Document 7.3

Rail Operations Report

The West Midlands Rail Freight Interchange Order 201X

Regulation 5 (2) (q)

Intermodality - July 2018

West Midlands Interchange

Four Ashes Ltd

Contents

Glossary

Term	Description
3MG	Mersey Multimodal Gateway, an existing SRFI in Widnes
3PL	Third-party logistics provider, a company providing logistics services for multiple end users
Container	A load-carrying unit designed for carriage on multiple modes of transport (some types of European container are also known as Swap Bodies)
Conventional wagon	Railway wagon designed for carriage of goods within the body of the wagon itself (as opposed to an intermodal wagon which carries separate containers which contain the goods)
DCO	Development Consent Order, a process for applying to the Planning Inspectorate for planning consent for SRFI and other Nationally Significant Infrastructure Projects set out in the Planning Act 2008
DfT	Department for Transport, Government body with responsibility for the English transport network and other non-devolved transport matters in Scotland, Wales & Northern Ireland
DIRFT	Daventry International Rail Freight Interchange, an existing SRFI near Rugby
FAL	Four Ashes Limited, the promoters of West Midlands Interchange
FMS	Freight Market Study, produced by Network Rail in 2013
FNS	Freight Network Study, produced by Network Rail in 2016
FOC	Freight Operating Company, a train operator licensed to move freight trains on the national rail network
Gantry crane	A mobile crane formed of vertical legs supporting horizontal beams which carry the crane lifting mechanism, capable of moving containers parallel, perpendicular and vertically relative to trains, HGVs and container stacking areas below
GRIP	Governance for Railway Investment Projects, Network Rail's in-house 8-stage project development methodology
Groundstaff	Railway operatives working at ground level with the shunting, coupling and inspection of traction, rolling stock and payload

HGV	Heavy Goods Vehicle, defined by the DfT as any goods-carrying vehicle in excess of 3.5 tonnes
HS1	High Speed 1, an existing railway line linking the Channel Tunnel with London St Pancras International
HS2	High Speed 2, proposed railway lines linking London Euston with Birmingham, Manchester, Leeds and connecting Network Rail lines
HS3	High Speed 3, proposed railway line(s) linking cities within the North of England
Intermodal	Movement involving at least 2 modes of transport from road, rail, sea and air
LEC2	Network Rail reference for the eastern branch of the West Coast Main Line between Crewe and Rugby via Tamworth
Loading gauge	The maximum cross-sectional area of a railway vehicle and its payload permitted to operate along a given section of route, defined in Great Britain by a series of W (for wagon) profiles ranging from W6A (smallest) to W12 (largest)
NDC	National Distribution Centre, a warehouse which distributes goods across the entire country, either to other Regional Distribution Centres or direct to customers
Nodal Yard	Major regional operational centres on the national rail network where freight trains can be stabled en route from origin to destination as required by their timetable
NPS	National Policy Statement on National Networks, produced by the DfT in 2014
NR	Network Rail, licensed to operate the national rail network in Great Britain
Open-access	A principle of railway operation established by European Commission Directive 91/440 in 1991, requiring railway infrastructure managers (including SRFI and RFI) to permit access by all licensed railway undertakings
Path	Timetable slot allocated by Network Rail to a particular train service between two fixed points
PINS	Planning Inspectorate for England and Wales, an executive agency of the Department for Communities and Local Government, responsible for processing DCO applications for SRFI

RBS3	Network Rail reference for the western branch of the West Coast Main Line between Crewe and Rugby via Penkridge
RCC	Railway Control Centre, an on-site facility at WMI responsible for managing internal train and interchange operations, and for interfacing with Network Rail on movement of trains to and from the national rail network
RDC	Regional Distribution Centre, a warehouse which distributes goods to customers within a defined regional catchment area
Reachstacker	A vehicle equipped with container handling equipment, able to lift containers between trains, HGVs and container stacking areas, typically stacking up to 3 deep and 6 high depending on type
RFI	Rail Freight Interchange, typically smaller in size and/or catchment areas than SRFI, but which can operate with and alongside SRFI as part of an intermodal shipment
RIP	Route Investment Panel, internal Network Rail stakeholder group responsible for assessing whether and how to progress internal and third-party investment proposals
Rolling stock	Railway wagons (excludes locomotives)
RSPG	Route Strategy Planning Group, internal Network Rail stakeholder group responsible for assessing whether and how to integrate internal and third-party investment proposals into the overall route-wide planning strategy
SFN	Strategic Freight Network, a core network of strategic main line routes identified by the DfT and NR to cater for 775m length trains operating within W10 loading gauge, linking with inland SRFI and RFI, ports and the Channel Tunnel (see Appendix A)
SPAD	Signal Passed at Danger, an incident where a train moves beyond a signal displaying a Stop (red) aspect without authority
SRFI	Strategic Rail Freight Interchange, a class of Nationally-Significant Infrastructure Project as defined in the Planning Act 2008, the interchange being in England, at least 60 hectares in area, capable of handling consignments of goods from more than one consignor and to more than one consignee, and at least 4 goods trains per day. The rail freight interchange must be part of the railway network in England, and must include warehouses to which goods

	can be delivered from the railway network in England either directly or by means of another form of transport
Supply chain	A series of production and distribution linkages connecting raw materials with the consumers of finished goods, which may be local or global in nature
Swap body	A form of container designed primarily for operation within Europe
TEN-T	Trans-European Network for Transport, a network of strategic national corridors defined by the European Union, the primary transport links within and between Member States and adjoining countries
Traction	Locomotives (excluding rolling stock)
Tugmaster	Road vehicle purpose-built for moving containers on road trailers between intermodal terminals and warehouses
Turnout	Railway equipment designed to determine the direction of a train between multiple onward routes (also known as points or switches)
W6A	Smallest railway loading gauge profile for freight wagons
W8	Railway loading gauge profile optimised for movement of 2.7m (8’6”) high x 2.44m (8’) wide containers on 1m high railway wagons
W10	Railway loading gauge profile optimised for movement of 2.9m (9’6”) high x 2.44m (8’) wide containers on 1m high railway wagons
W12	Railway loading gauge profile optimised for movement of 2.9m high x 2.6m wide containers on 1m high railway wagons
WCML	West Coast Main Line, the network of railway lines linking London with the West Midlands, North West and Glasgow
WMI	West Midlands Interchange, a proposed SRFI development
WMSC	West Midlands Signalling Centre, the Network Rail facility which would control all train movements to and from WMI

EXECUTIVE SUMMARY

West Midlands Interchange (WMI) represents a rare opportunity to expand the very small network of existing Strategic Rail Freight Interchanges (SRFI), significantly enhancing access to the rail network for local business. Expansion of SRFI capacity aligns with the objectives of business and of Government through the National Policy Statement on National Networks (NPS), to provide additional transport options and capacity for the movement of goods across the supply chain.

WMI is situated on the M6 / West Coast Main Line (WCML) corridor, the most important strategic transport corridor for freight in the UK, over which the majority of intermodal rail freight is moved. From the outset, WMI users would therefore benefit from access to a main line route with W10 loading gauge and capable of handling 775m length trains, key criteria for SRFI sites. In addition, the proximity of the M6 and A5 offers onward connectivity across the trunk road network.

WMI would also provide a geographically distinct location relative to other existing and proposed SRFI, delivering access for companies otherwise remote from SRFI elsewhere in the North West or the Midlands.

Main line access into WMI is facilitated by the double-track formation of the WCML as it passes the site, enabling at-grade connections to be achieved in both directions of travel. The on-site rail layout is designed to facilitate fast turnaround of freight trains within the intermodal terminal. The interchange design brings trains and trucks directly alongside each other, with a one-way flow for HGVs through the terminal, again to promote the fast and efficient transfer of freight. Additional sidings would then be provided to permit direct rail access to warehousing on site, as well as additional stabling and the ability to handle electrically-hauled freight trains in future.

Engineering and timetable assessment work undertaken with Network Rail through its in-house “GRIP” development programme has confirmed, to GRIP Stage 2, the ability to achieve the main line connections on which to commence operations, along with capacity within the timetable to accommodate the rail freight services associated with those operations. The site has a notional capacity to handle up to 10 trains per day at a mature level of operation, growth being determined by end user demand within available network capacity.

As an open-access SRFI, WMI can therefore be delivered and operated in a manner entirely aligned with the objectives of the NPS (see Table 1 below). WMI will help expand the small number of existing SRFI into a much larger interconnected network of facilities, assisting with modal shift of freight as evidenced by the existing SRFI and associated benefits.

Table 1 Summary of WMI key features against NPS criteria

NPS rail criteria for SRFI	WMI proposals
Essential that SRFI have good connectivity with rail networks, in particular the strategic rail freight network (para 2.54)	WMI is located on the West Coast Main Line, a core part of the strategic rail freight network.
SRFI capacity needs to be provided at a wide range of locations (para 2.58)	WMI fills a geographically distinct gap in SRFI network coverage between existing SRFI eg Widnes 3MG (55 miles), Birch Coppice (20 miles), Hams Hall (20 miles). WMI is also distant from other proposed SRFI, eg East Midlands Gateway (35 miles), East Midlands Intermodal Park (25 miles).
As a minimum a SRFI should ideally be located on a route with a gauge capability of W8 or more, or capable of enhancement to a suitable gauge (para 4.85)	WMI is located on the W10-gauge WCML, which is also a priority for enhancement to the larger W12 gauge, both exceeding the W8 gauge minimum standard.
Proposed SRFI should provide for a number of rail connected or rail accessible buildings for initial take up, plus rail infrastructure to allow more	WMI would provide 14 warehouse units, all with direct access to an open-access intermodal terminal via the internal estate road network. In addition, 1 of the units would also have direct siding

extensive rail connection within the site in the longer term (para 4.88)	access alongside the building. The rail infrastructure would be provided in a series of phases to allow for future growth.
The initial stages of the development must provide an operational rail network connection and areas for intermodal handling and container storage (para 4.88)	The first phase of WMI would provide operational rail network connections in both directions of travel, along with a dedicated area for intermodal handling and container storage.
It is not essential for all buildings on the site to be rail connected from the outset, but a significant element should be (para 4.88)	All buildings on site would be connected to the intermodal terminal via the internal road network.
As a minimum, a SRFI should be capable of handling four trains per day and, where possible, be capable of increasing the number of trains handled (para 4.89)	The first phase of WMI would provide sufficient rail sidings and interchange facilities to cater for 4 trains per day in and out of the site, future phases designed to more than double this to 10 trains per day in and out of the site.
SRFIs should, where possible, have the capability to handle 775 metre trains with appropriately configured on-site infrastructure and layout. This should seek to minimise the need for on-site rail shunting and provide for a configuration which, ideally, will allow main line access for trains from either direction (para 4.89)	From the outset, WMI would be capable of handling 775m trains, allowing access for trains from either direction on the main line directly to and from the intermodal terminal, minimising the need for shunting.

