Midlands Connect: Freight

Strategy Overview - April 2017

Midlands Connect
Powering the Midlands Engine

Freight Strategy Overview

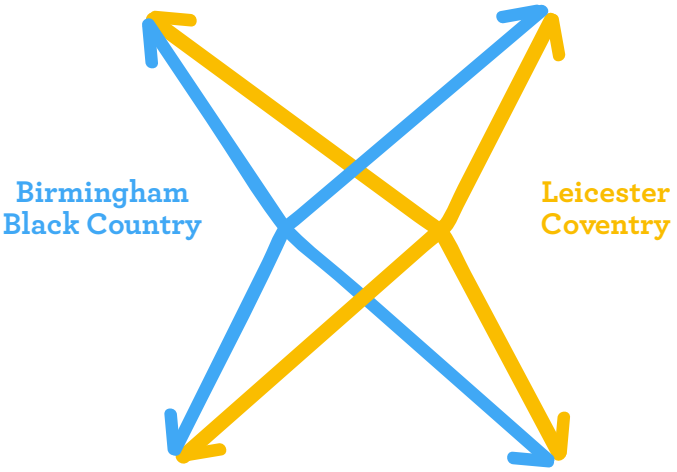
Midlands Connect has undertaken a substantial study of Road & Rail Freight at a Midlands scale. We have looked at where freight is moved, how it benefits the economy, and how the networks need to adapt to deliver a reliable freight system.

About 90% of inter-regional freight is by road; rail plays a key role providing efficient movement of goods over longer distances, especially to/from the ports and for certain bulk products.

Britain's National Hub

The Midlands connects north and south, and is also the hub of Britain's logistics system, with two concentrations of National Distribution Centres: (1) near the M5/M6 junction in Birmingham and the Black Country, and (2) along the M1 corridor, centred on the Leicester-Coventry hub. HGV traffic is very concentrated on the principal routes serving these hubs, together with a few routes (such as the A1) that pass through the Midlands. The most intensive local freight traffic are also aligned to these routes.

In the short term, improving the freight system is mostly about productivity, but in the longer term there is a risk that logistics businesses would be forced to move to other areas, with a breakdown of the efficient National Distribution Centre model, if journey times become too slow and unreliable.

