collaboration in moving freight, potentially reducing the amount of HGV trips on the road.

TraCC Rail Utilisation Study	
Author	TraCC
Date of publication	April 2010
Scope of document	Study focuses on rail on the Heart of Wales, Cambrian Coast and Cambrian Mainlines. The majority of the study is within the TraCC consortium area although the southern end of the Heart of Wales line falls within the SWWITCH region and the northern end of the Cambrian Coast is within the Taith consortium area
Policy objectives	The rail utilisation study was commissioned to inform the consortia's regional transport plan programme, looking at the three lines mentioned above. The study also looked at utilisation in regard to justifying electrification of lines.
Freight issues	The general issue of modal shift from road to rail is considered and the potential funding mechanisms, such as the Freight Facilities Grant, to support intermodal transfer facilities and freight quality partnerships. The study discusses the case for electrification on the Heart of Wales and Cambrian Lines to enable more efficient operation of freight services.
Freight measures & policies	The study considers it unlikely that a viable economic case can be made for electrification of the Heart of Wales and Cambrian Lines given the existing low number of passenger and freight operations and the high cost of electrification. Electrification of the Great Western Main Line is recommended and the TraCC is encouraged to support this. The document recommends progression of implementation of a rail freight pilot project and to consider undertaking detailed analysis of existing loading gauge restrictions of routes to determine costs for improving the gauge from W6a. Also, to consider a detailed feasibility assessment to identify possible rail freight depot locations.
Implications for the Marches & Mid Wales Freight Strategy	The study generally makes the case for modal shift and greater collaboration in moving freight, with the objective of reducing the amount of HGV trips on the road.

Mid Wales Regional Highways Strategy	
Author	TraCC
Date of publication	December 2012
Scope of document	The document is written by the regional transport consortium (TraCC) and covers the Mid Wales region, made up of the counties of Ceredigion, Powys and part of Gwynedd (the former Meirionnydd district), as well as parts of the Snowdonia and Brecon Beacons National Park. The modal focus is on road transport.
Policy objectives	To plan for and deliver in partnership an integrated transport system in the TraCC region that facilitates economic development, ensures access for all to services and opportunities, sustains and improves the quality of community life and respects the environment. The highways strategy has been produced to put in place a coherent approach for highways in the region which can be used to guide RTP investment, ensure regional priorities are fully represented in national spending and support the local authority programmes for highways investment and maintenance.
Freight issues	Highway usage has actually decreased since 2005 across the three authorities and the condition of highways has also decreased. Climate change has affected the resilience of the network. The majority of freight movements in Mid Wales are by road and many of the roads are single carriageway with poor alignments and with limited or no opportunities for passing slow-moving freight vehicles. The A483, A470 and A438 are seen as having heavy freight usage.
Freight measures & policies	Strategic highway objectives recognised and priorities outlined and have a specific focus on maintenance, safety, the environment and improving infrastructure. TPO12: Improve the efficiency of freight movements
Implications for the Marches & Mid Wales Freight Strategy	The strategy appears to generally support improvement of highways, prioritising maintenance and safety, which will improve the efficiency of freight movements.

TraCC Highways Prioritised programme for investment 2012-2017	
Author	TraCC
Date of publication	December 2012
Scope of document	The document is written by the regional transport consortium (TraCC) and focused on road transport.
Policy objectives	This document accompanies the highways strategy and provides a prioritised programme for investment for the period 2012-17. It details recent and current expenditure on highways and, by means of an evaluation of potential schemes, leads to a five year programme of schemes, prioritised using the evaluation framework for the Strategy.
Freight issues	The 42 schemes taken forward for evaluation for the TraCC Highways Programme include improvements to schemes on the trunk roads. These schemes are considered to be important by the local authorities but have not been prioritised by Welsh Government in the National Transport Plan. Schemes will be prioritised that meet a number of TraCC priorities, which include: - Improve accessibility to a significant part of the region - Upgrade a core/strategically important route to an appropriate standard - Part of a coherent approach to a route corridor - Improve the core network - Improve key freight routes
Freight measures & policies	Road schemes are listed along with progress to date, costs (if available) and likelihood of completion.
Implications for the Marches & Mid Wales Freight Strategy	Most of the schemes are likely to provide efficiency benefits for road freight movements.

TraCC Regional Rail Strategy and Actions	
Author	TraCC
Date of publication	January 2013
Scope of document	The document was written by the regional transport consortium (TraCC) and covers rail transport, both freight and passengers.
Policy objectives	The TraCC Rail Strategy aims to address the existing gap in regional strategies, providing the overall vision for rail and develop an Action Plan. The document provides the basis for investment decisions for rail infrastructure and services in Mid Wales.
Freight issues	Apart from a pilot scheme to carry timber from sidings at Aberystwyth to the Kronospan works in Chirk, there has been no further interest shown by the private sector in developing rail freight schemes. A report on the pilot concluded that transport costs for moving waste by rail would be significantly higher than road and would need more than a single train a week to justify investment in additional infrastructure.
Freight measures & policies	Action 11: TraCC will respond positively to proposals for the location of potential freight facilities in Mid Wales. However, for any realistic chance of the Mid Wales railway lines carrying goods/freight, there will need to be a sound business case and proposals must be market-led.
Implications for the Marches and Mid Wales Freight Strategy	There appears to be little interest from the private sector in moving goods by rail, but the potential for new traffics for rail should be considered in the future on a case-by-case basis.

Heart of Wales Line Traveller's Association (HOWLTA) Strategic Plan	
Author	HOWLTA
Date of publication	January 2013
Scope of document	Representation of users, potential users and supporters of the route and their aspirations, including in their relationships with the Heart of Wales Line Forum (HWLF), the Heart of Wales Line Development Company (HWLDC), rail industry bodies and external organizations.
Policy objectives	HOWLTA believes that more needs to be done to allow the Line to properly serve its existing and potential customers. The latter should include greatly increasing its use as a north/south route, both within Wales and between Southern Ireland/ SW Wales and N England/Scotland. The line has suffered for far too long from being treated as an "afterthought", with for example, a passenger service provided at minimum cost to suit operating requirements rather than customers' needs.
Freight issues	There is no provision at all on the majority of the line for freight services, which could improve the environmental impact of the transport of goods in and out of the communities along the route.
Freight measures & policies	The plan states the need for passing loops on the line to allow for two hourly passenger trains to run and any freight services which may wish to use the line in the future.
Implications for Mid Wales Freight Strategy	Passing loops would allow provision for future rail freight services, if the demand develops.

North West and Mid Wales Integrated Transport Network Technical Report	
Author	TraCC & Taith
Date of publication	April 2014
Scope of document	Geographically the report covers North and Mid Wales and is designed to contribute to the evidence base for the development of Local Transport Plans.
Policy objectives	The study will consider the current level of accessibility and economic activity alongside proposed developments; the study presents the issues facing the transport network and its users within the region.
Freight issues	The A483, a 'jet freight route' into and out of Mid Wales has high levels of traffic on the sections north and south of Wrexham, however lower levels of traffic on this route are present further south between Welshpool and Newtown. HGVs represent only a small amount of the traffic using most of the rest of the network in the study area, although HGVs using unsuitable roads may still cause localised issues in these areas.
Freight measures & policies	The report recommends the following option in relation to freight: - Provision of network and capacity improvements on the A483/A44 to facilitate safe and efficient freight movement and working with the authorities in England to improve cross-border links.
Implications for Mid Wales Freight Strategy	Improvements to the A483/A44 would pose significant benefit to existing freight traffic and allow for more efficient movement into and out of Mid Wales. There could lead to greater business investment in the region.

Mid Wales Joint Local Transport Plan 2015	
Author	Powys, Ceredigion and Gwynedd Councils
Date of publication	January 2015
Scope of document	The Local Transport Plan (LTP) covers the authorities of Powys, Ceredigion and Gwynedd in response to the Welsh Government requirement for LTPs to be submitted. The plan provides a detailed programme from 2015-2020 and a framework for schemes until 2030.
Policy objectives	The three local authorities are working together to facilitate economic development, ensure access for all to services and opportunities, sustain and improve the quality of community life and make an active contribution to the management of carbon and the quality of the environment by delivering in partnership an integrated and affordable transport system in the region.
Freight issues	• Provision for freight vehicles inadequate on most key strategic highway corridors • Disproportionate impact of road freight on the existing sub-standard highway network • Opportunity for rail freight to reduce road transport of goods. The main issue for freight vehicles in Mid Wales is that very few strategic highway corridors adequately provide for movements, with only short sections of dual carriageway in the whole region.
Freight measures & policies	Ceredigion is seeking to encourage rail freight as a means of reducing heavy goods vehicle movements on the regional road network.
Implications for Mid Wales Freight Strategy	The plan generally makes the case for modal shift and greater collaboration in moving freight, potentially reducing the amount of HGV trips on the road.

3.5 Funding review

Apart from local sources of funding (such as the Growth Deal) which will be well known to the commissioning organisations, the main additional sources of funding that are relevant specifically for freight are:

- Modal Shift Revenue Support (MSRS) which provides operating grant for intermodal rail freight services;
- Freight Facilities Grant (FFG), which provides part-funding for rail freight facilities located in Wales (but not in England);
- The Road Investment Strategy (RIS), which is the process by which investment in the Strategic Roads Network in England is decided;
- Control Period 6 (CP6), which is the process by which investment in the national rail network in GB is decided;
- Air Quality Designated Fund, which is a capital grant funding scheme to improve air quality on and adjacent to the SRN and is administered by Highways England.

Mode Shift Revenue Support (MSRS) scheme	
Funding body	Department for Transport & the Welsh Government
Periodicity of scheme	The scheme is in place between 2015 to 2020
Amount of funding available	£15.7m in 2017/18 and £15.2m in 2018/19
Eligibility criteria	MSRS assists companies with the operating costs associated with running rail freight transport instead of road. It is therefore designed to facilitate and support modal shift.
Evaluation criteria	Funding is paid to a company when proposed traffic would not be financially viable by rail without a grant and would be justified by the value of the lorry miles saved.
Funding process	The scheme is operated by the DfT and funding is based on the distance goods are transported via an origin/destination zone system for the country as a whole. The grant is paid in arrears (i.e. once the traffic has moved). The Welsh Government makes a contribution where lorry miles are saved in Wales.
Implications for Freight Strategy	Where rail could secure traffic from road transport, this grant should be considered as a potential source of operating subsidy.

Freight Facilities Grant (FFG) scheme	
Funding body	Welsh Government
Periodicity of scheme	The scheme is in place between 2015 to 2020
Eligibility criteria	Freight Facilities Grant (FFG) is available to assist with the extra costs generally associated with moving freight by rail by offsetting the capital costs of providing rail freight handling facilities. These capital cost generally relates to rail terminal facilities and railway rolling stock.
Evaluation criteria	The amount of grant offered is based on the value of the environmental benefits (due to the removal of HGVs from the road network) and the need for grant as demonstrated by a financial appraisal. FFG will normally be available for up to 50% of capital costs.
Funding process	An application is made to the Welsh Government and can be made at any time.
Implications for Freight Strategy	Where rail could secure traffic from road transport and some rail freight facilities are required to secure the traffic for rail, this grant should be considered as a potential source of funding.

Road Investment Strategy (RIS2): post-2020	
Funding body	Highways England
Periodicity of scheme	RIS1 covered investment for England's Strategic Road Network from 2015 to 2020, while RIS2 will be for the period 2020-25.
Amount of funding available	The level of funding will be published in 2019 but £15bn was made available for RIS1.
Eligibility criteria	The programme is part of a long-term aim to improve England's motorways and trunk roads. The strategy is currently in the research phase and the main sources of research are based on 6 strategic studies which will inform the development of RIS2.
Evaluation criteria	For most of the network, the most important source of new investments and priorities will be route strategies, one of which covers the Marches area. These will update the existing evidence base and will be used to create a prioritised list of projects for the whole network. The final decision on approved schemes will be made by the DfT, Highways England and the Office of Road and Rail (ORR). Once RIS2 is finalised and published, scheme development and delivery plan will then be published.
Funding process	Not applicable at this stage.
Implications for Freight Strategy	The Marches and Mid Wales need to provide input to the process, seeking to ensure that relevant highways schemes are included within a list of approved schemes.

Control Period 6 (CP6)	
Funding body	Network Rail
Periodicity of scheme	April 2019 – March 2024
Amount of funding available	To establish the relevant outputs and amount of funding for CP6, a periodic review will be carried out in 2018.
Eligibility criteria	Based on the DfT's High Level Output Statement (HLOS), the Office of Road and Rail (ORR) will publish advice to ministers setting out requirements for Network Rail's Strategic Business Plan. The ORR will publish its final determination of the business plan in the Autumn of 2018 before CP6 begins in April 2019.
Evaluation criteria	Not applicable.
Funding process	The DfT published its HLOS for CP6 in July 2017 and the emphasis in this document is on enhancements that can be achieved through the operations, maintenance and renewal of the existing railway rather than major improvements.
Implications for Freight Strategy	It is likely that Network rail in CP6 will be completing projects that were initiated in in CP5, but which have had cost and timetable overruns. This suggests there will be little or no additional funding in CP6 for any network enhancements in the Marches and Mid Wales.

Air Quality Designated Funds	
Funding body	Highways England (HE)
Periodicity of scheme	Funding available from 2017-21
Amount of funding available	£100m in total over the period
Eligibility criteria	Capital projects that will reduce the amount of nitrogen dioxide on or around the Strategic Road Network.
Evaluation criteria	• Only a capital project, although feasibility studies will also be funded if there is a clear pathway towards capital spend. • Must show clear air quality improvements on the SRN. • Must show good value for money i.e. the benefits must be greater than the value of the grant. • Must have a Highways England project sponsor (which could be provided once the project had been evaluated by HE).
Funding process	A project summary form is submitted to HE for consideration. The next application deadline is in Autumn 2017.
Implications for Freight Strategy	This source of funding could be relevant for capital schemes (or feasibility studies leading to capital schemes) on the SRN in the Marches where there are existing air quality issues. This would appear to be most relevant to the A49 where it passes through Hereford.

3.6 Summary of key conclusions

- Best practice in developing freight strategies includes:
    - Focus on finding the most appropriate balance at a local level between 'economic' and 'environmental' objectives.
    - Development of a Freight Route Network (FRN) to allow the limited resources available to be focused on the key strategic routes used by HGVs.
    - Need to provide information on local road networks to public and private sector sat nav and other routeing services to encourage use of most appropriate roads by HGVs.
    - Using the development control process to ensure that additional freight movements are focused on suitable routes.
    - Encouraging dialogue and awareness-raising between key stakeholders such as businesses that generate large numbers of road freight movements and local residents.
    - Seeking opportunities for encouraging the economically viable use of rail freight services.
- UK government policy in relation to freight transport focuses on the economic importance of accommodating long distance heavy freight traffic on the strategic highway network and reducing road congestion.
- Freight policy in Wales and in Mid Wales specifically recognises the importance of road freight to the economy and the reliance on a single carriageway road network with often poor alignments and limited opportunities for passing slow-moving vehicles.
- Policy at a local level in the Marches and Mid Wales area provides support for strategic highways projects that would increase the efficiency of road freight movements to, from and through, the area, as well as supporting measures to manage the impacts of freight activity on residents.
- The DfT's MSRS scheme could support any new intermodal rail freight services to and from the area, while FFG could be used to part-fund new terminal facilities or rolling stock in Wales.
- The local authorities, Marches LEP and Growing Mid Wales Partnership should seek to secure the inclusion of relevant highways and railway schemes in the Marches and Mid Wales area within the RIS2 and CP6 processes in order to increase the efficiency of freight movements to, from and through the area.

4 IMPACT OF TECHNOLOGY & SOCIAL TRENDS

4.1 Driverless/Autonomous HGVs

A great deal has been written over the past 12-24 months on so-called 'driverless' road vehicles. For example, technology companies such as Google and Tesla are currently testing 'driverless' passenger cars on public highways, with predictions that mass market sales are just around the corner. Ford is promising to develop a car with no steering wheel or any user activated controls for the mass market by 2020. Insurance company AXA has recently published the results of a study claiming significant savings for the logistics sector as a result of the introduction of 'driverless' HGVs (see below).

There appears to be two extreme positions emerging, namely:

- That we are on the verge of a major technological revolution that over the next decade will significantly change the way both private and commercial transport activity is conducted, and which will subsequently need to be reflected or accounted for in public policy and investment decisions; or
- It is a combination of hype and self-publicity that, with no real justification, could start to drive public policy and investment decisions in the wrong direction.

The answer probably lies somewhere between these two extremes, but at present it is significantly closer to 'hype' rather than the 'revolution'. However, as noted above it does raise some important potential implications with respect to land use planning and investment decisions.

Driver wages represent around 35-40% of the annual operating costs of a HGV, and vehicle utilisation is affected by the need for drivers to take statutory break/rest periods. Therefore, while more peripheral regions such as the Marches and Mid Wales can offer significantly lower land and warehouse labour costs when compared with the golden triangle or the major urban conurbations, these are then outweighed by higher inbound and outbound transport costs (given greater distance to/from main markets). For these reasons, warehouse occupiers have sought locations in the Midlands (for National Distribution Centres, NDCs) or close to major urban areas (for Regional Distribution Centres, RDCs). However, remove driver wage costs from the equation and factor in higher vehicle utilisation (implied by the operation of 'driverless' HGVs'); those peripheral regions could potentially become the optimal locations for large scale distribution centres.

Likewise, any significant take-up of 'driverless' road vehicles (passenger and freight) questions the Government's continued investment in the railways. The Government has re-affirmed its commitment to proceed and invest in HS2 whereas the 'driverless' revolution suggests a need to shift back towards investment in roads.

The *AXA* study (*The Future of Driverless Haulage*[1]) examined the potential impact of 'driverless HGVs' on the logistics sector. The baseline assumption tested was that over the next 10 years, the current British haulage fleet would be gradually replaced by 'driverless vehicles'. It presents the results of an economic modelling exercise which suggests that 'driverless vehicles' will generate potential savings in four main categories: labour, fuel, insurance and vehicle utilisation. With respect to labour savings, it states that these would arise as 'driverless vehicles' reduced the need for drivers. Owing to the demographics of the driver workforce, it is likely that this could be accomplished without compulsory redundancies, as drivers are set to retire at a faster pace than they can be replaced. It also notes that "computer-controlled vehicles drive in a more efficient manner than those driven by people" and "insurance savings would arise if driverless vehicles proved less accident-prone". Overall, the study claims that the logistics industry would save £33.6 billion (central case) over the next ten years as a result of introducing 'driverless vehicles'.

