

Leicester and Leicestershire Rail Strategy



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EXECUTIVE SUMMARY

Commission

SLC Rail was commissioned in May 2015 to prepare a rail strategy for Leicester and Leicestershire. The context is that:

- Leicester and Leicestershire are targeting significant economic and housing growth
- The rail industry is at a pivotal moment in planning the services that are needed over the next 30 years and the infrastructure required to support them
- Planning for the second phase of HS2, through North West Leicestershire, Toton and to the north is now advancing.

The value of rail in support of economic development is now widely acknowledged, as a consequence of the fact that rail usage has doubled over the 20 years since 1994. New services have been provided to accommodate this growth, and the rail network is largely full because of this. Planning for new services has a long gestation, and the infrastructure required for them is expensive. Choices have to be made over what can be afforded and in what order, and Leicester and Leicestershire must identify a clear set of priorities with which to lobby decision makers and funders, and generate a commonality of interest between stakeholders.

Context

Leicester and Leicestershire have relatively poor rail connectivity compared with similar areas. Whilst the service to London is frequent from Leicester, the strategic connectivity to regional and national centres of economic activity is weak. Fast and frequent regional and national rail links are increasingly important for business connectivity as well as for travel to work and leisure journeys. The importance of business to business connectivity has been demonstrated comprehensively in work undertaken by Network Rail (Market Studies 2013) and by HS2 Limited (“Rebalancing Britain” – October 2014). The shortening of journey times and direct services between key cities and towns is vital to support economic growth.

Priorities

The priorities for Leicester and Leicestershire are:

- 1) To maximise the benefit from the Midland Main Line services.** The recently announced plans include a phased electrification through Leicestershire in the period 2019-23. Maximising the benefit means:
 - Using the opportunity from the later implementation of electrification to put in at the same time the capacity needed for Leicester and Leicestershire’s long term growth as part of the project. This includes work identified already by Network Rail to support rail services in the longer term, including line straightening at Market Harborough, 4-tracking between Syston and Wigston, additional platforms at Leicester, and grade separation of North-South and East-West traffic flows through the Leicester area.
 - Securing the journey time improvements to achieve a sub-60 minute journey time between Leicester and London on non-stop services
 - Ensuring that new high quality rolling stock is procured for the electric services

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- Ensuring there is capacity for strategic freight services in support of the region's logistics industry

2) To achieve the best result from the implementation of HS2 Phase 2. The proposed route will run through the north western part of Leicestershire, with the nearest stations being Birmingham Interchange (near the NEC) and East Midlands Interchange at Toton. The delivery of this project will result in fast services from Sheffield and parts of the Nottingham/Derby area to London and the north. Achieving the best result means:

- Ensuring that the risk of lengthening journey times between Leicestershire and London does not occur. The risk arises because existing Midland Main Line trains are projected to lose nearly half of their passengers to HS2 on the opening of phase 2 in 2033. However, forecast growth in passengers will mean that existing levels of demand on the Midland Mainline at that time will be exceeded even with HS2. Nevertheless, Leicester and Leicestershire should seek assurances from the Secretary of State that Leicester's fast services will be protected.
- Securing through "classic compatible" direct services from Leicester to destinations in the north via a link to HS2 at Toton. The journey time reductions would be substantial e.g. up to an hour between Leicester and Leeds. There is a strong economic case to be made, particularly if services are provided through Leicester from key economic development areas in the South Midlands and Thames Valley. Building an alliance with other LEPs, Local Authorities and Transport for the North would help to create a "string of pearls" and a substantially strengthened economic case.

3) To radically improve direct fast connectivity to key regional and national destinations.

There is a strong economic case to radically improve Leicester and Leicestershire rail connectivity. SLC Rail used a model that tested and prioritised the potential GVA uplift that could be achieved through new and enhanced services. Using this prioritisation, radically improving connectivity means:

- New direct service to Coventry
- Faster journeys to Birmingham
- New direct services to the Thames Valley, Manchester and West Yorkshire
- Reduced east-west journey times to Stanstead Airport

4) To ensure that rail access and economic development are planned together. Leicester and Leicestershire are just starting to prepare a Strategic Growth Plan. This will seek to identify where future growth will be accommodated and what transport infrastructure is required to support it. Ensuring joined-up planning means:

- Better spatial and transport planning around rail stations, and some intervention to increase railway car parking within the limits imposed by the siting of the stations.
- Planning new development with access to the rail network where possible.
- Identifying potential new strategic access points to the rail network. This could involve long term consideration of "Parkway" sites.

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Action Plan

Most of the developments outlined in this strategy will require Leicester and Leicestershire to act in a facilitating and lobbying role, rather than as direct funder or promoter of schemes. Partnerships are vital for making long term development happen, and require Leicester and Leicestershire to bring together for each project the support of LEPs and devolved bodies, HS2 Ltd, Network Rail and the Department for Transport. **There is a need for Leicester and Leicestershire stakeholders to be active in political lobbying and rail industry development work.**

The outline action plan is shown below.

Outcome	Actions by Leicester, Leicestershire & LLEP	Funding	Potential Date
MML Improvements	Lobbying to ensure that line speed improvements and electrification are delivered and that associated capacity works and new rolling stock are included in the scope.	CP5/6 delivery plan	2023, but key elements before
HS2	Seek assurance from SoS based on evidence for no future reduction in London journey times. Undertake further joint work to enforce benefits of northbound classic compatible services. Further analysis needed before lobbying for a physical connection between the MML and HS2 at Toton	National	Need to include in 2016 HS2 announcement
New service to Coventry	Currently led by CWLEP. Join in project (Nuckle 3.1). Requires £40m investment at Nuneaton. Funding assembly is key.	Growth funding bid through Midlands Connect/LEPs	2019
New service to Manchester	Key is alliance with Transport for the North to present case to DfT. Need to include in specification for new EMT franchise. Key constraint is Hope Valley	CP6 delivery of Hope Valley works. Inclusion in EMT re-franchising spec.	2020
Birmingham journey times	Project being led by Midlands Connect. Active involvement for lobbying.	CP6 delivery plan	2022
New service to Thames Valley	Led by DfT. East West Rail project being delivered, but Bletchley-Bedford section will be in CP6. Key is presentation of investment case to DfT and NR.	Completion of CP5 works Oxford-Bletchley. Inclusion Bletchley-Bedford in CP6.	2022
New service to Leeds	As per Manchester. Key constraint is north of Sheffield.	Inclusion of works north of Sheffield in CP6	2024

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THE COMMISSION

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SLC Rail was commissioned in May 2015 by the Leicestershire County Council along with Leicester City Council and Leicestershire Enterprise Partnership (LEEP) to assess the adequacy of rail industry plans to support the economic development of the county and city as set out in the Strategic Economic Plan (SEP). This analysis was to identify priorities for rail service development and associated infrastructure investment that would be needed to support the SEP, including the following specific objectives:

- Develop a rail strategy to support Leicester and Leicestershire’s economic growth out to 2043
- Maximise the benefits to Leicester and Leicestershire to be gained from enhancement of the Midland Main Line to London
- Maximise the potential of HS2 and mitigate adverse impacts
- Place the study in the context of wider regional and national connectivity to support:
 - New jobs
 - Business to business connectivity
 - New housing and economically active citizens
- Influence the rail industry with regard to the prioritisation of key rail enhancements

The remainder of the report is divided into the following sections, describing:

Section 2	The political and industrial context within which decisions on the plan must be taken.
Section 3	The Rail Industry Planning Process
Section 4	The methodology employed in undertaking the commission and writing the report
Section 5	Leicestershire’s rail network, including current services and capacity constraints
Section 6	Enhancements to the rail network planned in the near to medium future
Section 7	The results of the Gross Value Added (GVA) study
Section 8	Enhancements to the Leicester – London service and the longer-term effects of HS2
Section 9	Options for Enhanced Train Services
Section 10	Next steps and opportunities to influence government

2

CONTEXT

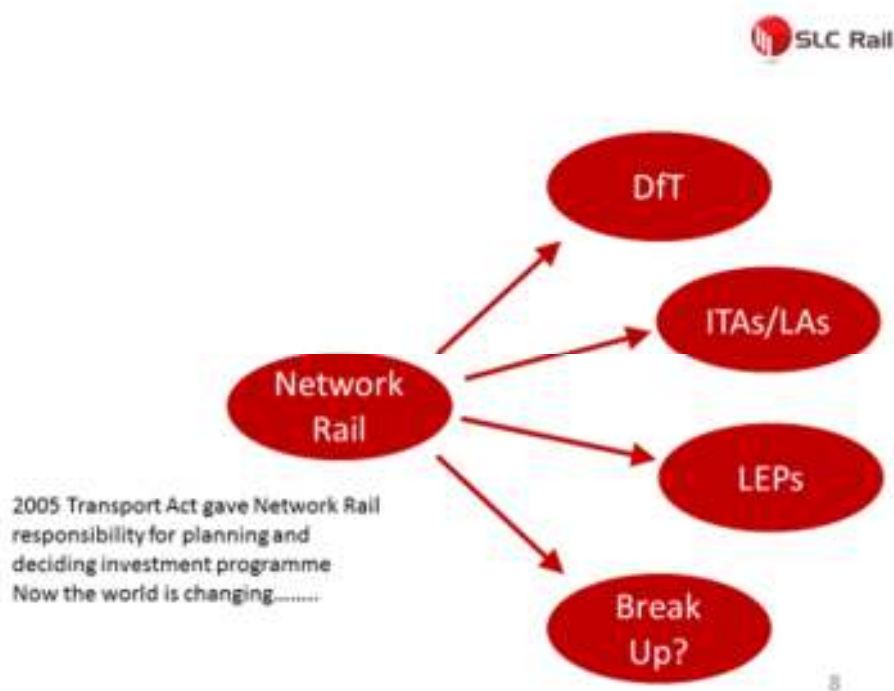
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2.1 The Political Context

The Government is moving toward increasing regional devolution, including transport planning. For example, a new “West Midlands” rail franchise has been proposed (either as a stand-alone entity or as a business unit within a re-let “London Midland” franchise), and it is intended that significant elements of this franchise will be specified locally. In addition, the role of regional bodies such as Local Enterprise Partnerships and Local Authorities in sponsoring and funding rail improvements is increasing through the use of Regional Growth Funds and mechanisms such as Prudential Borrowing.

In July 2015 the Government announced a review of Network Rail’s spending plans for the remainder of the Control Period 5 (2014 to 2019), headed by its new Chairman, Peter Hendy; along with a further review concerning financing of the rail industry, headed by Nicola Shaw, Chief Executive of “High Speed 1” (the Channel Tunnel Rail Link). These reviews were prompted by increasing concerns over delays and projected overspends on some of the large schemes committed within Network Rail’s funding settlement, and some, including electrification of the Midland Main Line, were put “on pause” until the review was completed. A new plan for electrification was announced in September 2015, with project phasing and delayed outputs.

Also in September 2015, Nicola Shaw stated that extensive restructuring of Network Rail, including privatisation of all or part of the organisation, “could not be ruled out”. The report is due to be completed before the 2016 Budget, but until details of the likely direction the review is taking emerge, the effects of any recommendations it might make on future investment plans cannot be assessed. However, it is possible that many of Network Rail’s current powers and responsibilities could be devolved to other bodies as shown below:



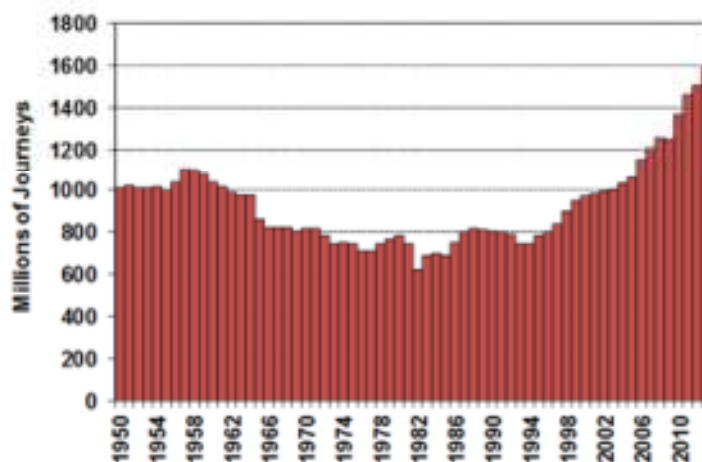
2.2 The Rail Industry Context

The national rail network supports productivity and economic activity by:

- Facilitating travel to and from work
- Providing businesses with access to larger and more specialised labour markets
- Improving contacts between businesses

It is widely accepted that journey times between cities can be directly correlated to economic development, and here rail transport can show distinct advantages for centre-to-centre journeys compared to other modes such as road, where the use of congested local and trunk networks is often unavoidable, and air, which requires additional time for travel to and from airports and is, in any case, often not a feasible option for short-to-medium distances. However, notwithstanding the advantages rail often offers in providing direct access between population centres, the creation of easily accessible out-of-town transport hubs offering easy interchange between modes has also been shown to act as a catalyst for new development and economic activity.