1. Introduction

1.1 Scope

1.1.1 This report has been prepared for Four Ashes Limited (FAL) in connection with the Development Consent Order (DCO) application for a Strategic Rail Freight Interchange (SRFI) known as West Midlands Interchange (WMI).

1.1.2 The Proposed Development comprises:

- An intermodal freight terminal with direct connections to the West Coast Main Line, capable of accommodating up to 10 trains per day and trains of up to 775m long, including container storage, HGV parking, rail control building and staff facilities;
- Up to 743,200 square metres of rail served warehousing and ancillary service buildings;
- New road infrastructure and works to the existing road infrastructure;
- Demolition of existing structures and earthworks to create development plots and landscape zones;
- Repositioning and burying of electricity pylons and cables; and
- Strategic landscaping and open space, including alterations to public rights of way and the creation of new ecological enhancement areas and publicly accessible open areas.

1.1.3 This report focuses on the rail terminal and related infrastructure.

1.1.4 The purpose of the report is to describe the following aspects:

- Main line railway access from the site;
- Proposed on-site railway infrastructure and interchange facilities;
- Method of working for trains to, from and on site;
- Estimates of rail-related traffic at a mature level of operations.

1.1.5 As part of this introduction, it is important to note the key stakeholders likely to be involved in the development of rail infrastructure and operations at WMI:

- FAL would develop the rail freight interchange facilities on site;
- The rail freight interchange would be operated by an independent service provider (a logistics company or specialist rail freight terminal operator) on a fully open-access basis to all users and train operators;
- The rail services would be provided by a number of licensed rail freight operating companies (FOCs);
- The users of the rail services would be occupiers and other businesses (and/or their own end customers);
- The timing and routing of the rail services on the main line would ultimately be determined by Network Rail and train operators.

1.1.6 Whilst the various service providers have yet to be selected, in order to provide an indication of the potential scale and diversity of rail freight activities on site, reference is made in this report to the experience of existing operational SRFI and other SRFI proposals.

2. Summary of rail operations at SRFI

2.1 SRFI core functions and facilities

2.1.1 Within the non-bulk sector of the rail freight market most relevant to SRFI (ie excluding bulk commodities such as coal, aggregates, steel and petrochemicals), the key users involved may include various combinations of the following groups:

- End users, including manufacturers, suppliers, wholesalers and retailers, who need to move goods to and from factories, ports and distribution centres;
- Third-party logistics service providers (3PLs), shipping lines, ports, freight forwarders and distributors, moving goods for end users;
- Rail freight service and interchange operators, who focus on transporting goods by rail on behalf of 3PLs and end users.

2.1.2 Three main types of rail-based distribution service are used:

- Movement between rail-served production and/or distribution sites, such as the flow of traffic for Danone from a rail-served factory in France direct to a rail-served warehouse at DIRFT for storage, value-added processing and onward distribution;

- Movement of containers between ports and inland interchanges - rail moves around one-quarter of the containers passing through the main ports of entry to Great Britain[1];

- Movement of goods between non rail-served premises, using rail transport for the primary ‘trunk’ haul: examples include the flows of containerised supermarket deliveries between distribution centres (and in some cases on to stores) in the Midlands, South East, South Wales and Scotland, which use local road haulage to move containers to intermodal terminals, which are then connected by longer-distance rail freight services.

2.1.3 The range of activities associated with SRFI typically include:

- Road and rail haulage services;
- Road / rail interchange facilities;
- Receiving of loads into warehousing;
- Breaking down large deliveries for redistribution (“break bulk”);
- Storage of goods for later processing / distribution;
- Processing of goods (eg relabelling, repackaging);
- Resorting goods into consolidated outbound deliveries;
- Despatching of loads from warehousing;
- Management and planning of distribution activities up and down the supply chain.

[1] Keeping the lights on and the traffic moving: Sustaining the benefits of rail freight for the UK economy, Rail Delivery Group May 2014, page 18

2.2 A day in the life of an SRFI

2.2.1 SRFI provide rail freight interchange facilities for both on-site and off-site users, moving freight to and from the site by rail and road. In some cases the flow of freight by rail may be predominantly inbound as dictated by the over-arching balance of international trade, for example the 60:40 ratio of import/export tonnage moved in containers through the UK ports.[2]

2.2.2 Otherwise, end users and operators will strive wherever possible to maximise load factors by rail in each direction, such as the Tesco domestic intermodal trains which load outbound from national distribution facilities at DIRFT with deliveries to regional distribution centres and direct store deliveries, backloading with supplies for replenishing the national distribution facilities.

2.2.3 Another example is the conventional wagon services linking mainland Europe with the SRFI at 3MG (Widnes), which carries aluminium products in and out of the UK via the Channel Tunnel.

2.2.4 A typical weekday for an SRFI will start with the arrival and departure of the first group of freight trains and associated goods vehicle movements through the interchange facilities and distribution buildings on site.

2.2.5 Within the intermodal terminal area, outbound trains will be shunted between the handling sidings and reception sidings ready for departure, with inbound trains then shunted out of the reception sidings and into the handling sidings (Figure 1 below left). Latterly, SRFI have tended to operate with half-length (ie around 400m long) handling sidings, with each inbound train then split between two adjacent sidings for handling, being reformed into a single train prior to departure.

[22] Port Statistics 2016, Department for Transport

Figure 1 Shunting intermodal (left) and conventional wagon (right) services

2.2.6 Other types of freight may be moved to and from the SRFI in "conventional" wagons, ie fully-enclosed wagons carrying freight inside (Figure 1 above right). Such wagons will be unloaded by fork lift trucks with goods transferred into adjacent warehousing or waiting road vehicles.

2.2.7 Once a train is berthed in the handling area, brakes are applied and the locomotive uncoupled. Groundstaff will then work along the train, unlocking the containers from the wagons ready for lifting (or unlocking doors on conventional wagons), and checking that the wagon brakes and couplings are in good condition – should any faults be detected with an individual wagon, the "crippled" wagon will usually be shunted out from the train and placed in a separate "cripple siding" where it can then receive attention from specialist maintenance contractors without disrupting handling operations on the rest of the train.

2.2.8 HGV drivers using the intermodal terminal facilities will tend to start arriving on site in advance of a train's scheduled arrival or departure (train and terminal operators increasingly pre-advise end customers and their HGV drivers of daily schedules), in order to check their paperwork is in order with the gatehouse staff. Security at rail freight interchanges is maintained to high levels set by Government, therefore no HGV driver will be allowed into the handling area without documentary proof and a suitably-sealed load.

2.2.9 Some HGV drivers may arrive earlier, in order to take their statutory rest breaks whilst waiting for a train to arrive. Suitable parking facilities and driver amenities are provided to facilitate this (Figure 2 below).

Figure 2 HGV parking area at Hams Hall intermodal terminal

2.2.10 Once documentation has been checked and approved, HGVs pass through the security gatehouse (Figure 2 bottom left) and are directed to a designated area of the handling apron, where a mobile container handling crane (overhead gantry, Figure 3 below left, or ground-based “reachstacker”, Figure 3 below right) will load or unload containers from the HGV as required, either direct to or from a train, or into a storage area. Appendix D provides an overview of the main flows, based on the SRFI at Hams Hall.

Figure 3 Overhead gantry crane (left), reachstacker (right)

2.2.11 Modern gantry cranes can be fitted with a range of sensors enabling containers to be placed on rail and road vehicles with greater accuracy. Such “soft landing” systems help speed up transfer times and reduce noise levels and wear and tear on equipment.

2.2.12 Once the transfer is complete (typically around 3 minutes per lift), the HGV driver will be instructed to head for the exit gate, pausing briefly to ensure the container is securely locked to the trailer, before leaving the site. Existing SRFI such as Hams Hall aim to process each HGV in 20 minutes between entering the in-gate and departing through the out-gate.

2.2.13 Containers are then moved by road either to the warehouses on site or to other off-site locations. Some of these on-site movements may be undertaken by “tugmasters” (Figure 4 below, right-hand vehicle), road tractor units purpose-built for moving containers around ports and distribution centres. These vehicles tend to be restricted to internal estate roads within a mile of the interchange, providing a more cost-effective means than standard HGVs to move containers to and from the interchange, further improving the attractiveness of rail freight services. Those moving containers off site will be exclusively hauled by standard road tractor units (Figure 4 below, left-hand vehicle).

Figure 4 Containers with road tractor unit (left) and tugmaster (right)

2.2.14 Between peaks of HGV arrivals at the intermodal terminal, the crane drivers will turn their attention to the container storage area, reworking the order of containers to extract those units which will be due out of the site by road or rail, to minimise dwell times for HGVs and trains. Containers may typically be stored up to 4 high (11.6m in total) across multiple rows, depending on the type of handling equipment employed on site. Figure 5 below shows the rail sidings and container stacking area at the 3MG SRFI in Widnes.

