



# Draft Worcestershire Rail Investment Strategy

Supporting Development of Worcestershire's  
Local Transport Plan 4



Autumn 2017



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# An Evidenced Rail Vision For Worcestershire

Worcestershire is an attractive, thriving County of 566,000 people, set to grow by 47,200 new homes 2030 and 25,000 new jobs by 2025 which will result in a £2.9bn growth in Gross Value Added (GVA) from £9bn to £11.9bn per annum<sup>1</sup>. The County's rail services will not match these ambitions without significant earlier development and investment beyond that committed by the rail industry.

## The Challenge

Connectivity to London is slow and of limited frequency, with many Worcestershire passengers using the M5-M42-M40 to access better Birmingham International and Warwick Parkway services. The opening of Worcestershire Parkway in early 2019 will, however, begin to address this issue by providing enhanced accessibility to the North Cotswold Line and Cardiff – Nottingham Cross Country services. However, other strategic UK-wide Cross Country services will continue to pass through but not call in Worcestershire, limiting connectivity to the economies of South-West, North-West and North-East England.

The growing University City of Worcester suffers poor connectivity due to restricted rail infrastructure, outdated signalling and limited historic investment in its 2 stations.

Kidderminster and Redditch (and Bromsgrove after introduction of the new electrification timetable in May 2018) are well served by local services into Birmingham, but have limited connectivity to London or southwards. These services also face challenges of overcrowding, particularly during peak periods - both issues can have a profound effect in suppressing demand.

## The Rail Industry's Plans

The industry forecasts up to 97% growth in passenger volumes on Worcestershire routes by 2043<sup>2</sup>.

The industry has an emerging vision, shared in Worcestershire, for a faster 2 trains per hour (tph) Worcestershire to London service, supported by enhancements to the North Cotswold Line, the Great Western electrification scheme and new Intercity Express Programme (IEP) trains.

However its planning processes do not include additional Cross Country or southbound connectivity beyond current commitments to serve the new Worcestershire Parkway in 2019, and its long-distance and local services are planned by different Network Rail routes and multiple operators. Worcestershire County Council seeks the support of the industry in planning Worcestershire's rail services in a fully integrated manner, reflecting our vision of "One-Economy-One Railway" for Worcestershire.

Addressing capacity restrictions caused by the County's several single line sections and outdated signalling systems is being considered by Network Rail but with no committed timescales. The County is a key partner in the newly-established North Cotswold Line Task Force which seeks to bring forward capacity upgrades on this route and in the Worcester area; the evidence underpinning our Vision set out in this Strategy strongly supports the work of the Task Force.

Electrification of the Bristol-Birmingham and Snow Hill Lines, capable of increasing capacity for new services for Worcestershire under previous Department for Transport (DfT) consideration, is not now included in active industry plans following

<sup>1</sup> Worcestershire Local Enterprise Partnership, Strategic Economic Plan; March 2014

<sup>2</sup> Network Rail Long Term Planning Process, Long Distance Market Study; October 2013

the Government's July 2017 announcement of the cancellation of major UK rail electrification schemes, and proposing future reliance on 'bi-mode' electric/diesel powered trains. Alternative ways of increasing connectivity and capacity will therefore need to be found on this corridor.

## Worcestershire's Evidenced Proposals

Worcestershire County Council (WCC) has prepared this Rail Investment Strategy to evidence its economic case – in terms of GVA and jobs – for enhanced County rail connectivity.

The Strategy proposes 4 overarching Conditional Outputs for rail service development which would deliver £50.42m GVA per annum, and 1,151 new jobs in the County <sup>3</sup>:

- **2 Trains Per Hour Worcester-Oxford-Paddington** – £21.22m GVA p.a. and 475 new jobs;
- **1 Train Per Hour Kidderminster-Droitwich Spa-Worcester-Paddington** – £13.8m GVA p.a. and 273 new jobs;
- **Calls At Worcestershire Parkway In Bristol-Manchester And Plymouth-Newcastle Services** – £9.6m GVA p.a. and 250 new jobs;
- **Regional Service Between Kidderminster/Bromsgrove, Worcester And Cheltenham Spa, Gloucester And Bristol** – £5.73m GVA p.a. and 153 new jobs.

Worcestershire is keen to gain from new UK-wide journeys offered by HS2 from 2026 and 2033, all of which will, however, be by connection at Birmingham Curzon St. or interchange (See section 5.9.2 for further information regarding HS2).

This Strategy thus focuses on new, direct connectivity on the 'Classic Network', connectivity being achieved via local and long-distance rail services, to both regional and UK-wide economies in order to promote the County's sustainable economic growth and success (the concept of "One Economy / One Railway").

## Infrastructure To Support Worcestershire's Vision

The Conditional Outputs also cover key aspirational infrastructure schemes essential to facilitate this new connectivity, including:

- **North Cotswold Line Capacity Upgrade;**
- **Worcester Area And Droitwich Spa To Stoke Works Capacity Upgrade;**
- **New Car Park Capacity And/Or New Stations;**
- **Worcester Shrub Hill Station Regeneration;**
- **Electrification Of Both The Bristol To Birmingham And Snow Hill Lines.** <sup>4</sup>

<sup>3</sup> JMP, Worcestershire RIS GVA Analysis: Wider Impacts Note; June 2016

<sup>4</sup> Although in light of the recent Secretary of State for Transport's announcement putting on hold all future electrification schemes, these Conditional Outputs will need to be carefully considered with regards to delivery.

## Taking The Vision Forward

Worcestershire recognises that its aspirations require planning within the medium and long-term rail industry investment framework to 2023 and 2043.

This Vision will thus form the basis for the County's active and ambitious engagement with stakeholders and partners including:

- The North Cotswold Line Task Force on ways to quickly develop and deliver the shared Joint Vision for the North Cotswold Line;
- DfT on investment within industry Control Period 6 (2019-2024) and upon re-franchising specifications;

- DfT and Network Rail on the Long Term Planning Process to 2023 and 2043;
- Midlands Connect on its 'Powering the Midlands Engine' Transport Strategy (ensuring Worcestershire's Rail Vision is fully integrated with the Midlands Connect proposals); and
- Neighbouring Local Enterprise Partnerships and local authorities with common interests.



# 1. Executive Summary

**1.1** In 2016 Worcestershire County Council commissioned SLC Rail to develop a Worcestershire Rail Investment Strategy (WRIS), to form part of the County's fourth Local Transport Plan (2017 – 2030). The WRIS is split into 5 key stages, designed to; baseline the current rail situation in the County; assess the scale of growth expected; identify gaps and solutions; model the economic benefits of these solutions, and; prioritise the investment to achieve maximum value for money.

**1.2** Investing in the rail network of the County is important in order to achieve sustained economic growth, increased connectivity and reduced reliance on motor vehicles. The outputs of this WRIS can be used to lobby the rail industry for prioritised improvements up to 2043. A summary of the Strategy's findings is found below.

## **1.3 Stage 1: Baseline**

Worcestershire is crossed by two nationally important rail lines – the North Cotswold line from London Paddington to Worcester, Great Malvern and Hereford and the Bristol to Birmingham Line. Local services operate to Birmingham along the Kidderminster, Bromsgrove and Redditch routes. Passengers make 9.2 million trips to and from the County's stations each year (2015/16)<sup>5</sup> and Network Rail is projecting this to grow by 97% by 2043<sup>6</sup> (against a 2013 baseline). However, direct connectivity from Worcestershire is currently poor. Cross Country services between South-West England, Birmingham and the North-West and North-East pass through but do not call in Worcestershire, and the County's network suffers from various constraints such as mechanical signalling and single line tracks which have a direct impact on train service timetables. Overcrowding on services is also a problem, particularly

between Redditch and Birmingham (during peak periods) and between Worcester – Bromsgrove – Birmingham (all day).

## **1.4 Stage 2: Change In Worcestershire**

The Strategic Economic Plan (SEP) produced by the Worcestershire Local Enterprise Partnership (WLEP) sets out ambitious growth targets for the County. By 2025 the SEP proposes the creation of 25,000 new jobs, construction of 47,200 new dwellings by 2030 and an increase in GVA from £9bn to £11.8bn per annum. This growth is focused around the rail corridors in the three areas of Wyre Forest, Bromsgrove & Redditch and South Worcestershire. Further housing development is expected to 'overspill' from the Greater Birmingham housing allocations and, although numbers are still to be quantified, it is thought around 37,900 new houses will need to be shared between the nine adjacent local authorities (including Worcestershire) by 2031. Key policy documents for the region (e.g. the SEP, WCC's LTP3 and the West Midlands LTP) all cite the benefits of prioritising rail travel as a means to achieve sustainable growth.

## **1.5 Stage 3: Rail Industry Planning**

The rail industry is currently engaged in its 'Long Term Planning Process' which looks to shape a vision for the National Rail network to 2043. In parallel Network Rail (NR) is working to define its specific investment proposals for 'Control Period 6' (CP6) – 2019 to 2024 – and various rail franchises are being renewed.

If the recommended outputs from this WRIS are to be realised their development will need to align with these industry processes. There also exists the opportunity to capitalise on benefits from HS2 over the same period. Finally, this Long Term Planning Process presents the opportunity for the County

<sup>5</sup> ORR Estimates of Station Usage; November 2016

<sup>6</sup> Network Rail Long Term Planning Process, Long Distance Market Study; October 2013

to lobby for, and secure, key infrastructure improvements during the industry's Control Period 6 2019-2024 and beyond that remove existing bottlenecks such as mechanical signalling and single line sections of railway.

### 1.6 Stage 4: Connectivity – Economic Tests

Combining the findings of stages 1 – 3 of the WRIS led to the identification of 10 new train service options enhancing Worcestershire's connectivity with other UK economies. These were modelled by consultants SYSTRA using a bespoke economic model consistent with that used by Network Rail in its 2013 Markets Studies. This model produces a forecast of both GVA increase and jobs creation resulting from improvements to generalised journey time and the enhanced business to business activity generated by the new services.

### 1.7 Stage 5 – Conditional Outputs

The new service options are termed 'Conditional Outputs', as used by the rail industry in its Long Term Planning Process (LTPP). These are later shown in Table 1.1. The County's new rail connectivity and relationship to other UK economies that would be released by these Conditional Outputs is shown at Figures 1.2 and 1.3.