Since 1994 the number of passengers using the railway has doubled, as demonstrated by the graph below.



Although there is no clear consensus either within or outside the rail industry about the underlying reasons behind this significant increase in demand, there are clearly important macro-economic drivers at work in addition to the actions that the industry has taken to market and promote rail travel. Factors might include:

- Despite the recession, there has been an overall increase in economic prosperity and consumer spending.
- Following a decade in which there was little motorway investment, no major motorways have actually been built since the M6 Toll Road in 2003.

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- Road congestion, particularly in and around urban areas, combined with the difficulty and cost of parking, have combined to make rail a more attractive option for regular commuting into cities and major towns.
- Until 2009, average earnings were going up faster than commuter fares, which from privatisation until 2004 were pegged to annual increases of RPI minus 1%. However, this trend has been reversed in more recent years, as a result of government policy to reduce public subsidy in favour of funding a higher proportion of industry costs through farebox revenue.
- House price increases and widening regional variations in average property prices mean that it is often economically sensible for people to live in a cheaper location and commute to work.
- Faster average train speeds have progressively resulted in reduced journey times, meaning that the distance over which commuting is viable has continued to increase, a trend that has been evident since at least the 1960's.
- There has been substantial growth in both the student population and the elderly since the early 1990s, both groups who might, for various reasons, be more inclined to use public rather than private transport.
- Train frequencies have generally increased, with regular-interval "clockface" timetable patterns on nearly all major routes. Through journey opportunities have improved.
- Standards of customer service, and the customer's perception of the rail industry generally, has improved.

Although significant sums have been invested by Network Rail over the last 15 years to increase the capacity and capability of the network, and similar investment has been made by Leasing Companies and Train Operators in rolling stock, parts of the rail network are now operating, to all intents and purposes, at or near full capacity. Except at the margins, the introduction of any new train service will almost certainly require investment in additional infrastructure and rolling stock to support it.

The prospect of continuing expansion of demand for rail services, driven by economic growth of the sort envisaged in the LEP SEP over the coming decades, has led to the establishment of an industry "Long Term Planning Process" (LTPP), managed by Network Rail, but with wide involvement from industry and economic stakeholders. The intention is that this process will set out "choices for funders" (the principal but by no means only one being Central Government) for potential inclusion in Network Rail's funding settlements for future 5-year Control Periods (in particular the forthcoming Control Period 6 between 2019 and 2024) and in associated franchise specifications for Train Operators.

For its size, Leicestershire has a relatively low density of rail routes, and connectivity to and from the region is therefore poor compared to other regions of similar size and importance. The LLEP recognises that improving rail links both within and, particularly, outside the region is likely to generate significant economic growth and can, therefore, play a significant role in meeting the targets set out in the SEP.

However, the rail network in the region is already largely used to or near its maximum theoretical capacity, and it is also recognised that substantial investment will be required to provide the additional capability (passenger and freight) that will be needed to enable the introduction of new and improved services, not only to meet Leicestershire's own requirements, but also national strategic needs. In developing train service options and plans for investment in the network, therefore, due attention needs to be given to how they fit in to a wider national context, in order to facilitate lobbying and bidding at the appropriate level of government.

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2.3 Leicester and Leicestershire Strategic Economic Plan

The Leicester and Leicestershire economy has an estimated gross value of £19.4bn per annum, and supports about 33,000 trading businesses providing some 435,000 jobs. The area possesses valuable economic assets, including the largest distribution park in Europe, the UK's second largest freight airport and a growing manufacturing sector, while its central location provides good access to other parts of the country.

The Leicestershire Strategic Economic Plan (SEP) covering the years 2014 to 2020 was submitted to Central Government in March 2014. The stated aims of the plan to 2020 are to:

- Create 19,000 of the 45,000 new jobs planned in the long-term
- Leverage £2.5bn of private investment and
- Increase Gross Value Added (GVA) by £4bn from £19bn to £23bn.

by means of integrating the previously published European Structural and Investment Fund (ESIF), City Deal and Growth Deal Strategies and leverage of new funding.

The major risks to the region's economy are identified as:

- A lack of suitable undeveloped land for further expansion in the logistics and manufacturing sectors.
- Poor quality public realm and derelict sites requiring land assembly and infrastructure.
- Inadequate transport infrastructure causing congestion and resulting in increased business costs.
- Lack of support for the 70% of Small and Medium Enterprises (SMEs) that have growth plans
- Lack of skills in key sectors
- The low numbers of young people choosing Science, Technology, Engineering and Mathematics (STEM) careers.

Highlights of the SEP include:

Leicester Launchpad - provides a major development and growth opportunity for Leicester focussed on the Waterside and Abbey Meadows regeneration areas and the city centre. This 'Strategic Regeneration Area' delivers substantial housing, commercial and leisure/cultural developments on a cluster of development sites and creates 6,000 jobs.

East Midlands Gateway Strategic Freight Interchange - a 250 acre distribution and logistics development alongside East Midlands Airport and the M1, with a rail terminal providing up to 6 million sq. ft. of large scale warehousing to establish the UK's largest multi modal hub creating over 7,000 new jobs.

Loughborough University Science & Enterprise Parks (LUSEP) - an exceptional opportunity to develop an internationally significant centre for knowledge based employment. The Park is already one of the largest developments of its kind and will provide as many as 4,000 additional jobs and leverage private investment of up to £200m.

MIRA Technology Park Enterprise Zone - MIRA Technology Park is the LLEP's Enterprise Zone and will provide 1.75 million sq. ft. high quality R&D space on an 80 hectare estate, making it the largest

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transport sector R&D technology park in Europe. It will create over 2,000 direct high value jobs and over 3,000 indirect jobs

Other proposals include measures to support innovation by providing direct funding and economic intelligence to businesses and using City Deal and European Structural and Investment Funding (ESIF) to improve skills and training.

3

THE INDUSTRY PLANNING PROCESS

3.1 The Long Term Plan

Following the publication by Network Rail of market studies in 2013, a series of regional and route based studies into long-term investment requirements is now underway. The East Midlands Route Study was published in draft for consultation in February 2015, and the West Midlands Study is currently being developed. In addition, further studies relevant to this report now in progress include:

- Midlands Connect – a grouping of transport authorities across the Midlands – has also produced important material, including a technical report from Atkins entitled “Economic Impact Study” – May 2015. Work is now moving towards more detailed work on specific corridors, including those directly affecting Leicestershire.
- The East West Rail Consortium, in partnership with Network Rail, is undertaking development work on options for the proposed new railway between Bedford and Cambridge. The first phase of this work, undertaken by Atkins Consulting, looked at priority origin and destination locations across the South Midlands (“East West Rail Central Section – Conditional Outputs Statement” - August 2014), and the second phase of this work is looking at how the strategic business case for the line can be enhanced by using the East West route to provide through services not currently possible on the existing network. This includes potential direct trains from the East Midlands to the Thames Valley, South Coast or West Country via Leicester and either Bedford and Bletchley or Coventry and Banbury.
- Work undertaken by SLC Rail to develop rail strategies for Warwickshire, Coventry and Leicestershire.

These studies look forward as far as 2043, and are intended to show a long term strategic direction, as well as to identify “options for funders” for schemes in Network Rail’s Control Period 6 (2019-24). “Indicative Train Service Specifications” for a number of main routes are already in circulation.

There is therefore a substantial body of work being undertaken, some of which inevitably reflects local agendas, but most of which is remarkably consistent both in terms of the conclusions being drawn, and in reflecting a desire to capitalise on the opportunity the railway presents to support economic growth. We have sought to ensure that the outcomes identified in this report are, as far as possible, consistent with the conclusions that have either been drawn or are emerging in these other reports, as well as providing an evidence base that Leicestershire stakeholders can use to influence decision makers, including funding bodies.

3.2 Indicative Train Service Specifications

Through the route planning process Network Rail has developed a series of line maps showing a possible level of train service in 2043. There are two important points to note about these diagrams:

- The delivery of enhanced train services is a matter for funders and for the specification of future franchises. That is why there is no ITSS for earlier years.
- The driver for additional train services shown on the 2043 ITSS is not just demand growth, but, more importantly, regional and national connectivity improvements that are forecast to be required. This is an important distinction.

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- These factors mean that prioritisation for the improved connectivity lies not with Network Rail or indeed principally with the rail industry, but with funders. New connectivity plans that have a business case can be implemented when the time is right for funders and the main issue is about the prioritisation and funding assembly, once Network Rail has delivered the necessary Network capacity improvements. Of course not all capacity schemes have to be funded through the Network Rail Periodic Review process, but schemes likely to have a major impact on capacity will generally be delivered as part of resignalling schemes.

However, if Network Rail's infrastructure capacity schemes are "enablers" to allow future enhanced connectivity, it is important for the LEP to lobby for inclusion of valuable schemes in the CP6 settlement.

4

Methodology

4.1 General Principles

In undertaking this commission, SLC has:

- Engaged with Network Rail's long term planning process
- Held discussions with other industry parties including the DfT and East Midlands Trains
- Supported the work of Midlands Connect (MC) which has been looking on a corridor basis at the transport needs across the East and West Midlands
- Undertaken its own analysis of the adequacy of the rail network to support LEP's requirements
- Specified various potential train service options and commissioned GVA analysis of their potential to support economic growth

The study included the following stages:

- Research including review of documentation
- Industry engagement, including discussions and correspondence with relevant contacts in Network Rail and the Department for Transport
- Formulating options
- GVA analysis (see below)
- Capacity analysis
- Development of Strategy
- Alignment with other Local Authority and LEP studies

Background research has been undertaken using, inter alia, the following documents:

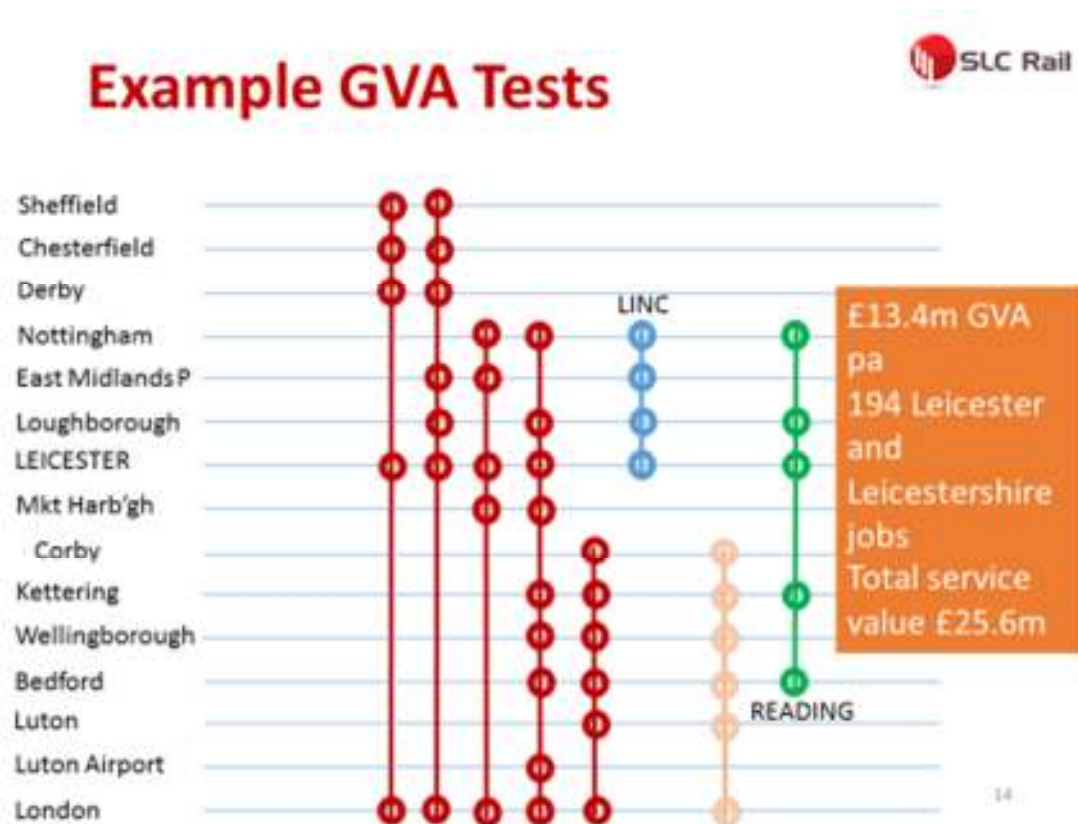
- Network Rail East Midlands Strategic Business Plan for CP5
- Network Rail Enhancements Delivery Plan for CP5
- Network Rail East Midlands Route Study 2015
- Network Rail Yorkshire and Humberside Route Utilisation Strategy 2009
- Network Rail Freight Route Utilisation Strategy 2007
- Network Rail Network Specifications East Midlands ("Meeting the Demand for Rail"), 2012
- ATOC Rolling Stock Requirements 2014-2019
- Department for Transport Long Term Passenger Rolling Stock Strategy 2014
- Leicester and Leicestershire Strategic Economic Plan 2014-2020
- AECOM report on Leicester – Burton passenger rail service (for Leicester City Council, Leicestershire County Council and North West Leicestershire District Council) 2015
- East Midlands Gateway – Roxhill (Kegworth) Ltd. website
- Roxhill Development Consent Order application documents 2014
- Department for Transport Draft National Policy Statement for National Networks 2015
- Ratcliffe-on-Soar power station - E.On website
- Network Rail London North Eastern Route Sectional Appendix
- East West Rail – Network Rail and EWR Consortium websites