However, behind the headline outputs the study's summary report reveals that: "It is not assumed that this would eliminate the need for drivers. It is likely that drivers would still be required for such purposes as delicate manoeuvring at the start and end of journeys (in depots, for instance), accompanying vehicles in order to be able to intervene in the event of technical problems, and handling administration at the point of delivery." This is consistent with the 'autonomous and connected' vehicles currently being tested (see above), but these are not driverless vehicles. Essentially, HGV trips will still be under the control of a driver from the start to the end of a journey, albeit that the HGV could run in 'auto pilot' mode, but overseen by the driver, for part of the trip. This is not too far removed from today's operating environment, where modern HGVs have automatic gears and cruise control for use on motorways. Under these operating conditions, drivers would still be covered by statutory break/rest requirements given that they will remain in the cab and be on-hand to intervene and operate the vehicle under certain operating conditions.

It is therefore difficult to see where the envisaged labour cost savings will be generated, given that drivers will still be accompanying vehicles from the start to the end of a journey, and consequently it casts doubt on the credibility of the study as a whole and the headline savings being claimed. The emerging consensus appears to be that it will be at least 2030 before a fully 'autonomous' vehicle will be available on the market. Even then, it probably will still require a 'driver' to oversee its operation and many years after that before they become commonplace. Further, the road haulage business in Great Britain consists of a large number of small/medium sized firms operating on small margins. Will such firms be willing or able to invest in the additional costs for an autonomous HGV when compared with a standard model? Consequently, neither developers nor warehouse occupiers are currently considering 'driverless' HGVs in their locational decision making and

1 http://www.axa.co.uk/uploadedFiles/Content/Newsroom/Media_Resources/Reports_and_Publications/PDF_files/The%20Future%20of%20Driverless%20Haulage(1).pdf

therefore this technology should not currently be a factor in devising land use planning policy by the public sector.

What is more likely to be achievable over the next 10-15 years is so called '*HGV platooning*'. This involves two or more vehicles operating very close together and connected with vehicle to-vehicle communication, allowing them to effectively operate as a single unit. By reducing the headway between vehicles, it allows them to benefit from reduced aerodynamic drag and therefore increased fuel efficiency (by up to 10%). Further, platooning could also free more road space and improve traffic flow (in particular it could help reduce instances of HGVs slowly overtaking one-another on motorways and dual carriageways). The DfT is currently consulting on the issue, and a stretch of the M6 near Carlisle has been earmarked as a potential test route. However, it is only likely to be feasible on motorways, meaning that the start and end of journeys would still be manually driven. The HGVs following the lead vehicle would also require oversight by drivers, who could then take control when leaving the motorway or at times of system failure. In other words, not a 'driverless HGV' and the main saving being from reduced fuel consumption and not driver wages.

4.2 Alternative Powered HGVs

Recent concerns over poor air quality, in particular the high levels of nitrogen oxides (NO_x) derived principally from diesel-engined road vehicles, is driving the search for alternative cleaner fuel sources. It is estimated that HGVs currently contribute around 25% of all NO_x emissions despite making up a small proportion of overall road vehicle numbers. With respect to HGVs, two solutions are currently being adopted, namely:

- The use of Compressed Natural Gas (CNG) or Liquefied Natural Gas (LNG); and
- Electric HGVs.

Natural gas is a naturally occurring hydrocarbon gas mixture consisting primarily of methane. It is found deep underground in a limited number of locations world-wide; it is extracted by drilling and is transported to markets via pipelines or in large ocean going vessels. The only difference between CNG and LNG is the method of storage, both at the re-fuelling facility and on-board the vehicle. CNG is stored in gaseous form; as the name suggests the gas is pressurised to around 1% of its volume at standard atmospheric pressure but at ambient temperature. Storage is therefore in large metal pressurised tanks. LNG is produced by bringing natural gas to very low temperatures (-162C) until it becomes a cryogenic liquid. Storage is therefore undertaken in special cryogenic vacuum insulated tanks (at re-fuelling facilities and on vehicles), that are consequently more expensive than CNG tanks.

HGVs can either be dedicated gas or dual-fuel. As the name implies, dual-fuel HGVs use a mixture of gas and diesel. Estimates suggest that the substitution rate of gas for diesel is around 50-60%, the

higher number being achieved when running on motorway type routes. Dual-fuel HGVs can also run on diesel alone. Dedicated gas engines are based on a spark ignition petrol engine. They run purely on gas with no option to draw on an alternative petrol supply should the gas supply run out. Conversion to run on CNG/LNG is currently an 'after-market' retro fit.

CNG can be drawn directly from the national gas grid. This means that compression can take place at re-fuelling facilities (e.g. at a large 'petrol station' or within an operator's depot), with the appropriate compression infrastructure installed. However, LNG needs to be transported by road tanker from the point of importation/liquefaction to the re-fuelling facility. A standard road tanker can transport around 20 tonnes of LNG, compared with around 26-28 tonnes for a conventional petrol tanker. The transport of CNG by road tanker is not an efficient way of distributing it due to its lower energy density (c. 6 tonnes per tanker).

CNG has an energy density of only 25% of that of diesel whereas LNG has about 60% of the energy density of diesel, and therefore provides a longer range for HGVs. Tractor units used in combination with semi-trailers, normally in the 38-44 tonnes range, consequently lend themselves to LNG due to the very limited space to locate tanks. However, as noted, LNG requires an expensive vacuum insulated fuel storage tank and the fuel needs to be used within 48 hours of filling whereas CNG can be stored indefinitely. LNG tanks are around 10% larger than a standard diesel fuel tank due to the cryogenic skin. A full tank is understood to provide a range of 500-550km for a standard articulated HGV.

While the air-quality benefits of CNG/LNG are not disputed, there are currently a significant number of drawbacks which to date have limited these fuels' take-up on a large scale:

- Capital costs – HGVs converted to run on CNG/LNG are understood to be around £15,000-£44,000 more than a conventional diesel-only HGV;
- Running Costs – Maintenance costs are understood to be around 10-40% higher for CNG/LNG vehicles;
- Regulatory issues – HGVs converted to run on CNG/LNG are not covered by the Construction and Use Regulations. Consequently, vehicle special orders have to be applied for from the Secretary of State for Transport ; and
- Limited number of re-fuelling points. LNG infrastructure is significantly more expensive than standard diesel bunkers, and only likely to be cost effective to install at large depots with a high throughput.

Consequently, while the costs of LNG itself are currently cheaper than diesel (due to lower duty rates), overall the operating costs of CNG/LNG HGVs are higher than a standard diesel powered HGV and they are less flexible due to the limited number of re-fuelling points. Take-up on a large scale is

therefore likely to be as a result of regulatory initiatives e.g. urban areas introducing so called ultra-low emission zones (which effectively ban diesel vehicles) rather than economic factors.

The other emerging alternative solution is a fully electric powered HGV and in July 2017 the UK Government announced a ban on diesel and petrol cars and vans (but not HGVs) from 2040. Electricity is stored by means of a battery, with electric motors providing traction. While electric vans and smaller scale HGVs have been available for a number of years, it is understood that Mercedes are currently developing a new 'Urban eTruck' which will have a 26-tonne payload, yet can travel up to 200km on one charge (source: Daimler). It has an electric rear axle with e-motors adjacent to the wheel hubs - and 700kg of lithium-ion batteries.

However, as with all current electric road vehicles, the key issue preventing wider take-up is the current range on one charge and the time taken to fully re-charge the batteries. A full re-charge may take up to 8 hours (down time), whereas many operators operate their vehicle fleets 24 hours a day for maximum utilisation. At present, electric vehicles' use is effectively restricted to operating into urban areas from RDCs located at their periphery and where night-time downtime is an inherent part of the operation. Again, take-up on a large scale is therefore likely to be as a result of regulatory initiatives rather than economic factors and at present the UK Government does not appear to be confident that battery technology is sufficiently developed to allow the efficient operation of HGVs.

Longer term, the use of hydrogen fuel-cell technology could potentially replace batteries in electric vehicles. Fuel-cells convert hydrogen into electricity (which can then power motors), with water as the by-product. In theory, re-fuelling with hydrogen is broadly similar to filling with CNG/LNG. Fuel-cell HGVs should therefore have the range and the quick re-fuel characteristics when compared with diesel powered HGVs. However, the key issues limiting take-up are:

- The ability to find an energy efficient method of producing hydrogen on a large scale; it can be extracted from gas, oil and coal, or electrolysis of water (requires high level of electricity);
- The need to develop a hydrogen distribution infrastructure; and
- Safety – it is highly explosive.

4.3 Trends in the Retail Sector – Impact on the Supply Chain

Two key trends in the retail sector over the past decade are having a significant impact on the distribution supply chain. These are:

- With respect to groceries, the trend towards 'little and often'; and
- The growth of e-commerce for non-grocery items.

The trend towards 'little and often' refers to buying grocery items on a daily basis, rather than undertaking the traditional 'weekly shop'. This is then supplemented by on-line home deliveries every 3-4 weeks for non-perishable staple items. This is particularly prevalent in large urban areas (but also in smaller towns), as consumers will buy the ingredients for their evening meals during lunch breaks or on the way home. This trend possibly reflects a more flexible approach to social arrangements driven by social media (people arranging evenings out at short notice and therefore not wanting to 'buy ahead') and certainly the growth in the use of trains for commuting into urban areas as people are no longer driving past out of town supermarkets in cars.

In terms of the retail environment, the large grocery chains are no longer developing large out of town stores, and are instead focusing on the further development of 'local' or 'metro' type stores. The impact on the supply chain is that smaller grocery stores require multiple deliveries across the daytime. The smaller 'local' or 'metro' type stores tend not to have stock rooms, and products will often be unloaded from the delivery vehicles and effectively straight onto the shelves. Also, deliveries to such stores tend to be from smaller HGVs, such as rigid 17.5t tonne gross vehicle weight or single-axle shorter articulated HGVs.

The 'little and often' trend therefore means greater numbers of smaller HGVs, and this is against a background of HGV driver shortages (difficulty in recruiting new drivers and existing drivers retiring), and potential limits on recruiting from abroad due to Brexit. Also, many smaller grocery stores can only accept deliveries during their opening hours, thereby focusing movements into the 0700 to 2200 time period, whereas many larger supermarkets have been able to accept deliveries overnight. Given air-quality issues, many of the delivery vehicles in future may be CNG/LNG or electrically powered.

The large growth in e-commerce for non-grocery items is well understood and does not need to be repeated in great detail. However, there are two key trends to note. Firstly, many of the retailers have been heavily promoting so called 'click and collect' rather than deliveries direct to residential premises. Home deliveries, particularly those with overnight lead times, often attract premium delivery charges whereas 'click and collect' is free. There are a number of reasons behind this approach, namely:

- Goods can be delivered on existing distribution networks (e.g. the retail outlet nominated for collection was already due a delivery from the distribution centre), so no requirement to outsource deliveries to a courier, thereby saving costs;
- The ability to 'up sell' – once the consumer is in-store to collect their on-line order, they often buy a product from the store itself;

- Any unwanted items can effectively be returned to stock almost immediately – or returned to the distribution centre on the same distribution network (depending on the retailer, it can be 28 days for unwanted home delivery items to be returned); and
- It eliminates the possibility that the consumer is not at the residential address when the delivery occurs (which might necessitate organising a re-delivery). Linked to the 'little and often' concept described above, this allows consumers to collect on-line ordered goods on the way home from work.

The second key trend to note is that lead-times for on-line orders for home deliveries have become considerably shorter. Many retailers, including Next, now offer order by midnight for next day delivery. Amazon is also trialling order-delivery same day in some areas. However, these are likely to attract premium delivery charges over and above 'click and collect' and standard 3-5 working day terms.

Overall, the growth of e-commerce is likely to continue both for the 'click and collect' and home delivery segments of the market. The key noticeable impact will be increased use of vans or small rigid HGVs in residential areas.

The main tangible impact for the retailer is at the distribution centre. Many of the Regional Distribution Centres (RDCs) and National Distribution Centres (NDC) developed in the 1990s/early 2000s were built for a retail market that effectively no longer exists. Then, they were essentially serving town centre or out of town stores only. Products were therefore picked at the NDCs/RDCs and loaded onto HGVs at the pallet or roll-cage level. E-commerce deliveries are at the individual consignment level; perhaps a hand-full of items in an envelope or box.

Therefore, while many of the NDCs/RDCs developed in the 1990s/early 2000s may be physically sound (i.e. they are not physically obsolete), they have become functionally obsolete. In many cases, they have been unable to accommodate (as a retro-fit) the modern automated stock handling equipment associated with e-commerce or they have not been able to handle e-commerce and traditional outlet deliveries from under the same roof. Essentially, many of these buildings have reached the end of their useful economic life and are no longer suitable for their original designed use, thereby necessitating a more modern direct replacement facility for the existing occupier.

Alongside this, economies of scale can be gained through merging operations based at multiple sites to one new location. For example, 2 x 20,000 square metres warehouse operations are combined at one new 40,000 square metres facility. The ability to operate fewer but larger distribution centres has been facilitated by advances in modern ICT inventory management systems which have permitted much larger warehouses to be operated more efficiently than was previously the case. The result is that many of the major retailers have disposed of what could be considered relatively modern warehouse stock, and developed new larger facilities. For example, Marks and Spencer

have developed a new 90,000 square metres NDC at Castle Donnington which handles e-commerce orders and slower moving stock lines for stores under one roof. This replaced a relatively modern network of NDCs/RDC.

4.4 3D Printing

3D printing is now readily available for the manufacture of a variety of goods, such as parts for manufacturing processes, without the need for large-scale manufacturing plants. It seems unlikely that 3D printing will replace factories to any great extent over the next ten years and, in any event, the raw materials for 3D printing still require freight transport to deliver them to the printing site.

4.5 Summary of key conclusions

- The main technological change in the road haulage industry up to 2030 at a national level may be the introduction of 'platoons' of HGVs that travel together on the strategic highways network and provide fuel efficiencies to road hauliers due to being more aerodynamic. Without significant technological improvements it seems unlikely that these platoons would be seen on the Marches and Mid Wales road network apart from on the M54 and the M50 and, except on motorways and dual carriageways, these platoons would reduce overtaking opportunities and raise safety concerns.
- The key trends in retail are for 'little and often' purchases of groceries and online purchases of non-grocery items and it is likely that this will mean that the 'average' freight vehicle seen in the Marches and Mid Wales will become smaller in the future as there is greater demand for deliveries to smaller convenience stores located in urban areas and villages (rather than large out of town supermarkets) and for the convenience of e-commerce deliveries in smaller HGVs and LGVs to residents' homes and places of work.
- Given the UK Government's decision to ban the sale of diesel and petrol cars and LGVs from 2040, it seems increasingly likely that there will gradually be a greater take-up of electric HGVs and LGVs at a national level for relatively short distance flows, but – without a step-change in battery technology - this is most likely to be for deliveries from distribution centres located close to the major conurbations into city centres rather than to towns and cities located in more peripheral locations.
- The economies of scale that are available to large-scale manufacturing plants, allied with increasing automation, will mean that 3D printing and other local manufacturing facilities are unlikely to change the structure of the UK manufacturing sector to any great extent.

5 STAKEHOLDER CONSULTATION: ONLINE SURVEYS

5.1 Introduction

The business community was consulted by means of an online survey which was publicised by the Marches LEP, the Growing Mid Wales Partnership and the Welsh Government and received a response from 58 companies. In addition, parish and town councils in the Marches were offered the opportunity to respond to a separate survey to which 60 councils responded; the survey of parish and town councils was treated as a more formal consultation exercise over a nine week period from the beginning of December 2016 through to early February 2017.

5.2 On-line survey of businesses in the Marches

Respondents

In total, there were 30 respondents to the questionnaire from 29 different businesses, which are listed in Table 5.1 below.

Table 5.1: List of businesses in the Marches that responded to the online survey

Business name	Business sector
A B E (Ledbury) Ltd	Road Haulage
Allensmore Nurseries	Horticulture
Arctic Circle Limited	Manufacturing
Border Holdings (UK) Ltd	Wholesale motor vehicle parts
Border Office Supplies and Systems	Office supplies
Caterpillar Shrewsbury Ltd	Engineering/Defence
De Leeuw Ltd	Building supplies
E C Drummond (Agriculture)Ltd	Agriculture
Hereford Galvanizers Limited	Metal coatings & distribution
Hereford Pedicabs and Cargo	Transport, last mile freight, consolidation and waste recycling,
Herefordshire and Worcestershire Chamber of Commerce	Not-for-Profit Membership Organisation
InMotion (W M Morrisons Primary Department)	Logistics
K G D Industrial Services	Engineering
Leigh Brown Consultancy Ltd	Logistics
Marches Global Ltd	Manufacturer - injection moulding
Oakwrights ltd	Construction
Panacea Business Systems	Printer and copier supplier
PK Engineering Ltd	Advanced Manufacturing
Rail Freight Group	Rail Freight
Shires Equestrian	Leisure

Business name	Business sector
Shrewsbury Colleges Group	Education
STD Pharmaceutical Products Ltd	Medical
Tarmac	Quarrying
Taylor Lane Timber Frame Ltd	Manufacturing
Torus Technology Group	Specialist Engineering
Tudor Griffiths Group	Recycling/Concrete Aggregates
Woodstock Trading Company	Supplier
Wye Valley Metals	Construction / Waste
XPO Logistics	Transport / logistics

In order to better understand the respondents, they were asked to describe their role in the freight and logistics industry. The results are displayed in Figure 5.1. The questionnaire allowed for respondents to identify with more than one role.