The Conditional Outputs that would deliver the greatest uplifts in GVA and new jobs<sup>7</sup> for the County are enhanced rail connectivity:

- **Between Worcestershire And London And The Thames Valley** – along the North Cotswold Line with a 2 trains per hour and faster service: £19.04m GVA p.a. and 421 new jobs, with a further £2.18m GVA and 54 jobs via connections at Oxford to East-West Rail to a total of £21.22m and 475 new jobs;
- **Between Wyre Forest/Kidderminster And London Paddington** – extending Paddington-Worcester services to Droitwich Spa and Kidderminster: £13.8m GVA p.a. and 273 new jobs;

- **To South-West, North-West And North-East England** – with calls at Worcestershire Parkway in Bristol-Manchester and Plymouth-Newcastle services: £9.6m GVA p.a. and 250 jobs;
- **Between Worcestershire And Cheltenham, Gloucester And Bristol** – with a regional service via Kidderminster-Worcester Shrub Hill and/or Bromsgrove-Worcestershire Parkway offering up to £5.73m GVA and 153 new jobs.

If fully realised, the combined benefits of the 'Conditional Outputs' would generate a total of £50.42M GVA per annum for Worcestershire and would create 1,151 new jobs.

1.8 The Conditional Outputs also cover key aspirational schemes essential to facilitate this new connectivity, including:

- **North Cotswold Line Capacity Upgrade** – Doubling of part or all of the Norton Junction-Evesham and Charlbury-Wolvercote Junction sections (as now championed by the North Cotswold Line Task Force);
- **Worcester Area And Droitwich Spa To Stoke Works Capacity Upgrade** – Providing additional capacity for services passing through Shrub Hill and Foregate Street and doubling of the Droitwich-Stoke Works single line (together with re-signalling);
- **New Car Park Capacity And/Or New Stations** – Addressing the structural shortfall of current car parking capacity and providing capacity for up to 100% passenger growth by 2043, either at existing or new stations;

<sup>7</sup> Data sourced from JMP, Worcestershire RIS GVA Analysis: Wider Impacts Note; June 2016



- **Worcester Shrub Hill Station Regeneration** – enabling Shrub Hill to support both current train services and new services proposed in this Rail Investment Strategy and leading to a step-change in economic regeneration of the Shrub Hill Opportunity Zone and the areas to the east of the City Centre;
- **Electrification** – Of both the Bristol to Birmingham and Snow Hill Lines.
- **North Cotswold Line (NCL) Task Force** – to ensure efficient development and delivery of the substantive train timetable and infrastructure improvements proposed for the NCL;
- **Midlands Connect** – to ensure that Worcestershire’s Rail Vision is fully integrated with, and supported by, the evolving “Powering the Midlands Engine” Strategy;

### 1.9 Ticketing And Fares

A further Conditional Output also suggests revision of the County’s highly complex ticketing and fares structure to reflect both existing train services and those proposed in this Strategy.

### 1.10 Next Steps

To realise a rail network that is capable of supporting Worcestershire’s growth ambitions, WCC and WLEP will need to engage with Government, the rail industry, politicians and other stakeholders across five areas:

- **Committed Industry Schemes** – to ensure schemes such as Great Western Main Line electrification are delivered;
- **Prospective Industry Schemes** – to seek industry commitment to deliver schemes such as electrification and North Cotswold Line Capacity upgrade;
- **Worcestershire Rail Investment Strategy’s Conditional Outputs** – to include the County’s Conditional Outputs in CP6 2019-2024 and Long Term Industry Planning Process.

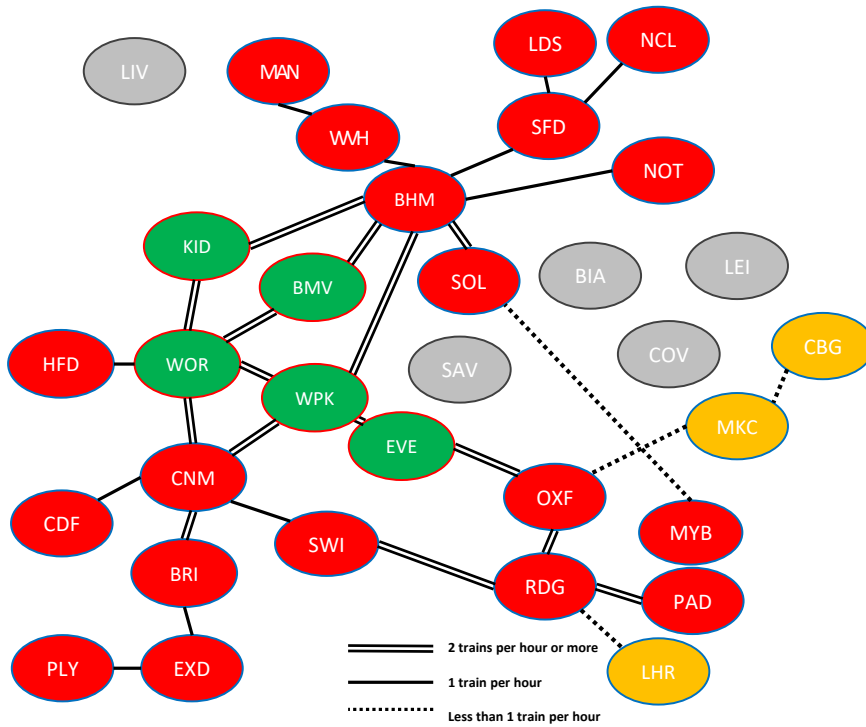


**Table 1.1 – Worcestershire Rail Investment Strategy Conditional Outputs**

Ref	Worcestershire Rail Investment Strategy Conditional Outputs	GVA	Jobs	When
NCL 1	Provision of 2 trains per hour between Worcester and London Paddington, with 1 train per hour having fast journey time of 1 hour 50 minutes or less	£19.04m	421	CP6
NCL 2	Provision of 1 train per hour between Kidderminster and London Paddington via Droitwich Spa, Worcester and Oxford	£13.8m	273	CP6
NCL 3	Provision of additional infrastructure capacity on the North Cotswold Line to support a 2 trains per hour Worcester to London Paddington service	-	-	CP6
WAB 1	Provision of a new direct train service between Kidderminster, Worcester, Cheltenham Spa, Gloucester, Bristol Parkway and Bristol Temple Meads	£5.73m*	153*	CP6
WAB 2	Provision of new direct train service between Bromsgrove and Worcestershire Parkway, Cheltenham Spa, Gloucester, Bristol Parkway and Bristol Temple Meads	£5.66m*	145*	CP6
WAB 3	Provision of additional infrastructure capacity at Worcester and Droitwich Spa – Bromsgrove to support train service growth and development	-	-	CP6
WPK 1	Introduction of calls at Worcestershire Parkway in the hourly Cross Country Bristol to Manchester service	£4.4m**	108**	CP6
WPK 2	Introduction of calls at Worcestershire Parkway in the hourly Cross Country Plymouth to Newcastle service	£9.6m**	250**	CP6
ELC 1	Electrification of the Bristol to Birmingham Line, Snow Hill Lines and the North Cotswold Line to support train service growth and development	-	-	CP6/7 <sup>8</sup>
ACS 1	Provision of additional car park capacity at existing stations and/or new stations to accommodate forecast passenger growth to 2043	-	-	CP5/6
WOS 1	Worcester Shrub Hill Station Regeneration to support current and proposed new train services and frequencies to London and South-West England	-	-	CP5/6
TKT 1	Cross-industry review of ticketing and fares structures to match new and developing train services	-	-	CP5/6
-	GVA/jobs value of East-West connectivity at Oxford	£2.18m	54	CP6
	<b>TOTAL GVA AND JOBS</b>	<b>£50.42m</b>	<b>1151</b>	
	* An 'either / or' option ** An 'either / or' option CP5 2014-2019 / CP6 2019-2024 / CP7 2024-2029			

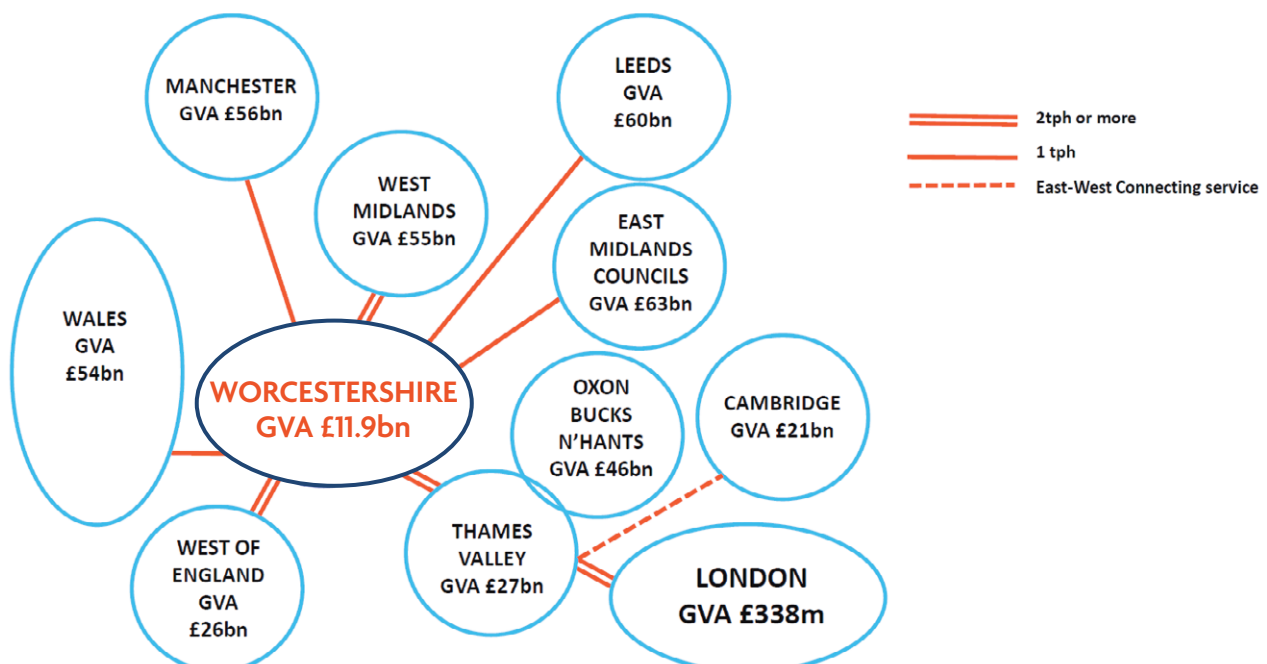
<sup>8</sup> CP6/7 is an aspiration that will need to be carefully explored with rail industry partners following the recent Government announcement regarding the future of electrification schemes in the UK.