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4.2 Gross Value Added (GVA) Modelling

Gross Value Added (GVA) modelling has been used to assess the value of the various rail service options identified.

The model used for this analysis combines metrics of economic activity and project growth with train service enhancements based on improvements to generalised journey time (frequency x journey time). Direct train services score much higher than services that require a change of train, because interchange results in a time penalty which may be significant. The model then derives a GVA value for the enhanced business-to-business activity that would be generated by the new services. The model also produces a forecast for the number of additional jobs created, for example:



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A sample output is shown below for the Leicester to Reading leg of the above.

Leicester and	Annual GVA £m	Comment
Kettering	0.3	Increased frequency from 1 to 2 trains per hour
Bedford	0.3	Increased frequency from 1 to 2 trains per hour
Milton Keynes	1.1	Journey time 53 mins (current 1h 26 including change)
Bicester	0.4	Journey time 1h 5 mins (current 2h 27 including 2 changes)
Oxford	4.6	Journey time 1h 18 mins (current 2h 23 including 1 change)
Didcot	0.6	Journey time 1h 35 mins (current 2h 44 including 2 changes)
Reading	2.5	Journey time 1h 49 mins (current 2h 50 including 1 change)
TOTAL	9.6	

5

LEICESTERSHIRE'S RAIL NETWORK

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5.1 The Current Network

The Midland Main Line (MML) linking London (St Pancras), Derby, Nottingham and Sheffield runs south-to-north through the county, with stations at Market Harborough, Leicester, Syston, Sileby, Barrow-upon-Soar and Loughborough. There is also an east-west main line, running from Birmingham through Nuneaton and Leicester, and then onwards to Peterborough and East Anglia, with stations at Narborough, South Wigston, Melton Mowbray and Oakham.

Two freight routes lie partly within Leicestershire. The first links the MML at Knighton Junction (approximately 2 miles south of Leicester) with Burton upon Trent via Coalville, and is used mainly for aggregates traffic from Bardon Hill Quarries. Since the closure of Drakelow Power Station, the western section of this line between Bardon Hill and Burton sees very little traffic. The other freight line is in the east of the county, running from Kettering via Corby to Manton junction, south of Oakham, and forming part of a loop line running parallel to the MML between Kettering and Syston, avoiding Leicester.

5.2 Passenger Services

Services on the MML are operated by East Midlands Trains using 9-car class 254 High Speed Trains (HSTs) and Class 222 “Meridian” Diesel Multiple Units (DMUs) in 4-, 5- and 7-car formations. The HSTs are concentrated mainly on the London – Nottingham services. East Midlands Trains also operates the Leicester – Lincoln service, mainly with class 153 single-car DMUs.

Cross Country Trains operates both the Local Birmingham – Leicester and Birmingham – Stanstead Airport service, using Class 170 DMUs in 2- or 3-car formations although longer trains formed of two units coupled in multiple are diagrammed on certain peak hour services.

Standard off-peak service patterns at the county stations are:

Leicester

2 (non-stop) trains per hour between London and Sheffield via Derby.

2 (semi-fast) trains per hour between London and Nottingham.

1 train per hour between Birmingham and Peterborough, Cambridge and Stanstead Airport.

1 train per hour between Birmingham and Leicester.

1 train per hour between Leicester and Lincoln via Nottingham.

Market Harborough

2 trains per hour between London and Nottingham.

Syston, Sileby and Barrow-on-Soar

1 train per hour between Leicester and Lincoln (some extended to Sleaford) via Nottingham.

Loughborough

1 train per hour between London and Sheffield via Derby.

1 train per hour between London and Nottingham.

1 train per hour between Leicester and Lincoln (some extended to Sleaford) via Nottingham.

Narborough and South Wigston

1 Train per hour between Birmingham and Leicester via Nuneaton.

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Melton Mowbray and Oakham

1 train per hour between Birmingham and Stansted Airport via Peterborough and Cambridge.

These service patterns may be varied during peak hours, with some additional trains on certain routes.

5.3 Freight Services

Freight traffic is, by its nature, often unpredictable compared to the relative certainties of timetabled passenger services. Although many freight flows do establish themselves over a period of years, tonnages, times and even origin and destination points can vary at short notice, and individual flows may have limited lifespans as the demands of the market change. This pattern has been particularly prevalent since privatisation of the rail freight sector, as operators have changed their marketing and operating practices to enable them to compete more effectively with other modes of transport.

Routes through the East Midlands are vital freight arteries, and the all the main lines are designated as part of the Strategic Freight Network. While the predominant flows are along the Birmingham – Derby and Midland Main Lines, the cross country route between Nuneaton, Leicester and Peterborough is gaining increased importance following completion of works to increase the loading gauge to allow the passage of larger containers.

There are a number of sites generating rail freight traffic in the area:

- Ratcliffe-on-Soar power station and British Gypsum plant, near Trent
- Mountsorrel aggregates depot
- Stud Farm Quarry, Stanton-under-Bardon
- Bardon Hill Quarry, near Coalville
- Corby Metals Terminal
- Ketton Cement Works

The East Midlands rail network is used by a variety of different market sectors.

Maritime intermodal, consisting of container traffic to and from ports, primarily Southampton and Felixstowe, and the Channel Tunnel. Although much traffic from Felixstowe to the Midlands and North West England travels via London and the West Coast Main Line, an increasing volume is being routed via Peterborough and Leicester to join the West Coast Main Line at Nuneaton, or onwards via Water Orton to terminals in the West Midlands. Locally, there is an intermodal terminal at Burton-on-Trent which receives traffic from Southampton on a weekly basis, which is routed, along with longer-distance intermodal traffic, via Oxford, Birmingham and Derby.

Works to increase Loading Gauge clearances are being undertaken between Birmingham and Derby, and onwards to Doncaster via the Erewash Valley. This will enable deep sea 9' 6" high containers to be routed from Southampton via the West Midlands to Yorkshire without the need for special wagons, generating significant intermodal growth on this corridor, as well as opening up opportunities for routing traffic between Felixstowe and the north of England via Toton and the Midland Main Line rather than the West Coast.

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Other Loading Gauge improvements are planned on the Midland Main Line north of Bedford in parallel with the electrification programme. Once the East West Rail link from Oxford to Bedford is fully operational at the end of Control Period 6 in 2023, this will facilitate the routing of intermodal traffic from Southampton to Yorkshire and the north East via Bedford and Corby, rather than via the West Midlands.

Finally, Loading Gauge enhancements on the Derby to Stoke-on-Trent are being considered, offering another alternative route for container traffic between Felixstowe and the Manchester area.

In all cases, it is likely that other works on the wider network will be needed to fully exploit the opportunities offered by these enhancements around the East Midlands.

Domestic intermodal, consisting mainly of the movement of containerised consumer goods within the UK. Again, the primary focus for this traffic is the West Coast Main Line, but some does pass along the Birmingham – Derby – Erewash Valley route in the course of journeys to and from the North East and Scotland, and further growth in the market can be expected as new intermodal terminals, such as the one proposed at Castle Donington, are opened.

Coal. The pattern of coal flows nationally is inextricably linked to the demands of electricity generation, and is currently based mainly on foreign imports through ports such as Immingham. Coal-fired power stations are progressively being closed, but in 2014 the major power station at Ratcliffe-on-Soar, owned and operated by E.On, was fitted with catalytic reduction equipment to make it compliant with strict new emission regulations, securing the long-term future of both the station and the rail-borne coal flows from the east coast which fuel it.

In the interests of reducing the emission of greenhouse gases, some coal powered stations have been converted to burn biofuels. Biofuel has up to half the mass of coal, and this has led to an increase in the number of trains per day serving the converted stations. Although E.On has no current plans to convert Ratcliffe-on Soar to biofuel operation, this cannot be ruled out in the long-term as emission regulations become more demanding, and, if it happens, would almost certainly result in an increase in the number of rail movements into and out of the site.

Cement. The long-established works at Ketton is now owned by Hanson, part of the Heidelberg Group, and produces around 10% of the UK's requirement for Portland Cement. Although much of the site's production is transported by road, daily trains are run mainly via the Midland Main Line to the North London terminal at Kings Cross, and occasionally to other sites elsewhere in the country. The proposed south-to-north chord at Manton Junction would allow these trains to be routed directly towards London via Corby, freeing capacity in the Leicester area and opening up additional opportunities to expand rail-borne traffic from this location.

Aggregates flows are highly dependent on the health of the construction industry, and peaks in demand tend to be linked with large infrastructure projects or major commercial developments. There are a large number of quarries in the East Midlands, and, with demand centred very largely on South East England at the present time, the Midland Main Line is likely to continue as a major artery for stone traffic from the Buxton area, Bardon Hill, Stud Farm and other locations. At the southern end of the Midland Main Line, a loop is being provided at Sundon near Harlington (Bedfordshire) to facilitate the operation of longer and heavier aggregates trains from Derbyshire and Leicestershire to the London area.

Many coal-fired stations, including Ratcliffe-on-Soar, are fitted with flue gas desulphurisation (FGD) equipment, which uses limestone to reduce Sulphur Dioxide emissions. Both limestone and the

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gypsum produced as a by-product of the process are ideal bulk traffics for rail, and there are regular flows between the limestone quarries around Buxton and Ratcliffe-on-Soar, which will continue for the foreseeable future.

Gypsum. British Gypsum has established a plant at Ratcliffe-on-Soar to manufacture plasterboard using gypsum produced at the power station, but there is also some rail-borne gypsum traffic from the station to other manufacturing sites around the country.

Iron Ore is imported in considerable quantities through Immingham, and conveyed by rail through the East Midlands to steel works at Rotherham, the West Midlands and South Wales. Cutbacks in steel production at some major sites have recently been announced, allegedly as a result of the availability of cheap Chinese steel on European markets, and this will inevitably result in reduced demand for ore and therefore a reduction in the number of trains needed to move it from the ports.

Metals. The metals terminal at Corby receives daily services from South Wales, and finished steel from plants at Rotherham, Scunthorpe, North East England, the West Midlands and South Wales to various destinations passes along the East Midlands network daily. After a period of decline, scrap metal movements to recycling plants have shown some growth in recent years.

National Delivery Service. Although not strictly a commercial freight operation, Network Rail's National Delivery Service (NDS), which supplies materials and equipment in connection with railway engineering and construction projects, operates a significant number of trains on the network, and needs to be taken into account when planning future capacity improvements.

5.4 Network Capacity

Analysis undertaken by Network Rail and the Train Operators has indicated that little spare capacity is available on the Midland Main Line. Although, in practical terms, rail capacity is notoriously difficult to measure, depending as it does on a range of variable factors such as signalling design and location, variations in line speeds, and the mixture of rolling stock used on the route and their relative performance characteristics, it is generally accepted that only one additional train path ("the sixth path" as it is often referred to) is available for use between London and Leicester.