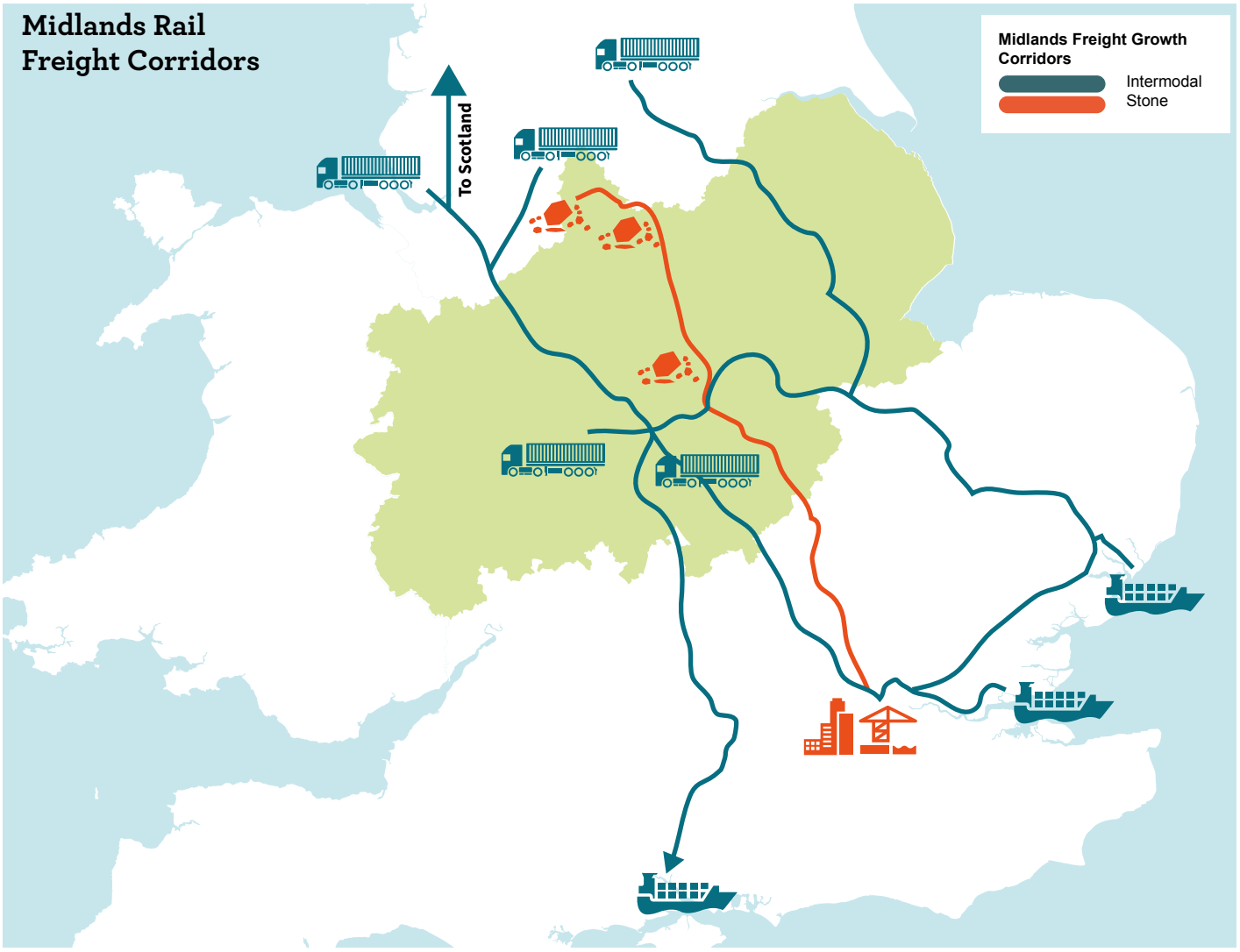


So the broad objective is to provide congestion-free motorways/expressways radiating in all directions from the two hubs around Leicester/Coventry and Birmingham/BlackCountry. This is likely to require more capacity, or smarter use of it, at multiple bottlenecks.

International Gateway

Rail is more efficient than road in two important sectors – transporting containers, often as part of intercontinental supply chains, and carrying bulk goods, for instance oil from the Humber ports, or stone from the quarries. The established maritime container model is evolving to include longer domestic and European trips, linking large rail-connected distribution centres. Some key exports are also by rail, notably cars.

Our broad objective is to provide capacity to allow new rail freight to develop alongside the expected growth of passenger services, and in particular the improvement to passenger services that Midlands Connect is seeking for business connectivity.



Midlands Connect Objectives and Scope

Economic Output: Efficient distribution of freight on main routes in the Midlands, 24/7, to allow businesses to focus on adding value, and providing that value to customers around the country and around the world

Transport Output: Roads – deal with congestion blackspots, on through motorway and expressway routes, especially those providing access to factories and distribution hubs, linking Leicester/Coventry and Birmingham/BlackCountry to all corners of England and beyond.

Transport Output: Rail – capacity for growth, mainly on Felixstowe-Midlands corridor, also for stone on the Midland Main Line.

Midlands Connect Scope: Midlands Connect has a distinct role as a region, in providing for national transit, and as a location of national distribution hubs. Providing for this should also enable Midlands manufacturing supply-chain, and exports.

Road – Gaps & Opportunities

The continued success of the Leicester/Coventry economic hub will be further enabled by the completion of key expressways (particularly around Stoke and Coventry), junction treatments at M1 J21 and M6 J15, and Smart Motorway treatment for key sections of the M40, M42 and M5.

The Birmingham/BlackCountry freight hub needs a solution to the all-day M6/M5 junction congestion problem. There are large number of freight origins and destinations in this area, and the Smart Motorway treatment on the M6 has not solved the congestion problem. Modal shift to public transport will not be effective at reducing congestion for freight, with capacity consumed by traffic diverting onto the motorway from local roads. Similarly, attempts to divert traffic away from the area, are also vulnerable to local traffic consuming all the benefit. Large-scale on-line capacity increases are probably poor value for money given engineering constraints. High level modelling has revealed the potential benefits to freight of restricting local access to the motorway around the M6/M5 junction, and this is recommended for Midlands Connect to investigate further, with benefits to freight separately identified, as part of the Midlands Motorway Hub study.

Many congestion issues are already committed for intervention in the Roads Investment Strategy 2015-2020 (RIS1), though the exact scope of some schemes is still in flux, for instance at Uttoxeter on the A50 and the roundabouts east of Coventry on the A46. We have assumed that affordable interventions will be delivered for all the committed schemes.