Figure 1.2 – Worcestershire Rail Connectivity With Rail Investment Strategy Conditional Outputs



WOR	Worcester	COV	Coventry	NCL	Newcastle
KID	Kidderminster	EXD	Exeter	NOT	Nottingham
BMV	Bromsgrove	HFD	Hereford	OXF	Oxford
EVE	Evesham	LDS	Leeds	PAD	London Paddington
BHM	Birmingham	LEI	Leicester	PLY	Plymouth
BIA	Birmingham International	LHR	Heathrow Airport	RDG	Reading
BRI	Bristol	LIV	Liverpool	SAV	Stratford upon Avon
CBG	Cambridge	MAN	Manchester	SFD	Sheffield
CDF	Cardiff	MKC	Milton Keynes	SWI	Swindon
CNM	Cheltenham Spa	MYB	London Marylebone	WVH	Wolverhampton

Figure 1.3 – Worcestershire Connectivity To UK Economies With Conditional Outputs (Source: ONS)



# 2. Introduction

**2.1** In 2016 Worcestershire County Council commissioned SLC Rail to assist in developing its rail aspirations into an ambitious investment strategy to inform Worcestershire's emerging Local Transport Plan 4 (LTP4) which is proposed for adoption during 2017.

Worcestershire County Council's aspirations are for:

- Train service enhancements; and
- Supporting infrastructure including existing and new stations and station car parks.

Both of which will significantly enhance the County's level of rail accessibility to key regional and national economic centres and encourage sustained modal shift from road to rail, thus reducing reliance on private motor vehicles; reducing congestion and improving air quality. It is important to note that WCC does not support any reduction in level of train service frequency or capacity and that no such reductions are promoted within the WRIS.

**2.2** Development of an investment strategy for Worcestershire reflects five strategic themes shared by the County, UK Government and UK rail industry:

- The ambition of WCC, the Worcestershire and Greater Birmingham & Solihull Local Enterprise Partnerships and the County's Borough, City and District Councils for transformative but sustainable economic growth within what is an increasingly competitive environment between regions, LEPs and local authority areas;
- The recognition at Government level of the economic value of the National Rail network, reflected in the focus of long-term planning by the rail industry towards growing, changing markets for

travel rather than solely operational capability and capacity;

- The shift in balance of power in the rail industry towards locally defined and delivered investments led by LEPs and local authorities, adding value to those funded by central Government via the Department for Transport's 5 year 'Control Period' plans;
- The growing credibility of Worcestershire County Council in the rail industry given its leading role in projects such as Worcestershire Parkway, Bromsgrove Station relocation and station facility upgrades at Worcester Foregate Street and Malvern Link;
- The wider regional context, particularly the plans for High Speed 2 from 2026, and for shared and incrementally devolved decision making in respect of the West Midlands Rail franchise, within which WCC is an informed and influential player.

**2.3** Putting WCC at the heart of the railway planning process is important as the industry works towards an Initial Industry Plan for Control Period 6 (2019-2024), due December 2017, and an Indicative Train Service Specification for 2043.

These plans are under ongoing development following publication of the Western and West Midlands & Chiltern Route Studies in summer 2017. In addition, the West Midlands Rail franchise is now in the mobilisation stage following award to Abellio in August 2017 and extended Direct Award periods are now in place for the Great Western and Cross Country franchises. Work on assessing the potential impact of HS2 on the classic rail network is underway, as are plans for future phases of the East-West Railway between Oxford, Milton Keynes and Cambridge.

Work on the East-West Railway was given a substantial boost in December 2016 following the announcement by Transport Secretary, Rt Hon Chris Grayling MP, that the scheme will now be developed, owned and operated by a private company, separate from Network Rail. The DfT's and Network Rail's electrification programme has been updated following the 2015 Hendy Review. Each of these had the potential to benefit Worcestershire directly, although the impact has now been lessened following the Government's July 2017 decision to put on hold all future electrification schemes.

Taking additional account of the delays to Great Western electrification, the Hendy and Shaw reviews of the structure and funding of the industry and Network Rail, and the Hansford Review regarding aspirations to enable more Third Party investment in the railway (which the County particularly welcomes), 2017 is a highly appropriate moment for the publication of this Rail Investment Strategy. This document provides the County with the economic evidence to support the principles, prioritisation and prospective investment programme for its aspirations, and hence a powerful tool within the County and wider West Midlands and with central Government, both in terms of influencing policy and funding bids.

**2.4** The specific rationale for preparing a prioritised Rail Investment Strategy thus has 6 key components:

- To form part of the Local Transport Plan (LTP4) and to proactively relate train services and connectivity to the County's economic drivers;
- To provide an evidence base which enables projects to be assessed and prioritised in terms of Gross Value Added to the economy and jobs – in an industry recognised format;
- In doing so, to match the expectations of the Department for Transport that rail investments will increasingly be local economy led and justified;

- To support WCC and WLEP in developing deep, productive relationships with DfT, Network Rail, Transport for West Midlands (TfWM) / West Midlands Rail (WMR) – particularly through the development of their own Rail Investment Strategy – train operators and potentially Third Party investors, in developing the County's rail services;
- To provide a 'translation and interpretation' service for senior politicians, MPs and officers, to assist in their engagement with Government regarding investment in the County's rail services;
- To function as a driver in supporting innovative, affordable and relevant rail regeneration in the County.

**2.5** The development of the strategy has been undertaken via the following 5 stages, which are further illustrated at Figure 2.1:

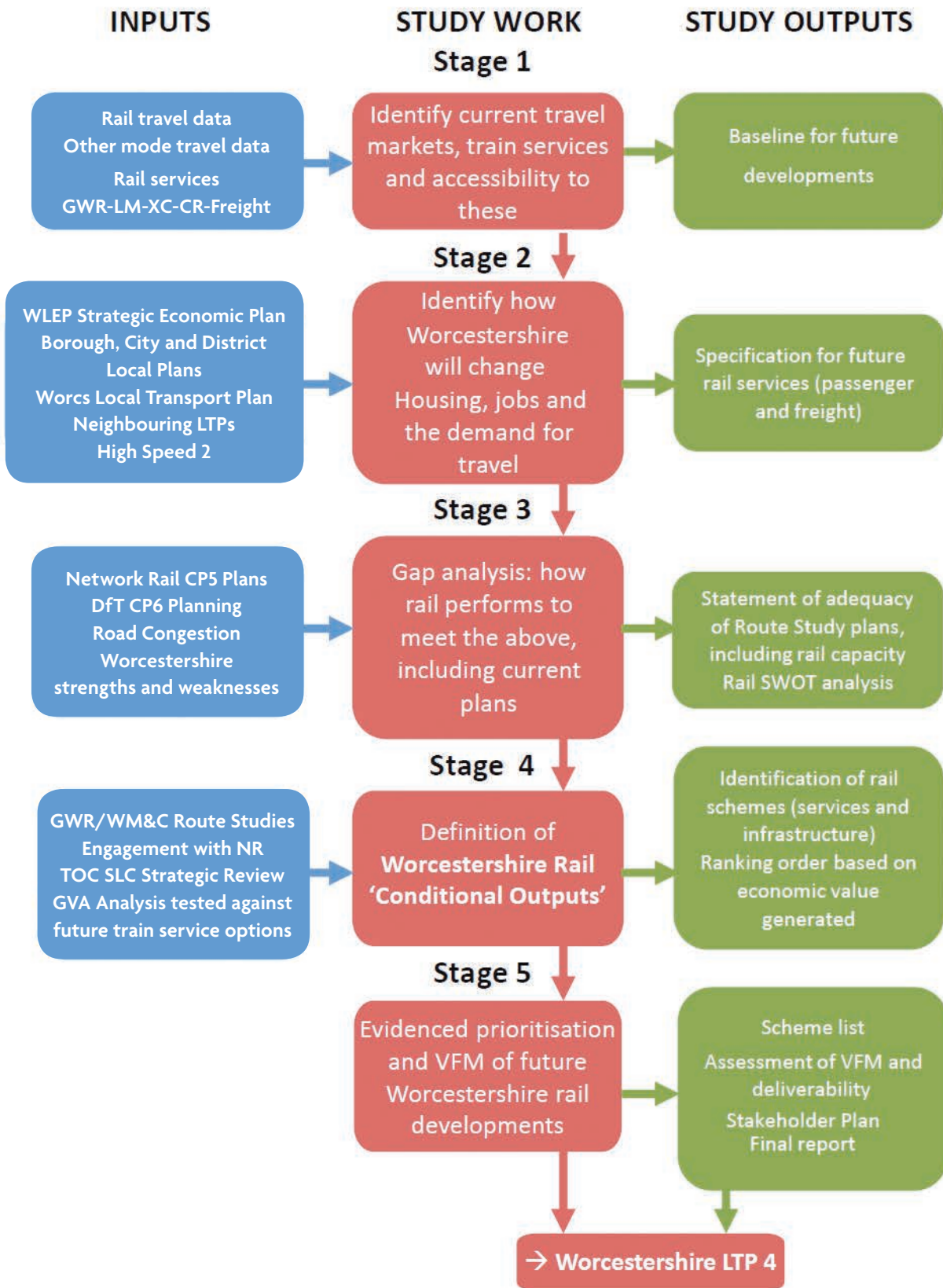
- **Stage 1 – Chapter 3**  
Current travel markets, train services and accessibility – the Baseline;
- **Stage 2 – Chapter 4**  
Review of Worcestershire's Development Proposals;
- **Stage 3 – Chapter 5**  
Rail Industry Plans and Gap Analysis;
- **Stage 4 – Chapter 6**  
Economic Testing of Connectivity Options;
- **Stage 5 – Chapter 7**  
The Prioritised Conditional Outputs.

Chapter 8 describes recommendations for 'Making It Happen'.