How this path should be allocated will be the subject of many conflicting demands and interests. The value to local economic growth and sustainability of good quality connectivity to London is widely recognised, but it may be that in certain circumstances a case can be made that use of spare capacity for other purposes will produce a better return in terms of value added.

There appear to be opportunities to increase capacity on the Midland Main Line above the six trains per hour by investing in additional infrastructure. Until the late 1970's, the route was four-tracked throughout between London and Kettering, albeit mainly with fast passenger lines paralleled by goods lines to accommodate the heavy coal traffic from Nottinghamshire to London. The reduction in freight traffic from the 1960s onwards, resulted in the progressive removal of one of the goods lines leaving only three tracks over large sections of the route. Reinstatement of the fourth running line for mixed (passenger and freight) use would not be particularly difficult, and would release capacity on the existing fast lines for use by additional through services.

The installation of advanced transmission-based signalling systems similar in principle to those in use on certain intensively-worked urban rail systems and high speed main lines (the so-called "Digital Railway") has been proposed in certain quarters as a means of increasing capacity. These systems

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automatically regulate the intervals between trains running along the same line of route depending upon their relative speeds, making the most efficient use of the space available while preserving safe braking distances. In practice, the systems currently in use are mainly installed on relatively simple routes (whether high-speed main lines or low-speed urban systems such as the Docklands Light Railway) where all trains have very similar, if not always identical, speed, acceleration and braking characteristics. Much development work remains to be done to enable the technology to be used on intensively-used mixed-traffic railways like the UK network, where there are wide variations in the characteristics of the rolling stock. Nevertheless, in the longer-term, advanced signalling technology is likely to be developed to a point that will result in capacity improvements on conventional main lines such as the Midland.

Whatever spare capacity actually exists on the Midland Main Line, there are significant constraints at St. Pancras station itself which will directly influence how many additional services can be accommodated. The four platforms available following conversion of the station into St. Pancras International are already heavily occupied, and finding space to accommodate even one additional train per hour is likely to be difficult. Although each platform is capable of accommodating two 4- or 5-car trains, the use of long Class 222, HST or “InterCity Express” (IEP) type units will require exclusive occupation of a platform.

Nevertheless, Network Rail’s various plans and proposals for upgrading the Midland Main Line described in Section 4.3 below do include a number of projects designed to increase capacity on the route which, if implemented, would allow enhancements in the number of trains that could be reliably accommodated.

6

PLANNED ENHANCEMENTS

6.1 Midland Main Line

Network Rail's Delivery Plan for Control Period 5 includes a number of projects affecting the Midland Main Line which are committed for completion in 2014-19, while the draft East Midlands Route Study, issued for consultation in January 2015, contains proposals to accommodate growth up to 2043, which may be adopted for delivery in future Control Periods. Long-term proposals for locations north of Chesterfield are covered in the Yorkshire and Humber Route Utilisation Strategy (RUS), which was issued in 2009 and covers the period to 2039. It is likely that this latter document will be superseded by a further Route Study in due course.

Network Rail also published a Freight Route Study in 2007, covering the national network. The Birmingham to Peterborough line was identified as a key element of the strategy, requiring increased capacity through Leicester, and remodelling of the junctions at Wigston and Syston.

The various proposals for enhancements on the Midland Main Line contained in these document include:

Committed in Control Period 5

- Electrification at 25Kv ac overhead:
 - Bedford to Nottingham via Leicester
 - Kettering to Corby
 - Trent Junction to Sheffield via Derby
- Removal of temporary and permanent speed restrictions at various locations through the track renewals programme.
- Platform lengthening up to 260m at Market Harborough station.

Being considered for Control Period 6

- Grade separation at Wigston North Junction.
- Four-tracking Wigston North Junction to Syston Junction.
- Double tracking Syston South Junction to Syston East Junction.
- Platform lengthening up to 260m at Leicester station.
- New through platform 6 on east side and new bay platform 5 at north end at Leicester station.
- Resignalling between Kettering and Syston Junction to accommodate improved headways of between 5 and 3½ minutes.
- Platform lengthening up to 260m at Loughborough station.

Being considered for future Control Periods beyond 2024

- Four-tracking Kettering to Wigston North Junction.
- High Speed Junction with South Leicestershire line at Kilby Bridge
- Four-tracking Oakham to Langham Junction.
- New south-to-east chord at Manton Junction to allow through running Corby – Peterborough.
- Remodelling at Trent Junction (including grade separation) to segregate conflicting traffic flows.

Other potential enhancements not currently being considered in long-term planning

- Further electrification:
 - Corby to Syston Junction
 - Trent Junction to Chesterfield via Erewash Valley
 - Nottingham to Trowell Junction
 - Sheffield to Doncaster and Leeds
 - Chesterfield to Rotherham via Beighton
 - Beighton to Sheffield
- Easing curves through Market Harborough to increase line speeds
- Redoubling, Kettering to Corby
- Remodelling at Mountsorrel Aggregates Terminal to eliminate conflicting movements.

In June 2015, the government announced a temporary pause in parts of Network Rail’s investment programme for CP5, including Midland Main Line electrification, pending a review of budgets and delivery resources. On 30 September 2015, work on Midland Main Line electrification was resumed, but with revised timescales now including Bedford to Kettering and Corby by 2019 and Kettering to Leicester, Derby, Nottingham and Sheffield by 2023.

6.2 East Midlands Gateway Strategic Freight Interchange

“East Midlands Gateway” is a multimodal freight interchange proposed by a private developer, Roxhill (Kegworth) Limited, located on a site between Castle Donington and Kegworth, and adjacent to both East Midlands Airport and Junction 24 on the M1 Motorway. Designed as a “Strategic Rail Freight Interchange” in accordance with the Government’s draft Policy Statement on National Networks published in December 2013, the facility includes rail-connected warehousing and container handling facilities directly linked to the road and rail networks and the airport, with provision to accommodate on-site manufacturing and processing activities in the future. Up to 7,000 new permanent jobs are expected be directly created once the facility is fully operational, in addition to more transient employment during the construction phases¹.

The proposal is also designated as a Nationally Significant Infrastructure Project (NSIP), and, as such, was the subject of a Development Consent Order submitted to the National Infrastructure Directorate of the Planning Inspectorate on 29 August 2014. The Inspectorates report of recommendation for the application was issued to the Secretary of State on 12 October 2015, and the deadline for the Secretary of State’s decision has been confirmed as 12 January 2016².

The specification for the development includes:

- A rail freight terminal designed to accommodate up to 16 intermodal trains per day (presumably including both inwards and outwards movements), each up to 775 metres long;
- Container storage and HGV parking;
- Up to 557,414 square metres of rail-served warehousing and ancillary service buildings;

¹ Eastmidlandsgateway.co.uk

² Infrastructure.planninginspectorate.gov.uk/projects/east-midlands/east-midlands-gateway-rail-freight-interchange

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- A new branch line connecting the terminal to the Sheet Stores Junction (Trent) to Stenson Junction freight railway, with a west-facing junction located just north of Hemington.
- New and improved road infrastructure connecting the site to the M1 Motorway, A6, A50 and A453 trunk roads and East Midlands Airport;
- Alterations to public rights of way and the creation of new publicly accessible landscaped open areas;
- Bus interchange facilities to provide links to local communities.

The alignment of HS2 is proposed to run in tunnel beneath East Midlands Airport before emerging to cut across part of the East Midlands Gateway site on its way to the East Midlands Interchange station at Toton. It is understood that Roxhill (Kegworth) Ltd. and HS2 Ltd. have jointly established that the projects are compatible, and further discussions are planned as more detailed plans are developed. However, a physical connection between the terminal and HS2 is not contemplated.



Network Rail is aware of the Gateway development, and it is referred to in the 2012 East Midlands Network Specification, but so far, little development of a train service specification has taken place. Although it will undoubtedly take some years for the planned maximum capacity of 16 trains per day to be reached, no stated assumptions have been made by the developers about likely origin and destination points, routing, daily tonnages or times of operations. It is therefore difficult to draw

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firm conclusions at this stage about the effect of the terminal on the local rail network, or any enhancements that might be required to accommodate the new traffic arising from it.

The main maritime intermodal flows conveying imported and exported goods in containers are to and from Southampton and to and from the east coast ports, particularly Felixstowe. The preferred route for trains between East Midlands Gateway and the south coast would probably be via Burton on Trent and Birmingham, but parts of this route are already oversubscribed and, in the longer-term, it may be necessary to consider the use of the Midland Main Line to Bedford and thence via East West to Oxford as an alternative. This would require spare or additional capacity not only on the Midland Main Line itself, but possibly enhancement of the Burton – Leicester route, which, although under-used west of Bardon Hill, is subject to relatively low maximum speeds and limited signalling capacity.

Given the lack of a direct connection from the new branch towards Trent, routing of traffic bound for the east coast ports is more problematical. The quickest and least disruptive solution might be to reverse trains at Burton on Trent, then retrace their route back to Trent, before proceeding via Loughborough, Oakham and Peterborough to Felixstowe. The only alternative if reversal is to be avoided would be a rather roundabout route via Tamworth, Walsall, Coventry and the West Coast and North London lines. In the very-long term, East West Rail Central section might offer an alternative provided a north-to-east connection was installed at Bedford.

Domestic flows are harder to predict, as there are multitude of potential destinations, but, again, the lack of a direct connection towards the east, and then north, appears to be a handicap. The potential that East Midlands Airport might offer for import/export traffic conveyed by rail is also an unknown factor as no similar freight terminal in such close proximity to a major international airport exists elsewhere in the UK.

Finally, the ability to exploit opportunities for new flows to and from the terminal will, as always, be dependent on the availability of spare capacity at numerous points elsewhere on the national network, and the relative value and priority of the various traffics competing to use it.

It is clear that, assuming East Midlands Gateway receives approval from the Secretary of State, significant further work will need to be done to identify potential traffic flows, establish how they might realistically be exploited, and examine what further enhancement of both the local and national rail network will be required to accommodate them in the longer-term.

6.3 East West Rail

The East West Rail (EWR) project is a proposal, originally promoted by a Consortium of Local Authorities and other organisations, to create a new orbital main line between Oxford and East Anglia. The EWR Consortium's primary objective was to create improved transport links in support of economic regeneration and growth, particularly around Milton Keynes, Bedford and Aylesbury Vale, but it was also recognised that, by providing a direct link between the principal radial main lines from London, the route had potential to create and exploit new passenger and freight markets.

The project was divided into three phases:

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“Western Section”

Upgrading the existing route between Oxford and Claydon (Bucks)
Upgrading the existing route between Aylesbury and Claydon
Reopening the disused route between Claydon and Bletchley
Upgrading the existing route between Bletchley and Bedford

“Central Section”

Creating a new link between Bedford and Cambridge, by means of reopening closed railways, constructing entirely new lines, or a combination of both.

“Eastern Section”

Upgrading existing railways in East Anglia to provide additional capacity and improved capability between Cambridge and the East Coast.

The Western Section was adopted by the Department for Transport (DfT) as a committed scheme in the High Level Output Statement (HLOS) for Railway Control Period 5 (CP5) in 2014 – 2019.

The route between Oxford and Bicester also forms an integral part of the “Evergreen 3 Phase 2” project to provide a new service between London (Marylebone) and Oxford via High Wycombe. Delivery of this project by 2016 is a Chiltern Railways Franchise Commitment, and it was recognised that economies could be obtained by constructing the additional infrastructure required for later introduction of EWR services as part of the Chiltern project. The decision was therefore taken to undertake additional works, including double track throughout and enhanced signalling capacity, funded from the East West Rail budget, as part of the Chiltern project.

Western Section is, therefore, now being designed and constructed by Network Rail in two phases:

- Phase 1a Bicester to Oxford Parkway
- Phase 1b Oxford Parkway to Oxford
- Phase 2 Bicester and Aylesbury to Milton Keynes and Bedford

Phase 1a opened on 26 October 2015 with the introduction of a half-hourly service between London Marylebone and Oxford Parkway. Extension of this service to Oxford under Phase 1b is planned for Spring 2016, although continuing uncertainties connected with resignalling of the Oxford area mean that at the time of writing a firm date has not been set. The new Oxford – Milton Keynes, Oxford – Bedford and Aylesbury – Milton Keynes services will follow by the end of Control Period 5 in March 2019.