Beyond the schemes already committed for intervention by RIS1, we have identified a range of existing and future gaps in the performance of the network for freight. Interventions fall into five broad categories:

- Targeted Smart Motorway schemes
- Pinchpoint schemes, typically grade-separation at roundabouts
- M5/M6 junction area – consider restricting junctions to reduce local traffic using motorway, alongside consideration of a large-scale widening scheme
- M42 east side of Birmingham Box – consider widening and junction upgrades to allow UK Central office developments, which are likely to generate severe evening peak congestion
- Longer term capacity schemes on principal national corridors

Corridor	Intervention	Location
LeiCov-North East	Pinchpoint	M1 J28 Junction improvement, widening J27-28
	Smart Motorway	M1 J23-23a
	Smart Motorway	M1 J22-21
LeiCov-North West	Roundabout	A50 Sudbury
	Roundabout	A50 Blythe Bridge
	Roundabout	A50/A500 Stoke
	Roundabout	M6 J15 / A500
LeiCov-South West	Roundabout	M1 J21 (highest priority is M69 to M1)
	Roundabout	Stivichall – may not be high value/priority
	Smart Motorway	M40 j14-16
	Smart Motorway	M42 J2-3
B&BC-North East	Smart Motorway	M42 J11-9
	Pinchpoint	M42 j8-7b layout (consider offside lane drop)
B&BC-South	Widening & Junctions	M42 J7-3a **consider** widening and major junction upgrade to enable UKC car-based office developments
B&BC-Hub	Junction Restriction	M6 J7&J9 **consider** restricting non-HGV traffic as these junctions or major widening scheme

Note –the M42 schemes will probably have to be considered as a package, since they are all significantly affected by the same peak demands on the network that stem from office parks in the UK Central area.

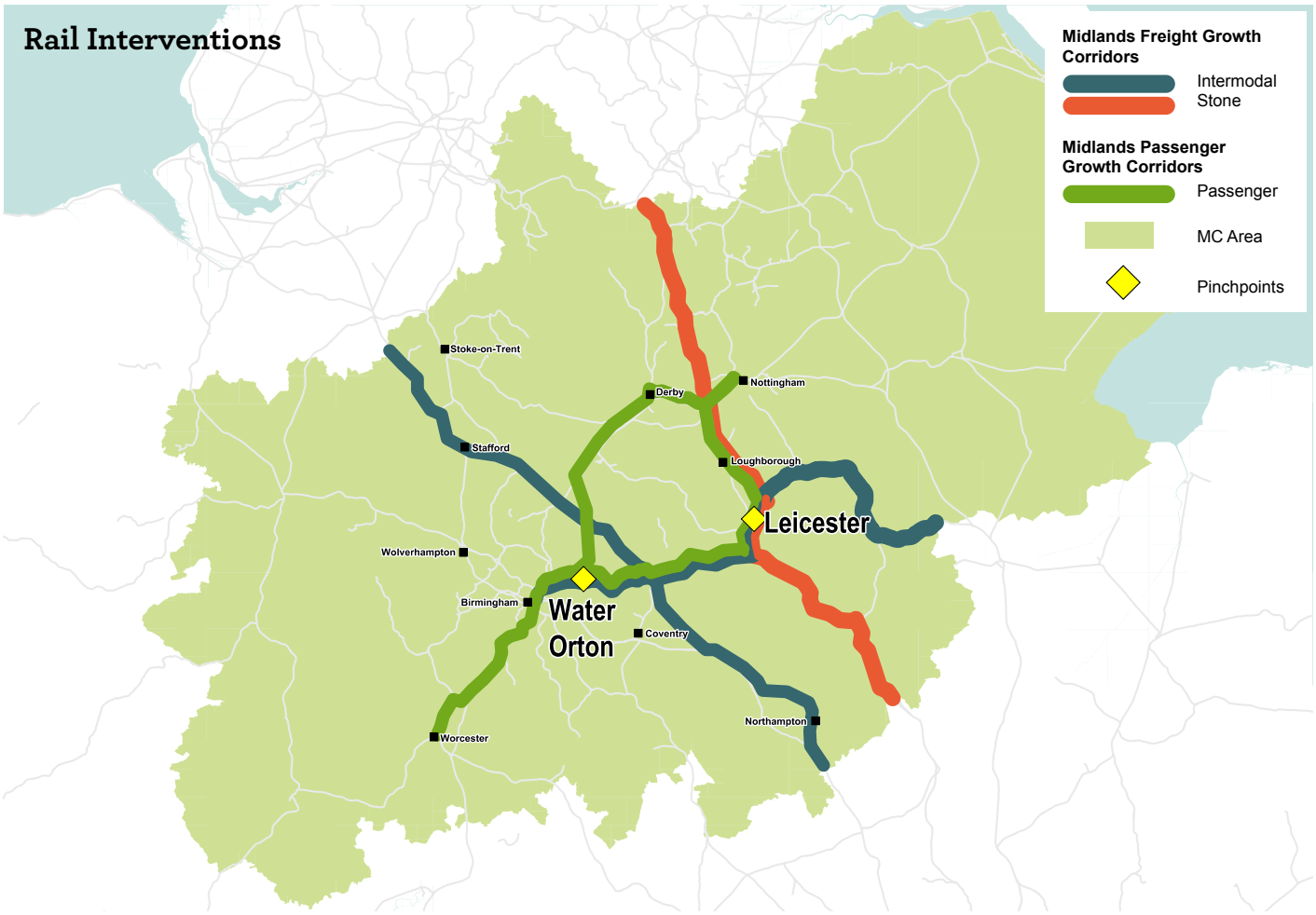
In the longer-term – consider further Smart Motorway and widening (beyond Smart). These requirements will need to be reviewed in light of revised traffic forecasts, better modelling, and the impact of technology.