Figure 2.1 – SLC Rail 5 Stage Rail Investment Strategy For Worcestershire



# Worcestershire Rail Investment Strategy Supporting Worcestershire’s LTP4



# 3. Stage 1 – Current Travel Markets, Train Services & Accessibility

## 3.1 The Worcestershire Rail Network

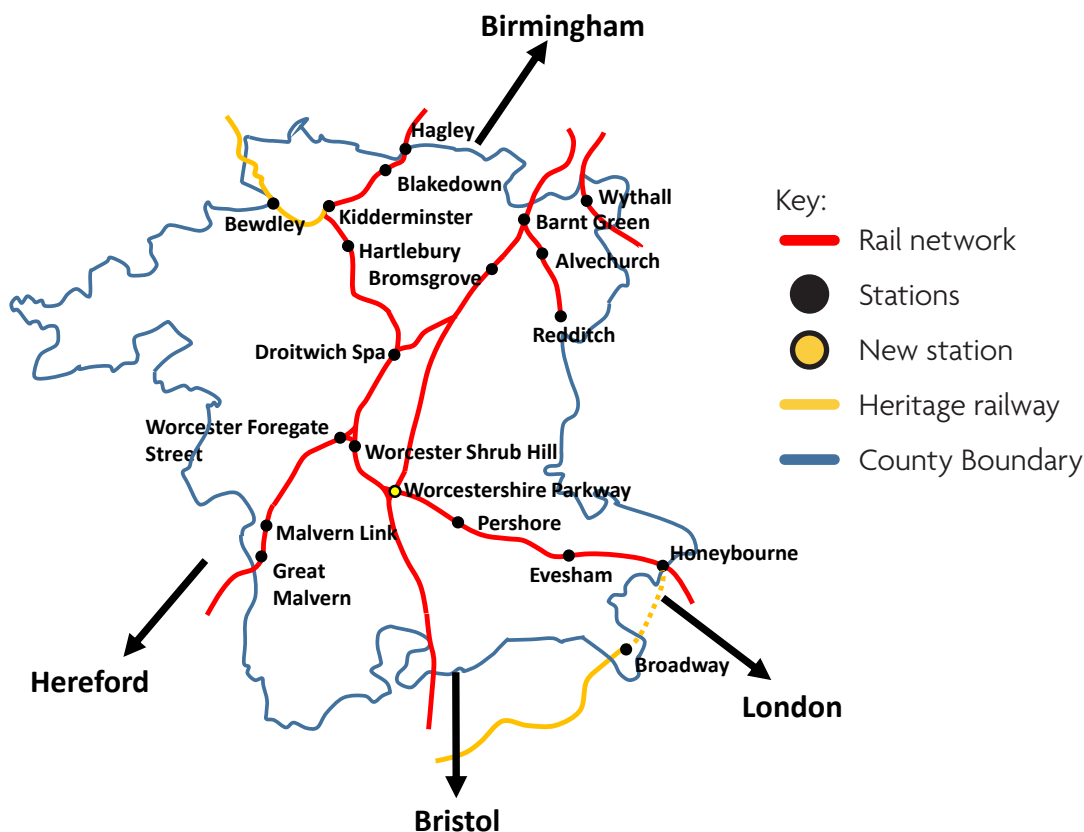
The rail network in Worcestershire has a complex history which resulted by the late 19th Century in routes both separately and jointly operated by the Great Western Railway and Midland Railway. At the core of these routes were the Midlands line between Birmingham New Street and Bristol Temple Meads (now known as the ‘Bristol to Birmingham Line’), and the Great Western route from London Paddington to Oxford, Worcester, Great Malvern and Hereford (the section from Oxford to Worcester now known as the ‘North Cotswold’ line), which continued onto Birmingham Snow Hill via Kidderminster.

The core network in 2017 is shown at Figure 3.1 below, including the new Worcestershire Parkway station (due to open in early 2019), the preserved Severn Valley Railway (SVR) and

the preserved Gloucester and Warwickshire Steam Railway (GWSR) which is due to provide a connection with Broadway in 2018. The only part of Worcestershire’s network which is currently electrified is the ‘Cross-City’ line north from Redditch towards Birmingham.

There is one station in the County on the Stratford-upon-Avon to Birmingham Snow Hill Line at Wythall; as the route is otherwise wholly within Birmingham, Solihull and Warwickshire its significance for Worcestershire is restricted. However, it will still be subject to the same growth potential as other stations in the County and as a result needs to be similarly considered in the context of appropriate service and station facility enhancements. Any such investigations will need to be agreed and coordinated with West Midlands Rail and Warwickshire County Council.

Figure 3.1 – Rail Map Of Worcestershire



It is important to note that the opening of Worcestershire Parkway will serve to add capacity on the network (a 'net gain') and will compliment and enhance the provision of stations in the County. It will not result in the closure of any other station as a direct, or indirect, consequence of opening (similar recent examples being the opening of Stratford-upon-Avon Parkway less than 1 mile from Stratford-upon-Avon Town Station and Warwick Parkway within a few miles of Warwick Town station).

### 3.2 The Current Worcestershire Travel Market And Dynamics Of Travel

Table 3.2 below summarises passenger volumes at Worcestershire stations (sources: Office of Rail and Road's [ORR] latest Estimates of Station Usage data for 2015/16, and National Rail Enquiries [NRES] for car park capacity). Figure 3.3 illustrates the relative position of the County's stations, and Figure 3.4 their growth in the past 6 years.

**Table 3.2 – Passenger Usage And Car Park Capacity (Sources: ORR And NRES)**

Station	Annual Usage 2015/16	Daily return passengers	Car Park Capacity 2017	Passengers per Car Park Space	Growth since 2014/15	Growth since 2009/10
Worcester Foregate Street	2,293,021	3,572	0	n/a	4%	54%
Kidderminster	1,619,928	2,523	224	11	4%	22%
Redditch	1,002,294	1,561	156	10	16%	17%
Bromsgrove	619,880	966	251	4	9%	41%
Worcester Shrub Hill	618,467	963	121	8	4%	-28%
Droitwich Spa	561,908	875	45	19	5%	19%
Great Malvern	557,012	868	122	7	3%	20%
Hagley	544,318	848	33	26	13%	16%
Malvern Link	344,232	536	96	6	10%	38%
Barnt Green	270,142	421	60	7	8%	22%
Evesham	255,476	398	70	6	3%	25%
Alvechurch	167,154	260	70	4	15%	21%
Pershore	100,690	157	17	9	6%	71%
Blakedown	97,028	151	10	15	5%	14%
Honeybourne	57,978	90	42	2	4%	65%
Wythall	55,044	86	0	n/a	6%	23%
Hartlebury	50,088	78	20	4	28%	108%
<b>Total COUNTY</b>	<b>9,214,660</b>	<b>14,354</b>	<b>1,337</b>	<b>11</b>	<b>7%</b>	<b>24%</b>



Figure 3.3 – Passenger Usage By Station (Source: ORR)

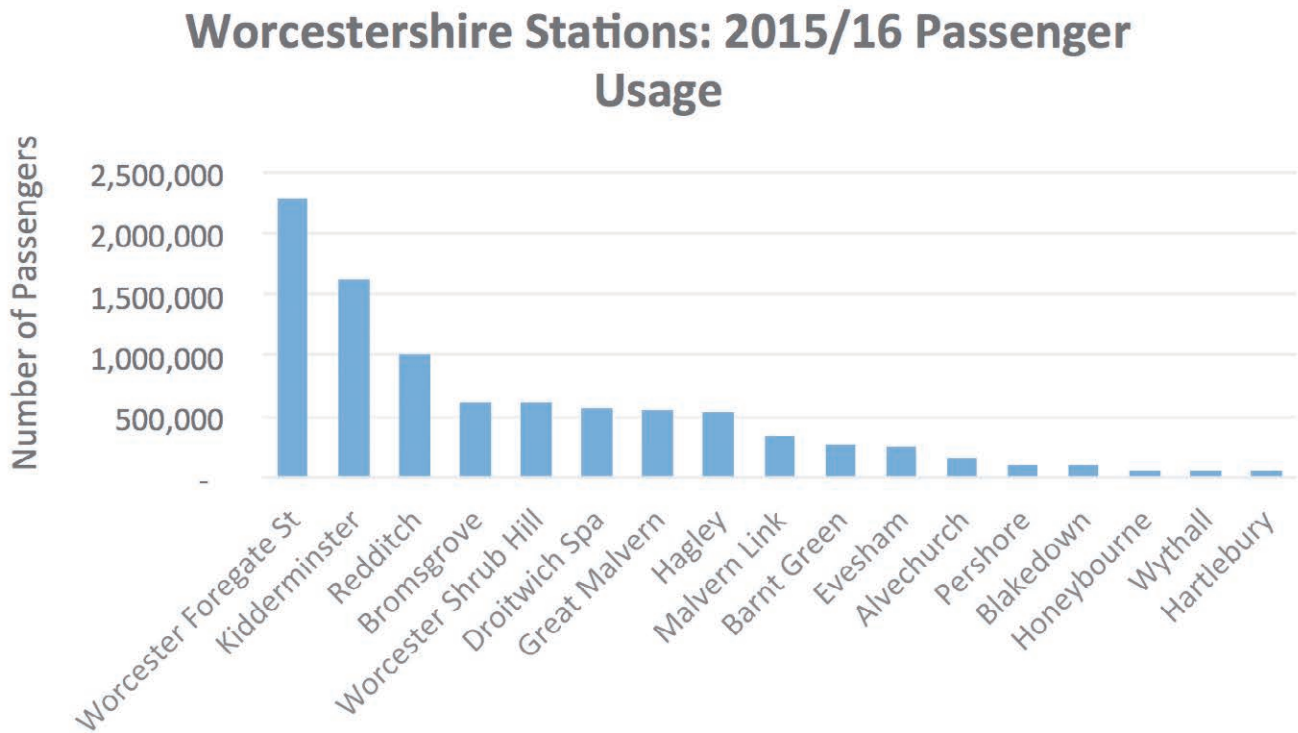
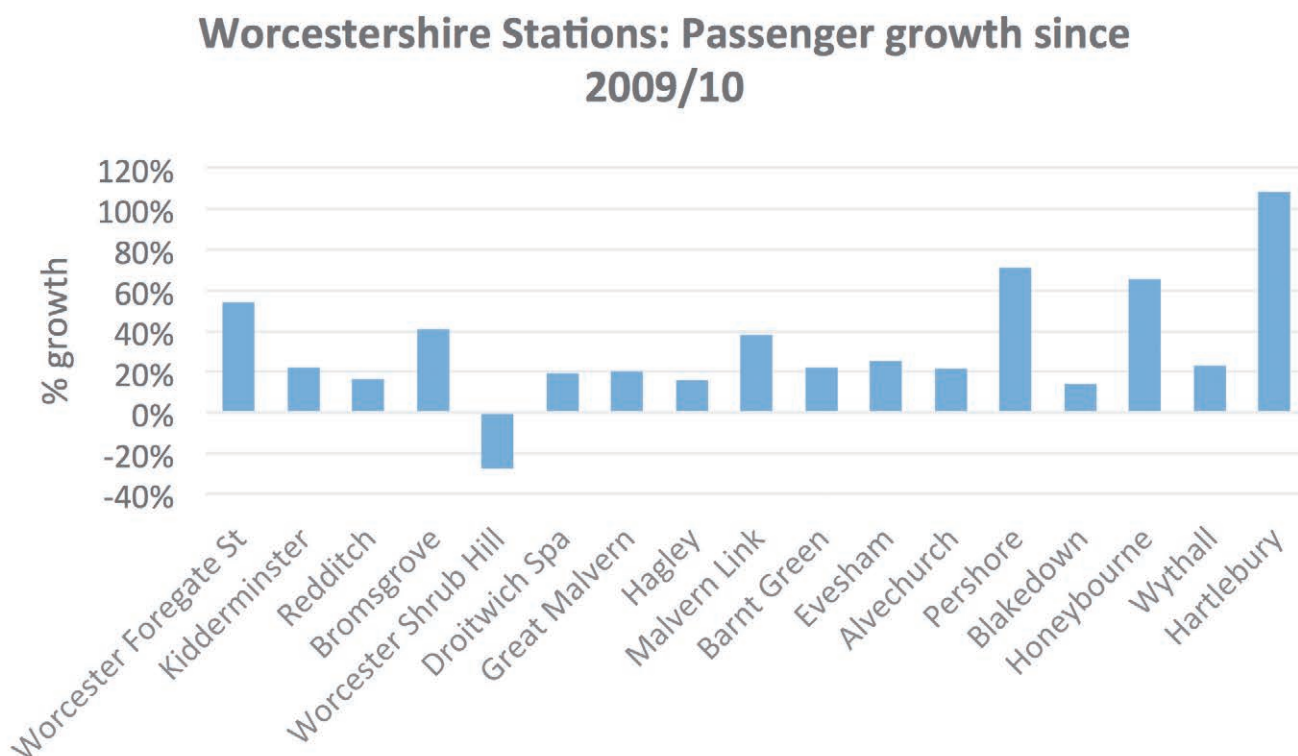