Because of the volume of work required to upgrade the line, and the issues still to be resolved regarding the final route of the Central section, it will not be possible to complete enhancement of the Bletchley – Bedford section (including electrification) until Control Period 6 in 2019 – 2024.

While some spare capacity is available between Bletchley and Bedford on the current infrastructure, the introduction of through services to and from the Midland Main Line before upgrading is completed in 2023-4 is unlikely because:

1. The current connection between the Midland Main Line and the East West route at Bedford is unsuitable for regular through services, having a very low speed restriction both at Bedford Midland station itself, and along the sharply-curved single line through Bedford St. Johns station, which severely restricts capacity and would import a high degree of performance risk to both East West and Midland Main Line services. Improvements to the

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connection are possible, but the future route of the Central section east of Bedford is at a very early stage of development, and a number of options are still being considered, some of which involve a completely new alignment, independent of the present route via Bedford St. Johns. While this offers opportunities to radically improve the connection between the Midland Main Line and East West Rail and eliminate the problems described above, clearly no commitments can be made until a final route for Central section is selected.

2. The Bedford – Bletchley route is currently very much a secondary line, with basic (although quite modern) signalling, a relatively low maximum line speed of 60mph and other restrictions such as a large number of level crossings. Although acceptable for an interim Oxford – Bedford service pending further enhancement, these restrictions would adversely affect long-distance cross-country services through extended journey times, even if spare capacity was available to accommodate them.

Opening of the Western section will provide a direct link between the Midland, West Coast and Great Western Main Lines, offering new opportunities for through journeys between the East Midlands and Oxford, the Thames Valley, the West Country and the South Coast, which are currently only available with a change of train en route.

The East West Rail Consortium, the DfT and Network Rail are collaborating to develop options for the Central and Eastern Sections, with a view to assessing works for potential inclusion as committed schemes in Control Period 6 and beyond.

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6.4 High Speed 2

Construction of HS2 is planned in two phases, the first from London to Crewe opening in 2027 (revised plans published late 2015 amended Phase 1 from Birmingham to Crewe). The Phase 2 works, due for completion in 2033, will deliver two separate routes north of Birmingham, one via Crewe to Manchester, the other to Leeds.



Source: HS2 Ltd

The eastern leg of HS2 to Leeds does not directly serve Leicestershire, but a “hub” station serving the East Midlands region is planned at Toton, on the site of the former marshalling yards, where HS2 will run parallel to the existing Erewash Valley line. The site is within 2Km of Junction 25 on the M1

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motorway, and, in addition to extensive car parking facilities, various forms of public transport links from the station to both Derby and Nottingham city centres have been proposed, including:

- Heavy Rail services running on existing and new formations between Nottingham and Derby stations.
- “Tram Train” type operations over existing and new railway formations, extended into Nottingham city centre via the tram (NET) network, and possibly to Derby via new street routes.
- Extension of the Nottingham tram system to Toton over new segregated and street routes.
- New technology – monorail or maglev for example.
- Guided busways.
- Conventional buses, perhaps operating on segregated rights of way.

A similar regional station serving Sheffield, Rotherham and Doncaster is planned at Meadowhall, which is already linked to centres of population via the Sheffield Supertram and heavy rail networks. However, a sizable body of opinion, including factions in Sheffield City Council, is pressing the case for the HS2 station to be located nearer Sheffield city centre in order to improve direct access to the shopping and business districts and widen the range of rail interchange options available.

Leeds station will be located within the city just south of Leeds City station, to which it would be connected by dedicated pedestrian walkways. The line will then be inlaid to the conventional network to allow HS2 services to be extended to York and North-East England.

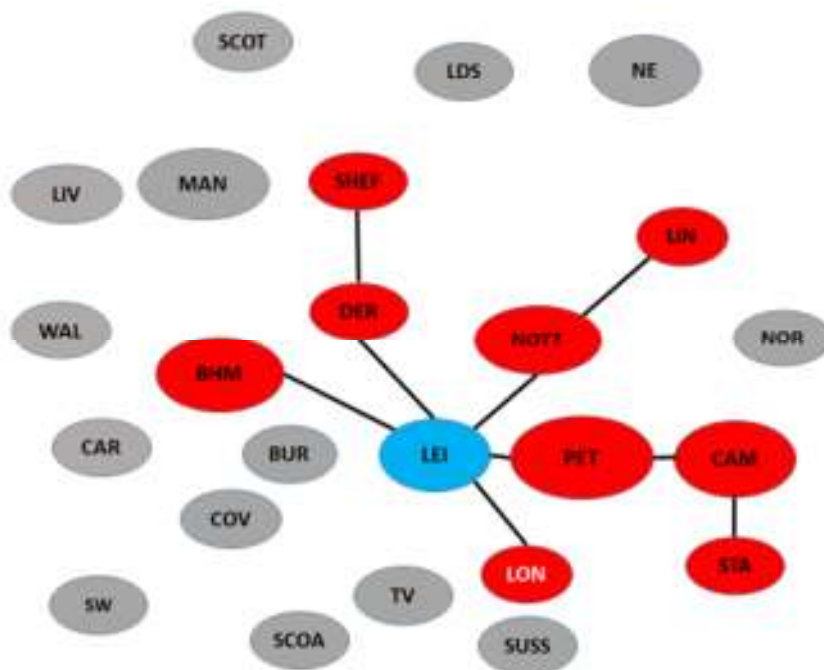
It has recently been suggested that a junction between the Erewash Valley and HS2 lines at Toton should be added to allow through running from Leicester or points further south via the High Speed network to Leeds and the North-East. While this does not feature in HS2’s current plans, the project is still at an early enough stage of development to allow it to be incorporated if a sufficiently robust case can be made for doing so.

7

GVA Study Results

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The current pattern of connectivity based on direct train services from Leicester is illustrated below.



Key:

SCOT	Scotland	NEW	Newcastle
LDS	Leeds	SHEP	Sheffield
LIV	Liverpool	MAN	Manchester
NOTT	Nottingham	LEI	Leicester
WAL	Walsall	BHM	Birmingham
KETT	Kettering	COR	Corby
PET	Peterborough	NOR	Norwich
NORT	Northampton	WELL	Wellingborough
SW	South West	TV	Thames Valley
LON	London	CAM	Cambridge
STA	Stansted	SCOA	South Coast
SUSS	Sussex	NE	North East

While the city and the county as a whole derives considerable value from the frequent services to London, Nottingham, Derby and South Yorkshire, Leicester has relatively poor connectivity compared to cities of equivalent size and importance, and direct links to other major centres can be expected to provide additional economic benefits.

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Services to some destinations, such as Leeds, North-East England and Scotland, could, subject to spare capacity and rolling stock being available, be provided over the existing rail network. Other links would require upgrading of the network to provide the necessary capacity and capability. In this context, the construction of the new East West Rail route between Bedford and Oxford via Bletchley and Banbury, due to open in stages during Control Periods 5 and 6, will provide a direct route from the East Midlands to the Thames Valley, South Coast and South West England, avoiding the need to change trains en-route and offering more competitive journey times. Similar benefits might also be derived from upgrading the Oxford – Leamington – Coventry route, including works at Nuneaton to segregate east-west traffic from the West Coast Main Line, which is currently being considered for implementation in Control Period 6.

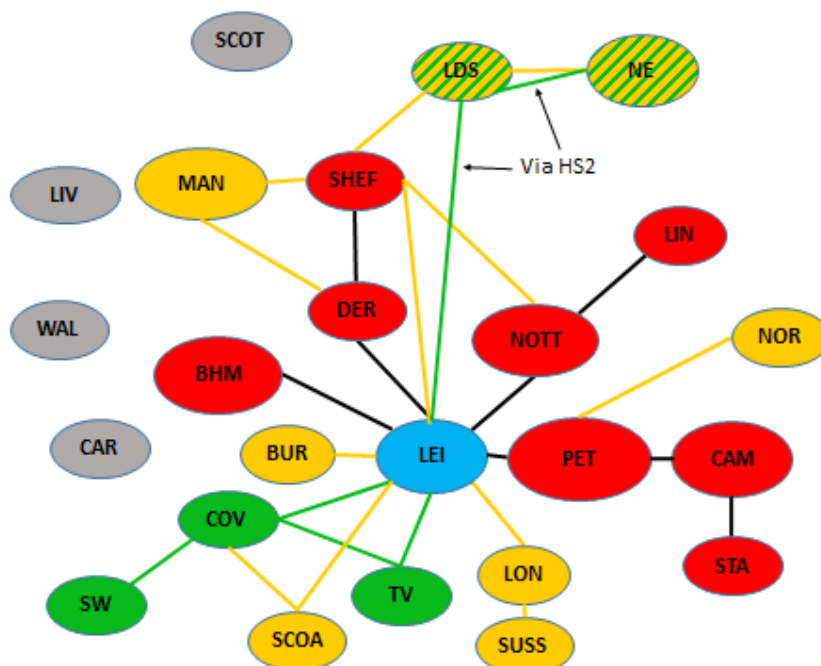
The opening of the second phase of High Speed 2 northwards from Birmingham to Leeds, planned in 2033, also offers potential for improving connectivity to and from Leicester in the long-term. The project includes an East Midlands station at Toton, with dedicated fixed links to Derby and Nottingham, but the location also offers the opportunity for a direct rail connection to Leicester via an interchange station located on the adjacent Erewash Valley Main Line. A junction between the conventional and High Speed networks at this point has also been suggested to enable through services from the Midland Main Line to run to Sheffield, Leeds and the North East via HS2 with significantly reduced journey times. However, this link does not currently feature in HS2's plans.

The study has identified eleven potential destinations for additional direct services from Leicester:

Destination	GVA
Sheffield, Leeds and North East England (direct services via HS2)	40.9
Swindon and Bristol (via East West Rail)	19.5
Sheffield, Leeds and North East England (via HS2 with change of train at Toton)	17.4
Thames Valley (via Coventry / Leamington)	14.9
Thames Valley (via East West Rail)	13.4
Manchester	9.1
Enhanced service to London	6.9
Leeds and North East England (via conventional network)	6.4
Sussex Coast and/or Sevenoaks via Thameslink	4.0
Norwich	1.5
Burton-upon-Trent	0.34

The options offering potential GVA benefits of over £10million per annum are shown in green on the diagram below. The remainder, returning a potential GVA of under £10million per annum, are shown in yellow.

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Key:

SCOT	Scotland	NEW	Newcastle
LDS	Leeds	SHEF	Sheffield
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NOTT	Nottingham	LEI	Leicester
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NORT	Northampton	WELL	Wellingborough
SW	South West	TV	Thames Valley
LON	London	CAM	Cambridge
STA	Stansted	SCOA	South Coast
SUSS	Sussex	NE	North East

These conclusions are consistent with similar analysis undertaken in connection with Strategic Economic Plans in Warwickshire, Coventry and Northamptonshire, with the regional investigations conducted by “Midlands Connect” and with the studies being undertaken by Network Rail’s Long-Term Planning Process. In particular, there is a high degree of correlation between the various studies in relation to:

- East Midlands to the Thames Valley
- Leicester to Coventry (The “M69 corridor”)
- South and East Midlands and areas included in the “Northern Powerhouse” area

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Key:

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NORT	Northampton	WELL	Wellingborough
SW	South West	TV	Thames Valley
LON	London	CAM	Cambridge
STA	Stansted	SCOA	South Coast
SUSS	Sussex	NE	North East

8

LEICESTER TO LONDON

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A key priority is to maximise the benefits from the Midland Main Line, and in particular electrification. Although line speed improvements did not yield the highest Gross Value Added in the study undertaken, this is because the Leicester - London service is already frequent. However, the evident importance of direct links to London led to a need to identify the opportunities for improving the Leicester – London service and secondly, to examine the potential effects of HS2 on the service.

8.1 Enhanced Conventional Services

GVA £6.9m p.a.

The use of the so-called “sixth path” on the Midland Main Line south of Leicester to provide an additional service to London is an option offering obvious benefits, particularly to Leicester where five trains per hour would be available. The principal competing proposal for the use of the spare path is a second train per hour to Corby, which of course would not serve Leicester unless extended via Oakham and Melton Mowbray, which itself would not offer competitive through journey times and would be of limited direct benefit to the city.

There do not appear to be any insurmountable difficulties associated with introduction of a new London – Leicester service, although, as noted above, there are significant issues associated with platform capacity at St. Pancras, particularly if the additional service is one that would require the use of long trains of more than 5 vehicles.