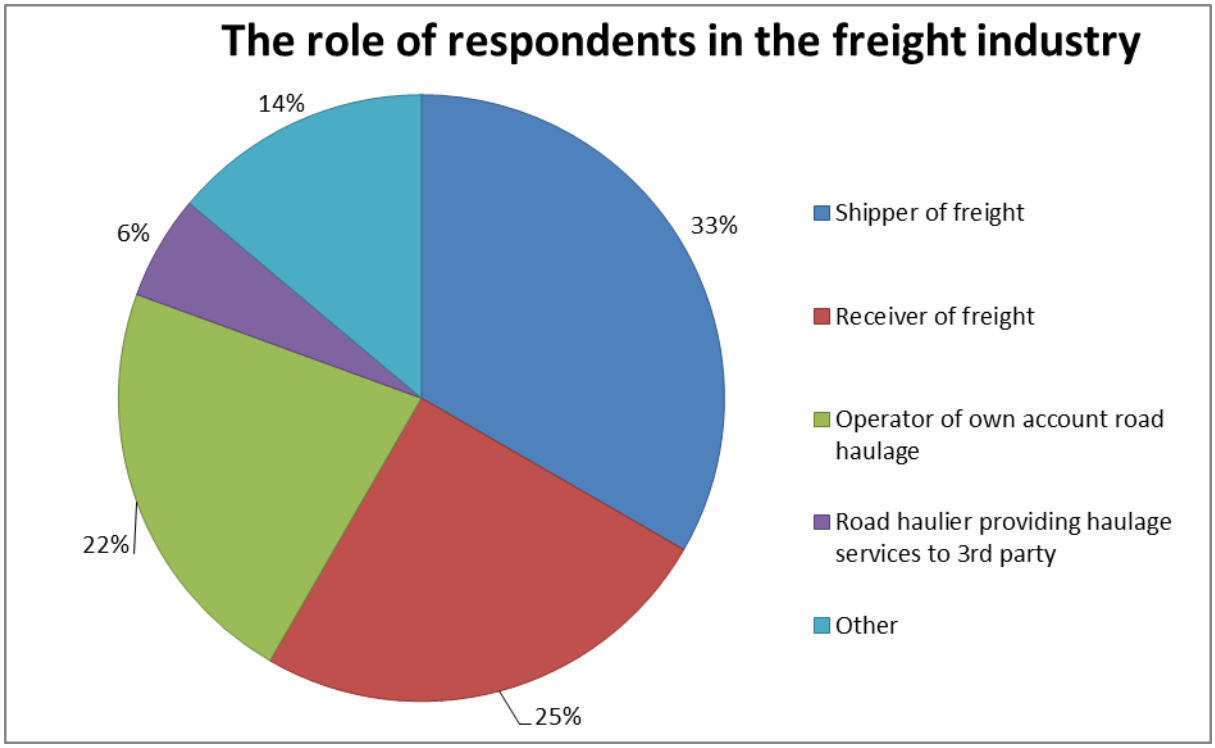


Figure 5.1

As Figure 5.1 shows, the majority of respondents identified themselves as a shipper or a receiver of freight. The online questionnaire asked the respondents to consider questions organised as follows:

- The key priorities for the freight strategy;
- The key freight-related issues in the area;
- The potential measures or interventions that should be included in the strategy.

Priorities

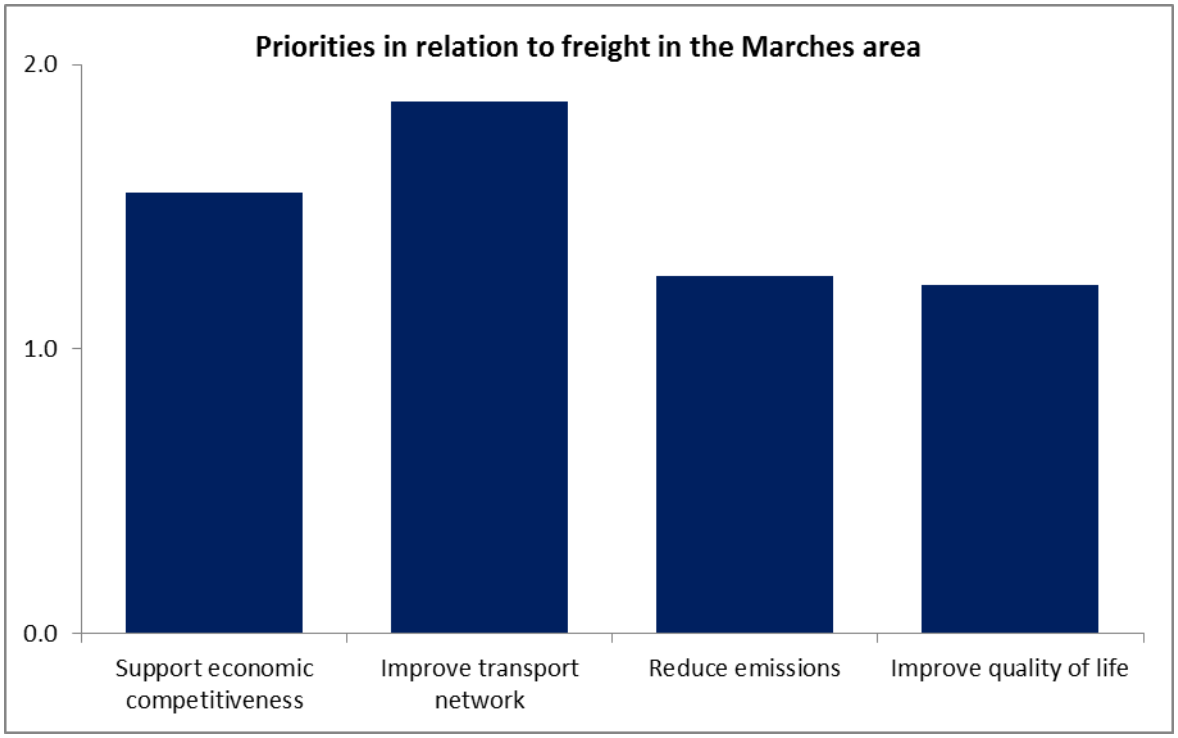
For the priorities section, questions were scored as follows:

- 0 = Not important
- 1 = Important
- 2 = Very important

The respondents were also invited to leave comments covering any additional material that they felt was relevant.

As Figure 5.2 below shows, the highest priority for the businesses was improving the transport network. This in itself is related to the second highest scoring issue: supporting economic growth. The environmental and quality of life priorities were regarded as being a lower priority but were still regarded as being important. The comments added by respondents reflect this, with emphasis placed on reducing congestion, more efficient movement of goods and the construction of a bypass around Hereford.

Figure 5.2



Issues

For the purposes of presentation the question titles displayed in the chart below have been shortened, with full titles shown in Table 5.2. For the issues section, questions were scored as follows:

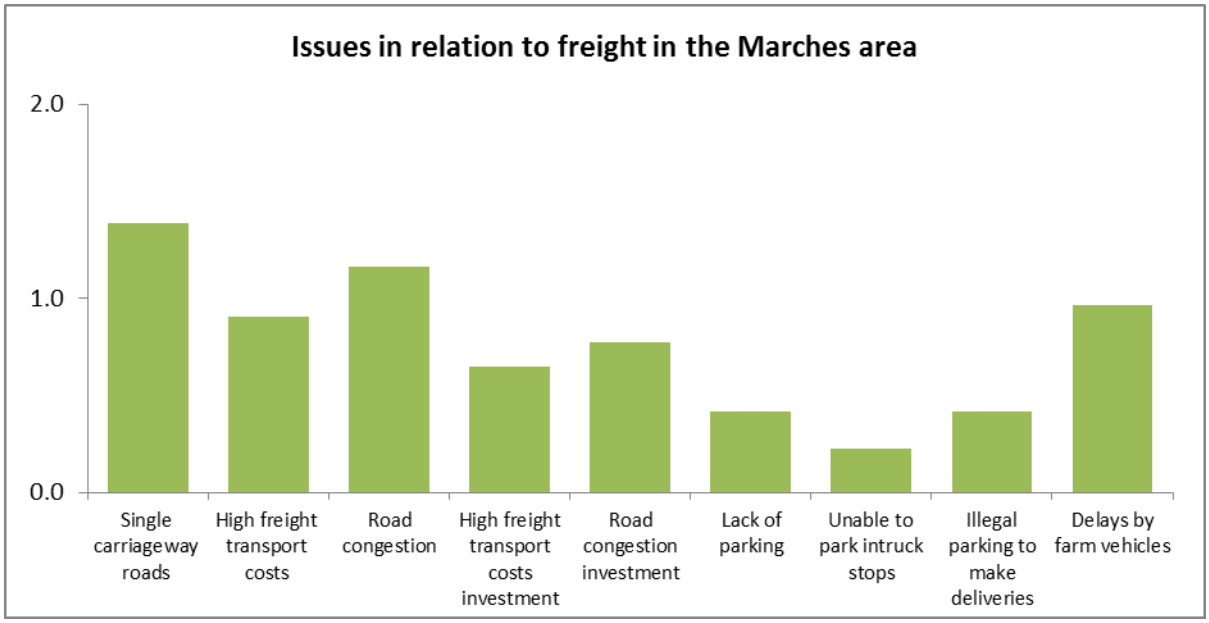
- 0 = Not an issue for business
- 1 = An important issue for the business, leading to some problems
- 2 = A very important issue for the business, leading to significant problems

Table 5.2: Issues for the Freight Strategy

Abbreviation	Survey Question
Single carriageway roads	Single carriageway roads increasing journey times.
High freight transport costs	High freight transport costs by road make it more difficult for the business to compete
Road congestion	Road traffic congestion makes it more difficult for the business to compete
High freight transport costs investment	It is more difficult to justify new investment in the business because of high freight transport costs by road
Road congestion investment	It is more difficult to justify new investment in the business because of road traffic congestion
Lack of parking	There is a shortage of legal parking spaces on the street to allow deliveries to shops/pubs etc.
Unable to park in truck stops	Freight vehicles are unable to park in official truck stops or laybys
Illegal parking to make deliveries	Freight vehicles have to park illegally to make deliveries
Delays by farm vehicles	Slow-moving farm vehicles cause delays to journeys

As Figure 5.3 shows, single carriageway roads increasing journey times appears to be the most important issue in the Marches area. This is to be expected, due to the mainly rural nature of the area and general lack of dual carriageway road infrastructure. In contrast to the priorities, there are few issues that are considered as 'important' based on the scoring system used in the questionnaire. Other prominent issues include road congestion and delays caused by farm vehicles.

Figure 5.3



There were only a few comments made in this section, with issues raised relating to the suitability of the rail network for carrying intermodal freight and the length of time that it takes to drive through Hereford.

Measures

After identifying the key priorities and issues for the freight industry within the Marches area, respondents were then invited to evaluate potential measures that might be effective in addressing the key issues that affect their businesses. There were 19 measures identified in the questionnaire, which have been split into two separate graphs for easier visual presentation in this report. As with the previous sections there was also space for respondents to provide additional written suggestions if they felt it appropriate.

For the measures section, questions were scored as follows:

- 0 = Not likely to be effective
- 1 = Likely to be effective
- 2 = Likely to be very effective

Table 5.3: Potential measures for the Freight Strategy from businesses in the Marches (1)

Abbreviation	Survey Question
Additional sections of dual carriageway	Additional sections of dual carriageway on mainly single carriageway roads to allow overtaking of slower-moving vehicles. Where appropriate please specify the relevant locations below.
Enhancing junctions used by freight	Enhancing selected road junctions to improve traffic flow to/from sites that generate freight movements (such as industrial estates and factories). Where appropriate please specify the relevant locations below.
Dedicated spaces for freight	Dedicated parking spaces for commercial vehicles close to shops/pubs etc. to facilitate deliveries and collections.
Network for HGVs	Developing a network of approved routes for HGVs, which are then shown on paper and electronic maps for distribution to the logistics industry.
Road signs for commercial vehicles	Improving road signs for commercial vehicles to signpost approved routes to distribution parks, factories etc. Where appropriate please specify the relevant locations below.
HGV information boards	Providing information boards about the approved routes for HGVs at official truck stops and laybys.
HGV route information	Providing information on the approved routes for HGVs on a dedicated website for freight for the Marches area.
HGV route restrictions	Providing information on restrictions on HGVs on the road network to providers of sat nav. systems.
More routes classified as unsuitable for HGVs	Increasing the number of routes designated as 'Unsuitable for HGVs' where more appropriate alternative routes are available.

As Figure 5.4 below shows, the potential measures that were considered to be most effective are infrastructure enhancements and improved information on routing for HGVs.

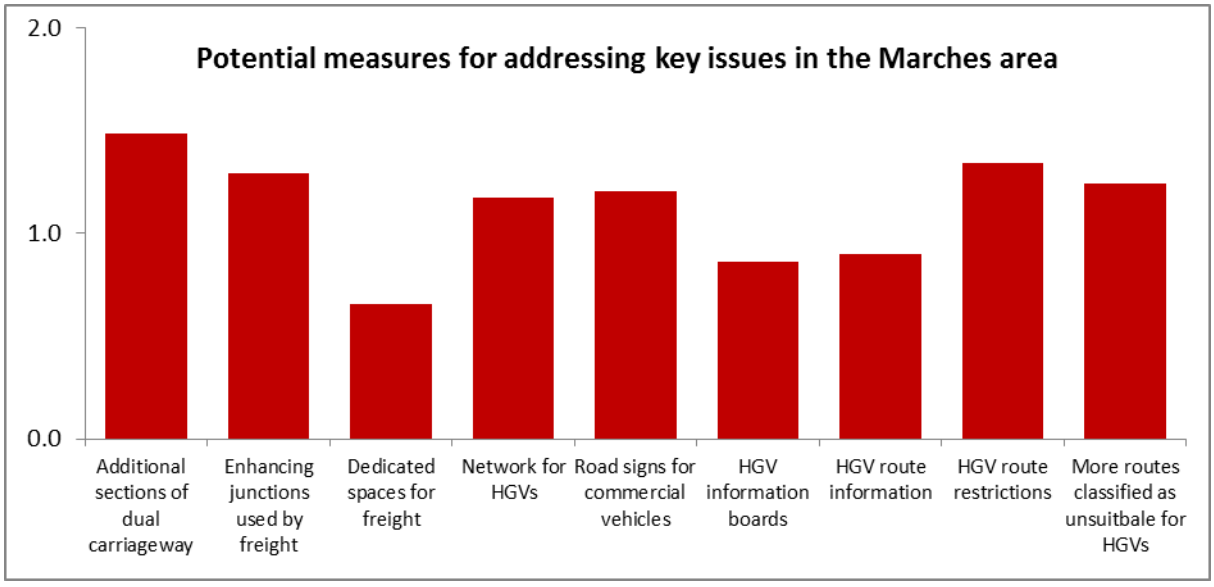


Figure 5.4

Suggested additional sections of dual carriageway included the A49 between Rotherwas and Ross-on-Wye and routes around Hereford, including the route to the M50. Hereford city centre was also

highlighted as an area for specific junction enhancements. Responses on the remaining suggested measures are presented below in Table 5.4.

Table 5.4: Potential measures for the Freight Strategy from businesses in the Marches (2)

Abbreviation	Survey Question
Improved facilities	Providing improved facilities (information boards, toilets etc.) for lorry drivers at laybys and truck stops.
Speed limit	Lowering speed limits in villages and towns that have to be transited by commercial vehicles.
Traffic calming	Introducing traffic calming measures in villages and towns that have to be transited by commercial vehicles.
Road maintenance	Improving maintenance of the road network to reduce noise and increase safety.
Enforced restrictions	Improving enforcement of weight, width and height restrictions on local roads.
Road to rail	Switching more traffic to rail.
Electric vehicles	Encouraging use of electric or hybrid vehicles for freight deliveries and collections.
Planning conditions	Freight planning conditions for new developments
Local sourcing of goods	Encouraging local sourcing of goods so that fewer long distance movements are required.
Communication	Improved communication to the general public by the freight industry and their customers of the need for freight activity.

Figure 5.5 shows that HGV routing continues to be a key theme, with the enforcement of weight, width and height restrictions on local roads scoring an average of 1.2. However the potential measures that are regarded as being likely to be the most effective are improving road maintenance and enforcing existing restrictions on HGVs using inappropriate local roads.

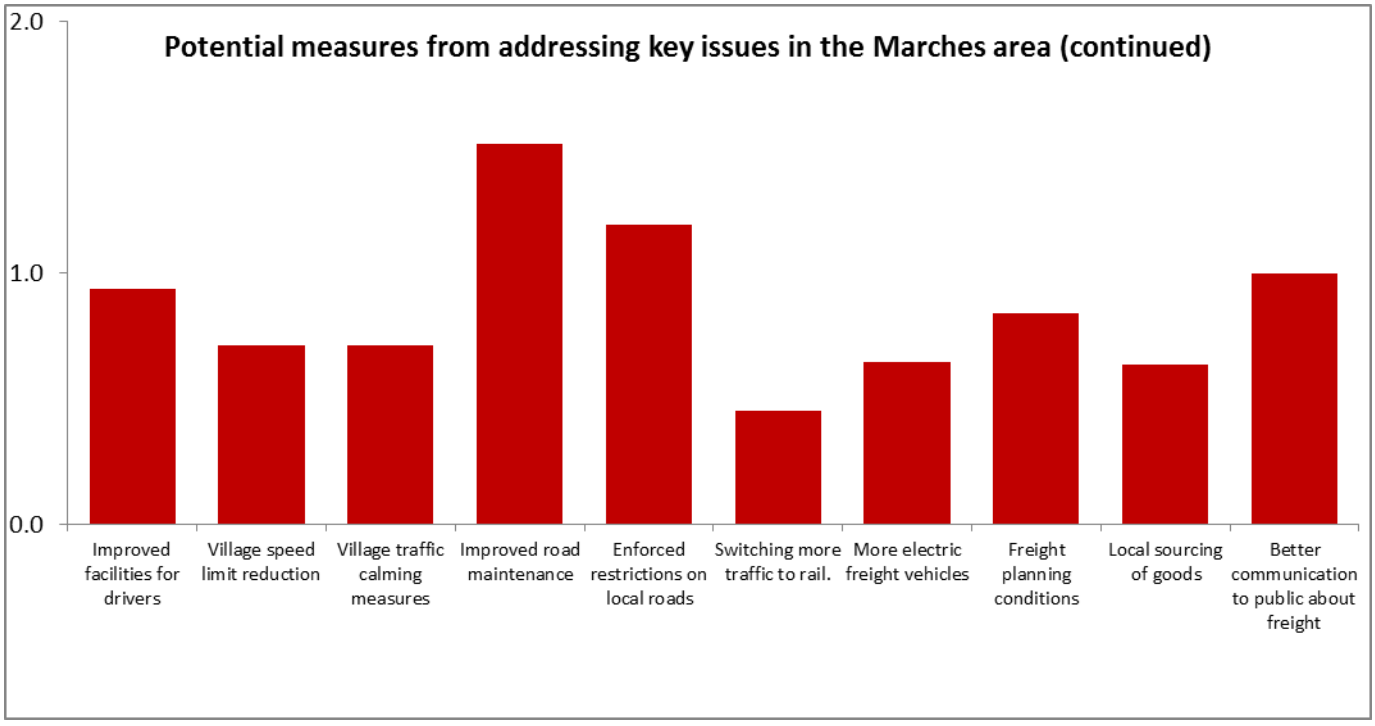


Figure 5.5

The measure deemed the least likely to be effective is the shift of traffic from road to rail, with an average score of 0.5.