Figure 3.4 – Passenger Growth At Worcestershire Stations Since 2009/10 (Source: ORR)



## Key features illustrated and suggested by these 3 figures include:

- Overall passenger growth of 24% between 2009/10 and 2015/16 in Worcestershire (and growth of 7% between 2014/15 and 2015/16) – strong in itself – but lower than the UK average of 31%, highlighting the constraints of the County's current network;
- Two stations, Worcester Foregate Street and Kidderminster, dominate rail usage in the County;
- Worcester's 2 stations together manage 2.9 million passenger trips per annum – around 4,535 return passengers per day – and c. 32% of all rail travel in the County;
- Worcester Foregate Street attracts a large mix of journeys, especially as a destination because of its location in the centre of the City with considerable school travel from Evesham, Kidderminster and Malvern;
- Worcester Shrub Hill has a lesser role due to its lesser position as a destination at the edge of the City Centre and limited car parking capacity restricting its role as an origin;
- Journeys to/from Kidderminster represent nearly 20% of all rail travel in the County, dominated by commuter flows into Birmingham; however it is also important to recognise the value of inbound visitor movements to Kidderminster visiting 2 of the County's biggest tourist attractions – the Severn Valley Railway and the West Midlands Safari Park;
- Malvern's two stations together manage over 900,000 passenger trips per year - around 1,400, return trips per day - and approximately 10% of all rail travel in the County. Growth since 2010/11 has been strong at nearly 40%.

- Patronage is low at stations such as Blakedown, Hartlebury, Pershore and Honeybourne, and, surprisingly so, from Evesham;
- At the same time patronage has grown from the least used stations, albeit from their very low base.

## Features particular to 2015/16 which may have influenced passenger numbers include:

- The 2015/16 data follows the North Cotswold Line improvements, which came into effect from May 2015, and which saw a broadly hourly service introduced to replace the previous c. 2 hourly off-peak London service;
- The Redditch route's usage follows full re-opening of the line after a new passing loop was constructed at Alvechurch in order to increase timetable capacity.

In the case of the substantial 28% fall in passenger numbers at Worcester Shrub Hill this relates to changes in the ORR's passenger counting methodology which splits ticket sales between Worcester Shrub Hill and Foregate Street based on an algorithm rather than actual ticket sales data. Shrub Hill's annual passenger numbers have been reduced from 968,000 in 2013/14 to 595,000 in 2014/15; a substantial 'correction'. However, the station did experience 4% growth in 2015/16 and ways in which to further improve demand through Shrub Hill have been examined in the Business Case work for the 'Worcester Shrub Hill Masterplan' which was completed by SLC in March 2017.

Options to progress development and delivery of the Masterplan recommendations are being explored at the time of writing and (in headline terms) include transformation of the station forecourt, accessibility arrangements and sustainable links to the City Centre. This underlines the important future role that the station will play in serving the City following the completion & opening of Worcestershire Parkway in 2019.

### 3.3 Current Train Services

**3.3.1** Passenger train services operating through or within Worcestershire in the December 2016 – December 2017 timetable are shown in Table 3.6 below (some intermediate stations are not shown for brevity):

**Table 3.6 – Worcestershire Train Services Summary – December 2016-December 2017 Timetable**

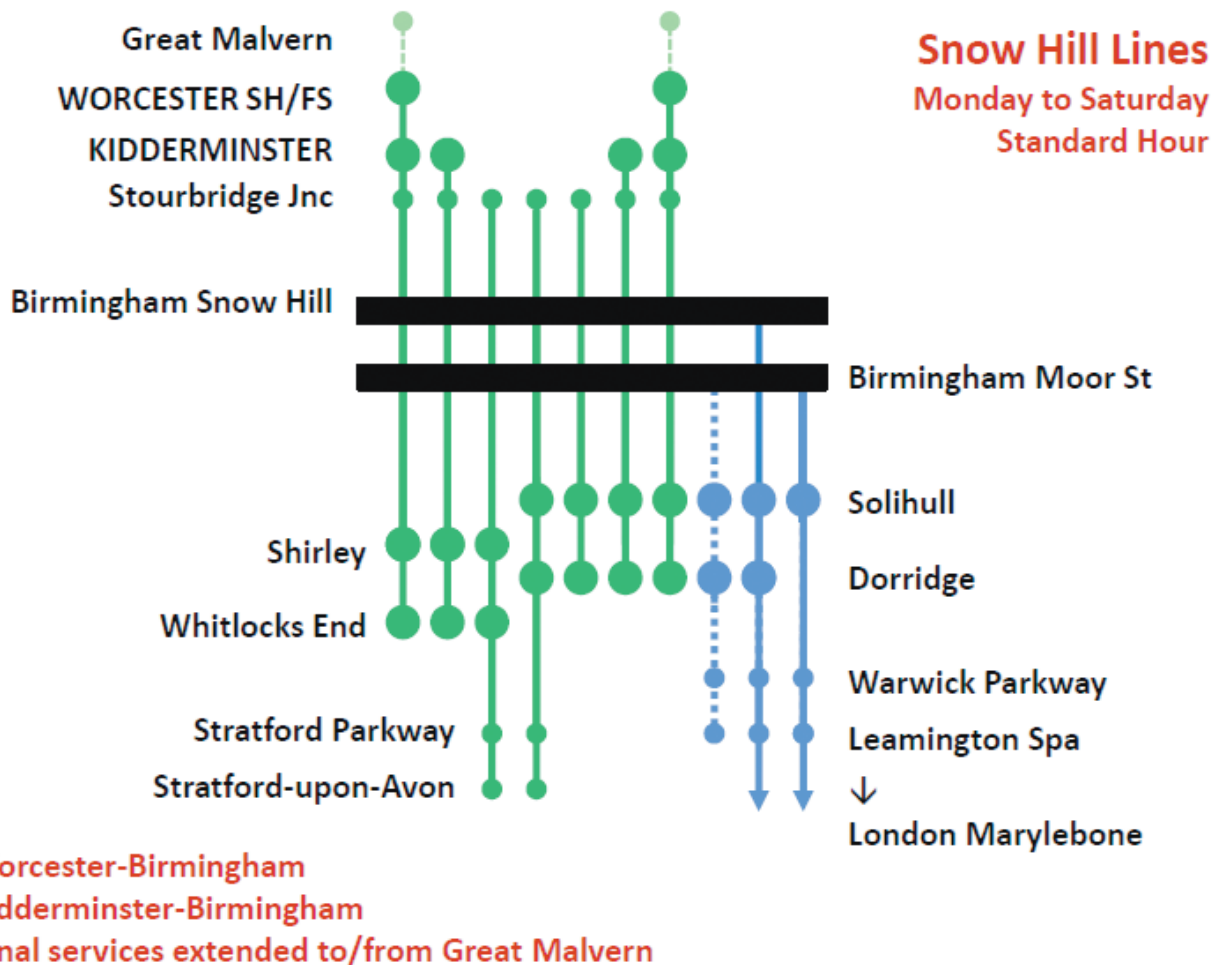
Service	Frequency	Operator	Rolling Stock
Hereford Great Malvern Worcester Oxford London Paddington	Broadly hourly between Worcester and London, with some services extended to/from either Hereford or Great Malvern	GWR	HST Class 180 Class 165/166
Worcester Cheltenham Swindon London Paddington	2 AM peak trains per day towards Paddington and 1 PM peak return	GWR	HST
Kidderminster Birmingham Snow Hill Birmingham Moor St Banbury London Marylebone	4 AM peak services to London and 4 PM peak return services	Chiltern Railways	Class 68+ Mark III coaches Class 168
Hereford Great Malvern Worcester Bromsgrove Birmingham New St	Hourly with some additional peak services	London Midland	Class 170
Great Malvern Worcester Kidderminster Birmingham Snow Hill Birmingham Moor St	Half-hourly from Worcester; most services terminate at or start from one of the Worcester stations, but a small number extend to/from Great Malvern. 2 per hour terminate or start at Kidderminster providing a 4 trains per hour Kidderminster service to Birmingham. All services operate through Birmingham to either Dorridge or Whitlock's End.	London Midland	Class 172
Bristol Temple Meads Gloucester Cheltenham Worcester Great Malvern	Every two hours	GWR	Class 150 Class 158
Redditch Birmingham New St Lichfield	3 tph calling at all stations	London Midland	Class 323
Cardiff Central Cheltenham Bromsgrove Birmingham New St Nottingham	2 trains call at Bromsgrove in each direction in the peak periods (0640 & 0710 – northbound and 1610 & 1710 southbound).	Cross Country	Class 170

There are 4 service groups on the Bristol to Birmingham Line, the 2 noted at Figure 3.6 (Great Malvern to Bristol and Cardiff to Nottingham), plus a further two strategic Cross Country services which pass through but do not call in Worcestershire:

- 1 train per hour between Bristol Temple Meads and Manchester via Birmingham;
- 1 train per hour between Plymouth and Exeter and Newcastle/Edinburgh via Birmingham.