The additional London service would be compatible with the proposals for new services to Manchester, Leeds and Burton-upon-Trent, to which the trains could be extended. However, current plans to electrify the Midland Main Line only as far as Sheffield (and the lack of firm plans to electrify the Hope Valley and Leicester – Burton lines) would mean incurring significant expense for further electrification, or the use of diesel or bi-modal (electro-diesel) rolling stock, which might cause operational and logistical difficulties for the train operators.

If only one additional path is in fact available between Leicester and London, then the additional London train would not be compatible with routing Bristol or Thames Valley services via Bedford and East West Rail, and an informed decision about the best use of the spare capacity available would have to be made.

Other enhancements, as listed in Section 4.3 above, which also contribute towards maximising the benefits to be derived from enhanced services to London are planned during CP5 and beyond.

8.2 The effects of HS2 on Leicester – London services

Concern has been expressed in Leicester, as in other locations at similar distances from London which will not be directly connected to the High Speed network, that the quality of conventional services will be diluted by the transfer of much of the long-distance market to HS2. It is feared that the market on the conventional network will become more outer-suburban in nature, resulting in more intermediate stops and longer journey times to and from the capital. It has been estimated that each additional call made between Leicester and St. Pancras would adversely affect Leicester’s economy by some £4m GVA, or about £1m per minute.

While experience in France, where the so-called “classic” network has in some areas seen a decline following the expansion of the Lignes à Grande Vitesse, is sometimes cited as evidence of the

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adverse effect of High Speed networks, it is difficult to accurately predict how HS2 will impact on the existing rail system in Britain. Development of the northern section of HS2 is still at a very early stage and many uncertainties regarding the exact route and station locations, let alone details of the timetable, will remain for some time to come. However, the plans and assumptions by government and HS2 Ltd. that underlie the High Speed proposals do enable some conclusions to be surmised.

The Department for Transport has a stated objective that “all places (not directly served by HS2) which currently have direct London services will retain a broadly comparable service” after the opening of the high speed network. While “broadly comparable” is not expressly defined, the intention is clearly that there should be no material diminution in the quality of services to and from London in terms of frequency and journey time. Indeed, Coventry, which has expressed concerns about the impact of High Speed services from Birmingham on the appeal of the city to potential investors, has already obtained an undertaking to this effect from the Secretary of State, and there is no reason that Leicester should not seek similar assurances.

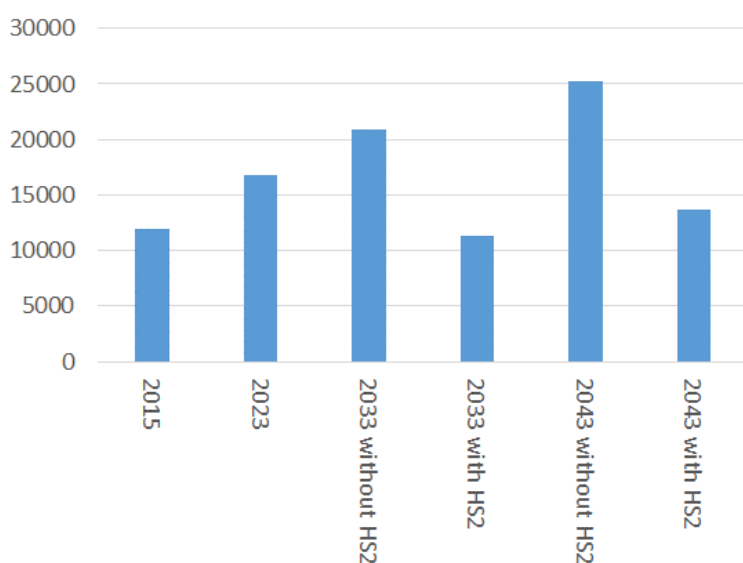
Current industry planning assumes that the growth in demand for rail passenger services seen over the last 15-20 years will continue; indeed this assumption underpins the case for building HS2, which is predicated mainly on the need to provide additional national rail capacity to accommodate growth, rather than the sole objective of securing shorter journey times.

Demand for services on the conventional network is, therefore, expected continue to grow over the next 20 years. When HS2 is completed in 2033, passengers from Nottingham, Derby and north thereof are expected to transfer to the new services, freeing capacity from Leicester and south thereof to accommodate further expansion in demand, as shown below.

Passengers Leaving Leicester on London Services

Source: SLC using HS2/NR forecasts

Average passengers per day



Assumptions:

Growth to 2023: 40%

Growth to 2043: 108%

Extrapolated growth to 2033: 74% (NR forecasts assume straight line growth)

Abstraction to HS2: 46%

Peak Hour (08.00 to 09.00) Passengers on MML Trains Arriving at St Pancras

Source: Network Rail



The projections indicate that the Midland Main Line will be running at or near capacity even after the introduction of the “sixth train” in 2019 until the opening of HS2 in 2033, when some spare capacity will be freed up to accommodate further growth over the following 10 years. However, the nature of the demand from Leicester, for fast, frequent services reaching London in 60 minutes or less, will not change – the advantage brought by HS2 is that trains arriving from further north will have more space to accommodate Leicester passengers.

Non-stop services from Leicester are still likely to be required in order to meet the demand for sub-60 minute journey times, as well as additional services calling at locations further south. The forecast service requirement in 2043 (see diagram below) shows 6 long distance trains per hour between London St. Pancras and Leicester (extended to Nottingham, Derby and Manchester), plus the extension of Thameslink services, providing direct, albeit slower, services to central London and onwards to Sussex and the south coast.

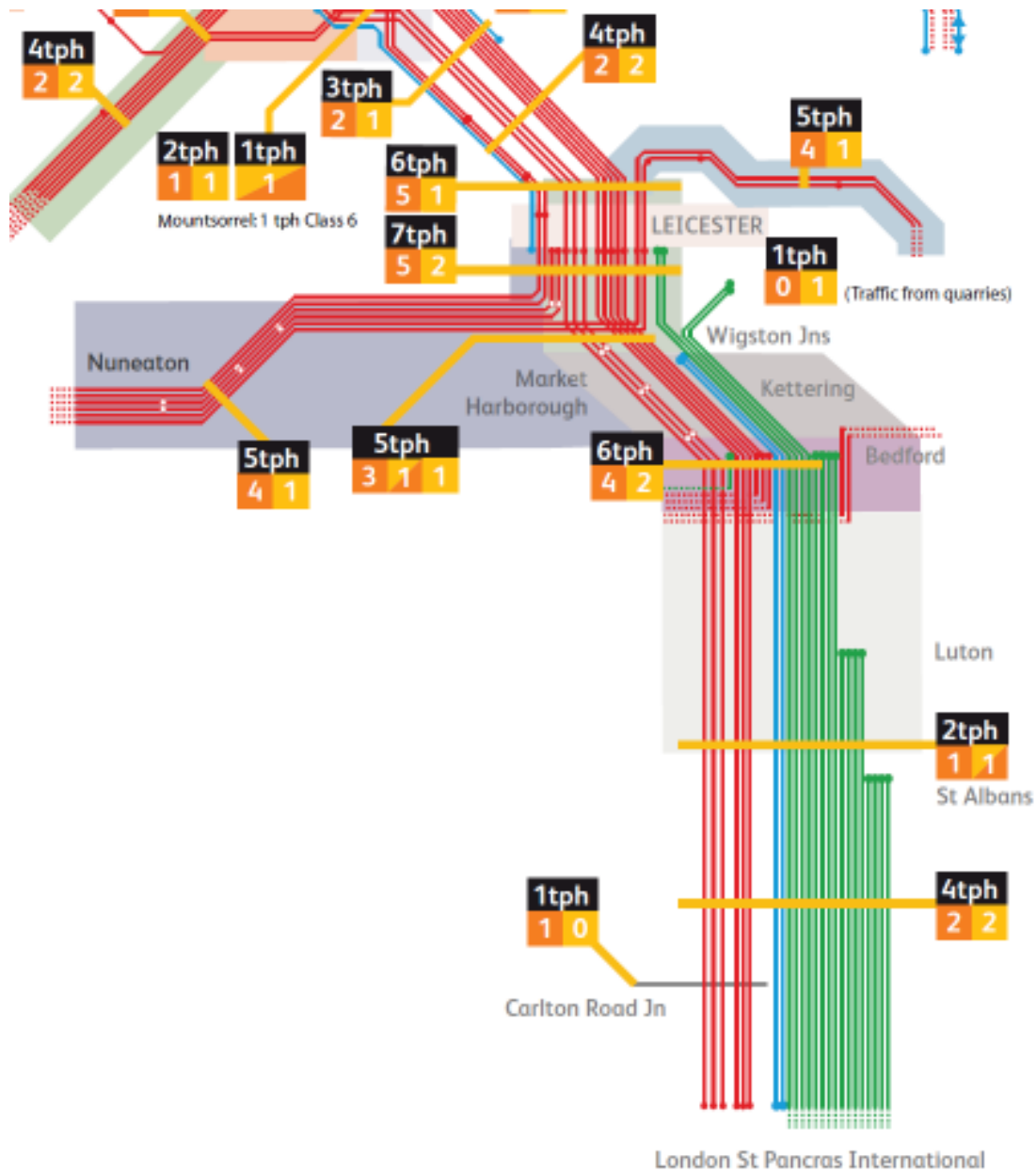
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Estimated Train Service Requirement for 2043 with HS2

Source: Network Rail

Main line services shown in red

Thameslink services shown in green



9

TRAIN SERVICE OPTIONS

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9.1 To Leeds and North East England via HS2

Via interchange at Toton

GVA £17.4m p.a.

Although Leicestershire is not served directly by the proposed HS2 route, the proximity of the Toton Interchange offers opportunities to take advantage of the benefits the high speed line will bring.

Journeys between Leicester and Leeds, York and North East England currently involve a change of train to Cross-Country or local services, at either Derby or Sheffield. Passengers using High Speed services from Toton northwards would save time, although HS2 would only be used for part of the journey, and a change of train would, of course, still be required. Nevertheless, analysis indicates that an estimated GVA of £17.4m p.a. would result.

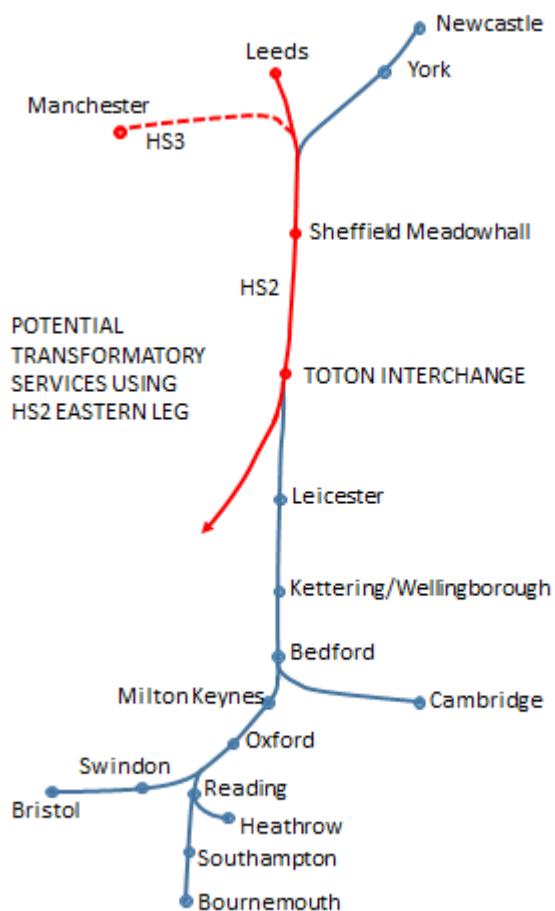
No regular passenger services from Leicester are currently routed via the proposed interchange station site on the Erewash Valley line, but the base position being examined by Network Rail and HS2 is for a twice hourly shuttle between Leicester, Loughborough and Toton. In addition, however, services to the Toton might be provided by diversion of one or more of the three hourly Leicester – Nottingham services. This would require new infrastructure at Toton to allow through running from the south to the east via the new station. However, such infrastructure will also be needed to provide a rail-based fixed link between Toton and Nottingham. One of the half-hourly London – Sheffield trains might also be diverted via the Erewash Valley, with the half-hourly frequency between Leicester and Derby being maintained by means of a new service, perhaps running to Manchester.

Direct services

GVA £40.9m p.a.