5.3 On-line survey of businesses in Mid Wales

Respondents

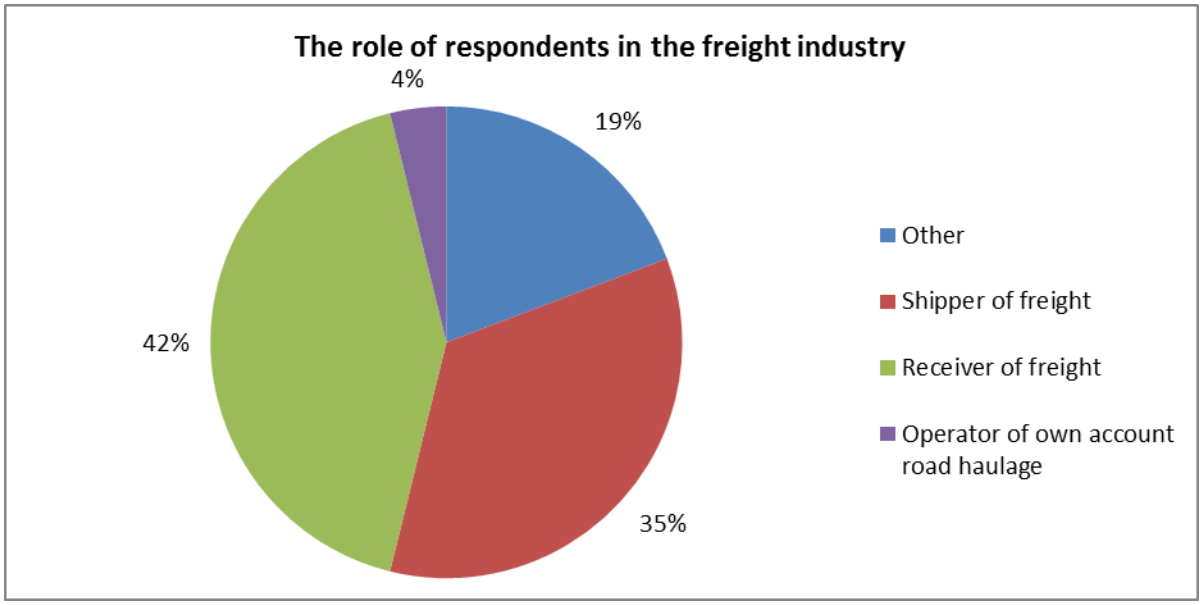
This section analyses the responses to the business questionnaire for the Mid Wales area. In total, there were 27 respondents to the questionnaire from 25 different businesses, which are listed in Table 5.5 below.

Table 5.5: List of businesses in Mid Wales that responded to the online survey

Business name	Business sector
Aber Instruments	Manufacturing
Aberystwyth University	University
Auxilium Group	Business Services
Carpenter & Paterson Ltd	Manufacturer
CDT Sidoli (Welshpool) Ltd	Manufacturing
CellPath Ltd	Medical
Cerdd Ystwyth Music	Retail
Compact Orbital Gears Ltd	Engineering/Manufacturing
Control Techniques	Manufacturing
Dawson Shanahan Ltd	Manufacturing - Automotive
Derwas of Welshpool Ltd	Retail
Dulas	Renewable Energy & health
Edistone Ltd	Forestry and Timber
Furrer + Frey	Electrification
Hughes Architects	Construction
Innogy UK Renewables Ltd	Renewables
JAZZ	Retail
Makefast Ltd	Manufacturing
Myrick Training Services	Education
NiBS Ltd	Standby Power Service Provider
Optima Excel Ltd	Agriculture
Philip Curnow Photography / Wales Photography	Photography / Media / Advertising
Rhiannon Cyf	Manufacturing and Retail
Severn Valley Effect	Business Support
Sharp clinical services (UK) Ltd	Clinical trials packaging

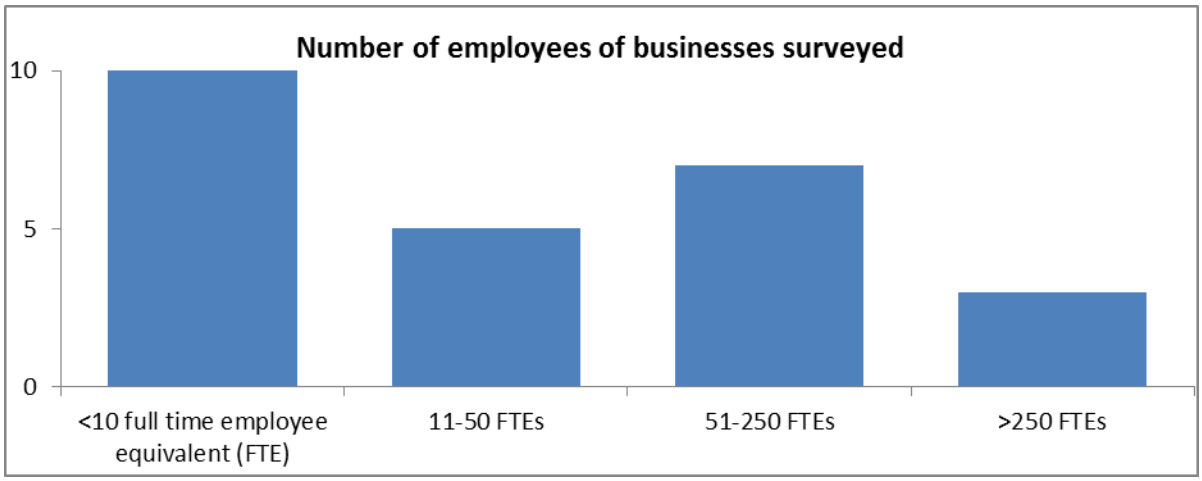
In order to develop further our understanding of the profile of the respondent's businesses, they were asked to best describe their role in the freight industry. The questionnaire allowed for respondents to identify with more than one role and the results are displayed in Figure 5.6 below. As the pie chart shows, respondents mainly associated with being either a shipper or receiver of freight (or both).

Figure 5.6



Respondents were also asked to reveal the size of their organisation based on the number of employees (Figure 5.7). The largest category represented were businesses with less than 10 employees, making up 40% of the businesses surveyed.

Figure 5.7



As well as profiling the type of businesses respondents represent, the questionnaire also aimed to determine the priorities of respondents in relation to freight transport, what they see as the main issues for freight in Mid Wales and the measures which they think should be employed to tackle them.

Priorities

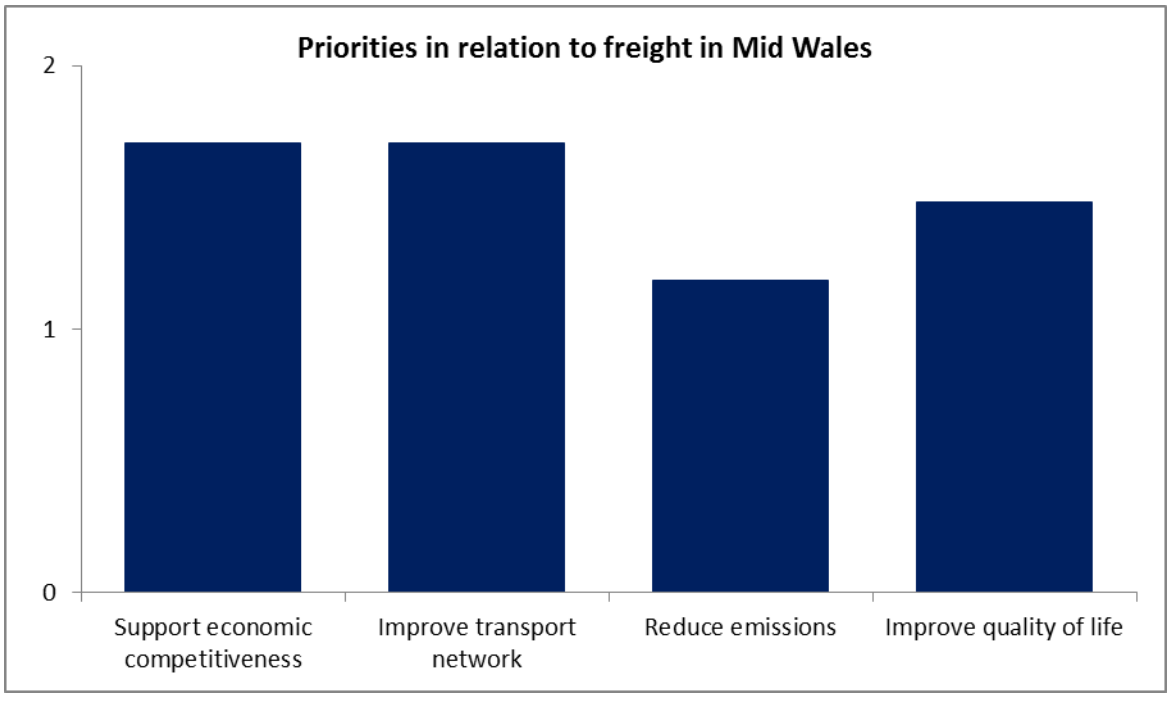
For the priorities section, the questions were scored as follows:

- 0 = Not important
- 1 = Important
- 2 = Very important

The respondents were also invited to leave comments covering any additional priorities that they felt were relevant.

As Figure 5.8 below shows, supporting economic competitiveness and improving the transport network were seen as being the most important priorities by respondents in Mid Wales. Reducing emissions and improving the quality of life were considered to be important, but less so than economic priorities.

Figure 5.8



Issues

For the purposes of presentation the issues displayed in Figure 5.9 and 5.10 below have been shortened, with full titles shown in Table 5.6. As for the Marches, the questions were scored as follows:

- 0 = Not an issue for business
- 1 = An important issue for the business, leading to some problems
- 2 = A very important issue for the business, leading to significant problems

Table 5.6: List of freight-related issues included in the online survey

Abbreviation	Survey Question
Single carriageway roads	Single carriageway roads increasing journey times.
High freight transport costs	High freight transport costs by road make it more difficult for the business to compete
Road congestion	Road traffic congestion makes it more difficult for the business to compete
High freight transport costs investment	It is more difficult to justify new investment in the business because of high freight transport costs by road
Road congestion investment	It is more difficult to justify new investment in the business because of road traffic congestion
Lack of parking	There is a shortage of legal parking spaces on the street to allow deliveries to shops/pubs etc.
Unable to park in truck stops	Freight vehicles are unable to park in official truck stops or laybys
Illegal parking to make deliveries	Freight vehicles have to park illegally to make deliveries
Delays by farm vehicles	Slow-moving farm vehicles cause delays to journeys

As Figure 5.9 shows, single carriageway roads and delays due to farm vehicles appear to be the most important issues in Mid Wales. The only other issue deemed 'important' was road congestion, which is likely to be caused in part by single carriageway roads and slow-moving farm vehicles as well as delays at some junctions and lack of road space in some towns.

Figure 5.9

Additional comments were that planning by local councils is an issue and the positioning of supermarkets along main trunk roads contributes to congestion in Newtown. Other comments criticised the number of narrow roads that are not accessible for freight vehicles in Mid Wales and suggested that congestion in Newtown was caused by too many freight vehicles passing through the town.

Measures

After ascertaining the key priorities and issues for the freight industry within Mid Wales, respondents were then asked to identify measures that they consider would be effective in addressing the issues that affect their businesses. There were 19 measures identified in the online questionnaire, which have been split into two separate graphs for easier visual interpretation (Figures 5.10 and 5.11). As with the previous sections there was also space for respondents to provide additional written suggestions.

For the measures section, questions were scored as follows:

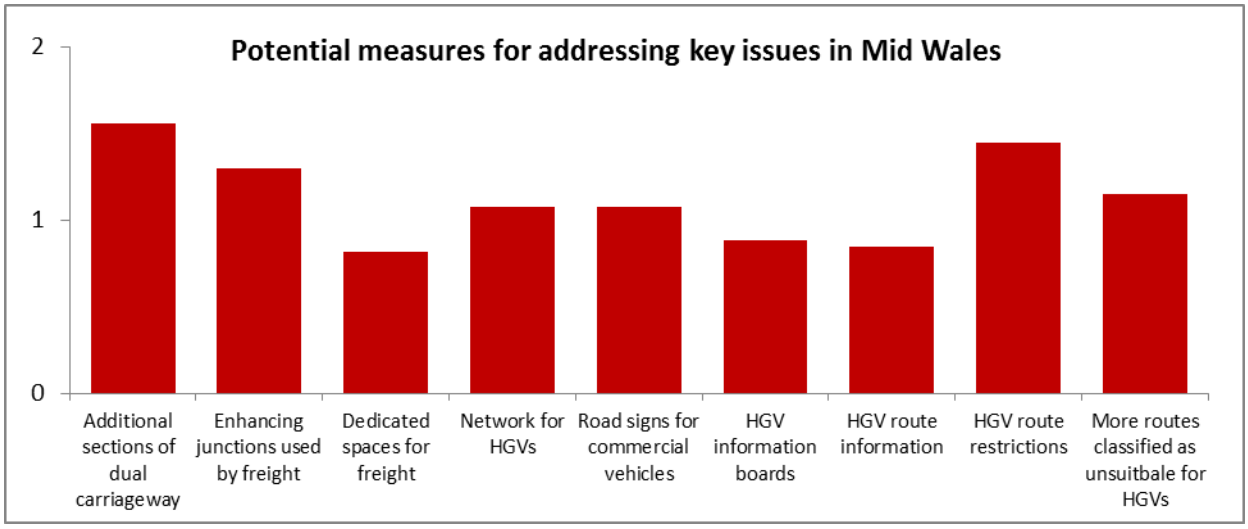
- 0 = Not likely to be effective
- 1 = Likely to be effective
- 2 = Likely to be very effective

Table 5.7: Potential measures for the Freight Strategy from businesses in Mid Wales (1)

Abbreviation	Survey Question
Additional sections of dual carriageway	Additional sections of dual carriageway on mainly single carriageway roads to allow overtaking of slower-moving vehicles. Where appropriate please specify the relevant locations below.
Enhancing junctions used by freight	Enhancing selected road junctions to improve traffic flow to/from sites that generate freight movements (such as industrial estates and factories). Where appropriate please specify the relevant locations below.
Dedicated spaces for freight	Dedicated parking spaces for commercial vehicles close to shops/pubs etc. to facilitate deliveries and collections.
Network for HGVs	Developing a network of approved routes for HGVs, which are then shown on paper and electronic maps for distribution to the logistics industry.
Road signs for commercial vehicles	Improving road signs for commercial vehicles to signpost approved routes to distribution parks, factories etc. Where appropriate please specify the relevant locations below.
HGV information boards	Providing information boards about the approved routes for HGVs at official truck stops and laybys.
HGV route information	Providing information on the approved routes for HGVs on a dedicated website for freight for the Marches area.
HGV route restrictions	Providing information on restrictions on HGVs on the road network to providers of sat navsat nav. systems.
More routes classified as unsuitable for HGVs	Increasing the number of routes designated as 'Unsuitable for HGVs' where more appropriate alternative routes are available.

As Figure 5.10 below shows, the measures deemed most effective by respondents include additional sections of dual carriageways and restrictions on HGVs using sat navsat navs to access unsuitable roads.

Figure 5.10



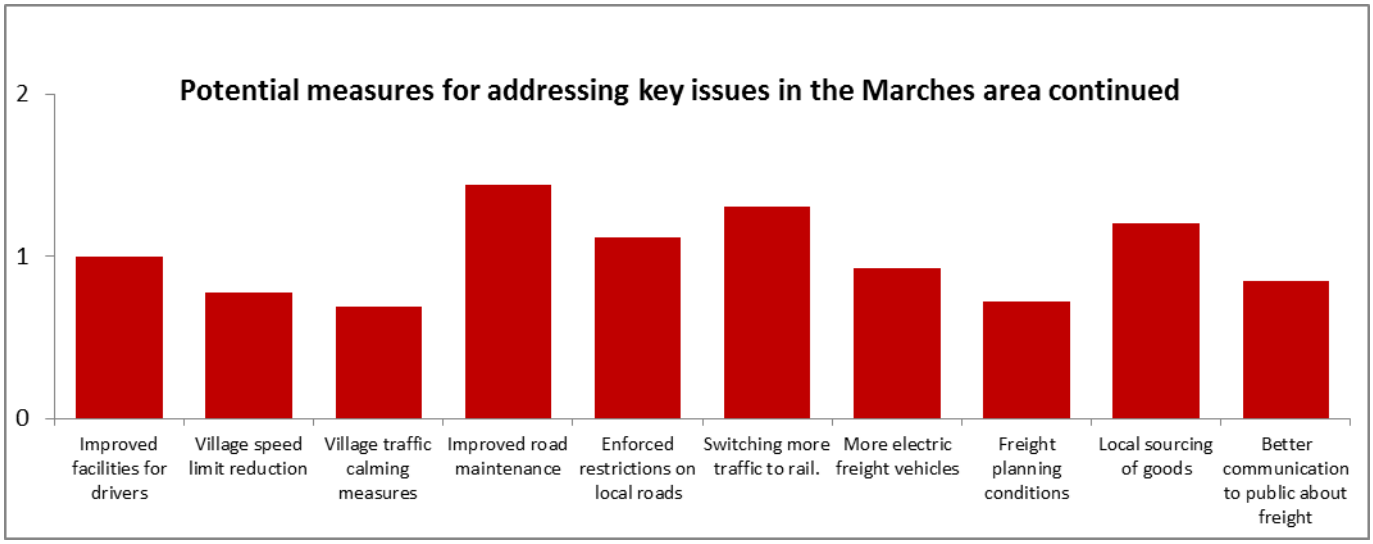
Respondents commented on sections of the road network where additional dual carriageways would be effective and they listed the A44, the A487, a bypass of Llanymynech and Pant. Mochdre Industrial Estate in Newtown was listed as a suitable place for junction enhancements.