For clarity Snow Hill lines services are diagrammatically illustrated at Figure 3.7 below (note this does not show the services that also operate between Birmingham, Bromsgrove, Worcester, Great Malvern and Hereford).

**Figure 3.7 – Snow Hill Lines Train Service Structure 2016/17 Timetable**





### 3.3.2. Freight

The Bristol to Birmingham Line is a major freight artery, with 2 freight paths per hour in each direction. Some of these are occasionally routed via Worcester Shrub Hill.

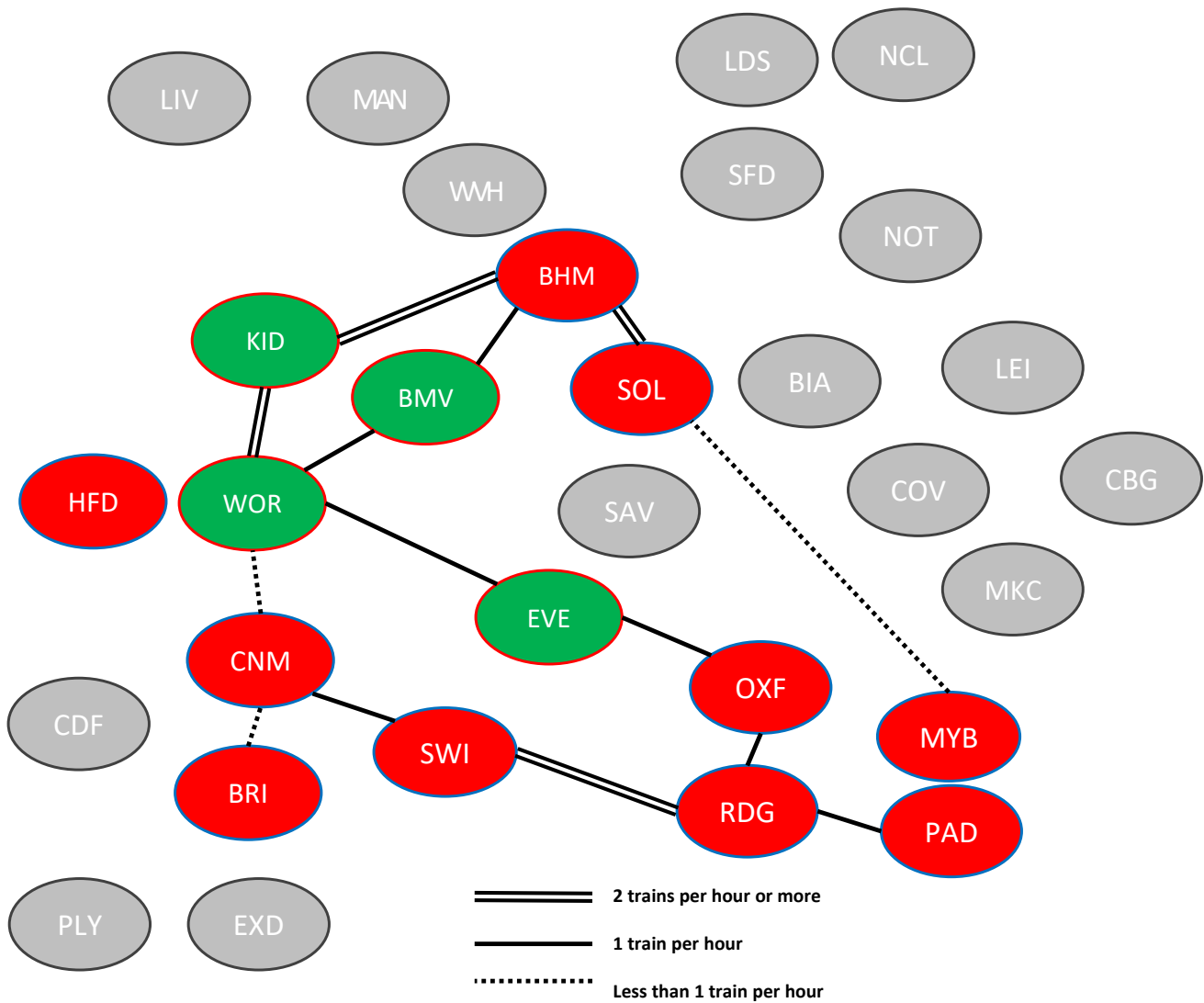
The Worcester-Kidderminster-Stourbridge-Round Oak or Birmingham route has 9 to 10 freight paths per day.

There is one freight train path per day along the North Cotswold Line serving the Long Marston depot. The WRIS will continue to support the use of rail to transport freight for the congestion reduction and air quality benefits that it brings.

### 3.4 Connectivity

Figure 3.8 illustrates the limited connectivity of Worcestershire to other UK economic centres, not only adjacent Bristol and South Wales, but those in the East Midlands and north-east and north-west England. Direct connections are shown, illustrating services with 2 trains per hour or more e.g. towards Birmingham from Worcester and Kidderminster, those with an hourly service such as Worcester to London Paddington, and those with a lower frequency such as the 2 hourly Great Malvern-Worcester-Bristol service and the peak direct Kidderminster to London Marylebone service. All other connections must be made by at least 1 change either at Birmingham New Street or Cheltenham Spa.

Figure 3.8 – Direct Rail Connectivity To And From Worcestershire – 2017



Key For Figures 3.8, 3.16, 7.8, 7.9 And Executive Summary Figure 1.2

WOR	Worcester	COV	Coventry	NCL	Newcastle
KID	Kidderminster	EXD	Exeter	NOT	Nottingham
BMV	Bromsgrove	HFD	Hereford	OXF	Oxford
EVE	Evesham	LDS	Leeds	PAD	London Paddington
BHM	Birmingham	LEI	Leicester	PLY	Plymouth
BIA	Birmingham International	LHR	Heathrow Airport	RDG	Reading
BRI	Bristol	LIV	Liverpool	SAV	Stratford upon Avon
CBG	Cambridge	MAN	Manchester	SFD	Sheffield
CDF	Cardiff	MKC	Milton Keynes	SWI	Swindon
CNM	Cheltenham Spa	MYB	London Marylebone	WVH	Wolverhampton

### 3.5 Current Worcestershire Rail Infrastructure – Capability And Constraints

3.5.1 Most of Worcestershire’s rail network is operating at capacity. The constraints to future development without investment are extensive, including:

- Infrastructure (single line sections and antiquated signalling);
- Timetable (frequency, regularity and journey time);
- Capacity (rolling stock and car parking).

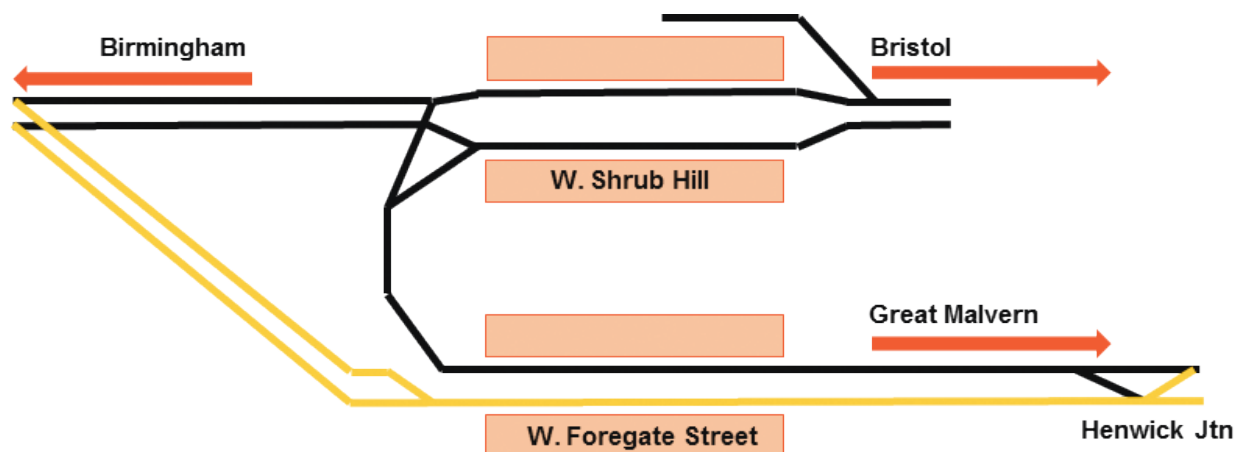
Each of these is discussed in more detail below.

#### 3.5.2 Infrastructure

The rail network around Worcester is under-invested in and is still suffering from the rationalisation undertaken by British Rail in the 1960s and 1970s. There are single line sections in the following locations:

- Between Barnt Green and Redditch (although a dynamic passing loop was installed at Alvechurch in 2015);
- Between Droitwich Spa and Stoke Works junction, just south of Bromsgrove;
- Between Evesham and Norton Junction, 3 miles south of Worcester (and of direct relevance between Charlbury and Wolvercote Junction in Oxfordshire at the eastern end of the North Cotswold Line);
- There are two independent single lines through Worcester Foregate Street station, one from the Birmingham direction and one from the Shrub Hill direction, which only connect at Henwick (a simplified diagram is shown at Figure 3.9 below);
- West of Malvern Wells as far as Shelwick Junction, just north of Hereford.

Figure 3.9 – Simplified Route Diagram Through Shrub Hill And Foregate Street Stations



There are 8 mechanically operated signal boxes within the County, principally controlling the Snow Hill, Hereford and North Cotswold Lines:

- Droitwich Spa (fringes to West Midlands Signalling Centre for both Snow Hill lines and towards Bromsgrove and Birmingham New Street);
- Worcester Tunnel Junction, at the north end of the Worcester triangle;
- Worcester Shrub Hill;
- Norton Junction;
- Evesham (fringes to Moreton-in-Marsh – the next mechanical signal box on the North Cotswold Line);
- Henwick (Norton Junction to Evesham on the North Cotswold Line and Gloucester Power Signal Box on the Bristol route);
- Newland East;
- Malvern Wells (fringes to Ledbury Signal Box – also a mechanical signal box – towards Hereford).