2.2.15 Alongside the intermodal terminal facilities, some SRFI also handle freight traffic in conventional wagons. These tend to be used for relatively large volume, higher-density goods (eg newsprint or bottled drinks) and currently operate on a relatively small number of train services.

2.2.16 Inside the buildings, managers and supply chain planners will be maintaining a real-time view of all the operations to, from and within the site, continually adjusting the pattern of activities to make best use of resources and plan around any disruption, for example any congestion or incidents elsewhere across the road and rail networks, at ports of the Channel Tunnel.

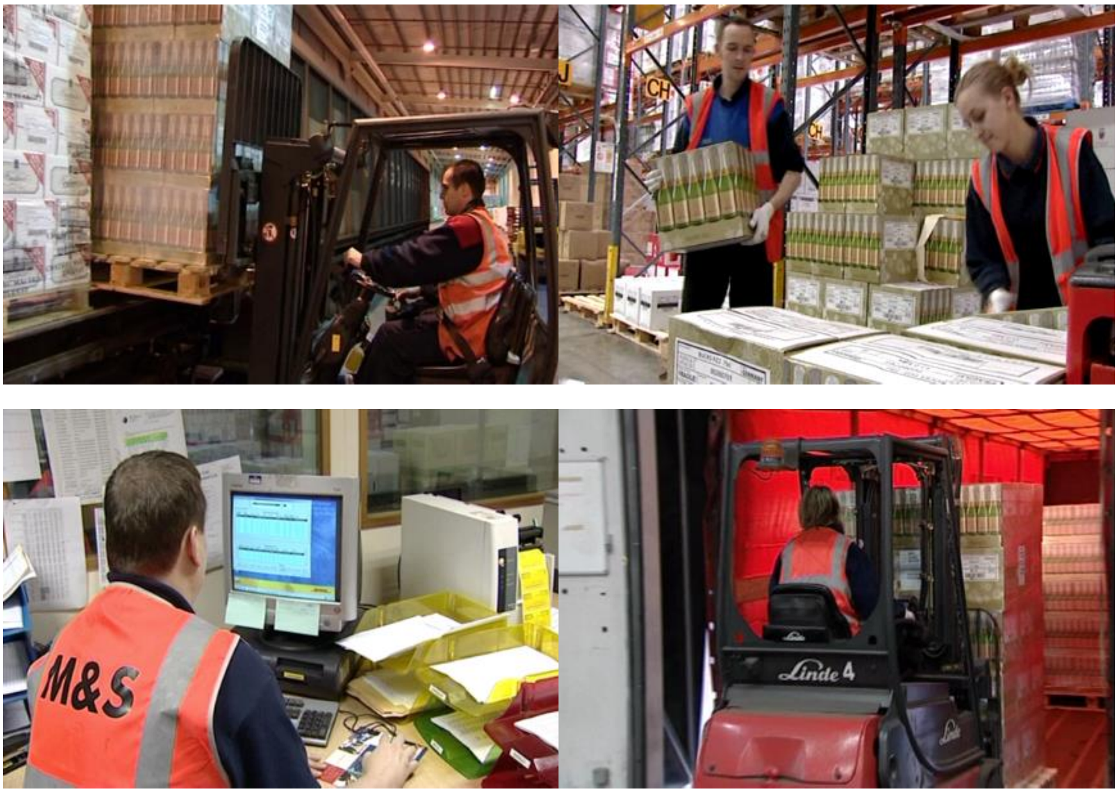
Figure 5 Rail sidings and container stacking area, 3MG Widnes

2.2.17 In the example shown in Figure 6 below, a particular contract involved palletised boxes of wine, which were delivered to a distribution building on the SRFI from mainland Europe in conventional rail wagons, broken down and repackaged inside the building into outbound store deliveries, the entire process overseen by a planner based in the offices within the building. A similar process happens today for Volvic bottled water delivered direct by rail from the Danone bottling plant in Evian (France) to DIRFT2.

2.2.18 These activities continue on a round-the-clock basis, the relative levels of daytime and night-time operations dependant on the nature of the distribution operations from the intermodal terminal and individual buildings, together with the customers or stores which they serve.

2.2.19 All of the above operations are monitored around the clock by site-based security personnel, including those managing the entire SRFI estate, in conjunction with those based at the intermodal terminal and individual distribution buildings. CCTV is used with infra-red and motion sensors to automatically detect intruders, which can then be dealt with by the on-site security team or the Police.

Figure 6 Movement of wine through SRFI



2.2.20 Where SRFI send freight by rail through the Channel Tunnel, the security arrangements at the intermodal terminal are audited by the Department of Transport to ensure they meet a stringent set of requirements, and are then subject to random inspections to ensure standards are maintained.

3. Main line access

3.1 Infrastructure and services

3.1.1 In 2007 the Government White Paper on the Railways[3] set out a long-term ambition for a railway capable of handling double the level of passenger and freight traffic. To cater for this growth, the Government committed to create a Strategic Freight Network (SFN), a core network of routes to be enhanced to cater for 775m length trains operating within W10 loading gauge (see next section), linking together a network of inland interchanges, ports and the Channel Tunnel. The SFN consists of a number of core and diversionary routes, as shown in Appendix A which shows the position of WMI on the SFN.

3.1.2 The WMI site is bisected by the West Coast Main Line (WCML) section via Penkridge (also referred to as the Bushbury to Stafford Line [Grand Junction], Engineer's Line Reference RBS3). This forms the western branch of the WCML between Rugby and Stafford, the eastern branch via Tamworth (Engineer's Line Reference LEC2) being the busier of the two routes. The main line is double-track (Down Main to Stafford and Up Main to Birmingham), electrified with AC catenary and cleared to W10 loading gauge.

3.1.3 The WCML links London and the South East with the Midlands, North West and Scotland, and is the principal route for movement of north-south intermodal and conventional wagon rail traffic of relevance to the small network of existing SRFI.

[3] Delivering a Sustainable Railway, Department for Transport, July 2007

3.1.4 The WCML forms a core part of the Trans-European Network (TEN-T), and south of Crewe to London is one of the few sections of the national network already cleared for 775m length trains, this being extended south to Southampton by the end of Control Period 5 (2019).[4]

3.1.5 Analysis of the mid-week Working Timetable (WTT) indicates the following levels of traffic on the two branches of the WCML passing WMI (RBS3) and Rugeley Trent Valley (LEC2) respectively, as follows:

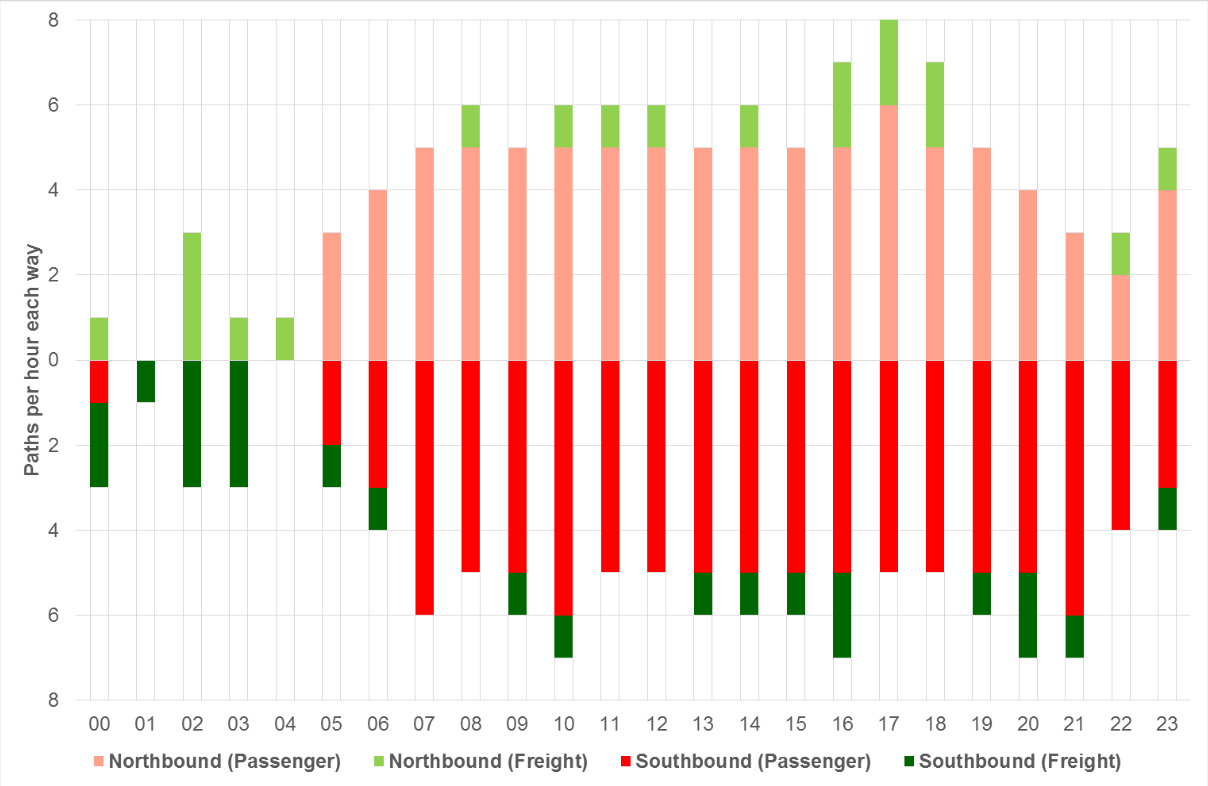
- Via WMI (RBS3): 219 train paths in the WTT, the majority of which (81%) are for passenger trains, most of these being London Midland and Crosscountry services (31% and 30% respectively), the balance being Virgin Trains West Coast services (19%) and Arriva Trains Wales (1%). The remaining 42 paths (19%) are for freight trains using the route outside of peak periods. Of the total paths in the WTT, 197 (90%) were actually used on the day (not all trains may operate at the same time every day; some may only run on certain days / times as required);

- Via Rugeley Trent Valley (LEC2): 334 train paths in the WTT (53% busier than RBS3), the majority of which (63%) are for passenger trains, most of these being Virgin Trains (36%) and London Midland (25%), the balance being sleeper and charter services (2%). The remaining 124 paths (37%) are for freight trains using the route. Of the total paths in the WTT, 272 (81%) were actually used on the day.