Table 5.8: Potential measures for the Freight Strategy from businesses in Mid Wales (2)

Abbreviation	Survey Question
Improved facilities for drivers	Providing improved facilities (information boards, toilets etc.) for lorry drivers at laybys and truck stops.
Village speed limit reduction	Lowering speed limits in villages and towns that have to be transited by freight vehicles.
Village traffic calming measures	Introducing traffic calming measures in villages and towns that have to be transited by freight vehicles.
Improved road maintenance	Improving maintenance of the road network to reduce noise and increase safety.
Enforced restrictions on local roads	Improving enforcement of weight, width and height restrictions on local roads.
Switching more traffic to rail.	Switching more traffic to rail.
More electric freight vehicles	Encouraging use of electric or hybrid vehicles for freight deliveries and collections.
Freight planning conditions	Planning conditions to control movements of freight vehicles to/from new developments such as industrial estates.
Local sourcing of goods	Encouraging local sourcing of goods so that fewer long distance movements are required.
Better communication to public about freight	Improved communication to the general public by the freight industry and their customers of the need for freight activity.

The responses to the remaining potential measures are displayed in Figure 5.11 below. As in the previous chart, infrastructure improvements (in the form of improved road maintenance, with an average score of 1.4) were seen as likely to be the most effective measures. With a score of 1.3, switching traffic from road to rail was also perceived as likely to be effective in addressing freight-related issues.

Figure 5.11



Respondents were also asked to comment on other measures they would regard as likely to be effective in Mid Wales. Comments included improving the road network at places where road accidents occur, encouraging local production, implementing a north/south motorway or dual carriageway through Wales and bridging of the existing gap in the trans-Wales rail network between Aberystwyth and Carmarthen.

5.4 Online survey of Parish & Town Councils in the Marches

In total there were 61 respondents and the parish or town councils that they represent are listed in the Table 5.9 below.

Table 5.9: List of parish and town councils in the Marches that responded to the online survey

Town Council	Parish Council
Astley Abbotts	Barrow Parish Council
Bayston Hill	Bartestree with Lugwardine Group Parish Council
Newport (Shropshire)	Berrington Parish Council
Westbury	Bitterley Parish Council
Bodenham	Bridstow PC
Border Group	Brilley Parish Council
Pyons Group	Cardington Parish Council
Ross-on-Wye Town Council	Cockshutt cum Petton Parish Council
Cheswardine	Colwall Parish Council
Church Stretton Town Council	Condover Parish Council
Cleobury Mortimer	Culmington Parish Council
Shobdon	Ditton Priors Parish Council
Shrewsbury Town Council	Eardisland Parish Council
The Pyons	Ercall Magna Parish Council
Culmington	Great Ness and Little Ness Parish Council
Withington	Leebotwood and Longnor PC
Cusop Parish Council	Longtown Group parish Council
Welshampton and Lyneal	Ludford Parish Council
Wem Rural	Luston Group Parish Council
Easthope Shipton and Stanton Long	Lyonshall Parish Council
Eaton under Heywood	Marden Parish Council
Wem Town Council	Myndtown Combined Parish Council
Kings Pyon	Oswestry Rural Parish Council
Kington town council	Pembridge Parish Council.
Knockin Parish Council	Pipe and Lyde Parish council
Ledbury Town Council	Rodington Parish Council
	Ruyton XI Towns PC
	Selattyn and Gobowen Parish Council
	St Georges & Priorslee Parish Council
	Sutton St Nicholas Nicholas Parish Council
	Wellington Parish Council
	Wem Rural Parish Council
	Weobley Parish Council, Herefordshire
	Wigmore Group Parish Council
	Woore Parish Council

Like the survey of businesses, the survey of councils can be categorised into three distinct sections, namely priorities, issues and measures.

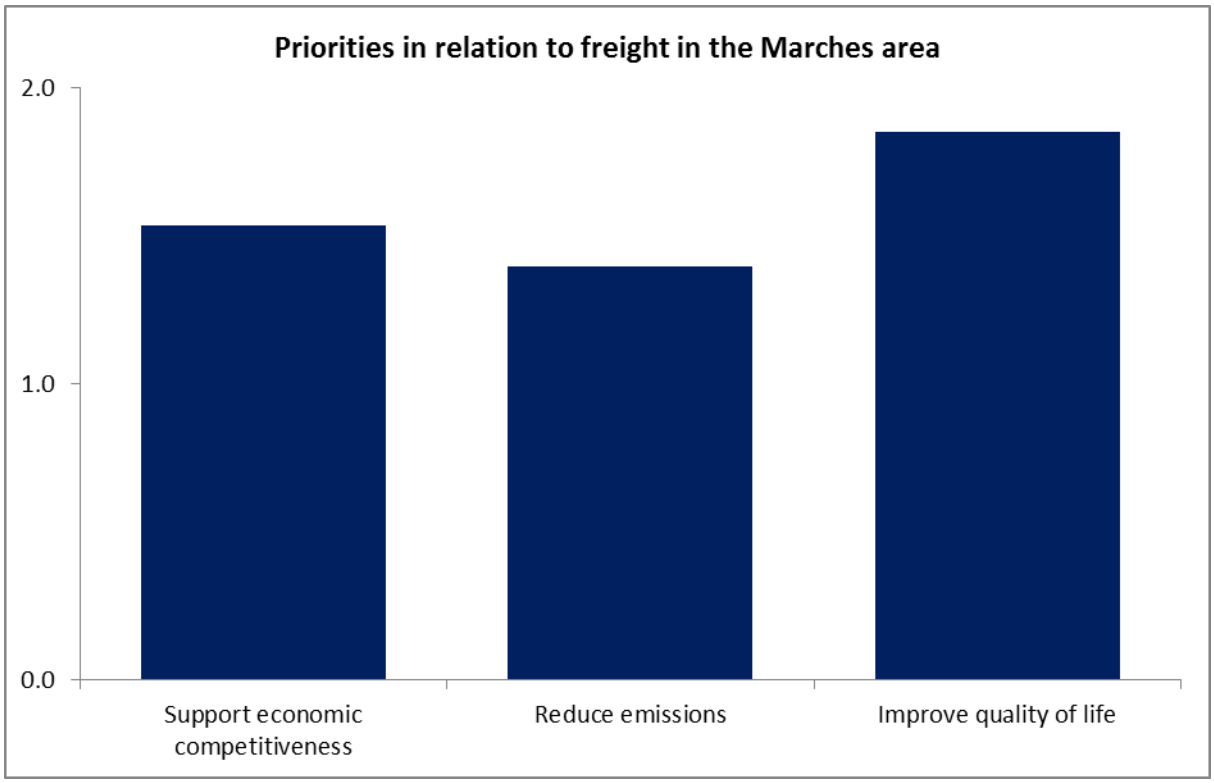
Priorities

For the priorities section, questions were scored as follows:

- 0 = Not important
- 1 = Important
- 2 = Very important

The respondents were also invited to leave comments covering any additional material that they felt was relevant. The results are shown in Figure 5.12.

Figure 5.12



As Figure 5.12 shows, the three priorities were all regarded as being important, with improving the quality of the life of residents deemed as being the most important priority of the respondents. Reducing emissions and improving air quality would be seen as something that would contribute to the quality of life but this is seen as being less important overall than supporting economic competitiveness. Overall, the councils took a balanced view, recognising that improving the

economic competitiveness of the Marches area is almost as important as improving the quality of life of the residents.

In the 'other priorities' section of the survey, 14 respondents left comments. Common themes emerged, including ensuring public safety, developing freight specific routes away from town centres and residential areas and relieving congestion.

Key issues

For presentational purposes, the titles of the key issues displayed in the chart below have been shortened, with full titles shown in Table 5.10.

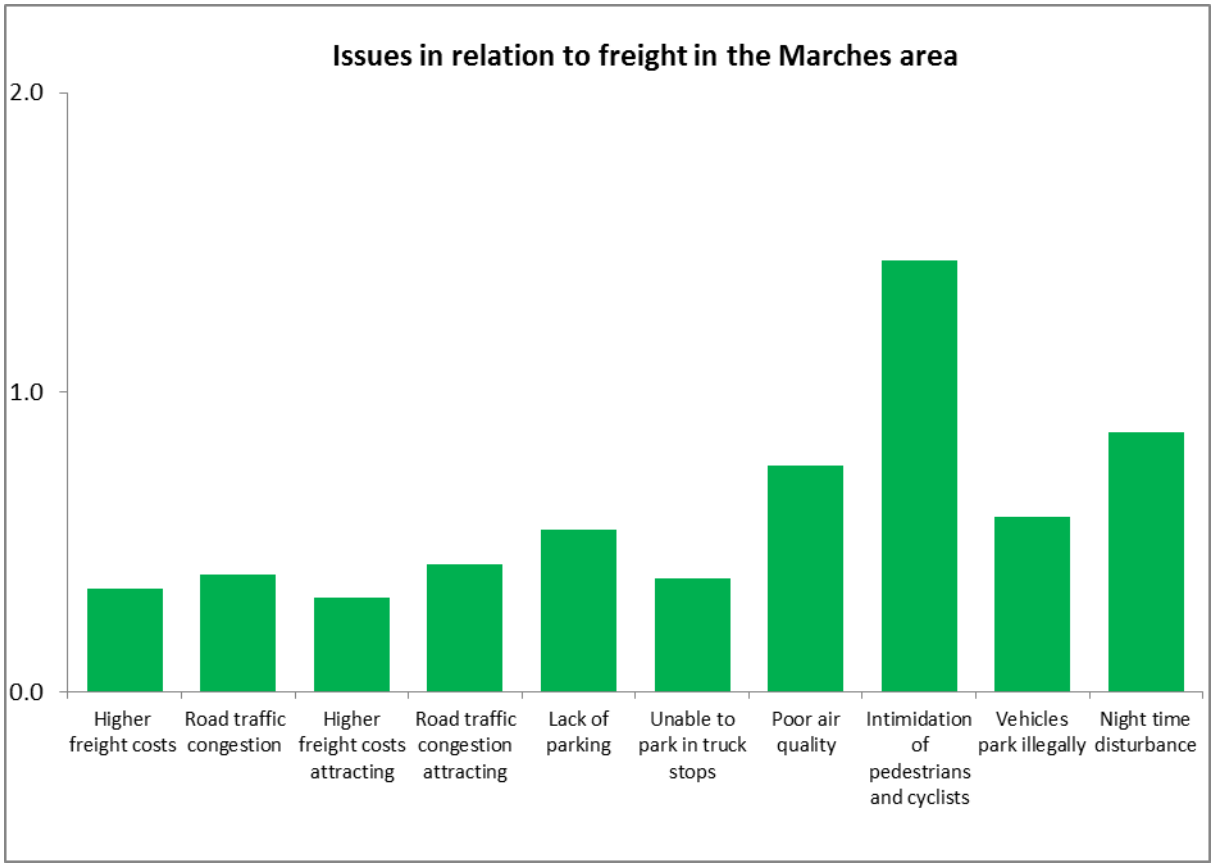
Table 5.10: List of freight-related issues included in the online survey (1)

Summary	Survey Question
Higher freight costs	Businesses in the parish or town struggle to compete because of high freight transport costs by road
Road traffic congestion	Businesses in the parish or town struggle to compete because of road traffic congestion
Higher freight costs attracting	It is difficult to attract new business activities into the parish or town because of high freight transport costs by road
Road traffic congestion attracting	It is difficult to attract new business activities into the parish or town because of road traffic congestion
Lack of parking	There is a shortage of legal parking spaces on the street to allow deliveries to shops/pubs etc.
Unable to park in truck stops	Freight vehicles are not parked in official truck stops or laybys
Poor air quality	Emissions from freight vehicles lead to poor air quality
Intimidation of pedestrians and cyclists	Movements of freight vehicles lead to pedestrians and cyclists feeling intimidated
Vehicles park illegally	Freight vehicles park illegally to make deliveries
Night time disturbance	Freight vehicles cause noise disturbance and vibration during the night

For the issues section, questions were scored as follows:
0 = Not an issue in the parish or town
1 = An important issue in the parish or town, leading to some problems
2 = A very important issue in the parish or town, leading to significant problems

Of the ten key issues shown in Figure 5.13 below, respondents regarded the intimidation of pedestrians and cyclists by freight vehicles was by far the most important issue, with an average score of 1.4. Night time disturbance and poor air quality also score relatively highly (but still less than 1.0).

Figure 5.13



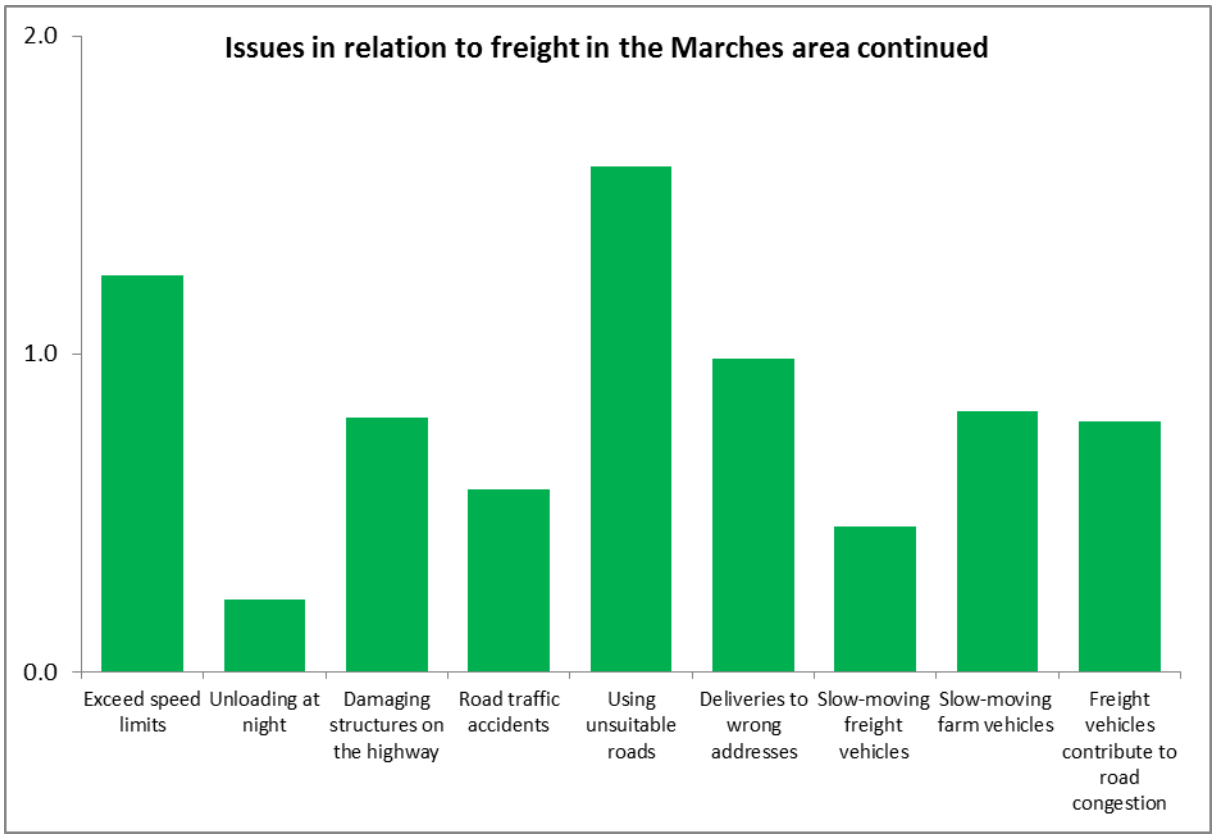
For presentational purposes, the titles of the final key nine issues displayed in Figure 5.14 below have been shortened, with full titles shown in Table 5.11.

Table 5.11: List of freight-related issues included in the online survey (2)

Summary	Survey Question
Exceed speed limits	Freight vehicles exceed speed limits
Unloading at night	Freight is loaded and unloaded at night, which disturbs the sleep of residents
Damaging structures on the highway	Freight vehicles hit bridges and other structures on the highway
Road traffic accidents	Road traffic accidents involving freight vehicles
Using unsuitable roads	Freight vehicles use unsuitable roads
Deliveries to wrong addresses	Freight vehicles make deliveries to the wrong address due to the use of sat nav. System
Slow-moving freight vehicles	Slow-moving freight vehicles cause delays to journeys
Slow-moving farm vehicles	Slow-moving farm vehicles cause delays to journeys
Freight vehicles contribute to road congestion	Freight vehicles contribute to road congestion

The most important issue was regarded as being the use of unsuitable roads by freight vehicles, which scored an average of 1.6. Freight vehicles exceeding speed limits was also cited as an

important issue, with an average score of 1.2, as was freight vehicles making deliveries to the wrong address due to the use of satellite navigation systems, which scored 1.0 on average.



Respondents were also invited to comment on additional issues, with many highlighting the inappropriate movements of HGVs through towns and villages, which cause damages to walls, roads, housing and verges.

Measures

After identifying the key priorities and issues for the freight industry within the Marches area, respondents were then invited to identify potential measures that would be effective in addressing the key issues that affect their towns or parishes. There were 19 measures identified in the questionnaire, which have been split into two separate graphs for easier visual presentation (Figures 5.15 and 5.16). As with the previous sections there was also an opportunity for respondents to provide additional written suggestions.

For presentational purposes, the titles of the first ten issues displayed in the chart below have been shortened, with full titles shown in Table 5.12.