The consequences of continued dependence on mechanical signalling are that, notwithstanding its reliability and safety, the headway (spacing of trains) is often far below modern standards, for example:

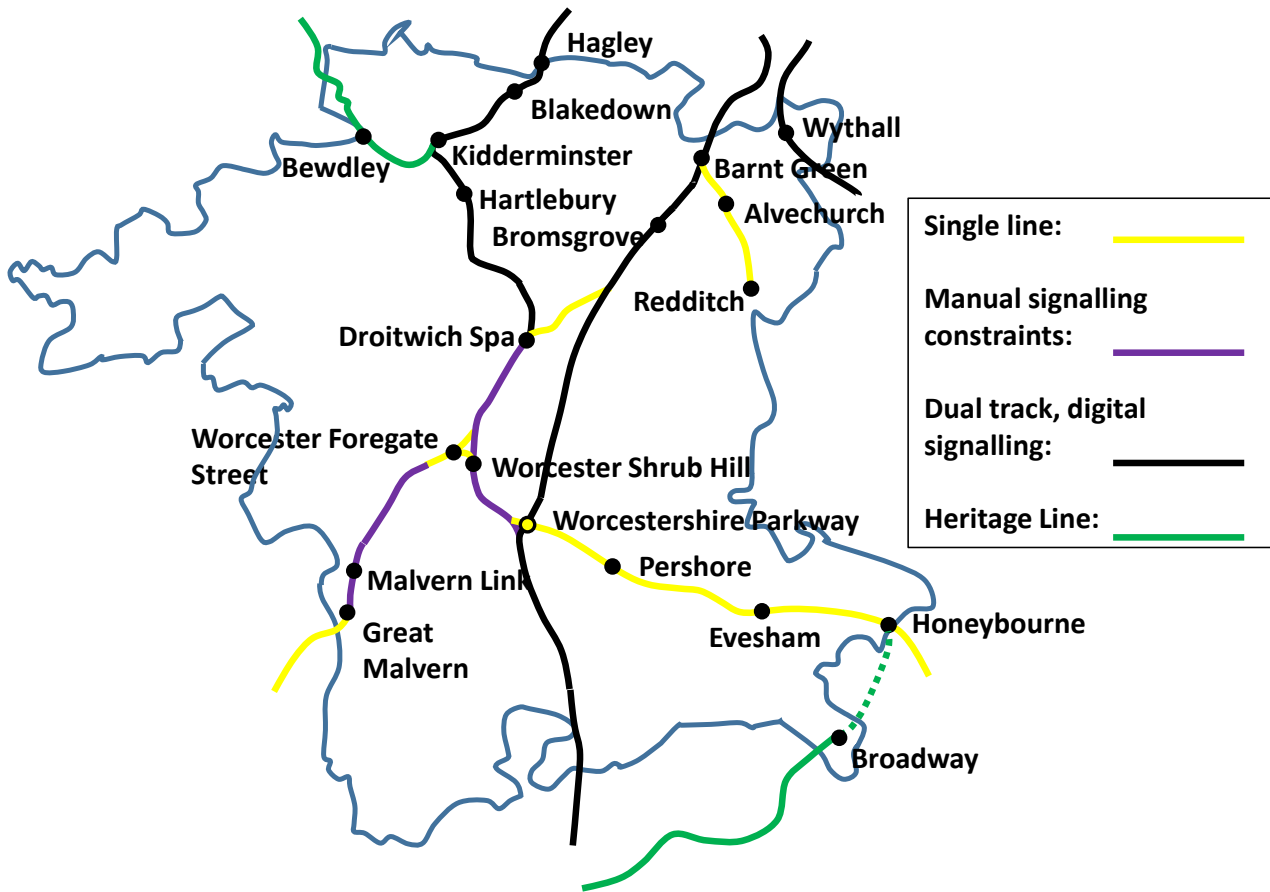
- There can only be one train between Droitwich and Worcester at any one time, a distance of five miles;
- There can only be one train between Newland East and Malvern Wells at any one time, in the northern direction and two in the southbound direction, a distance of c. 4 miles, which includes two station stops;
- Trains terminating at Great Malvern Station, of which there are currently 18 per weekday, are unable to reverse at Great Malvern due to signalling constraints and instead they have to continue onto Malvern Wells where they can reverse (the closest point where this is permissible on the network).

Even where the infrastructure is more modern, the volume of traffic on the main Bristol to Birmingham Line creates significant constraints to growth. For example, the three trains an hour from Redditch need to join the main line at Barnt Green on a flat junction, cutting across southbound traffic flows. Just north of Bromsgrove, the Lickey Bank, at 1 in 37 towards Birmingham, still imposes a constraint on traffic and some freight trains still need a banking engine.

Figure 3.10 over illustrates the extent of these constraints throughout the County.



**Figure 3.10: Rail Infrastructure Constraints In Worcestershire**



### 3.5.3 Train Service Timetables

Many of the deficiencies in the 2016/17 timetable are a direct consequence of the infrastructure constraints described above, meaning that unless these constraints are addressed the scope for more frequent and faster train services is severely limited. Examples include:

- The single line sections between Norton Junction and Evesham and between Charlbury and Wolvercote Junction in Oxfordshire effectively limit the service between Worcester, Oxford and London to one train per hour in each direction. Further limited services could be accommodated, but with a high level of performance risk;
- The long distance between signals between Worcester and Malvern Wells, and the single line west towards Hereford, means that the number of train services that can be accommodated on this section of line at any one time is very limited and, as a result, they follow an irregular timetable;
- The single line section between Droitwich Spa and Stoke Works at Bromsgrove limits the frequency of Worcester to Birmingham New Street services.

### 3.5.4 Journey Times

Journey times to and from the County are slow, as per Tables 3.11, 3.12 and Figure 3.13 below, summarising average rail speeds on Worcestershire routes <sup>9</sup>, against other UK locations and against some key road journeys.

**Table 3.11 – Average Speeds Of Train Services To And From Worcestershire Stations**

Origin and Destination	Average Speed mph
Worcester Shrub Hill – London Paddington	55
Worcester Shrub Hill – Oxford <sup>10</sup>	44
Worcester Foregate Street – Hereford via Great Malvern	36
Worcester Foregate Street – Birmingham New Street via Bromsgrove	57
Kidderminster – Birmingham Snow Hill	33

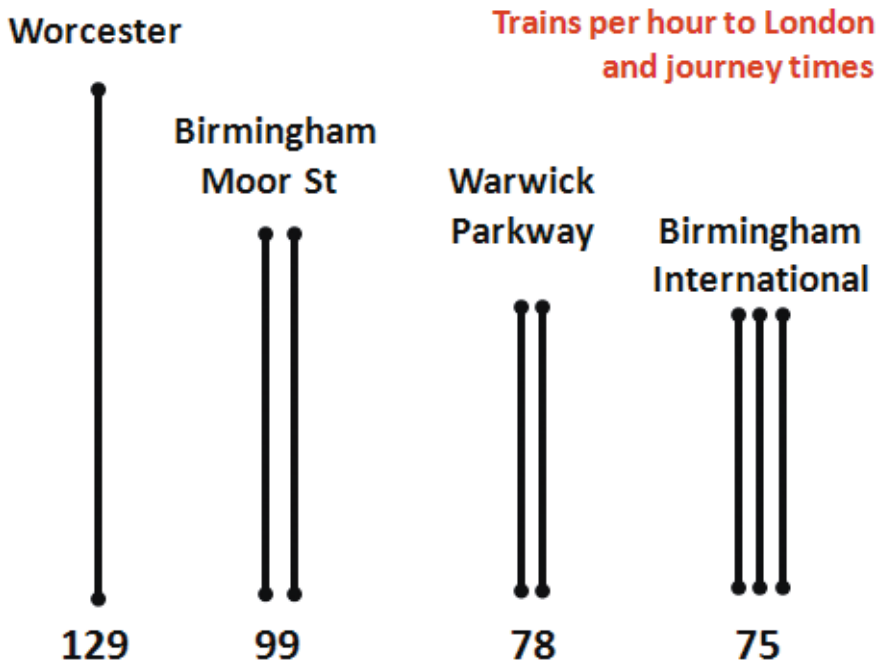
**Table 3.12 – Average Speeds Of Train Services To And From Comparable Uk Cities And / Or Towns**

City/Town	Population	Trains per hour to London	Miles Fastest Road (AA)	Best rail journey time	Average Speed mph
Bath Spa	90,100	2	116	1h 25m	82
Cambridge	131,400	5	63	50m	75
Cheltenham Spa	110,013	2	96	2h 01m	47
Chesterfield	100,900	2	149	1h 55m	78
Gloucester	136,200	0.5	115	1h 51m	62
Redditch	84,200	0	119	-	-
Stafford	63,600	3	142	1h 20m	106
Warwick/Leamington	84,900	2	100	1h 18m	77
Worcester	98,800	1	137	2h 09m	55
York	137, 500	4	210	1h 54m	110

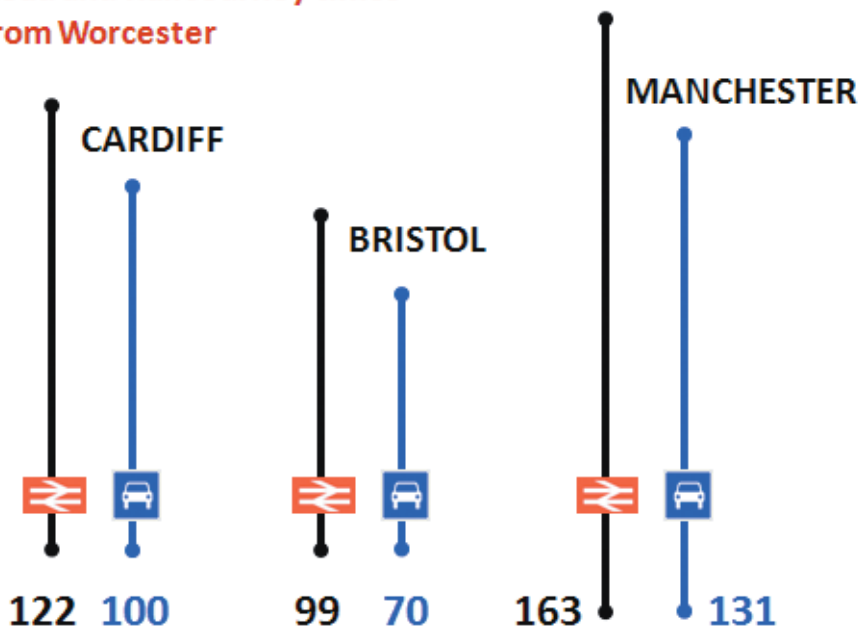
<sup>9</sup> Data calculated from train times on National Rail Enquiries Website and AA route map journey planning tool.