3.1.6 Figure 7 below shows the hourly pattern of services via WMI across the day, indicating peak periods of operation in the morning and late afternoon, but with scope for additional freight trains to and from WMI to be inserted into the inter-peak periods of the timetable.

[4] Network Rail Freight Network Study 2016

Figure 7 Current rail traffic on WCML RBS3 (source Network Rail)



3.1.7 Network Rail may vary the level of traffic on any part of the rail network as required, from closing the line altogether for overnight engineering works, through to rerouting additional trains onto a route when other lines are closed. When undertaking overnight or weekend maintenance, Network Rail will normally advise train operators well in advance (typically up to 18 months) to allow alternative operating arrangements to be made during such works.

3.1.8 The map in Appendix B shows the main routes available for trains to and from WMI using direct routes or via the national network of “hub” freight yards, where trains can be stabled before onward movement in other directions of travel. In this regard, WMI has an advantageous location on the network, being in relatively close proximity to two of these regional hubs at Bescot (11 miles to the south) and Crewe (32 miles to the north).

3.2 Loading gauge capability

3.2.1 The loading gauge is the maximum permitted cross-sectional profile of a rail vehicle and its load, which varies across the rail network in Great Britain and mainland Europe due to variances in structural dimensions (eg tunnels, bridges and station platforms). Within Great Britain the standard loading gauge profiles for rail freight vehicles range from W6A (smallest) to W12 (largest). All conventional wagon services can operate within W6A gauge. Appendix C shows the various loading gauge profiles. The NPS states that as a minimum SRFI should ideally be located on a route with a gauge capability of W8 or more, or capable of enhancement to a suitable gauge.[5]

3.2.2 W10 has latterly provided the standard for the SFN enhancement works, being sufficient to allow a 2.44m (8') wide by 2.89m high (9'6") shipping container (2.89m high) to be carried on a notional 1m high rail wagon. Where possible, Network Rail now seeks to clear routes to the slightly wider W12 standard, which allows carriage of 2.6m wide by 2.89m high refrigerated containers. In its recent Freight Network Study (FNS), Network Rail has indicated that the WCML passing WMI is a future Tier 1 priority for W12 gauge clearance.[6]

3.2.3 As W10 and W12 gauge does not cover all of the main intermodal routes on the national rail network, rail freight operating companies (FOCs) use a mixture of rail wagons of varying heights, in order to carry containers ranging in height from 2.44m (8') to 2.89m (9'6") across the network within the more prevalent W8 gauge.

[5] Paragraph 4.85
[6] Figure 7.2

3.2.4 WMI will have onward access via the WMCL at W10 gauge to the principal deepsea ports of Felixstowe, Southampton and London Gateway, as well as other ports and (S)RFI at W10 gauge in London, the South West, South Wales, Midlands, North West, Yorkshire & Humberside, North East and the Scottish Central Belt. WMI therefore offers access to a wider range of intermodal services than would be possible on a site cleared to the W8 gauge minimum standard recommended in the NPS.

3.2.5 Note also that all conventional wagon services are built to operate within the smallest W6A loading gauge, and could therefore operate between WMI and virtually the entire national rail network where axle load and train length restrictions permit.

3.3 Network capacity

3.3.1 Network Rail maintains a rolling programme of timetable development, seeking to accommodate a variety of requests from passenger and train operators which may vary from very short term (with only a few hours' notice) through to the longer-term (up to 18 months into the future). As part of this programme, Network Rail monitors usage of booked timetable paths in order to allocate capacity as required. A recent example of this work has been publicised by Network Rail:

A massive timetable shakeup is being implemented after Britain's rail freight industry collaborated over a two-year, industry-wide review into more efficient freight operations. Together, Network Rail and freight operators identified 50 per cent of the reserved slots on the railway for freight trains were not being used and could potentially be given up for thousands of new passenger and freight services.

Per week, 4,702 allocated 'paths' – the slots a freight train has on the railway and in the timetable – have been relinquished, freeing-up much needed capacity on the rail network. They could become available for all *train operators to run additional services on a daily basis or re-time existing services to reduce congestion and improve reliability.*

This additional capacity has been created at zero cost and has not led to any reductions in the number of freight trains running on the network. It represents a huge opportunity for both freight and passenger operators to increase traffic on the network without the need for expensive infrastructure enhancement schemes. The spare capacity can be attributed to a number of factors:

- *The unprecedented decline in coal traffic over the last two years, and a dip in iron and steel;*
- *More efficient freight operations including running longer, fuller, heavier trains;*
- *Savvy timetabling and better freight industry productivity, running fewer part-loaded freight trains, reducing wasted capacity.*

Meanwhile, construction and intermodal freight traffic is growing on the rail network and additional paths are needed in order to support the economy across Britain. 1,000 of the removed paths have been safeguarded for future strategic freight growth, which is essential to allow for expected increases in key freight markets. The rail freight market can have the confidence that future traffic growth can take place without being hindered by the need to always build additional capacity.[7]

3.3.2 Network Rail's investment programme (in parallel with developments such as HS1, HS2 and HS3) then focuses on seeking to respond to forecast growth in passenger and freight traffic through capacity enhancement.

[7] https://www.networkrail.co.uk/feeds/rail-freight-industry-and-network-rail-collaborate-to-increase-railway-capacity/

3.3.3 Network Rail has developed long-range forecasts of passenger and freight demand out to 2043, which form the basis for studies which consider options for further enhancement of network capacity, alongside HS2. The forecasting process, as endorsed by the NPS, has taken account of the WMI proposals as part of the quantum of additional SRFI capacity expected to be developed over the next 30 years.[8]

3.3.4 More recently, Network Rail has provided an update on forecast growth, noting that the various forecasts produced in recent years have a common view that further intermodal growth is "likely, achievable and desirable." However, Network Rail has noted various exogenous developments since 2013 that were not foreseen in the Freight Market Study forecast, including the extent of rail served warehouse construction being less than expected, echoing points previously noted by the Government in The Logistics Growth Review of 2011[9] and again in the Rail Freight Strategy of 2016.[10]

3.3.5 Network Rail has therefore considered a range of growth scenarios in the short to medium term (to 2024) which it considers to be robust, its current central assumption on growth being equal to 15.6% total growth in freight lifted between 2016/17 and 2023/24.[11]

3.3.6 The growth in rail freight is therefore not being hampered by failure of the existing SRFI to develop rail services, but by the slow progress in expanding the number of SRFI. Network Rail believes that forecast growth levels can be achieved, but only if an appropriate framework and

[8] Freight Market Study, Network Rail 2013 page 95 Table 2 (Staffordshire area – Norton Bridge cluster) and Rail Freight forecasts to 2023/4, 2033/4 and 2043/4, MDS Transmodal 2013 page 24 (Four Ashes) April 2013
[9] Page 7, para 7
[10] Page 20
[11] Freight & National Passenger Operators Route Strategic Plan, Network Rail, February 2018, page 25-26

infrastructure is put in place.[12] Delivering the objectives of the NPS with regard to the need for more SRFI is therefore now even more important.

3.3.7 Network Rail's Freight Network Study has identified potential capacity interventions on the WCML in the surrounding area, including:

- Table 1: Network Rail propose dynamic loops on the WCML north of Preston and remodelling at Carstairs in Scotland;
- Figure 2.1: plan indicates WMI is on the TEN-T Corridor and the Rail:Core Freight Network;
- Figure 4.5: shows the routes from WMI being cleared for W10 gauge north to Coatbridge and Trafford Park and south to London, Felixstowe and Southampton;
- Section 5.5: identifies scope for using more powerful electric locomotives north of Preston to improve freight train speeds on this stretch;
- Figure 8.1: shows potential capacity interventions on WCML including doubling of Stafford South Junction as a short-term option;
- Figure 8.4: shows potential capacity interventions on route from WMI to Southampton, including electrification of the Sutton Park Line;

3.3.8 The WMI scheme is being developed with capacity to cater for a significant level of rail traffic at maturity, which would be expected to evolve over a number of years from opening. For example, DIRFT (opened in 1994) now generates around 9 trains per day each way. In the short term, the immediate requirements of WMI would be to cater for the initial start-up phase, building up to 4 trains or more per day each way.

[12] Freight & National Passenger Operators Route Strategic Plan, Network Rail, February 2018, page 4

3.3.9 In its initial consideration of the WMI proposals, Network Rail undertook an initial internal review, to consider whether the scheme could be delivered, and the extent to which the scheme might import unacceptable risk to Network Rail's infrastructure. This internal review process, independent of any involvement by FAL, agreed to commit resources to progress the scheme further with FAL. Network Rail then entered into an agreement with FAL to develop the proposals through its project development methodology, known as GRIP.[13]

3.3.10 In terms of timetabling additional freight trains to and from WMI, in practice this would be an incremental process starting from initial pilot services. Each new timetable "path" would be applied for by train operating companies through established industry processes. These exist to safeguard the integrity of existing passenger and freight services on the network, whilst allowing for additional growth to be achieved. Network Rail would ultimately determine when the new paths would be timetabled, in line with its overall Licence Conditions.

3.3.11 FAL and Network Rail have worked together on two separate timetable studies (by Arup in 2009 and by PRA in 2017) to consider how, based on the existing working timetable, trains to and from WMI could be scheduled around existing passenger and freight services. The 24-hour ability of WMI to accept or receive trains would provide flexibility in the pathing of train movements to and from the new rail freight interchange infrastructure, and would also allow train movements to take place at times when the network is less busy. In both cases, the independent studies have identified sufficient network capacity within the existing timetable to enable WMI to operate as a SRFI, within the context of national forecasts of increased growth from SRFI and the ongoing enhancement of the capability of the rail network to cater for this growth.