Corridor	Intervention	Location
Midlands-South	Smart Motorway	Longer term, M40 J11-14
Midlands-South West	Smart Motorway	Longer term, M5 J7-8
B&BC-North West	Widening	Longer term, M6 Jn10a-13
Midlands-South East	Widening	Longer term, M1 Jn15-17
Midlands-North East	Widening/Smart	Longer term, M1 J25-28

Rail – Gaps & Opportunities

The key constraints on rail freight growth are locations where the railway is already operating close to its design capacity, or where the number passenger services is also expected to grow.

With HS2 relieving capacity on the main north-south lines, the prime capacity issue is where the east-west freight traffic coincides with the expected increase in the number of east-west fast passenger services. The biggest pinchpoints are where this also coincides with north-south traffic (freight and passenger) at Leicester, and with Birmingham-Derby traffic at Water Orton (east of Birmingham).



We assume that affordable schemes will be developed further east, particularly at Felixstowe and Ely, to allow freight to grow on that corridor, in line with industry policy.

Some key schemes in the Midlands are assumed to be already committed for delivery:

Leicester-Bedford – requadrupling Kettering-Bedford, and doubling/resignalling of the alternative route via Corby (both to be delivered by 2019)

HS2 – will ease demand on the WCML, at least between London and Crewe – there is unlikely to be a case for any substantial intervention on the WCML in the mean time

Schemes likely to be required for development, design and delivery in CP6 (2019-2024)

Water Orton – freight crossing fast main line. This also facilitates more/faster services from Nottingham and Leicester to Birmingham. The combined passenger and freight capacity requirements will exceed the capacity at the junction. This falls within the scope of Midlands Rail Hub, but initial analysis suggests that further work will be required to be confident that there will be sufficient paths for freight. The indication is that a fairly comprehensive flat scheme should be sufficient, including more space for freight to stand and shorter headways. It will also be worth considering partial or full grade separation of the junction, though it currently seems unlikely that this will be required. Recommendation – for Midlands Connect and Network Rail to develop as part of the Midlands Rail Hub study.

Schemes for the medium term

Leicester – this looks like it will become a capacity constraint, but not immediately. Intervention will be required in the medium term, to cater for freight growth, additional Birmingham-Leicester fast services, and (from 2033) Leicester-Toton services. Initial indications are that the appropriate scale will probably be requadrupling with flat junctions and signalling alterations for shorter headways.

Recommendation – for Midlands Connect and Network Rail to develop as a staged package, as part of their work on improving the passenger service between Birmingham and Leicester, with some elements taken forward for design/delivery towards the end of CP6 (2019-2024).

Trent – this was considered as an alternative to increasing capacity at Leicester. Trent is a highly complex junction with strong passenger service growth expected, including shuttles for HS2 from 2033. There may be opportunities to provide for more freight to go this way, but the relative simplicity of providing for freight at Leicester makes that the stronger candidate for intervention from a freight point of view.

Recommendation – for Midlands Connect to include consideration of freight within the remit for the access-to-Toton multi-modal study.

Midlands Connect Ambitions

Road

Targeted Smart Motorway schemes for RIS2 (2020-2025)

Pinchpoint schemes, typically grade-separation at roundabouts for RIS2

M5/M6 junction area – consider restricting junctions to reduce local traffic using motorway, alongside consideration of a large-scale widening scheme, as part of the Midlands Motorway Hub study

M42 east side of Birmingham Box – consider widening and junction upgrades to allow UK Central office developments, as part of the Midlands Motorway Hub study

If required in the longer term – capacity schemes on principal national corridors

Rail

Water Orton –Midlands Connect and Network Rail to develop as part of the Midlands Rail Hub study, for potential delivery within CP6 (2019-2024).

Leicester – Midlands Connect and Network Rail to develop as a staged package, as part of their work on improving the passenger service between Birmingham and Leicester, with some elements taken forward for design/delivery towards the end of CP6 (2019-2024).

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