Table 5.12: Potential measures for the Freight Strategy from Town & Parish Councils in the Marches (1)

Summary	Survey Question
Additional sections of dual carriageway	Additional sections of dual carriageway on mainly single carriageway roads to allow cars and other vehicles to overtake slower-moving vehicles. Where appropriate please specify the relevant locations below.
Enhancing junctions used by freight	Enhancing selected road junctions to improve traffic flow to/from sites that generate freight movements (such as industrial estates and factories). Where appropriate please specify the relevant locations below.
Dedicated spaces for freight	Dedicated parking spaces close to shops/pubs etc. to allow deliveries
Network for HGVs	Developing a network of approved routes for large freight vehicles, which are then shown on paper and electronic maps for distribution to the freight industry.
Road signs for commercial vehicles	Improving road signs for freight vehicles to signpost approved routes to large warehouses, factories etc. Where appropriate please specify the relevant locations below.
HGV information boards	Providing information boards about the approved routes for large freight vehicles at official truck stops and laybys.
HGV route information	Providing information on the approved routes for large freight vehicles on a dedicated website for freight for the Marches area.
HGV route restrictions	Providing information on restrictions on large freight vehicles on the road network to providers of sat nav systems.
More routes classified as unsuitable for HGVs	Increasing the number of routes designated as 'Unsuitable for HGVs' where more appropriate alternative routes are available.
Improved facilities for drivers	Providing improved facilities (information boards, toilets etc.) for lorry drivers at laybys and truck stops.

For the measures section, questions were scored as follows:

0 = Not likely to be effective in your area

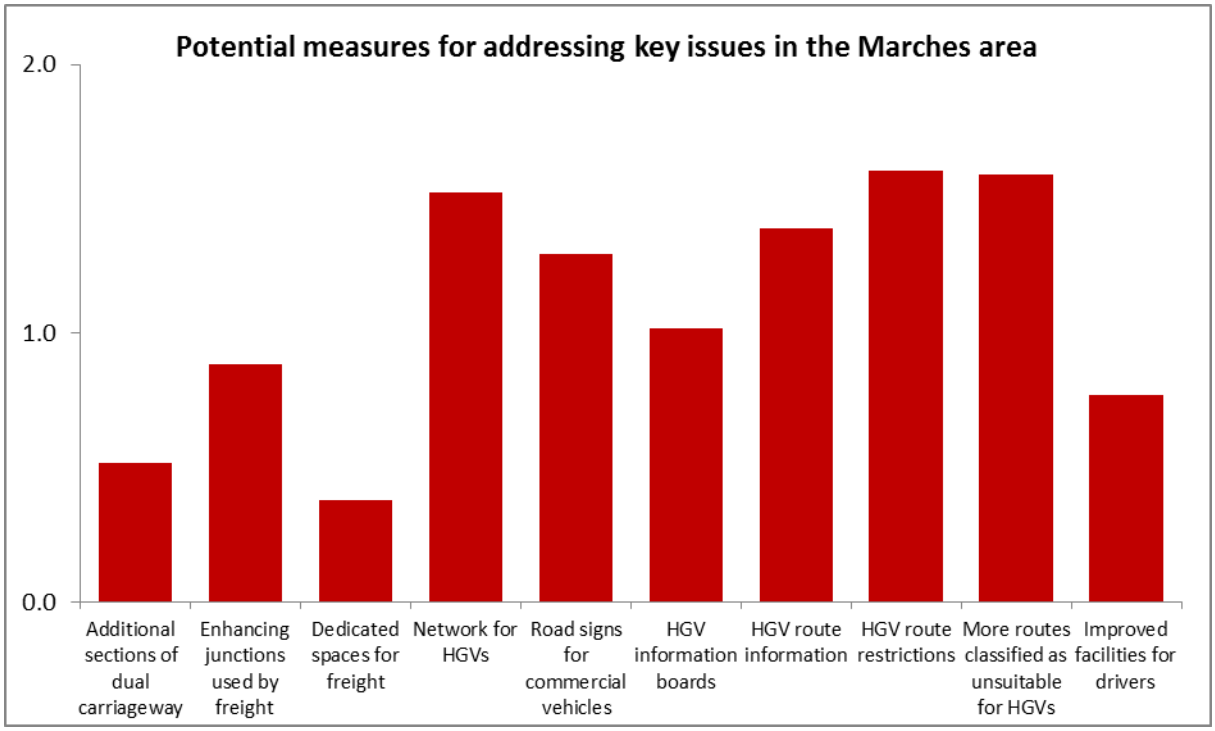
1 = Likely to be effective in your area

2 = Likely to be very effective in your area

Figure 5.15 below shows the responses to the first 10 potential measures for the Marches area. The proportion of measures which were considered likely to be effective is significantly higher than for the response from businesses. The two measures which were deemed the most important were concerned with providing information on restrictions on large freight vehicles on the road network to providers of sat nav systems and increasing the number of routes designated as 'Unsuitable for HGVs' where more appropriate alternative routes are available. Both these measures scores 1.6, with developing a network of approved routes for HGVs scoring 1.5.

The theme of HGV routing was further highlighted with HGV route information being provided on a dedicated website and increasing road signs for commercial vehicles scoring 1.4 and 1.3 respectively. As well as signs for freight vehicles being seen as important, providing HGV information boards was also seen as important, scoring an average of 1.0.

Figure 5.15



Additional sections of dual carriageway were seen as being less of an effective measure by the councils compared to businesses.

The final nine potential measures are listed in Table 5.13 below, with the results shown in Figure 5.16.

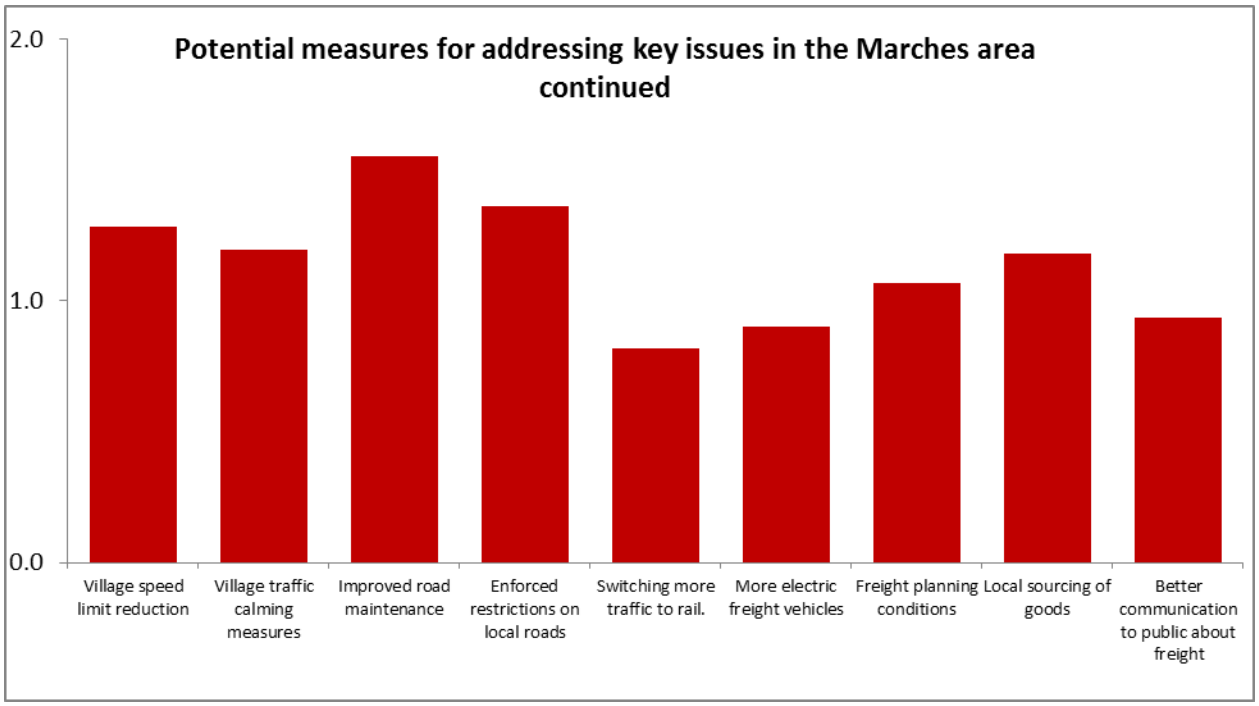
Table 5.13: Potential measures for the Freight Strategy from Councils in the Marches (2)

Abbreviation	Survey Question
Village speed limit reduction	Lowering speed limits in villages and towns that have to be transited by freight vehicles.
Village traffic calming measures	Introducing traffic calming measures in villages and towns that have to be transited by freight vehicles.
Improved road maintenance	Improving maintenance of the road network to reduce noise and increase safety.
Enforced restrictions on local roads	Improving enforcement of weight, width and height restrictions on local roads.
Switching more traffic to rail.	Switching more traffic to rail.
More electric freight vehicles	Encouraging use of electric or hybrid vehicles for freight deliveries and collections.
Freight planning conditions	Planning conditions to control movements of freight vehicles to/from new developments such as industrial estates.
Local sourcing of goods	Encouraging local sourcing of goods so that fewer long distance movements are required.
Better communication to public about freight	Improved communication to the general public by the freight industry and their customers of the need for freight activity.

Again, the theme of restrictions use of local roads by HGVs, road safety and improved road maintenance were considered by respondents to be very effective measures. Improved road maintenance to reduce noise and increase safety scored 1.6, with enforced restrictions on local

roads scoring 1.4. Reducing the speed limit in villages was seen as being effective, scoring an average of 1.3, as was traffic calming measures in villages and the local sourcing of goods.

Figure 5.16



Other measures that were regarded as being important included more pavements, traffic calming measures, vehicle enabled speed limit signs and encouraging freight companies to invest in non-diesel vehicles.

An additional section asked respondents which measures – as Parish and Town Councils - they would be willing and able to implement. Responses included traffic calming, increased freight parking and implementing speed limit signs. Some respondents pointed out that they do not have the power to implement measures on the highway network but emphasised that they would be willing to discuss and support implementation of measures with the local authority and other bodies.

5.5 Summary of key conclusions

- All respondents regarded supporting the economic competitiveness of the Marches and Mid Wales and improving the transport networks are important priorities for the freight strategy, as well as reducing environmental emissions and improving the quality of life for residents.
- However, businesses in the Marches and Mid Wales tended to emphasise the economic and transport priorities, while parish and town councils put greater emphasis on the quality of life priority.

- The key issues for businesses that emerged from the online survey were the poor quality of the single carriageway road network, which leads to slow journey times. Another major issue was the number of farm vehicles that use the network which lead to slow journey times and tailbacks. There was concern expressed by respondents about congestion at some junctions and through some towns in the area.
- The main potential measures that were supported were dualling sections, and improving the maintenance, of the existing road network and improved enforcement of weight, width and height restrictions on access to local roads by HGVs; providing information on these restrictions to the providers of sat nav system was also regarded as being an important potential measure. There was also support for more routes being classified as being 'Unsuitable for HGVs' and, in Mid Wales, for greater use of rail freight.

6 STAKEHOLDER CONSULTATION: STAKEHOLDER WORKSHOP IN THE MARCHES

6.1 Introduction

Following on from the online business questionnaire, the Marches Freight Business Breakfast was organised with the aim of gaining further views on the freight strategy from businesses in the Marches area. The event was split into two parts, with the first a presentation on the objectives and key issues and the second a presentation on the potential interventions. Following both these parts, facilitated discussions were held with delegates.

Table 6.1: List of delegates at the Marches Freight Business Breakfast

Companies
Marches Care Ltd
A.B.E. Ledbury Ltd
Hereford & Worcestershire Chamber of Commerce
Lambert Smith Hampton
Road Haulage Association Ltd
Whittingham Riddell LLP
Carillion Government and Defence
TTC Group
Shires Equestrian Products
Rail Freight Group
XPO Logistics
Kingspan
Jackson Property/ Hereford Enterprise Zone
West Midlands Rail
Business Watch Guarding Ltd
Barclays Ltd

Delegates were then split into two tables – Table 1 and Table 2 - for the purposes of the facilitated discussions that followed the presentations.

6.2 Background to strategy

Following the presentation of the strategy there were questions regarding whether the strategy would take into consideration potential technological advancements within the freight industry such as deliveries by drones. It was pointed out that delivery by drone technology is in its very early stages, with test licences approved for deliveries within line of sight by the drone pilot only (with the exception of Amazon). It was generally agreed that such a delivery method is a niche, with more established methods of transport likely to be the main focus of the strategy.

6.3 Facilitated discussion: Is the overall aim OK?

Overall aim: "To ensure the efficient, reliable and safe movement of freight in the Marches in order to support economic growth, whilst, at the same time, minimising freight's negative impacts on the environment and the quality of life for residents."

The general feeling from both Table 1 and Table 2 was that, although the overall aim of the strategy covered all the necessary elements, the aim itself was too long. Table 2 expressed a desire to see economic growth to be referred to using words such as 'competitive' and 'productive'. It was felt that this would set the aim apart from other similar strategies, as economic growth is seen as a prerequisite.

Some delegates on Table 1 felt that the scope of the strategy was too concerned with the long term future, citing the fact that the strategy has a time horizon of 2030. It was felt that certain priorities for the Marches area, such as infrastructure investment, should be accelerated in advance of this date in preparation for the post-Brexit world.

The general feeling was that the statement was 'fit for purpose', although it was suggested on Table 1 that a reference to transit traffic through the Marches area could be included in the aim. It was recognised that this was an important aspect of freight transport for the Marches area.

How the Marches connects to other regions was also raised as being important in terms of the aim of the strategy. It was felt that the Midlands Connect emerging strategy should be in some way linked to the Marches freight strategy and Table 1 also highlighted the effects that congestion on roads within the Midlands region can have on the Marches. The expansion of the strategy into Mid Wales was seen as a positive development by delegates.

6.4 Facilitated discussion: Is the draft strategy addressing the relevant existing issues?

One of the key issues highlighted in the presentation was the effect that single carriageway routes in the Marches have on freight and general traffic flow, causing congestion, long journey times and reduced reliability. This was agreed upon with both tables as being something that is detrimental to traffic flows through the Marches area. Table 2 highlighted the A49 as being a major problem and singled out safety issues. Delegates on Table 2 also pointed to the fact that there is a lack of adequate places for fast-moving traffic to pass freight and agricultural vehicles (tractors, for example), which significantly increases journey times.

Due to the lack of passing places on the A49, accidents can occur when drivers get frustrated and attempt to pass slower moving vehicles in dangerous places. Both tables recognised that the A49 road was never going to become a dual carriageway, in part due to financial constraints, but viewed safe opportunities for passing slower-moving vehicles on the road network as being a good alternative.

The issue of single carriageway roads was recognised by Table 1 as being a primary challenge to attracting businesses to the area, while Table 2 pointed to the peripheral nature of the area in relation to the national motorway network as being a challenge to attracting business. This was pointed out by delegates on Table 2 representing the haulage industry, who pointed to the fact that their drivers would use the motorway network for deliveries to the North (Wirral, Liverpool area) from the Marches, instead of taking roads such as the A49 due to poor reliability and longer journey times, despite being the shorter route. A delegate on Table 1 cited the A44 as a single carriageway road that has significant issues regarding congestion and poor reliability.

The issue of HGVs using unsuitable roads was recognised on Table 2, but this was seen as a by-product of existing freight routes being inadequate. For example, when an accident or congestion occurs on established freight routes, drivers may opt to seek alternative routes, meaning they may inadvertently use unsuitable roads. It was also recognised that, particularly during the harvest, agricultural customers will require freight vehicles to access their farms and land to pick up goods on unsuitable roads.

Peripherality was cited as being an issue for the Marches, although respondents remained fairly realistic about trying to attract new large businesses to the area when the area is not as well-connected to the motorway network as other areas.

Respondents on Table 1 felt more could be done to encourage the use of rail in the Marches area, with HS2 being seen as an opportunity to improve journey options into the Marches. It was also seen as being good for freight, as HS2 can remove passenger trains from the existing network, freeing up capacity for freight trains. It was also pointed out that even if more freight transport was to be moved onto the railway network, the first and last mile legs of transportation would still need to be made on the road network.

Congestion on the M6/M5 was seen as an issue for road freight users going into and out of the Marches area. The lack of HGV parking was also raised by Table 2 as being important. A haulier pointed out that this has led to his company providing parking for their drivers on site due to lack of parking facilities elsewhere in the Marches area. It was noted that the lack of HGV parking is more of a problem elsewhere in the country, in areas that are closer to the motorway network.

It was generally felt that the draft strategy was addressing the key issues, with perhaps the major criticism being that it focused more on long term rather than short term issues.

6.5 The Marches Freight Strategy – potential interventions

A short presentation was then given which showed the results of the online survey and respondents' views on the potential measures for addressing the key issues. Attendees at the presentation were then shown the potential schemes and actions proposed. These were put into two categories: a focus on reducing costs and focus on reducing impacts. Attendees were then given two questions to answer in relation to the potential schemes and actions.

Facilitated discussion: Do the suggested interventions address the key issues?

The general feeling on Table 1 was that the potential schemes and actions have a northern focus within the Marches area and that they should increase the scope by including schemes that connect east to west, looking at Droitwich, Leominster and Hereford to Worcester. Poor maintenance of roads was seen as an issue that was not covered sufficiently in terms of interventions. Sections of the road network that suffer from this were highlighted as being the Wenlock to Ledbury route, with trees overhanging on to the road. Respondents on Table 2 pointed to the fact that not enough of the roads budget was spent on road maintenance generally and this becomes an issue when routes are used by freight vehicles, which, due to their weight, will cause more damage to the roads than cars. Neighbouring areas of Wales were seen as having better quality roads than the Marches area due to more funds being allocated to road maintenance.

Both tables felt that information that was available to the public relating to the freight industry and how freight vehicles use the road network was not adequate. Table 1 noted that the public should be made aware of issues such as freight speeds and weight restrictions and the communication of which routes make up the strategic road network should be improved. Table 2 noted that signing could be better to prevent drivers going off the strategic road network, recognising that this can be difficult and sometimes unachievable as some drivers may make a one-off delivery into the Marches area and cannot be expected to research the best possible routes beforehand.

It was accepted by both tables that a Hereford bypass was crucial and would help to address some of the key issues. The implementation of passing places was also seen as being important, particularly on the A49. It was widely accepted that, although desirable, adding dual-carriageway sections along the A49 was unrealistic. It was mentioned on Table 1 that passing places need to be advocated on a business case basis and lead on from a route strategy approach.

Facilitated discussion: What other interventions might be required?

Linking to the point under the previous question about interventions focusing mainly on the north of the Marches area, Table 2 suggested a bypass around Leominster is required to reduce congestion and lower journey times.