[13] http://www.networkrail.co.uk/wp-content/uploads/2016/11/11452_Investing-in-the-network.pdf

3.3.12 In this regard, the development of phase 1 of HS2 will create additional network capacity, complementing the WCML into which WMI would be connected. The DfT has noted the following in the context of the WCML:

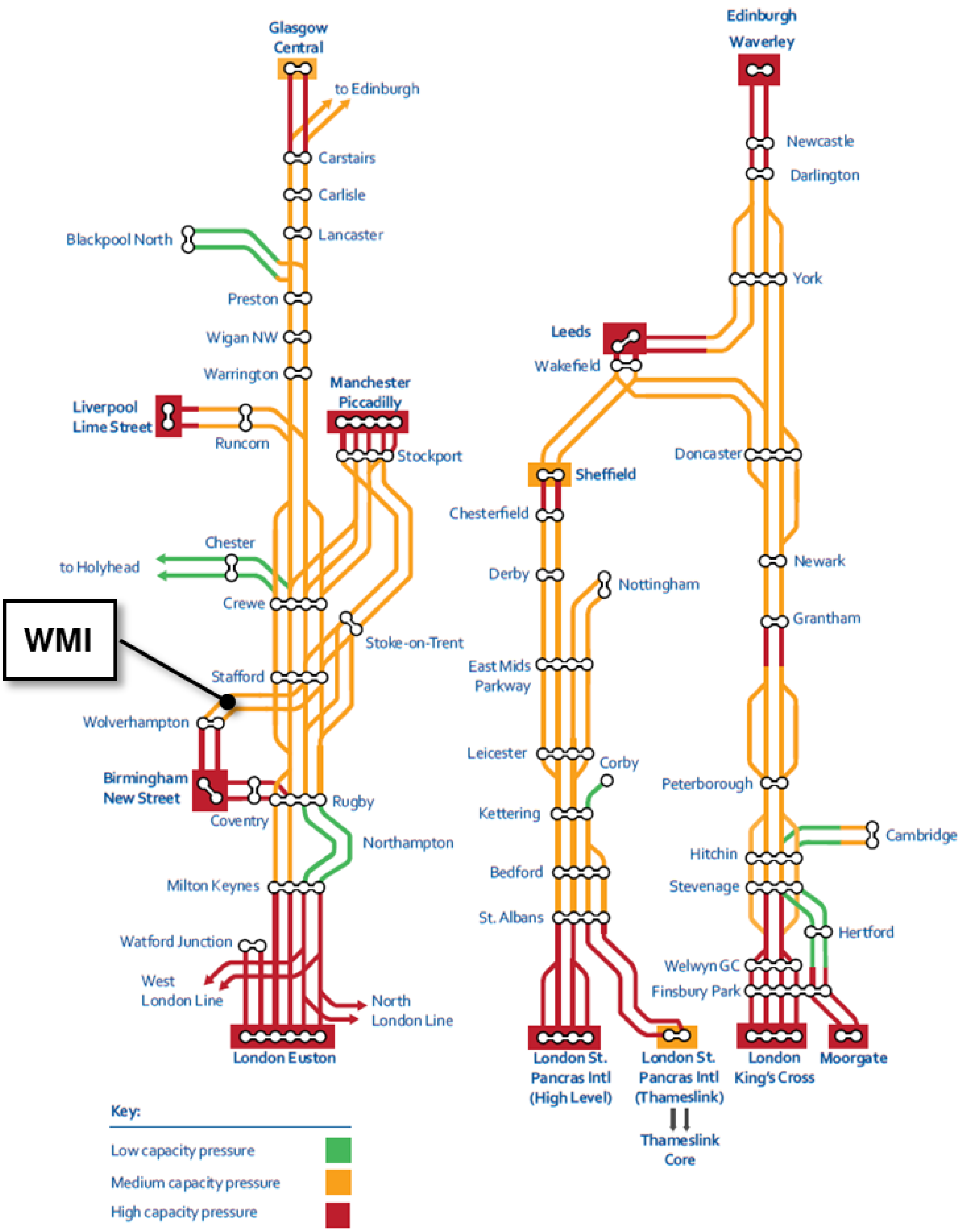
DfT analysis of Network Rail's estimates suggests that growth in volumes will translate into an increase in demand for rail freight paths on the WCML each day from 42 today to 80 by 2033….A number of other investments are being progressed to relieve some of the freight pressures on the WCML. These include the Felixstowe to Nuneaton scheme which allows some freight traffic to bypass the southern end of the route and investment in gauge clearance on the Midland Main Line…In HS2, Government has chosen a transformational investment. Dedicated high speed lines will allow for faster, more frequent and more reliable inter-city travel whilst at the same time releasing capacity on the existing network to enable radical improvements to commuter and freight services.[14]

3.3.13 Figure 8 below (WMI overlaid for information) provides a schematic view on capacity issues on the West and East Coast Main Lines. This indicates that the WCML branch between Stafford and Wolverhampton has medium pressure on capacity. Note that from Wolverhampton, trains to and from WMI would not be routed on the high-pressure section through Birmingham New Street station, but would instead follow alternative routes to the west and north of Birmingham New Street.

3.3.14 The Bill to construct phase 1 of HS2 between London and Birmingham received Royal Assent on February 23rd 2017. Network Rail is currently leading an industry process known as "Capacity Plus" (Phase One WCML) to identify and develop options for the use of capacity released by transferring long distance high speed services onto HS2, including assessment of demand for additional freight paths arising from WMI and other developments.

[14] Supplement to the October 2013 Strategic Case for HS2, DfT November 2015, pages 5-6, 25

Figure 8 Post-2019 capacity pressures on main lines (source HS2)



4. Rail works

4.1 Physical connection to the national rail network

4.1.1 WMI has been designed to connect into the WCML in both directions of travel using diesel or electric traction for trains of up to 775m train length. Figure 9 below shows the current schematic track layout (source Network Rail) for the proposed new connections.

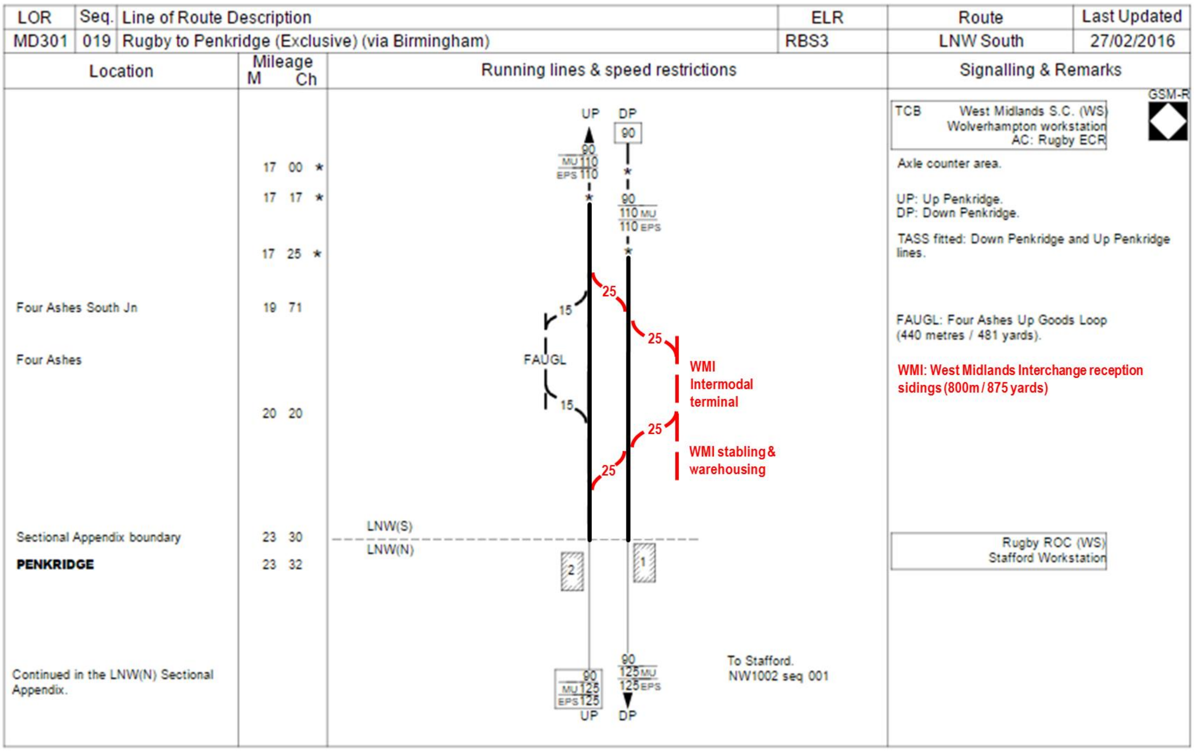
4.1.2 The design of the main line connections will allow access by all the types of freight train anticipated to use the SRFI (intermodal and conventional) to the north and south. The connections would consist of rail industry-standard geometry main line crossovers (allowing trains on the main line to cross between main line tracks as required to reach the connection points) and single lead turnouts facing north and south into the main line (designated “Down Penkridge” or “DP” by Network Rail).

4.1.3 Both main line connections will be protected against signals passed at danger (SPAD) and runaway trains, with an additional single lead “trap” turnout is provided at each connection to divert a train away from the main line in the case of a SPAD or runaway train.

4.1.4 Connection points are proposed to be located between Station Drive at the southern end of the site, and between the A5 and Gravelly Way road over bridges at the northern end of the site.

4.1.5 This configuration would serve to maximise the potential of WMI’s connectivity to the SFN, between the key nodal yards at Bescot to the south and Crewe to the north. A range of onward routing options will ensure that the rail services offered at the SRFI would be both efficient and resilient, able to expand in number and geographic coverage as dictated by end users and FOCs.