Construction of a physical link between the Erewash Valley and HS2 lines at Toton would allow through running from Leicester and points further south via the High Speed network to Leeds and the North-East. As there would be no point in extending trains from London, because they would clearly offer no advantage over through HS2 services from Euston, these would be new services, most likely originating from the Thames Valley, South Coast or West Country and running via the new East West Rail link to Bedford in order to maximise the potential benefits to other locations on the Midland Main Line. Potential service patterns are shown below, with estimated journey time savings compared to existing arrangements.

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Journey	Rail Now*	Car now (AA)	Direct train HS2
Leicester to Leeds	2h 04m	1h 52m	1h 06m
Leicester to Newcastle	3h 27m	3h 22m	2h 20m
Southampton to Leeds	4h 47m	4h 22m	3h 52m
Kettering to Newcastle	4h 02m	3h 52m	2h 45m
Oxford to York	3h 26m	3h 34m	2h 32m
Cambridge to Sheffield	2h 55m	2h 42m	1h 50m

Although the High Speed network would again be used for only a proportion of the journey, the estimated time savings, together with the elimination of the need to change trains, would make rail a more attractive option than it is at present for journeys to Leeds and north thereof.

The GVA analysis identifies this option as having by far the highest added value, at £40.9m per annum, of all the potential enhancements tested. However, this must be set against the costs involved, including the cost of the junction itself and the need for additional high-speed rolling stock, which would be operating at conventional speeds for much of its working day.

Such a junction does not currently feature in HS2's plans for the network, and initial analysis indicates that the cost would be in the order of £20million. Based on the current notional timetables being used for planning and development purposes, it is estimated that there would be capacity on HS2 north of Toton for an additional four trains per hour in each direction. However, it should be borne in mind that there will be competition for the use of this spare capacity by potential new

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services from other locations directly or indirectly linked by HS2. Further discussions with organisations such as “Transport for the North”, who are known to be actively looking at options for how spare HS2 capacity might be exploited, would be beneficial in formulating a coherent case for prioritising the opportunities arising from more integration between the High Speed and conventional networks.

It is estimated that approximately 800 passengers per day from Leicester and Loughborough might use through services to the North-East via HS2, but this would be nowhere near sufficient to underwrite the costs involved, and the wider benefits gained from other locations along the lines of route (the so-called “String of Pearls” effect) would need to be investigated and established in order to make a sound case for investment to the Government and HS2 Ltd. Studies would need to include an understanding of the pattern of services required to exploit the potential market, how that pattern fits with both the proposed HS2 and Midland Main Line timetables, the availability of the necessary capacity on the wider conventional and high speed networks, and any technical issues that may arise relating to the design and operation of the rolling stock.

9.2 To Swindon and Bristol

GVA £19.5m p.a.

Services to Swindon and Bristol (and possibly onwards to the West Country) would be routed via the Midland Main Line, East West Rail Western section and the Great Western Main Line, potentially serving:

- Bedford
- Bletchley
- Bicester
- Oxford
- Didcot
- Swindon
- Bath
- Bristol

Clearly, completion of the East West Rail (EWR) “Western Section” throughout between Oxford and Bedford, currently planned for the end of CP6 in 2024, is a prerequisite for introduction of these services.

Capacity issues would also affect the Midland Main Line between Kettering and Bedford, where informed opinion states that only one additional main-line path is available (although accurately determining railway capacity, dependent as it is on a number of variable parameters including track layout, signalling design, line speeds, rolling stock performance, stopping patterns etc. is notoriously difficult). However many spare paths are actually available, there will, as discussed elsewhere, be competing views on the best use to which they can be put.

There are also separate issues regarding capacity at Oxford (which would, at east to some extent, be addressed in the large-scale redevelopment at Oxford station proposed in Control Period 6 and beyond, and on the Great Western Main Line both between Oxford and Didcot and west thereof towards Swindon. A stop at Didcot could be achieved with the current station layout at the expense of a time-consuming reversal, or new platforms would be required on the west curve connecting the Oxford route with the Main Line towards the west.

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Electrification throughout between the East Midlands and Bristol would be desirable, though not necessarily essential, and in fact current plans would deliver the works required, though not necessarily to a common timescale.

9.3 To the Thames Valley

GVA (via Coventry and Leamington) £14.7m p.a.

GVA (via East West Rail) £13.4m p.a.

Direct services to Reading could be routed via Coventry or East West Rail, potentially serving:

1. Via Coventry:
 - Nuneaton
 - Coventry
 - Leamington Spa
 - Banbury
 - Oxford
 - Didcot
 - Reading
2. Via East West Rail:
 - Bedford
 - Bletchley
 - Bicester
 - Oxford
 - Didcot
 - Reading

Capacity between Leicester and Nuneaton is probably sufficient to accommodate an hourly interval service, but crossing the West Coast Main Line at Nuneaton would be a major problem, and would probably require construction of a segregated route directly connecting the Leicester and Coventry lines via an underpass, which would preclude a stop at Nuneaton. In any case, if Nuneaton was to be served, reversal in the station would be necessary.

Similar issues arise at Coventry, where very limited capacity is available on the Birmingham Main Line to allow trains to cross between the Nuneaton and Leamington routes on the level. It is unlikely that space could be found to provide a grade-separated connection between these routes without major engineering works involving significant amounts of land take.

As it is unlikely that either the DfT or the Cross Country operator would contemplate diverting South Coast – Manchester services back on to the Warwick route to Birmingham to release capacity, further double-tracking of the Coventry – Leamington route would be required in addition to the works now being undertaken to facilitate an increase in cross-country train paths.

Informed opinion holds that the “Cherwell Valley” route between Leamington and Didcot is currently operating at or near full capacity, largely due to its use as a major freight artery between the South Coast and West Midlands. Opening of the East West Rail Western Section will provide an alternative route for freight which might release capacity on the Cherwell Valley, but again, there will be competing demands for the spare paths.

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Routing the Thames Valley services via East West Rail results in a slightly lower GVA, and is subject to the same comments and provisos as detailed above in section 9.2, except that a call at Didcot could be accommodated on the existing infrastructure. However, it can reasonably be expected that some capacity would be available on the four-track section east of Didcot, particularly following completion of the recent major works in and around Reading.

Although Reading is a significant revenue-generating destination in its own right, completion of the “Western Link” into Heathrow Airport from the Great Western Main Line at Langley, currently planned in 2021, would offer the possibility of extending services directly into the airport. However, it is not yet clear whether the new route, which was originally conceived as a purely local link accommodating services to and from Reading only, will be suitable to accommodate long-distance trains. If, in fact, the specification for the works do permit such use, there would clearly be fierce competition for the best use of the link, with many different UK regions having expressed interest in direct services.

9.4 To Manchester

GVA £9.1m p.a.

Although Nottingham enjoys regular services to Manchester via Chesterfield and Sheffield, the remainder of the East Midlands including Leicester and Derby lost their direct links with the virtual withdrawal of services between London St. Pancras and Manchester following completion of the West Coast electrification from Euston in 1966-7. The direct main line between Matlock and Chinley via Bakewell closed in 1968, leaving the (very) few remaining through services running via the longer Hope Valley route until they were finally withdrawn in the early 1980s.

Given the size of the populations at both ends of this route, the economic importance of both Leicester and Manchester, and the relatively poor quality of road links compared to, say, the M1 corridor, it can be reasonably expected that there is a suppressed rail market that could be unlocked by the introduction of direct services.

Trains could be routed directly via the south junction at Dore and the Hope Valley route, which was used during the temporary “Project Rio” services operated during the West Coast Route modernisation project. Alternatively, they could reverse at Sheffield, at the cost of a time penalty, but providing access to a larger market. The service could serve:

- Loughborough
- East Midlands Parkway
- Derby
- Sheffield (with reversal and time penalty)
- Stockport
- Manchester Piccadilly

Capacity on the Hope Valley is at a premium following frequency improvements in recent years, and the continuing heavy freight traffic from the quarries at Buxton and the cement works at Hope. However, capacity improvements are planned under the “Northern Hub” project in Control Period 5, which should ease the situation. Options for providing the service include a new dedicated Leicester – Manchester service, or use of the sixth path on the Midland Main Line to provide through trains from London.

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A more radical solution, to secure faster and more competitive journey times, would be reopening of the closed former main line from Matlock through Bakewell to Chinley, where the present main line from Sheffield to Stockport would be joined. Reopening has been considered a number of times since the route was closed in 1968, and at one time it was included in Derbyshire's long-term transport plan. However, while previous studies indicate that reopening is technically feasible, the work would be very expensive and would be likely to attract opposition given the line's position in the heart of the national park, and the use of large parts as a cycle and foot path in which substantial sums have already been invested. It is not considered that this is a realistic option, particularly if based solely on the benefits of an East Midlands – Manchester passenger service. However, in the long-term, it is, perhaps, possible a case might be made on the basis of the line's contribution to a much wider national strategy for improving passenger and freight connectivity and capacity.

9.5 To Leeds and North East England via conventional network

GVA £6.4m p.a.

The potential for through services to Leeds and the North East has been discussed previously in connection with the use of HS2, and much the same conclusions apply to services routed via the existing conventional network. However, due to the extended journey times, the GVA is substantially reduced compared with routing via the high-speed line.

Extension of one of the existing hourly London – Sheffield services to Leeds is an obvious solution, albeit at the cost of additional train sets. Alternatively, subject to the comments above regarding extension of electrification, the additional London service or one of the new Bristol / Thames Valley trains might be extended to Leeds or through to the North East.

The value of these services would clearly be affected once journeys via the high-speed network became available following the opening of HS2 in 2033. Any prior introduction of through services to the North East would need to take into account the risk that they could have a limited life of perhaps 10-15 years, although demand could be built up during this period, forming a proven customer base upon which to build further growth once HS2 was open.

9.6 To the Sussex Coast and/or Sevenoaks via Thameslink

GVA £4.0m p.a.

Another potential use for any additional spare capacity on the Midland Main Line could be extension of Thameslink services to Leicester to provide through cross-London links to Gatwick Airport and Brighton, or to Sevenoaks. This would also give Leicester a fifth train to London per hour, with some potential advantages to passengers travelling to the City (Farringdon, Blackfriars or London Bridge) who would be saved a change onto London Underground or Thameslink on arrival.

The main objections to this proposal centre on the extended journey time compared to an "Inter City" type operation, and the use of suburban rolling stock which is often perceived as inferior to the existing or next-generation long-distance trains. It is very unlikely that the future Thameslink operator would contemplate the use of dedicated low-density stock specifically for services north of Bedford to Leicester and Corby, particularly in view of the intense utilisation of the Thameslink fleet that is required to make the operation viable.

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However, Network Rail's projected train service pattern for 2043 (see Section 8.2 above) does include provision for one Thameslink service per hour to Leicester and one per hour to Corby. While journey times from Leicester and Market Harborough are unlikely to be competitive compared to the fast services to St. Pancras, some passengers travelling to destinations in Sussex and Kent might be attracted by the avoidance of the need to cross between London termini.

9.7 To Norwich

GVA £1.5m p.a.

An additional service from Birmingham to Norwich via Leicester and Peterborough would be relatively straightforward to implement, albeit at the expense of additional rolling stock. Assuming that the existing hourly Birmingham – Leicester local service serving Hinkley, Narborough and South Wigston remained, the extra train would provide a third Birmingham – Leicester service per hour as well as increasing frequency at Melton Mowbray and Oakham to half-hourly.

Extension of the local Birmingham – Leicester service to Norwich (or diversion of the existing Stansted Airport service and extension of the local train to Stansted in substitution) would reduce the need for additional stock, but would result in one or other of these long-distance services having additional stops and longer journey times compared to the existing fast service. Whichever way it might be provided, capacity between Leicester, Nuneaton and Birmingham would not seem to be an issue, although platforms at Birmingham New Street are already at something of a premium.

9.8 To Burton-upon-Trent

GVA £0.34m p.a.

Passenger services between Leicester and Burton-on-Trent were withdrawn on 7 September 1964, since when the line has been maintained and operated as a freight route. Closure of the collieries along the line, and the subsequent decommissioning of Drakelow Power Station in March 2003, resulted in the cessation of coal traffic, leaving only the flow of aggregates from Bardon Hill and Stud Farm Quarries. As most of this traffic passes via Knighton and the Midland Main Line, the section between Bardon Hill and Burton-on-Trent is now relatively lightly used.