Table 1 suggested that Caersws should be established as an intermodal terminal location for the adoption of the "Tesco model" of supermarket distribution (referring to the use of rail for secondary distribution between Regional Distribution Centres and supermarkets which has been adopted by Tesco for flows to the North East and Highlands of Scotland from Grangemouth) in order to reduce traffic on the A44. It was also pointed out that, although there may be little scope for rail freight in the Marches area, shippers are not resistant to modal shift onto rail and more effective collaboration between hauliers and shippers could make rail freight more competitive against road transport. Collaboration between hauliers was raised as a general point, with the difficulties of hauliers being able to get backloads into the Marches area making it uncompetitive against other regions.

HGV parking was again raised by both tables, noting that sites had previously been considered on the A44. Satellite navigation systems were also cited by Table 2 as causing issues, sometimes diverting drivers onto inappropriate roads and participants suggested that systems should be improved by producing an up to date and suitable network map for drivers. It was suggested that drivers from less established haulage companies may have sat nav systems in their vehicles that are for car users and will therefore take drivers onto unsuitable routes.

It was generally felt that the interventions suggested were appropriate for the freight strategy in terms of reducing costs. Participants were also keen on actions that reduced the impacts of the freight industry in the Marches area and they were seen as generally being things that could provide some 'quick wins' from the strategy.

7 STAKEHOLDER CONSULTATION: STAKEHOLDER WORKSHOP IN MID WALES

7.1 Introduction

The Mid Wales Business Workshop was organised in Newtown in April 2017 with the aim of gaining further views from business in Mid Wales on the emerging freight strategy. The freight strategy element of the workshop was split into two parts, with the first a presentation on the objectives and key issues and the second a presentation on the potential interventions. Following both these parts facilitated discussions were held with delegates. In order to allow all delegates to get involved in the discussion, they were split into two smaller groups.

7.2 Priorities for the strategy

The key priority was confirmed as being the need to improve the quality of the road network in Mid Wales. The quality of the road network not only affects the movement of freight but also movement of employees. It was also pointed out that the first two priorities - improving the transport network and supporting competitiveness - are in practice the same thing. By improving the transport network then emissions would be reduced as there would be less congestion and vehicles could pass through areas more quickly.

7.3 Key issues for the strategy

Congestion was cited as being a key issue by both groups, particularly at peak times, in many locations such as Chirk, at the Posthouse Roundabout (near Chester), on the A483, at Newtown, Welshpool and on the Shrewsbury Bypass.

Peripherality/distance from markets was not generally regarded as being a significant issue, but many of the attendees were shippers of freight (rather than transport operators) and day-to-day operational issues are less of an issue for shippers who just have to hand over the freight to the transport operators; one of the shippers was shipping electronics using couriers who charge national delivery rates whatever the location in the UK and therefore there was no additional transport cost due to the distance.

All the main roads used by freight vehicles in Mid Wales are single carriageway and there are few opportunities for overtaking on the road network, which can lead to dangerous driving and incidents which can lead to road closures, creating delays and having serious safety repercussions.

Linked to the roads being single carriageway, delegates cited slow moving farm vehicles as the source of delays, coupled with no places to overtake them. As well as farm vehicles, cars towing caravans was also seen as a problem, particularly in the summer months. Delegates also cited the fact that the routes taken by HGVs in Mid Wales often involve passing through a small town or village centre, with delays caused by illegally parked cars blocking the route. HGV parking generally across Mid Wales was not seen as being a major issue, but it was pointed out that a private HGV parking facility in Aberystwyth was due to close shortly.

The poor availability of railway capacity was also raised as an issue, both in terms of freight and passenger trains. From a freight point of view, delegates questioned why there were virtually no freight trains operating in Mid Wales.

7.4 Potential interventions

A further short presentation was then given which showed the results of the online survey and respondent's views on the potential measures for addressing the key issues. Attendees at the presentation were then shown the potential schemes and actions proposed. These fit into two categories, namely a focus on reducing costs and a focus on reducing impacts. Attendees were then given two questions to consider in relation to the potential schemes and actions.

Do the suggested schemes & actions address the key issues?

There was general support for the potential schemes and actions listed in the presentation. There was also consensus that schemes need to be achievable and affordable and delegates recognised that significant levels of funding were not likely to be available.

It was noted by some of the delegates that collaboration between shippers already takes place in relation to manufacturing industry in Mid Wales. This is due to the companies being small and not being able to fill loads on their own, with this collaboration also taking place through local hauliers.

Online enhancements to provide overtaking opportunities was supported by the delegates, with the A458 being suggested as an additional route where such opportunities are required. It was suggested that by making improvements to the highway network journey times for freight would be reduced, although it could make it more difficult for car drivers to overtake. Road maintenance was cited as something that is currently carried out to a good standard in Mid Wales and that this needs to continue.

What other schemes and actions might be required?

In terms of other schemes and actions, delegates cited a different approach to maintenance of roads that took into consideration the surface of tarmac used. This was due to delegates believing that the same road surface was used for all solutions and that by researching into different surfaces and technologies, roads surfaces could last longer.

The use of tolls, or road user charging was raised by delegates and the use of more intelligent traffic signalling, i.e. using motion sensing. Welshpool airport was cited as a potential asset for both passengers and freight in Mid Wales, although it has not flourished in recent years.

Delegates noted the need for connectivity to the M4 corridor, the Wrexham/Chester area and the Marches. Delegates also suggested that road users that fail to adhere to the Highway Code, notably the drivers of farm vehicles who fail to allow faster road users to pass them, should be prosecuted.

8 SUMMARY OF CONSULTATION INTERVIEWS

8.1 Introduction

Face-to-face and telephone interviews were completed with key stakeholders, such as business located in the Marches and Mid Wales, Midlands Connect and highways and air quality officers at local authorities.

A summary of the key issues raised and the views expressed on the potential measures for inclusion in the freight strategy is provided below, making a distinction between the responses from the public sector and those from businesses.

8.2 Summary of results of public sector consultation

Issues raised

Among the main issues raised was the state of the road network within the Mid Wales and Marches areas and connections to surrounding areas. Roads which were identified included the A44 at Leominster, the B4361, A496, A487, A495, A465 and A49. Interviewees cited the importance of these roads as providing connections to the larger population centres outside the area, including Birmingham, Merseyside and the port of Holyhead.

Issues related to these roads include queuing, increasing journey times caused by congestion, signalling issues, poor road surfaces, agricultural vehicles slowing down traffic and a lack of passing places. These issues are seen as being detrimental to other road users and freight users carrying perishable and time-sensitive goods.

Issues caused by freight vehicles were also a significant theme, including accidents, using unsuitable roads when the main trunk network becomes congested and parking in unsuitable locations. It was felt by interviewees that there was a lack of HGV parking across the Powys and Ceredigion areas.

Environmental issues were raised by interviewees, including flooding in the Montgomery area and at the Dovey Bridge and air pollution in Shrewsbury. Flooding is seen as being particularly detrimental, as it forces HGVs to use longer, alternative routes.

Interviewees also suggested that the operations of freight vehicles are hindered by poor quality sat nav systems, a lack of information in town centres for freight deliveries, particularly in areas such as Hereford. Interviewees also stressed the importance of the strategy being aligned with surrounding

areas and their respective freight strategies, such as Midlands Connect and the Midlands Engine, to support economic growth.

There was also some concern about the contribution that freight vehicles make to poor air quality at specific locations in some towns and cities in Shropshire and Herefordshire.

Suggested measures

The measures proposed by interviewees reflect the issues raised. These include asking HGV drivers to turn off their engines whilst queuing and encouraging walking and cycling to reduce car journeys and relieve congestion, ultimately making journey times shorter for freight users.

Measures related to specific road sections include improving A49, A44, A456, A417, A40, relief roads in Hereford and North West of Shrewsbury. There is a general desire for more passing places and 2 on 1 roads on single carriageway roads to decrease journey times and reduce accidents. The use of 2 on 1 roads is seen as being a cheaper alternative to dual carriageways, particularly when there are not enough vehicle movements to justify the expense of implementing a dual carriageway to an existing single carriageway road.

Other suggested measures include banning HGVs in towns during peak hours and more consolidation centres for large towns and cities. Rail electrification was also suggested, as a means of modernising the rail network in Mid Wales and improving connections. The shift of freight from road to rail was also suggested as a measure, but respondents also recognised that, despite the potential environmental benefits, demand might not be sufficient to justify any significant modal shift to rail in Mid Wales.

8.3 Summary of results of private sector consultation

Issues raised

Similar themes emerged from the interviews with the private sector stakeholders. Chief among these were issues with the road network, with congestion and bottlenecks being the main issues raised. Congestion and safety was seen as being significant on the A49, one of the main roads on the network through the Marches. When accidents occur, this can often cause serious injury and increase journey times significantly. The fact that this road is mainly single carriageway was raised by several respondents as being detrimental to the area, with slow moving freight or farm vehicles slowing down other traffic.

Other roads were viewed as being sub-standard for freight vehicles include the A456, B4362, A4137, A40, A487 and A449. Congestion was also mentioned in relation to the Midlands motorway network.

Flooding was again raised in the Machynlleth area, combined with inadequate clearance under the railway bridge so that HGVs are forced to seek alternative routes to Dolgellau, adding significant time and costs to journeys. High winds were also cited as being an issue in areas of Wales, forcing planned vehicle movements to be postponed in some cases.

Respondents also raised concerns about the recruitment of young HGV drivers, suggesting that it is not happening to the extent that it needs to. Recruitment of new drivers often comes in the form of European drivers, which is seen as a concern with regards to Brexit and uncertainty over the future. Drivers employed by larger haulage companies will tend to be equipped with Sat Nav systems designed for HGVs, whereas smaller operations may only have systems for cars. This becomes an issue in areas such as Mid Wales and the Marches which have narrower roads that are unsuitable for HGVs and can cause issues on the roads, such as blocking access for others.

Suggested measures

Encouraging shippers to collaborate more for imports and exports was seen as a measure for reducing the numbers of HGVs on the road and lowering delivery costs for companies. This is important as many of the companies in the area may not be large enough to justify a full truckload, meaning deliveries may be inefficient on their own. This would also benefit the environment.

Many of the measures involve physical alterations to the existing road network. Passing places and 2 on 1 roads are seen as being important across the road network, notably on the A49 between Ross on Wye and Hereford. Making the A5 near Shrewsbury a dual carriageway was also cited as a means of reducing journey times and congestion.

Improved signage aimed at HGV drivers and constraints to prevent them from using unsuitable roads was suggested, as well as the possibility of a grant scheme to encourage a greater uptake of young HGV drivers by employers.

More support was also suggested for cycle deliveries into the larger town centres from consolidation centres on the edge of towns. This would reduce the number of vans required to make deliveries into town centres, reduce congestion and also pollution.

9 APPRAISAL OF INTERVENTIONS & MODELLING OF IMPACTS

9.1 Introduction

This chapter sets out the potential public sector interventions that were developed and appraised for the Marches and Mid Wales Freight Strategy. It also provides a high level appraisal of these interventions and the results of modelling carried out for the study using the GB Freight Model. This model has been used to estimate the potential user and non-user benefits from the implementation of the major road infrastructure projects included in the strategy.

9.2 Appraisal of interventions

Some 33 interventions were identified and appraised that would help the Marches and Mid Wales to meet its strategic objectives in relation to freight and logistics. The interventions were established based on, in particular, the review of best practice (see Chapter 3 of this Technical Annex), discussions with the Steering Group and feedback from businesses through the stakeholder programme (see Chapters 5-9 of this Technical Annex). The business community stressed, in particular, the importance of interventions that would increase the capacity of the road network, reduce the impact of bottlenecks and increase journey time reliability, as well as the need for improved maintenance of the road network.

The interventions were grouped into the following categories:

- **Highways management and maintenance:** defining for planning purposes a Freight Route Network (FRN) on which strategic freight movements are likely to be concentrated and upon which infrastructure enhancements can be focused. This also includes interventions on the FRN to maintain the existing highway network and ensure that it is fit for purpose for freight movements.
- **Highways enhancements:** specific schemes on the FRN that would reduce journey times and increase journey time reliability for the freight and logistics industry and their customers.
- **Planning and regulation:** interventions to ensure that development opportunities take account of the associated freight movements and reduce emissions from HGVs and LGVs in areas of poor air quality.
- **Rail freight:** potential interventions to encourage a switch of some traffic to rail.
- **Dissemination & liaison:** provision of accurate information to users of the road network to facilitate informed decision-making by transport operators (particularly in relation to routes through settlements) and to encourage behavioural change.

A high level appraisal of the 34 interventions was carried out using multi-criteria analysis according to the following main criteria:

- Economic impact: The extent to which the measure would reduce industry costs, improve journey time reliability and create direct employment in the Marches and Mid Wales.
- Environmental/quality of life impact: The extent to which the measure would improve air quality, reduce greenhouse gas emissions, reduce the number of accidents and therefore increase safety and otherwise improve the quality of life for the people who live and work in the area.
- Deliverability: The extent to which the measure is likely to be feasible from a technical and political point of view.
- Affordability: The extent which the measure is likely to be costly and represent good value for money for the public sector.

A description of the interventions, grouped by category, is provided in the following sections. The results of the high level appraisal has been provided in a separate spreadsheet.

Highways management & maintenance

The key highways planning concept is the development of the **Freight Route Network (FRN).** This would be an informal definition for the purposes of transport planning only and would consist of the Strategic Road Network (SRN) plus selected additional county roads that accommodate significant volumes of HGVs in absolute and relative terms. The FRN would allow the available resources to be focused on key freight routes in the Marches and Mid Wales.

Physical signage should be reviewed to ensure that HGVs are encouraged to use suitable routes between the FRN and key freight generators and attractors of freight.

While major issues related to HGV parking have not emerged from the consultation for this strategy, it would be advisable to carry out a review of the **supply and demand for HGV parking** in the Marches and Mid Wales, with a focus on the provision of sufficient parking spaces on the FRN and close to industrial estates and warehousing. Where necessary, this should lead to the development of additional overnight parking facilities in a limited number of key locations.

The existence of the FRN would also encourage a strong focus on the **maintenance of the highways** that are most important for the circulation of HGVs by Highways England, the Welsh Government and the local authorities. This is particularly important because of the size, weight and height of HGVs, the wear and tear on the structures and the potential damage to HGVs as a result of poor maintenance. This focus on maintenance can be assisted by the use of highways maintenance planning tools, such as the Highways Maintenance Assessment Tool (HMAT), which allows councils to develop investment strategies that assess the contribution of highways maintenance to economic efficiency and economic growth.

Local authorities could introduce **speed limits and traffic calming interventions** in selected locations where these are required to slow HGV and other traffic in 'sensitive' locations. Speed restrictions could be introduced only for part of the day, such as when children are going to and from school, rather than throughout the day and night. Such schemes should only be introduced in selected locations as they lead to longer journey times and may lead to additional costs for business. The schemes should be developed for the particular circumstances of the location, taking into account for example where there is an absence of footpaths, and narrow roads where HGVs are unable to pass each other, and could include 30mph or even 20mph speed limits and other means to reduce speed such as the removal of centre and edge lines and differential surfacing. Where these schemes would be implemented on the FRN they should be supported by a strong business case and where they are also on the SRN they should only be introduced as part of a route strategy by Highways England and the Welsh Government.

Table 9.1: Summary of high level appraisal: highways management & maintenance

Measure	Economic impact	Environmental & quality of life impact	Cost to public sector	Deliverability
Definition of Freight Route Network for transport planning purposes	Positive	Positive	Low	Good
Signing of access between the FRN and key attractors or generators of freight	Positive	Positive	Low	Good
Review of HGV parking provision on the Freight Route Network	Neutral	Positive	Medium	Good
30 mph speed limits with warning signs & traffic calming interventions in selected 'sensitive' towns and villages.	Negative	Positive	Medium	Good
Improved maintenance of the FRN, including through the use of highways maintenance planning tools.	Positive	Positive	Medium	Good

Highways enhancements

The key interventions, which were also highlighted by the business community, relate to the need to reduce journey times and increase journey time reliability for freight movements to, from, within, and through, the Marches and Mid Wales area, while relying on an essentially single carriageway network. The strategy therefore includes several interventions that would provide opportunities for overtaking farm vehicles and slow-moving HGVs by freight vehicles and passenger cars. These interventions would also lead to reduced driver frustration and increase safety on the network. The interventions are:

- **Sections of 2 on 1 roads:** short sections of carriageway of at least 13.5 metres in width which allow overtaking in one direction for a stretch of the highway for at least 600 metres and up to 2,000 metres. Overtaking opportunities should be available in both directions alternately and in reasonable proximity to each other and should be at least 2km from the nearest dual carriageway and 500 metres from an access point to the road.

- **Differential Acceleration Lanes (DALs)**: provided on the exit from roundabouts to enable vehicles leaving the roundabout to overtake slower-moving vehicles.
- **Crawler lanes**: an additional lane added to a single carriageway to improve capacity and/or safety because of the presence of the steep gradient. A climbing lane can be considered on single carriageway roads with gradients greater than 2% and longer than 500 metres.

Online enhancements, such as straightening, removing bends and widening of narrow sections at selected locations to allow HGVs to pass one another would also increase the safety of the network and reduce journey times. A programme of **enhancements to selected structures** that are sub-standard would allow 44 tonne HGVs to operate across the whole of the network.

Schemes for increasing the number of opportunities for overtaking and online enhancements and enhancements to selected structures should be considered as part of route strategies on the FRN and this is likely to include the following routes in the Marches and Mid Wales: A49, A483, A470, A5, A487, A458, A44, A438, A456 and A40.