Figure 9 Diagram of proposed connections (not to scale, north at bottom)



4.1.6 The main line connections would be maintained, operated and signalled by Network Rail, the area of signalling control then extending over as much of the on-site track layout as required to allow Network Rail’s West Midlands Signalling Centre (WMSC) to path trains on and off the main line.

4.1.7 In advance of an inbound freight train arriving on site, the WMSC would contact the WMI Railway Control Centre (RCC) on site to confirm that one of the reception sidings would be available to receive a train, the RCC organising any shunting of trains on site as required to achieve this.

4.1.8 Freight trains destined for WMI would arrive at new signals controlling access to the new crossovers and connections into the site. With a suitable signal aspect displayed, trains would cross over the main line tracks as required and into one of the reception sidings. Once clear of the main line, the signals and pointwork would be reset to allow other trains to proceed along the main line in either direction.

4.1.9 Trains departing from WMI would firstly confirm readiness to depart the site to the WMSC, from which point trains would then proceed from the reception sidings up to the signal controlling access to the main line. With a suitable signal aspect displayed, trains would cross the main line connection onto the main line, with signals and pointwork then reset for the next train to proceed along the main line.

4.1.10 The proposed siting and design of the main line connections has been reviewed by Network Rail (see separate NR report). Network Rail expressed their support for the scheme as early as 2008, when Kilbride began formal work with Network Rail. A letter in April 2008 states Network Rail's support for the scheme in the context of the current Guide to Railway Investment Projects ('GRIP')[15] stage and that they "look forward to developing the detailed proposals for the scheme". Network Rail agreed to take the project through the GRIP process and the proposals achieved approval to GRIP Stage 3 (Option Selection) in April 2010, which supported the principle of a full rail connection to the site to serve a SRFI.

4.1.11 The GRIP process has recently been refreshed to reflect further refinement of the track layout, with confirmation by Network Rail of the completion of the GRIP process to Stage 2 (Feasibility). The scheme will then be progressed beyond GRIP2 through to GRIP 8 (project close-out) subject to determination.

4.1.12 Network Rail has explicitly expressed its support for the scheme in April 2016, stating that *"Network Rail is supportive of the West Midlands Interchange proposal and will be engaged with the Four Ashes team as it*

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[15] https://www.networkrail.co.uk/wp-content/uploads/2016/11/11452_Investing-in-the-network.pdf

progresses through the normal process of rail technical investigation, planning and design."

4.2 On-site track layout

4.2.1 The layout of the intermodal terminal has evolved during the course of the design stage, the aim being to reflect on stakeholder consultation to date and the emerging wider network of port and inland terminals. Drawing on developments at Felixstowe (new north terminal), iPort (Doncaster) and DIRFT III (Daventry), the WMI intermodal terminal similarly features full-length sidings capable of processing trains up to the maximum 775m industry standard, to reduce the need to split and shunt trains in half-length portions, which is more time-consuming.

4.2.2 The principal elements of the intermodal terminal are as follows (see also DCO Drawing No. 2.8(a)):

- Rail link from the intermodal terminal to the southern and northern main line connections;
- Four combined reception & loading/unloading sidings;
- Two additional reception sidings with passive provision for electrification;
- Rail-linked warehouse and stabling / shunting sidings;
- "Cripple" siding for stabling of defective rolling stock awaiting repair.

4.2.3 The majority of trains would be expected to be formed of intermodal services arriving and departing to the south or north on the WCML. Diesel-hauled trains could access any of the six sidings, whilst electrically-hauled trains could access the outer two reception sidings, from where on-site shunter locomotives would then move trains to and from the intermodal terminal. The latest electric freight locomotives being introduced onto the network (Class 88) have built-in diesel engines that could undertake such shunting manoeuvres without requiring a separate diesel shunter. The method of working would be similar for conventional wagon services, trains being shunted to and from the rail-linked warehousing as required.

4.2.4 The total bank of nine sidings facing the main line would be multi-purpose, capable of being used as required by the terminal operator for train arrival, departure, stabling or handling as appropriate.

4.2.5 In terms of interchange facilities on site, these would be as follows:

- Intermodal terminal with up to four full length sidings, capable of being operated by reachstacker cranes (accessing the nearest two sidings facing the intermodal terminal apron) or overhead gantry cranes (spanning all four sidings and the intermodal terminal apron area). Once berthed inside the intermodal terminal, trains would be unloaded and reloaded, each train typically processed within a 2-4 hour window depending on the number of containers and handling equipment involved. Once reloaded, trains would then be prepared to await departure. The intermodal terminal would also accommodate short-term storage of containers awaiting call-off by trains or HGVs. This would provide a total storage capacity of around 3960 TEU, the equivalent of around 60 trainloads, over a week's throughput by rail. The number and average dwell time for containers on site would be determined by end user requirements and/or the terminal operator;

- Warehousing with direct siding access alongside, avoiding the need for any intermediate road movements between train and warehouse.

4.2.6 Train movements within the site (ie excluding movements to and from the main line) would be restricted to slow speeds (5-10mph) for safety reasons. In common with best practice for SRFI and RFI, all reception and loading/unloading sidings will be laid on level grade for safety reasons.

4.2.7 Access from the intermodal terminal to the north connection on the WCML will be via a single-track line falling towards the connection turnout at a gradient of approximately 1 in 100. Line speed will be 25 mph, subject to signalling clearance for a train arriving or departing the site.

4.2.8 A cripple siding will allow wagons with mechanical defects to be detached from a train and repairs undertaken and located at the southern end of the intermodal terminal with adjacent vehicular hardstanding to allow wagon components to be brought in by road.

4.2.9 The respective scale of interchange facilities for intermodal and conventional wagon services reflects the current pattern of use through existing SRFI, where intermodal services account for 97% of all trains operated per day. This in part reflects the greater opportunities provided by intermodal services for individual end users, where the minimum level of traffic required can be as small as single 20' long (6m) container on a multi-customer train.

4.2.10 Traffic survey evidence produced by ProLogis for the DIRFT3 DCO application indicated that around a third of rail-borne container traffic through the DIRFT1 intermodal terminal is connected with occupiers on site, demonstrating the role of such common-user facilities in serving a community of separate occupiers on site. The survey information also indicated that most of the remaining traffic travels a relatively short distance by road to other end users in the surrounding area, most of these within 10 miles of site. This demonstrates that SRFI such as DIRFT are operating as the NPS envisages, using rail for the long-distance haul and road for the relatively short-distance haul to and from the SRFI itself.

4.2.11 The relatively small use of conventional wagon services reflects the use of such services for higher-volume shipments for individual customers (upwards of 1,000 tonnes in the predominant direction of travel), as well as the lack of warehousing in GB with direct siding access for such services.

4.3 Ancillary facilities

4.3.1 Additional rail-related facilities to be provided on site would include:

- A gatehouse at the HGV entrance to the intermodal terminal – this would accommodate operational processes including checking the documentation of inbound HGVs to ensure that the driver and/or vehicle is authorised to deliver or collect containers from the terminal. This not only protects against container theft from site, but also forms part of the Government's mandatory security regime for terminals sending freight through the Channel Tunnel;

- A Railway Control Centre (RCC) for the intermodal terminal and railway operations on site, providing administration and security facilities as well as amenities for staff and visitors;

- Bunded fuelling facilities for reachstackers, internal movement vehicles or locomotives.

4.4 Phasing of specific elements

4.4.1 The experience of the existing SRFI indicates that it will take several years for each site to achieve a mature level of rail freight traffic. The capacity of the interchange facilities on site can therefore be phased to allow this to grow in line with traffic demand.

4.4.2 In terms of phasing of development, DIRFT1[16], BIFT[17], Wakefield, Mossend and 3MG[18] were all constructed as one single phase, with multiple reception and handling sidings together with the open-access

[16] Daventry International Rail Freight Terminal phase 1, Crick
[17] Birmingham International Freight Terminal, part of the Birch Coppice SRFI, Kingsbury
[18] Mersey Multimodal Gateway SRFI, Widnes

intermodal terminal, in some cases with directly rail-linked warehousing alongside. In the early years the rail facilities operated some way below their design capacity whilst traffic levels rose. In the case of DIRFT, DIRFT2 then followed as a second phase with a major further phased expansion planned at DIRFT3, which will itself replace the existing facilities at DIRFT1 in a series of further phases of development.

4.4.3 By contrast, Hams Hall (see Figure 10 below) developed its open-access intermodal terminal as a series of phases, with each phase added in response to traffic growth. Phase 1 opened in 1997 with 2 full-length reception sidings and 2 half-length handling sidings, along with a third 'locomotive release' siding within the interchange area. The handling apron was divided into two halves along the length of the handling sidings, the majority of which was paved for reachstacker operation, the remaining area being laid with compacted fill suitable for container storage. The gatehouse facilities were provided by a pair of stacked Portakabins, together with an adjacent parking area for inbound HGVs.

Figure 10 Hams Hall Phase 1 handling area

4.4.4 Phase 2 was implemented in 2003, introducing a fourth siding (with all 4 capable of being used for handling) and an additional paved area for reachstacker operation and container storage.

4.4.5 Two years later Phase 3 opened, adding a further area for container storage and a new brick-built gatehouse. Since 2005, further phases have been constructed, including the addition of a rubber-tyred gantry crane to further enhance storage capacity.

4.4.6 A similar approach would be adopted for WMI with two main phases of development. As rail traffic grows, the design of the WMI masterplan would allow for additional trains to be processed through enhanced infrastructure and/or handling equipment. In this way, WMI can then grow in line with customer demand as a series of logical phases.

4.4.7 The first phase of rail freight infrastructure would involve construction of all Network Rail controlled main line crossovers and connections, four full length reception/loading and unloading sidings and a single rail linked warehouse siding. A minimum length 400m by 30m apron would be constructed at the northern extent of the intermodal terminal to enable unloading of 375m long trains by reachstacker. For this first phase, trains in excess of 375m would be split into two halves for loading or unloading, as occurs at all existing operational SRFI.