The route has long been subject to significant problems associated with subsidence, which has resulted in the imposition of numerous Temporary Speed Restrictions (TSRs) and the need for frequent remedial work to the track. Some years ago, in order to enable a less onerous maintenance regime to be implemented, the maximum permissible speed was reduced to 45mph, but about 4¾ miles is currently permanently restricted to no more than 20mph. In addition, the "Up" (or eastbound) line is restricted to 25mph over about 2 miles between Castle Gresley and Hicks Lodge, while the adjacent "Down" (Westbound) line remains at 45mph, due to embankment subsidence on one side of the formation.

These low speeds would be inappropriate for a passenger service as they would result in long and therefore uncompetitive journey times. While the geometry of the track remains suitable for higher speeds up to 60mph, and probably more on certain sections, significant remedial work would be required to counteract the effects of existing subsidence and ensure the long-term stability of the underlying formation before maximum speeds could be safely raised. If such works were not carried

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out, significant risks of temporary speed restrictions would remain, resulting in unreliable services which would not be attractive to passengers.

Although the current maintenance regime is appropriate to the heavy, but low-speed, traffic now carried, it is also likely that significant track renewal would be required, as it has not been maintained to the full standards suitable for higher speeds for many years.

Signalling on the route consists of traditional mechanical equipment controlled from three manual signalboxes at Bardon Hill, Mantle Lane and Moira West. Although perfectly suitable for passenger operation, the long block sections between the signalboxes restrict capacity, and additional signalling would be required to reliably accommodate a frequent, regular-interval passenger service in addition to the current freight flows. As noted in section 6.2 above, opening of the planned East Midlands Gateway freight terminal might result in increased use of the Leicester – Burton route for intermodal trains, which would also require additional capacity. To ensure long-term viability, comprehensive resignalling controlled from the East Midlands Signalling Centre would need to be seriously considered.

Eleven level crossings have been identified (previous experience elsewhere indicates that there are probably also other rights of way which have fallen into disuse or otherwise been overlooked), all of which will require risk assessment to determine the safety implications of increased line speeds. Depending on the outcome of these investigations, remedial work to eliminate the crossings or upgrade them to higher safety standards would almost certainly be required. Under current rules, all infrastructure, including earthworks and structures, will need to be assessed to ensure compatibility with standards for higher speed, which may also result in the need for additional remedial work, for example, increasing clearances through overbridges.

The removal of the east-to-north connection at Knighton Junction many years ago severed the direct link to and from Leicester station. The former alignment has been sold and extensively redeveloped, meaning reinstatement would be very expensive. New legal powers would also be required through the Transport & Works Act or Development Consent Order process. The alternative of reversing trains at Knighton South would not only further extend journey times, but would require additional infrastructure, with new legal powers if construction was required outside the current Limits of Deviation.

In summary, the reinstatement of passenger services between Leicester and Burton is technically feasible, but, in view of the current status and condition of the route, further investigative work will be required, including

- Detailed ground condition surveys to determine the extent of remedial works likely to be needed to stabilise the formation
- Other surveys to establish the suitability of the infrastructure to reliably accommodate the more intensive service levels
- A better definition of the market to be served and a clear understanding of the type of service required to exploit it (e.g. how many stations at what locations, minimum journey times required, origin and destination etc.)

Further investigation work is underway separate from this report.

10

“MAKING IT HAPPEN”

10.1 Next Steps

The investment that will be required to improve and expand the network in order to facilitate the introduction of new services is of benefit not just to Leicestershire, but also to the country as a whole. Evidence-based lobbying of Central Government with the objective of restarting paused projects such as Midland Main Line electrification, and to make the case for including projects currently being considered in the settlements for CP6 and beyond, will be essential if the necessary enhancements are to be delivered. It is important to ensure that there is compatibility and commonality of purpose between the various Authorities and their Strategic Plans, so that a clear and compelling case is made to Central Government supporting the proposals and demonstrating the strategic benefits to be derived from them.

Steps to be taken to start the process include:

- Workshops with Northamptonshire, Warwickshire, Coventry and (potentially) other Authorities to establish common objectives and formulate a consistent and coherent approach for influencing Government and Network Rail decisions.
- Discussions with Network Rail and the Department for Transport regarding the conclusions from the various Strategic Plans, the priorities identified by the Authorities and the practicalities involved in developing and implementing the necessary enhancements required to deliver them.
- Discussions with Network rail and HS2 Ltd. regarding the relationship of the Strategic Plan objectives with HS2, and the opportunities for HS2 to provide at least some of the solutions to deliver them.

10.2 Opportunities to influence

There are a number of key milestones over the next twelve months which offer opportunities to influence Government and Network Rail decisions:

Priority	Timetable
West Midlands Route Study	Dec 2015 draft
HS2 Study on Toton Connectivity	Dec 2015
Post-HS2 Timetable Work ("Capacity Plus")	Jan 2016 draft
West Midlands ITT issued	Jul 2016
West Coast ITT issued	Nov 2016
East Midlands ITT issued	Dec 2016
Initial Industry Plan	Sep 2016
Cross Country ITT issued	Sep 2018

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Appendix 1. Summary of Train Service Options

Destination	Estimated GVA (£m p.a)	Output	Improvements Required	Current Status
Sheffield, Leeds and North East England	40.9	Direct services via HS2	Junction between conventional network and HS2 at Toton. Rolling stock compatible with both conventional and High Speed networks.	Junction between networks not currently being considered by HS2 or Network Rail, but would seem to be physically possible. Rolling stock will be compatible with both networks as HS2 services to Newcastle are planned.
Swindon and Bristol	19.5	Hourly service via East West Rail (Bedford – Oxford)	Additional capacity at Leicester station. Additional capacity on MML between Kettering and Bedford. Completion of East West Rail (EWR) “Western Section” between Oxford and Bedford, including improved connections between EWR and MML. Additional capacity at Oxford. Electrification of MML, EWR and Great Western Main Line (GWML).	Additional capacity at Leicester proposed for CP6. Capacity and capability improvements and electrification on MML included in Network Rail’s plans for Control Period 5 (2014-19) or identified as potential candidate schemes for Control Period 6 (2019-24), but are currently “on hold” pending review. Oxford – Bletchley reopening and electrification currently in development phase for opening in 2019. Bletchley – Bedford upgrading and electrification proposed for CP6, but at relatively early stage. No firm proposals regarding improved connections at Bedford yet developed.

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Destination	Estimated GVA (£m p.a.)	Output	Improvements Required	Current Status
Sheffield, Leeds and North East England	17.4	Conventional rail link to interchange station at Toton, thence via HS2 services.	Construction of interchange station at Toton. Additional or diverted train services to provide link between Leicester and Toton.	Interchange facilities at Toton planned as part of fixed links to Derby and Nottingham, but not clear whether this includes suitable facilities to enable interchange with trains on Erewash Valley line.
Thames Valley	14.7	Hourly service via Coventry - Leamington	Additional capacity at Leicester. Grade-separation of routes at Nuneaton to avoid conflict with West Coast Main Line. Additional capacity at Coventry, particularly new platform if services are terminating. Additional capacity at Oxford. Electrification Leicester to Oxford via Leicester and Great Western Main Line (GWML).	Additional capacity at Leicester proposed for CP6. Capacity improvements and electrification on GWML have been included in Network Rail's plans for Control Period 5 (2014-19), but are currently "on hold" pending review. Oxford – Coventry electrification proposed as part of "Electric Spine" project for implementation in CP5 or CP6, but priority against other phases of this project unclear. Remodelling of Oxford station proposed for CP6.

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Destination	Estimated GVA (£m p.a.)	Output	Improvements Required	Current Status
Thames Valley	13.4	Hourly service via East West Rail (Bedford – Oxford)	<p>Additional capacity at Leicester station.</p> <p>Additional capacity on MML between Kettering and Bedford.</p> <p>Completion of East West Rail (EWR) “Western Section” between Oxford and Bedford, including improved connections between EWR and MML.</p> <p>Additional capacity at Oxford.</p> <p>Electrification of MML, EWR and Great Western Main Line (GWML).</p>	<p>Additional capacity at Leicester proposed for CP6.</p> <p>Capacity and capability improvements and electrification on MML included in Network Rail’s plans for Control Period 5 (2014-19) or identified as potential candidate schemes for Control Period 6 (2019-24), but are currently “on hold” pending review.</p> <p>Oxford – Bletchley reopening and electrification currently in development phase for opening in 2019.</p> <p>Bletchley – Bedford upgrading and electrification proposed for CP6, but at relatively early stage. No firm proposals regarding improved connections at Bedford yet developed.</p>
Manchester	9.1	At least hourly, either new local service, new London service or by extension of existing London – Sheffield service). May be routed direct via Dore South curve, via Sheffield, or via reopening of Matlock – Chinley line.	<p>Additional capacity at Leicester.</p> <p>Remodelling and resignalling at Derby to provide additional capacity.</p> <p>Electrification of MML.</p> <p>Resignalling and improvements on Hope Valley line (Dore to Chinley) or reopening of Matlock – Chinley route to provide additional capacity.</p> <p>Electrification of route to Chinley and Chinley to Hazel Grove, unless bi-modal (electro-diesel) traction provided, or service is diesel-operated as local Leicester – Manchester.</p>	<p>Additional capacity at Leicester proposed for CP6. MML electrification to Sheffield is in Network Rail’s CP5 plans, but currently “on hold” pending review.</p> <p>Derby resignalling is in CP5 plan, and further remodelling proposed for CP6.</p> <p>Capacity improvements (but not full resignalling) on Hope Valley route included in “Northern Hub” project in CP5.</p> <p>Electrification of Hope Valley being examined in Network Rail South Yorkshire Route Study.</p> <p>Reopening Matlock – Chinley not currently proposed. Previous studies indicate would not be straightforward project.</p>

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Destination	Estimated GVA (£m p.a.)	Output	Improvements Required	Current Status
London	6.9	Sub-60 minute journey time. At least one additional train per hour.	Increased maximum line speed south of Leicester. Electrification of MML.	Capacity and capability improvements and electrification on MML included in Network Rail's plans for Control Period 5 (2014-19) or identified as potential candidate schemes for Control Period 6 (2019-24), but are currently "on hold" pending review.
Leeds and North East England	6.4	At least hourly, either new local service, new London service or by extension of existing London – Sheffield service). May be routed via Derby, Nottingham or Toton.	Additional capacity at Leicester. Remodelling and resignalling at Derby to provide additional capacity. Electrification of Erewash Valley route if service routed via Nottingham or Toton Extension of MML electrification north of Sheffield to East Coast Main Line, unless bi-modal (electro-diesel) traction provided, or service is diesel-operated as local Leicester – Leeds - Newcastle.	Additional capacity at Leicester proposed for CP6. MML electrification to Sheffield is in Network Rail's CP5 plans, but currently "on hold" pending review. Derby resignalling is in CP5 plan, and further remodelling proposed for CP6. Electrification from Sheffield to East Coast Main Line via both Doncaster and Leeds being considered, but no firm proposals at present regarding implementation dates.
Sussex via Thameslink	4.0	Extension of some Thameslink services to Leicester to provide cross-London through trains to Gatwick Airport, Brighton and/or Sevenoaks.	Electrification of MML. Additional rolling stock, to long-distance standards & specification (potential use of existing Thameslink commuter-type stock is considered undesirable in view of distances involved).	Capacity and capability improvements and electrification on MML included in Network Rail's plans for Control Period 5 (2014-19) or identified as potential candidate schemes for Control Period 6 (2019-24), but are currently "on hold" pending review. New Thameslink stock on order, but is of high-density layout and may be unsuitable for Leicester services.

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Destination	Estimated GVA (£m p.a.)	Output	Improvements Required	Current Status
Norwich	1.5	Additional hourly service, giving improved half-hourly frequency to Melton Mowbray, Oakham and Peterborough.	Additional capacity at Leicester.	Additional capacity at Leicester proposed for CP6.
Burton-upon-Trent	0.34	Hourly or half-hourly Leicester – Burton service, either new local service or new London service.	Rebuilding Leicester – Burton freight line to full passenger standards. Potential works include resignalling, increased maximum line speed, re-doubling parts of existing single line and new stations at least at larger centres of population. Reinstatement of north curve at Knighton Junction likely to be required if journey times are to be competitive. Extensive earthworks likely to be required in view of known sub-structure problems on the route.	No detailed investigative work currently in progress or planned. GVA value identified appears unlikely to support major investment required.