There are also a number of key schemes which would reduce the impact of bottlenecks on the FRN, providing shorter journey time savings and increased journey time reliability for freight movements. These are:

- Hereford Bypass and Southern Link: bypass to the west of the city with a new crossing of the River Wye, with the objective of removing north-south strategic traffic from the city.
- M54 link to northbound M6/M6 Toll: new motorway link so that northbound traffic on the M54 can access the M6 directly rather than via the A449; the scheme would also provide a direct link between the M54 and the start of the M6 Toll road.
- A49/A5 Dobbies Island Junction Improvement: enhancements to the junction between the A49 north south route and the A5 Shrewsbury ring road meet to the south of Shrewsbury;
- Leominster Bypass: a bypass to the southwest of Leominster allowing east-west traffic on the A44 to avoid the town centre.
- New Dyfi Bridge on the A487: a scheme to replace the bridge across the River Dyfi (which is prone to flooding) on the A487 to the north of Machynlleth.
- A483 Pant to Llanymynech Bypass: bypass of two villages on the A483 between Welshpool and Oswestry, which will reduce journey times between Mid Wales and Deeside and the North West of England.
- A458 Buttington Cross to Wollaston Cross: scheme to improve about 9km of sub-standard trunk road (also with a poor accident record), which will reduce journey times between Mid Wales and the West Midlands via Shrewsbury.
- Shrewsbury North West Relief Road: a scheme to complete the final section of the ring road around Shrewsbury to link the A49/A53 at Battlefield to the A5/A458 at Bicton Heath, which will reduce journey times between the west and the north of Shrewsbury.
- Dualling or partial dualling of the A5/A483: a scheme to provide a dual carriageway route from the end of the A5 Shrewsbury Bypass to the start of the dualled A483 at Ruabon.

The location of the above key schemes is shown on the map in the Appendix.

Table 9.2: Summary of high level appraisal: highways enhancements

Measure	Economic impact	Environmental & quality of life impact	Cost to public sector	Deliverability
Sections of 2 on 1 roads (online enhancements)	Positive	Positive	High	Good
Differential Acceleration Lanes (DALs)	Positive	Positive	Medium	Good
Crawler Lanes	Positive	Positive	High	Good
On-line enhancements to the trunk road network	Positive	Positive	High	Good
Hereford Bypass and Southern Link	Positive	Positive	High	Good
M54 link to northbound M6/M6 Toll	Positive	Positive	High	Good
A49/A5 Dobbies Island Junction Improvement	Positive	Positive	Medium	Good
New crossing of the River Dyfi on the A487	Positive	Positive	High	Good
Leominster Bypass	Positive	Positive	Low	Good
A483 Pant to Llanymynech Bypass	Positive	Positive	High	Good
A458 Buttington Cross to Wollaston Cross	Positive	Positive	High	Good
Shrewsbury North West Relief Road	Positive	Positive	High	Good
Dualling or partial dualling of the A5/A483	Positive	Positive	High	Good
Enhancement of structures on the Freight Route Network to allow 44 tonne HGVs.	Positive	Positive	Medium/High	Good

Planning & regulation

Much of the regulation in relation to freight transport is developed and implemented at a UK national and European level and unnecessary additional regulation at a local or regional level only reduces the degree of regulatory harmonisation and increases costs for the freight industry. The public sector at a local level can, however, have a major influence over freight movements through the land use planning and development process.

There should be a **review of the development control process** by the local authorities in relation to access to the key route network from developments that generate additional HGV traffic. As required by planning guidance there should be a presumption in favour of the development of activities which will create employment and economic development, but the impact of additional road freight movements on the area around new attractors or generators of freight should be considered as part of the development consent process. The development control process should also take into consideration the need for off-road parking for HGVs when making (or waiting for) deliveries and collections so that HGVs do not have to park on the public highway.

Given that much of the retail sector in the Marches and Mid Wales is supplied from the Midlands and the business community based in the area rely on the Midlands motorway network to distribute their goods to customers, this strategy supports the **Midlands Connect Freight Strategy** and its focus on securing additional strategic road capacity through the Midlands. The strategy also supports the results from the **Transport for the North Freight Study**, which focuses on interventions which would lead to a reduction in the volume of road freight movements that transit the Midlands on the north-south axis.

The air quality issues in the Marches and Mid Wales are highly localised and where there are issues, they are unlikely to be mainly due to freight vehicle movements. However, movements of diesel-powered HGVs and LGVs will contribute to poor air quality and the strategy proposes that a **review is carried out of freight movements and deliveries and collections in Shrewsbury, Hereford, Leominster and Bridgnorth** to establish the extent to which freight activity is a major contributor to poor air quality and what local interventions could be introduced to reduce the impacts. Any interventions that are introduced should take into account the operational requirements of the freight industry and their customers.

Councils should use 'Unsuitable for HGVs' signs to encourage freight vehicles over a certain weight or size from using particular routes because they would not be able to be accommodated safely on the route.

As a last resort, highways authorities may also be justified in applying Transport Regulation Orders (TROs) in some locations to restrict access by some freight vehicles and to increase use of 'Except for loading' restrictions. However TROs should be applied sparingly and based on a strong business case to avoid significantly restricting the circulation of traffic and to avoid opposition from the business community.

Table 9.3: Summary of high level appraisal: planning & regulation

Measure	Economic & quality of life impact	Environmental & quality of life impact	Cost to public sector	Deliverability
Review of development control process	Negative	Positive	Low	Good
Require adequate off-road parking for HGVs making deliveries & collections at development sites	Negative	Positive	Low	Good
Support for Midlands Connect & TfN freight strategies	Positive	Positive	Low	Good
Review of freight deliveries & collections in the centre of Shrewsbury, in Bridgnorth, Hereford and Leominster.	Neutral	Positive	Low	Good
'Unsuitable for HGVs' signs on certain routes	Positive	Positive	Low	Good
Restrict movements of freight vehicles over 7.5 tonnes gross vehicle weight using TROs.	Negative	Positive	Low	Good

Rail freight

Rail freight may be able to provide an opportunity to shift some road freight to rail in some markets. However, road freight will remain by far the dominant mode for freight transport in the Marches and Mid Wales because of the dispersed pattern of settlement and economic activity (which reduces the critical mass of traffic to fill a train for any particular location) and issues related to the infrastructure which reduce the capacity and capability of the network to accommodate rail freight services.

Some initial feasibility work has been undertaken on the potential for a **'supermarket train'** carrying retail goods in containers between the Midlands and (say) Shrewsbury and Machynlleth or Newtown (to serve the wider Mid Wales area). The relatively short distances involved, the restricted loading gauge and capacity issues on the Cambrian Line from Shrewsbury to Aberystwyth and the cost involved in final collection and delivery between a rail head and supermarkets in Mid Wales are likely to make the concept quite marginal economically. The strategy proposes that a more detailed feasibility study is carried out in conjunction with the relevant supermarket chains to investigate the concept further. This feasibility work should consider the potential role of operating and capital grant funding from existing schemes run by the Department for Transport and the Welsh Government to support the service.

The **Telford International Railfreight Park at Donnington** is the only common user rail terminal in the Marches and Mid Wales and is at present being used to handle construction materials. It has struggled to secure additional traffic and the strategy proposes that a practical marketing exercise is carried out to establish potential new markets that the terminal could address. The attractiveness of the terminal would be enhanced by increasing the loading gauge for intermodal traffic between Birmingham and Shrewsbury via Donnington; this is likely to be achieved most cost-effectively when the route is electrified. Otherwise, the area would benefit indirectly from long distance intermodal rail freight traffic being handled at existing and proposed Strategic Rail Freight Interchanges in the Midlands, with onward distribution to and from the Marches and Mid Wales by road.

The strategy also proposes that a review is carried out of potential opportunities for major manufacturers located in the Marches and Mid Wales to use **local railheads** for the inbound distribution of raw materials and/or the outbound distribution of products. However, the number of such businesses is likely to be quite limited.

Table 9.4: Summary of high level appraisal: rail freight

Measure	Economic impact	Environmental & quality of life impact	Cost to public sector	Deliverability
Feasibility study for a 'supermarket train' between the Midlands area & (say) Shrewsbury & Machynlleth or Newtown	Positive	Positive	Low (for a study)	Good
Increased loading gauge from Shrewsbury to Birmingham via Donnington	Positive	Positive	High	Uncertain
Marketing study for Donnington rail freight terminal	Positive	Positive	Low (for a study)	Good
Review of potential railheads for key shippers of freight	Positive	Positive	Low (for a review)	Good

Dissemination, liaison & behavioural change

With the increasing use of satellite navigation (sat nav) systems, there is a need to ensure that the managers of HGV fleets and their drivers have up-to-date information on the status of structures such as bridge heights and width restrictions on roads. The strategy proposes that local authorities in the Marches and Mid Wales should contribute up-to-date data on structures and regulations affecting the highway network at a local level to the **Ordnance Survey National Digital Road Map Database**, so that this information can be made available to the major satellite navigation system manufacturers. The local authorities should also provide the same information to **private sector freight transport planning portals**, such as the internet-based Freight Journey Planner; the latter will not be effective unless mobile phone connectivity is adequate throughout the area.

There is also scope for the development of **local freight partnerships**, coordinated by the local authority, to raise awareness of the needs of local businesses in relation to freight movements and the impacts that freight movements have on local communities. These partnerships would be most likely to be developed for a small number of communities in the Marches and Mid Wales where there is a significant conflict between the interests of local businesses and those of local residents. The partnerships, which may only be required for a short period of time, could be used to:

- Bring businesses and residents together to increase mutual understanding and reach agreement on future actions; this could include practical awareness-raising projects where HGV drivers have the opportunity to walk or cycle through the streets through which they usually drive and residents have the opportunity to sit in the cab of an HGV.
- Allow local authorities to establish and explain the most appropriate routeing for HGVs to local businesses and their hauliers in order to avoid the application of a Transport Regulation Order or other regulatory measure.

There should also be a communications campaign, in collaboration with the National Farmers Union and the police, to encourage the drivers of **slow-moving agricultural vehicles** behind which queues of traffic have formed, to pull off the public highway into laybys where it is safe to do so and allow faster-moving traffic to pass.

This should be accompanied by the **installation of signs** a short distance before laybys where slow-moving agricultural vehicles might be able to safely pull off the road, stating for example, 'Slow-moving agricultural vehicles - Please pull over'. The precise wording should be agreed with the police and in liaison with the National Farmers Union (NFU).

At relevant junctions in towns and cities in the Marches where there is known to be relatively poor air quality, signs should be installed at the appropriate height for HGV cabs to encourage drivers to switch off their engines when they are waiting at junctions and stating, 'No idling – Please switch off your engines'. The precise wording should be agreed with the police and in liaison with the Freight Transport Association (FTA) and the Road Haulage Association (RHA).

Table 9.10: Summary of high level appraisal: dissemination, liaison & behavioural change

Measure	Economic impact	Environmental & quality of life impacts	Cost to public sector	Deliverability
Contribute data to the Ordnance Survey National Digital Road Map database and private sector web-based portals.	Positive	Positive	Low	Good
Developing local freight partnerships for specific communities.	Positive	Positive	Low	Good
Communications campaign for the drivers of slow-moving agricultural vehicles.	Positive	Positive	Low	Good
'No idling – Please switch off your engines' at relevant junctions in towns and cities where there are air quality issues.	Neutral	Positive	Low	Good
'Slow-moving agricultural vehicles - Please pull over' signs on relevant stretches of single carriageway network.	Positive	Positive	Low	Good

The more detailed multi-criteria appraisal is shown in Appendix 1 to this Technical Annex.

A map showing the location of the proposed (or potential) road enhancements is provided as Appendix 2.

In terms of economic impact, the main wider economic impacts of the potential enhancements of the highways network are likely to come from:

- A reduction in user costs for logistics operators and their customers due to time savings from the availability of faster and/or shorter routes and greater journey time reliability;
- A reduction in freight vehicle kilometres, as logistics operators are able to take shorter and more efficient routes.

9.3 Modelling of impacts of the measures

The potential user and non-user benefits of the implementation of the main potential highways enhancements have been modelled using the GB Freight Model, which is an integrated software/database system linking domestic and international GB freight data with simple economic models to explain freight demand and allowing trend and scenario based forecasting. The model forms the heavy freight module (i.e. for HGVs, rail freight and port traffic) of the Department for Transport's National Transport Model.

The modelling was completed for single year by comparing the existing position (Baseline Scenario) with a future scenario where the highways enhancements had been completed (Potential Scenario) to calculate the user and non-user benefits of the package of highways interventions. No demand forecasting was carried out, so that the same volumes of freight traffic with the same origins and destinations were assigned to the network within the GB Freight Model. The benefits are for the 'average HGV' which could be operating throughout the day; indeed transport managers generally seek to avoid having their trucks sitting in queues during the morning and evening peak periods.
In order to model the potential economic impacts the highways network within the model was amended to reflect the nature of the new network after the enhancements had been completed and then the traffic was assigned to both the new and old network; for example, the completion of the Leominster Bypass would allow east-west flows on the A44 to pass to the south of the town on a high quality single carriageway route without using slower sections of the network through the town centre.

Additional sections of 2 on 1 roads – which do not require new links in the network - were modelled by assuming that the average HGV would secure a time saving of 0.5 minutes due to the availability of an opportunity to pass slower-moving traffic. The time savings that resulted from the modelling of the new network links were as shown in Table 9.10.

Table 9.10: Summary of time savings for user benefits

Scheme	Impact for 'average' HGV
Leominster Bypass	3.8 minute time saving
A483 Pant to Llanymynch Bypass	1.5 minute time saving
A485 Buttington Cross to Wollaston Cross	1.3 minute time saving
A487 Dyfi Bridge	1.1 minute time saving
Shrewsbury North Relief Road	7.7 minute time saving
M54 link to northbound M6/M6 Toll	3.7 minute time saving
Hereford Bypass & Southern Link	6.1minute time saving

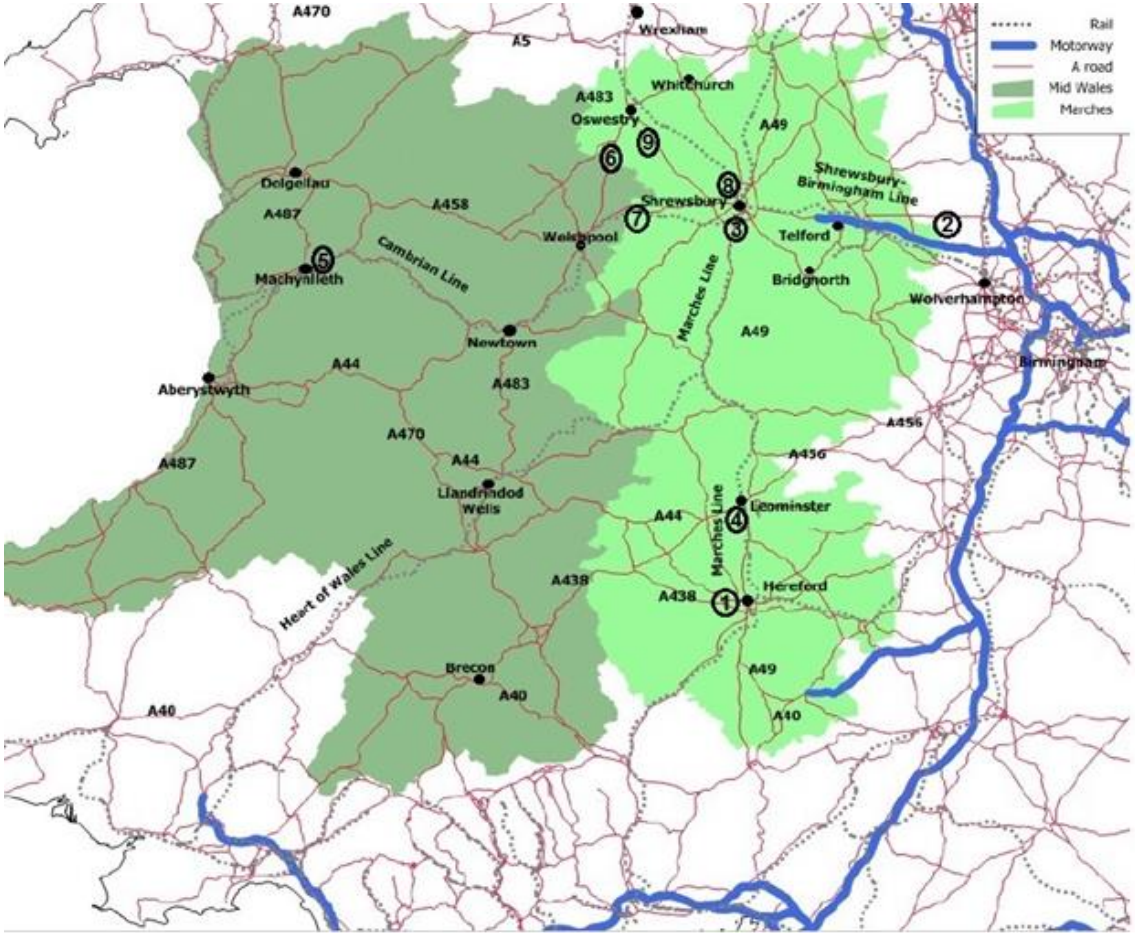
Source: MDS Transmodal

The modelled annual user benefits for the road schemes was £4.9 million and are related only to average time savings for HGVs over a 24 hour period. These annual user benefits therefore exclude time savings for LGVs and for passenger traffic which would also be queueing in peak periods. These benefits would be secured initially by the freight transport operators but in the medium term would be passed on to shippers and receivers of freight through competitive market forces. These user benefits would also therefore help to reduce the cost base of businesses located in the Marches and Mid Wales and support the creation or retention of employment in these areas.

The modelled annual non-user benefits for the road schemes was £0.9 million and this relates to an annual reduction in freight transport required of 2.3 million HGV kilometres as a result of traffic diverting to shorter more efficient routes. These non-user benefits are based on using an average Mode Shift Benefit value of £0.41 per HGV km which is used by the Department for Transport to value the non-user benefits of a switch of freight from road to rail; these are societal benefits which are not captured in the market price for freight transport such as reductions in emissions, congestion and accidents.

Based on a 60 year time horizon and discount rates of 3.5% for years 0-30 and 3.0% for years 31-60, the present value of the benefits in 2017 are £125 million of user benefits and £24 million of non-user benefits. The total estimated user and non-user benefits for freight transported in HGVs from the implementation of the major highways schemes included in the Marches and Mid Wales Freight Strategy is therefore £149 million.

APPENDIX: MAJOR HIGHWAYS SCHEMES IN STRATEGY



Major Schemes

1	Hereford bypass
2	M54 link to northbound M
3	A49/A5 Dobbies Island J Improvement
4	Leominster Bypass
5	New Dyfi Bridge on the A
6	A483 Pant to Llanymynec
7	A458 Buttington Cross to Cross
8	Shrewsbury North West F
9	A5/A483 Dualling Shrews Ruabon