4.4.8 Future phases would then see the intermodal terminal handling and storage area expanded in length and width to allow trains of up to 775m in length to be handled without the need to split, through use of wide-span overhead gantry cranes. Extra siding capacity would then be installed alongside, including passive provision for overhead electrification. Passive provision at this juncture is limited to ensuring adequate clearances adjacent to all relevant lines for the erection of overhead line stanchions.

5. WMI rail freight traffic movements

5.1 Overview

5.1.1 The rail freight interchange facilities at WMI would be operated as an ‘inland port’ facility, the primary purpose being the fast and efficient processing of containers, swap bodies and other intermodal units between trains, road vehicles and intermediate storage areas. Trains would arrive from either direction of travel, depending on the ultimate origin / destination of the trains and the routes used by the train operators to reach the site.

5.1.2 Reflecting the current patterns of activity at surrounding SRFI (3MG to the north at Widnes, and Hams Hall / Birch Coppice to the south), it is anticipated that the majority of rail traffic would comprise deepsea containers moved across a network of major port facilities (eg Felixstowe, Southampton, London Gateway). The next largest component is likely to be domestic intermodal services, reflecting the site’s location on the main Scotland to south-east national freight corridor within Great Britain. The balance of traffic would then be expected to comprise European (and possibly Eurasian[19]) intermodal and conventional wagon services, over longer-distance hauls (up to 12,000 km) from other rail-served facilities. A current example is the regular service linking the Danone water bottling plant in France with DIRFT, linking a rail-served plant with a rail-served distribution facility over 1,100 km apart.

5.1.3 The development of the masterplan options for WMI has sought to provide rail freight interchange facilities on a scale commensurate with the size of the development and other similarly-sized SRFI. The layout seeks to provide as much flexibility as possible for intermodal and conventional wagon services, to maximise the rail freight opportunities which can be

[19] Direct intermodal rail services between China and London via Germany have recently commenced.

achieved by the third-party operators, occupiers and other end users following opening.

5.2 Future traffic growth potential

5.2.1 To provide an indication of the potential scale of rail freight activity to and from the site, various measures are shown below based on existing and proposed SRFI, which can be used to provide an indication of the potential level of rail traffic generation relative to a given level of floorspace on site.

5.2.2 It is acknowledged that the relationship between SRFI floorspace and rail traffic generation can vary significantly between sites and individual buildings on site, from the Tesco distribution centres at DIRFT2 which generate up to 5 trains per day each way, to other locations (both SRFI and RFI) where off-site users may generate as much demand for rail freight as on-site occupiers.

5.2.3 Together the existing SRFI currently account for some 1.9 million sq metres of rail-served floorspace, and handle around 29 intermodal and 2 conventional wagon services per day, after between 1 and 22 years of operation (average 20 years). Using rail-served floorspace as a proxy for rail freight traffic generation, this suggests the rail-served floorspace at WMI of 743,200 sq metres would yield in the order of 8 intermodal services and 2 conventional wagon services per day each way (ie a total of 10 trains per day) at an equivalent mature stage of operation.

5.2.4 This estimated level of rail traffic generation associated with the floorspace would fall within the range of the national long-range rail freight forecasts developed in the 2013 Network Rail Freight Market Study.

5.2.5 To provide a robust and conservative basis for forecasting modal shift of freight through WMI, drawing on the observed experience of existing SRFI to date, we have therefore assumed a mature level of traffic of 10 trains per day to and from the site (Table 2 below). The distribution of traffic by type and tonnage is based on the following assumptions:

- Phasing: growth in rail traffic is assumed to follow the observed experience of the existing operational SRFI, phase 1 is assumed to be capable of accommodating up to 4 intermodal trains per day;

- Intermodal / conventional wagon split: 80:20 ratio based on an assumed increase in use of conventional wagon services over time through SRFI as more rail-served warehousing becomes available, the current lack of supply tending to constrain use of conventional wagon services (the current ratio is closer to 97:3);

- Maritime / domestic / Channel Tunnel split of intermodal traffic: reflects the relative proportions of traffic through SRFI, noting that in future the role of direct services to and from mainland Europe (and on to Asia) could increase;

- Containers per train: assumed to increase in future years as per the national long-range rail freight forecasts;

- Tonnes per train: based on Government statistics for average container payloads and market research into conventional wagon services.

5.2.6 Beyond these working assumptions, the ultimate capacity of the intermodal terminal in terms of rail freight traffic generation will depend on a range of factors, including:

- The physical extent of the interchange and associated sidings and handling areas;

- The manner in which the interchange operator chooses to equip, staff and operate the facility;
- The capacity of road and rail networks / operators to accommodate the respective traffic flows;
- The capacity of connecting SRFI and RFI at the other end of the rail transit;
- The length of trains and type of wagons employed.

Table 2 Longer-term rail freight traffic prospects

	PHASE 1			PHASE 2		
INTERMODAL RAIL TRAFFIC	**2020**	**2025**	**2028**	**2029**	**2030**	**2035**
Intermodal trains / day each way						
Maritime	0.68	1.35	2.71	3.39	4.06	5.42
Domestic	0.29	0.58	1.16	1.45	1.74	2.32
Channel Tunnel	0.03	0.06	0.13	0.16	0.19	0.26
Total	**1.00**	**2.00**	**4.00**	**5.00**	**6.00**	**8.00**
Containers / train each way						
Maritime	34	41	41	41	41	41
Domestic	34	41	41	41	41	41
Channel Tunnel	34	41	41	41	41	41
Tonnes per train each way						
Maritime	391	472	472	472	472	472
Domestic	391	472	472	472	472	472
Channel Tunnel	391	472	472	472	472	472
Containers per day through intermodal terminal						
Maritime	46	111	222	278	333	444
Domestic	20	48	95	119	143	190
Channel Tunnel	2	5	11	13	16	21
Total	**68**	**164**	**328**	**410**	**492**	**655**
Tonnes per day through intermodal terminal						
Maritime	530	1,278	2,555	3,194	3,833	5,110
Domestic	227	548	1,095	1,369	1,643	2,190
Channel Tunnel	25	61	122	152	183	243
Total	**782**	**1,886**	**3,772**	**4,715**	**5,658**	**7,544**

CONVENTIONAL WAGON RAIL TRAFFIC	**2020**	**2025**	**2028**	**2029**	**2030**	**2035**
Conventional wagon trains / day each way						
Domestic or Channel Tunnel	0.0	0.3	0.7	0.9	1.0	2.0
Total	**0.0**	**0.3**	**0.7**	**0.9**	**1.0**	**2.0**
Tonnes per train each way						
Inbound	1065	1065	1065	1065	1065	1065
Outbound	266	266	266	266	266	266
Total	**1,331**	**1,331**	**1,331**	**1,331**	**1,331**	**1,331**
Tonnes per day by rail						
Inbound	0	266.3	745.5	958.5	1065	2130
Outbound	0	67	186	240	266	533
Total	**0**	**333**	**932**	**1,198**	**1,331**	**2,663**

6. Conclusions

6.1.1 West Midlands Interchange (WMI) represents a rare opportunity to expand the very small network of existing SRFI, to significantly enhance access to the rail network for local business, fully in line with the objectives of Government through the NPS and those of business in seeking additional transport options for their goods.

6.1.2 WMI is situated on the M6 / West Coast Main Line (WCML) corridor, the most important strategic transport corridor for freight in the UK, over which the majority of intermodal rail freight is moved. From the outset, WMI users would therefore benefit from access to a main line route with W10 loading gauge and capable of handling 775m length trains, key criteria for SRFI sites. In addition, the proximity of the M6 and A5 offers onward connectivity across the trunk road network.

6.1.3 WMI would also provide a geographically distinct location relative to other existing and proposed SRFI, providing access for companies otherwise remote from SRFI in Merseyside and Manchester to the north, or those south of Birmingham in the West and East Midlands.

6.1.4 Main line access into WMI is facilitated by the double-track formation of the WCML as it passes the site, enabling at-grade connections to be achieved in both directions of travel.

6.1.5 The on-site rail layout is designed to facilitate fast turnaround of freight trains within the intermodal terminal. The interchange design brings trains and trucks directly alongside each other, with a one-way flow for HGVs through the terminal, again to promote the fast and efficient transfer of freight.

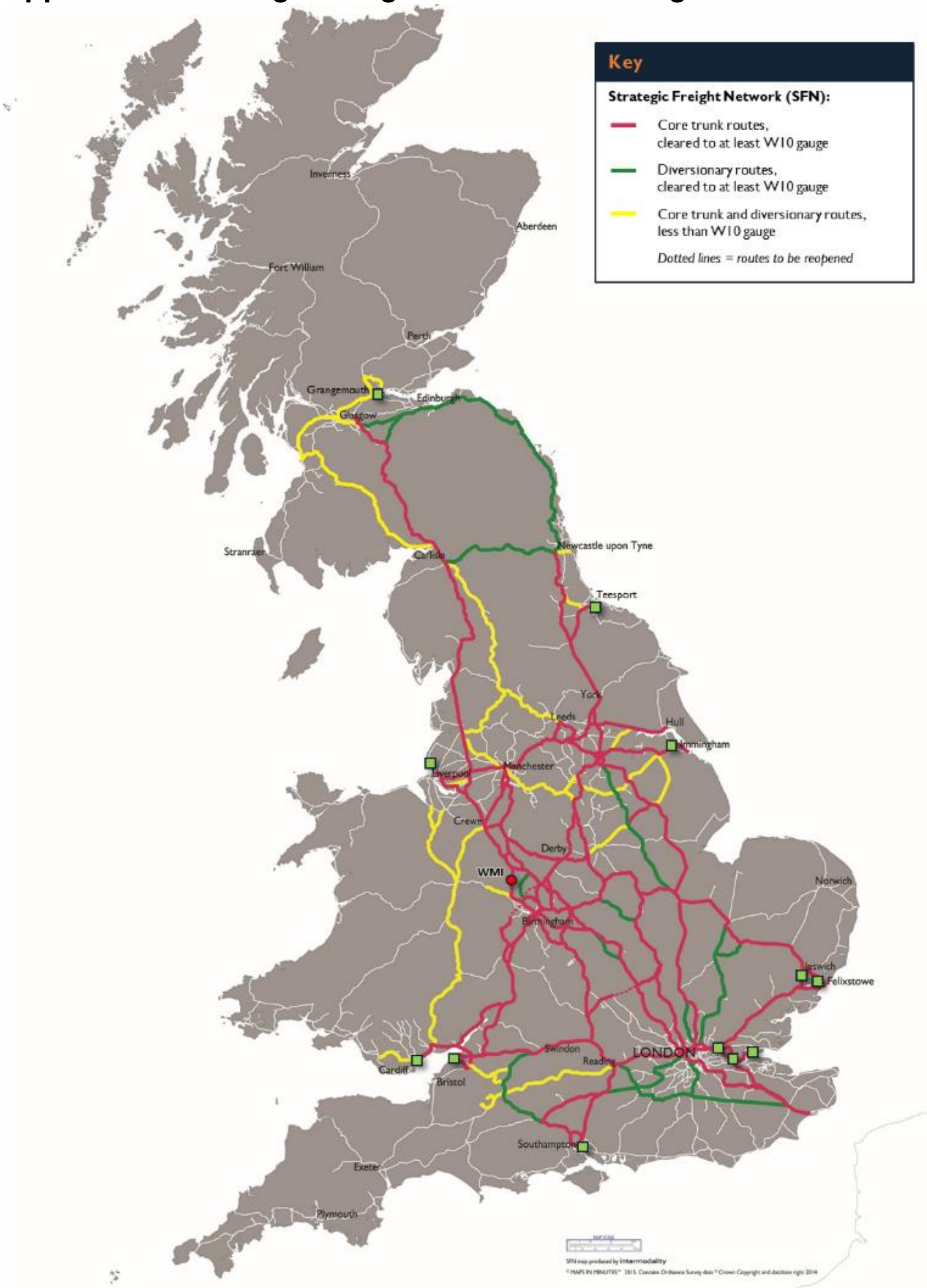
6.1.6 Additional sidings would then be provided to permit direct rail access to warehousing on site, as well as additional stabling and the ability to handle electrically-hauled freight trains in future.

6.1.7 Engineering and timetable assessment work undertaken with Network Rail through its in-house "GRIP" development programme has confirmed the ability to achieve the main line connections on which to commence operations, along with capacity within the timetable to accommodate the rail freight services associated with those operations. The site has a notional capacity to handle up to 10 trains per day at a mature level of operation, growth being determined by end user demand within available network capacity.

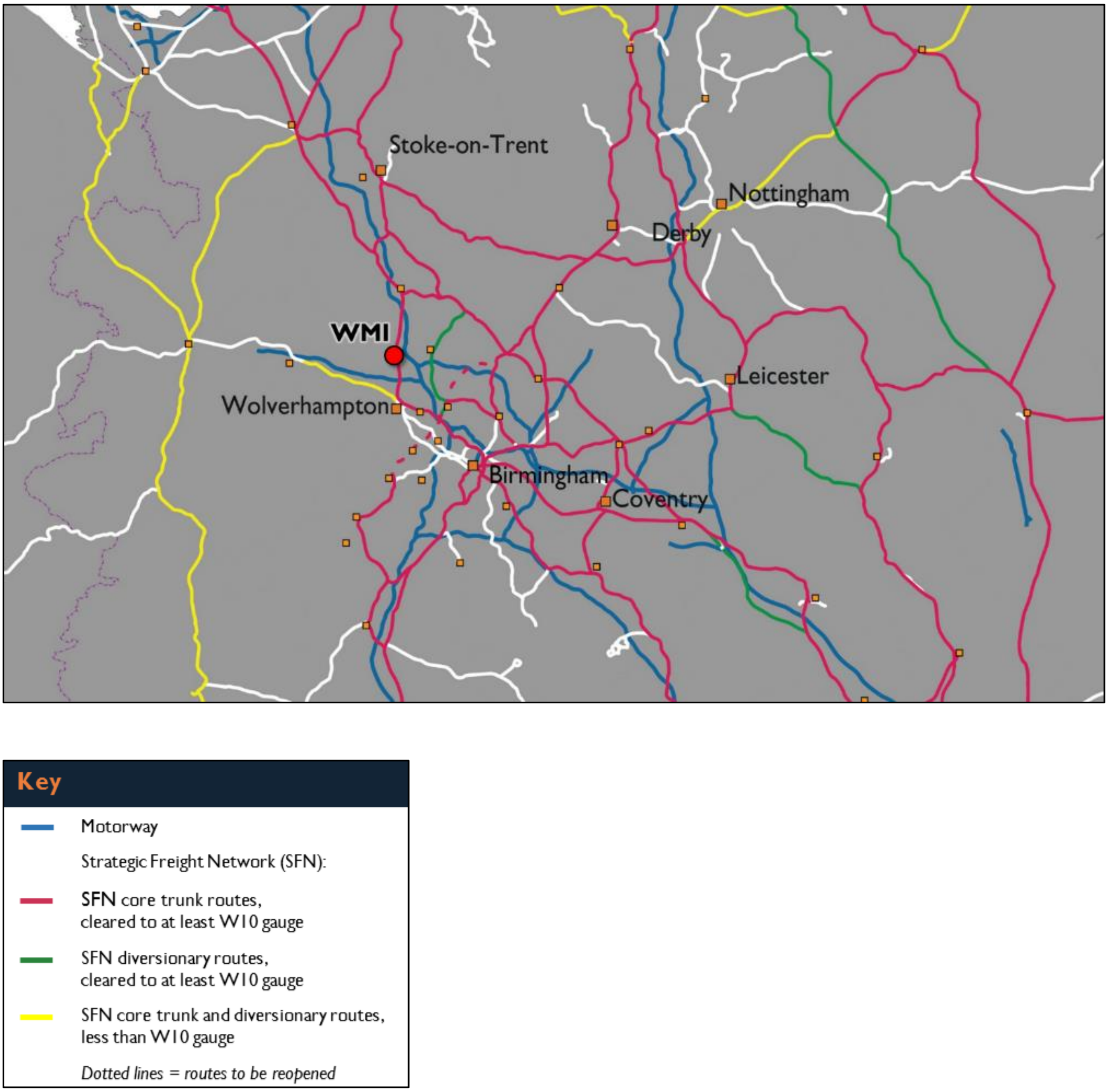
6.1.8 As an open-access SRFI, WMI can therefore be delivered and operated in a manner entirely aligned with the objectives of the NPS. WMI will help expand the small number of existing SRFI into a much larger interconnected network of facilities, assisting with modal shift of freight as evidenced by the existing SRFI and the associated benefits.

Appendix

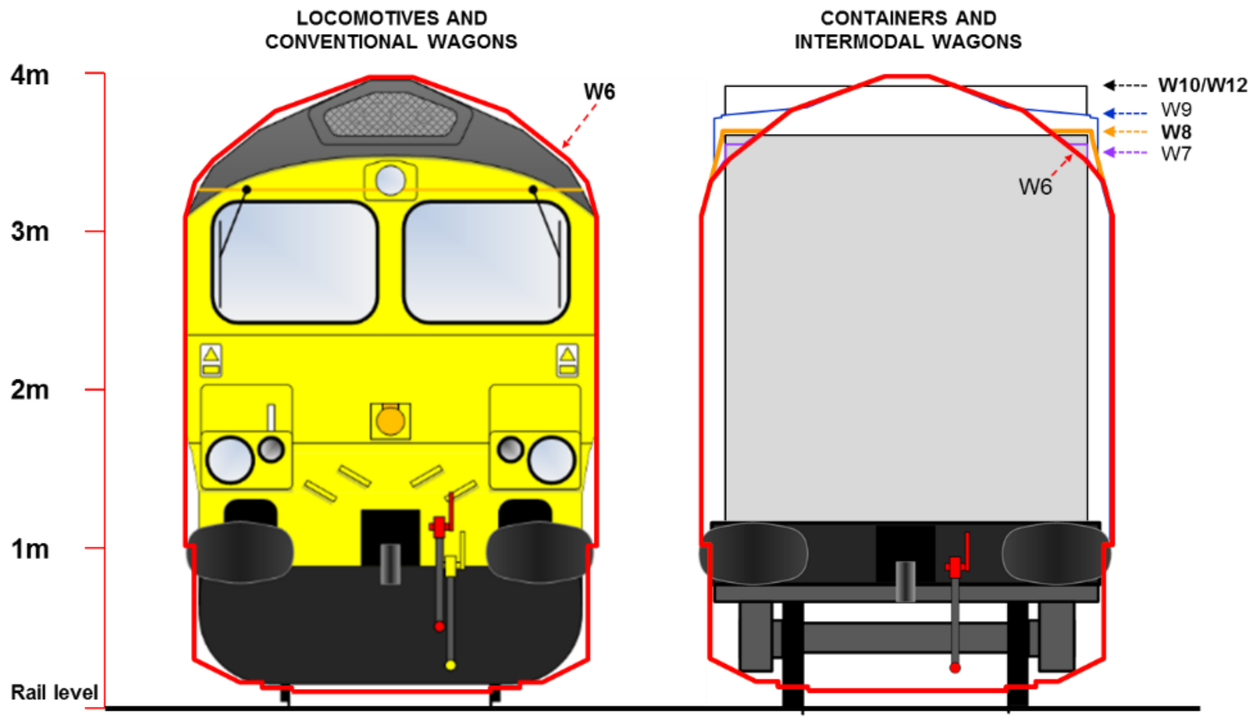
Appendix A Strategic Freight Network showing WMI



Appendix B Regional rail network showing WMI location



Appendix C Diagram of loading gauge profiles



Appendix D Overview of main traffic flows through a SRFI