<sup>10</sup> The average speed between Oxford and London is 66mph

Figure 3.13 – Comparative Journey Times (Minutes) Rail-Rail (Top) And Rail-Road (Bottom)



**Road and Rail Journey times from Worcester**



### 3.5.5 Connectivity

The structure of the train service also means that there are some significant gaps in Worcestershire's connectivity:

- Given Worcester is on a loop off the Bristol to Birmingham Line, long distance UK-wide Cross-Country services neither serve the City of Worcester nor the County. The journey time penalty from other locations for doing so would be up to 20 minutes and has been deemed unacceptable by the rail industry since the 1980s. In effect the County's 566,000 population is excluded from direct access to the strategic Cross Country network other than via connections at Birmingham New Street and Cheltenham Spa;
- The constraints of the mechanical signalling and single line between Droitwich Spa and Bromsgrove impose significant performance risks and thus limit the connectivity between Worcester and Birmingham via Bromsgrove;
- Southbound journeys from Bromsgrove other than to Worcester, Great Malvern and Hereford require travel northwards to Birmingham New Street;
- Southbound journeys from Redditch similarly require travel northwards to Birmingham New Street, and the town has no realistic connectivity with Worcester (due to the inability of providing a new line south of the town (constrained by major developments) or at Barnt Green (prohibitive cost of a new chord from the Cross-City to the Birmingham – Bristol line));
- Whilst having a good service to Birmingham and Worcester, Kidderminster's connectivity southwards from Worcester depends upon the 2-hourly frequency Great Malvern-Bristol service and connectivity at Cheltenham Spa;

- Northbound journeys from Kidderminster require a change either between Birmingham Snow Hill/Moor Street and Birmingham New Street or at Smethwick Galton Bridge;
- Services between Great Malvern – Worcester – Birmingham are limited to a typically hourly service due to signalling constraints West of Worcester;
- Evesham and East Worcestershire have no direct rail connectivity to Birmingham.

### 3.5.6 Capacity

Capacity (the maximum amount of passengers that can be accommodated on a train or through a station) is an issue across a number of routes and stations in the County. Where they are already at, or exceeding, capacity it suppresses demand and limits future opportunity for growth unless interventions are made. Routes and stations currently at, or over, capacity are detailed as follows:

- Peak Redditch – Birmingham services are overcrowded and passengers are expected to stand for part, or all, of the journey;
- Worcester – Bromsgrove – Birmingham services are overcrowded for most parts of the day, frequently with standing passengers;
- Worcester Foregate Street station is at capacity in terms of passenger throughput, particularly during peak periods;
- Peak services on the North Cotswold Line suffer from overcrowding;
- Peak Cross-Country services are often overcrowded between Birmingham – Bromsgrove and the south-west.

### 3.5.7 Car Parking Capacity At Worcestershire Stations

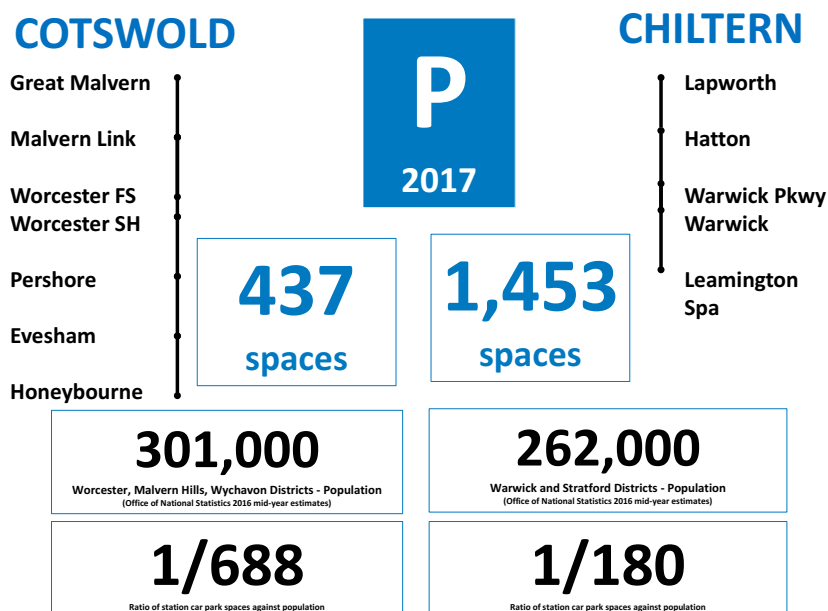
Previous work by WCC on Worcestershire Parkway identified the lack of station car parking as a major constraint on access to the National Rail network for the County, upon future passenger volume growth, and a perverse incentive for high volumes of highway use to access London services at Birmingham International, the newly opened Oxford Parkway or Warwick Parkway via the M5/M42/M40/A34.

Indeed, the busiest station in the County Worcester Foregate Street has no car parking at all. Across the County's stations, a total of 1,337 parking spaces are currently available (there was a net gain of 296 new spaces in 2016 following the relocation of Bromsgrove

Station), with a poor ratio of 1 space per 11 passengers (Figure 3.2 above). This is 147 spaces fewer than the number of spaces available between Lapworth and Leamington Spa on the Chiltern Line, as illustrated at Figure 3.14 (Warwick Parkway alone has 959 spaces)

Worcestershire Parkway will add a further 500 car park spaces, bringing the total to 1,837 from 2019, and allowing (on average) 1 car park space for every 8 passengers. If the Network Rail Markets Studies growth forecasts are realised, even to maintain this 1:8 ratio, the County would need a further 1,700 plus new car park spaces between 2018 and 2043, at existing or new stations, as shown at Table 3.15. This is a major challenge to the County requiring fuller assessment at a further stage of this Rail Investment Strategy.

Figure 3.14 – North Cotswold – Chiltern Lines Car Park Capacity Against Population



**Table 3.15 – Car Parking Capacity Growth At Worcestershire Stations To 2043  
(Table Is A Development Of Figure 3.2) <sup>11</sup>**

Station	Daily Return Passengers	Car park Capacity 2018	Passengers per Car Park Space 2018	Daily Return Passengers 2043	Car Park Spaces Needed 2043	Number of New Spaces Needed
Worcester Foregate Street	3,572	0	n/a	7037	n/a	n/a
Kidderminster	2,523	224	11	4971	441	217
Redditch	1,561	196	10	3076	384	188
Bromsgrove	966	251	4	1902	494	243
Worcester Shrub Hill	963	121	8	1898	238	117
Droitwich Spa	875	45	19	1724	89	44
Great Malvern	868	122	7	1709	240	118
Hagley	848	33	26	1670	65	32
Worcestershire Parkway	597	500	1	1176	985	485
Malvern Link	536	96	6	1056	189	93
Barnt Green	421	60	7	829	118	58
Evesham	398	70	6	784	138	68
Alvechurch	260	70	4	513	138	68
Pershore	157	17	9	309	33	16
Blakedown	151	10	15	298	20	10
Honeybourne	90	42	2	178	89	47
Wythall	86	0	n/a	169	0	0
Hartlebury	78	20	4	154	39	19
<b>Total COUNTY</b>	<b>14,951</b>	<b>1,877</b>	<b>8</b>	<b>29,454</b>	<b>3,702</b>	<b>1,825</b>

### 3.5.8 Worcester Foregate Street And Worcester Shrub Hill

Given the size of the City of Worcester’s population (98,500 – 2011 Census) and its strong forecast growth in population and developing role as a University City, the locations and facilities of its 2 stations represent a significant constraint to access.

Worcester Foregate Street, recently benefiting from facility enhancements made by WCC, is well-placed as a destination station in the heart of the

City, providing access for the County to its retail, administrative and educational facilities – the last representing a large if low-yield market for rail. As an access point, however, it is in the middle of the City’s congested highway network and has no car parking of any sort, nor any set-down/pick-up capability, although a number of bus services pass and a city centre taxi-rank is adjacent. In the absence of Worcester Shrub Hill it would be wholly insufficient for the City as an access point to the National Rail network.

<sup>11</sup> The figures in this table are calculated on the assumption that the current ratio of car parking spaces vs. passengers is maintained under the 2043 scenario.

It is noted that GWR, WCC and Wychavon District Council are currently working on a detailed business case for car park expansion at Pershore Station that will refine these estimates of future year car parking requirements.

Wythall Station is landlocked between residential houses. Options to enhance the station will be explored as part of subsequent development phases of the WRIS. However, one alternative option may be to expand car parking at the nearby Whitlocks End station than to attempt to provide parking at Wythall.

Worcester Shrub Hill is a poor gateway both into and out of the City of Worcester, experienced as 'outside of the City Centre', hidden behind offices (most particularly Elgar House) and other buildings, in a run-down former industrial part of the City, with poor highway access, limited car parking capacity, limited bus services with no formal interchange and no clear, attractive pedestrian route to the City Centre.

Shrub Hill has poor passenger facilities which, whilst updated to basic modern standards, provide limited heated waiting-rooms, toilets only on one platform, dark, non-transparent canopy glazing, and no fully accessible route between platforms, with passengers with disabilities, heavy luggage or children's pushchairs needing to be assisted by station staff across a barrow crossing.

The overall quality of the station neither meets the expectations of modern passengers, nor the standards and aesthetics of the City of Worcester, and this is being addressed through the findings of the Shrub Hill Station Masterplan, to be published in late 2017. It is expected that this Masterplan will act as a catalyst for regeneration of the whole Worcester Shrub Hill area of the City. It will also then serve to act as a point of sustainable access for residents wanting to reach Worcestershire Parkway without having to rely on use of the private car.

Taken together the 2 stations provide only 121 car parking spaces for a joint passenger volume of circa 4,535 return passengers per day, or a ratio of 1 space for every 37 passengers, and Shrub Hill's car parking capacity is usually full before the end of the morning peak. Worcestershire Parkway will provide

some capacity for those who access Shrub Hill from the edges of the City and its rural hinterland, or who currently use Birmingham International or Warwick Parkway, but this will not offer the City-based capacity for the scale of growth forecast to 2043 by Network Rail or passengers attracted to the more regular and faster IEP services from 2018 (IEP being the DfT's programme to replace the existing InterCity 125 fleet on the Great Western & East Coast Mainlines with new Class 800 / 801 bi-mode or electric only trains).

Access to either station from west of the River Severn is particularly difficult, requiring use of the City's one central river bridge and the congested one way highway system. Notably, much of the new housing development in Worcester is projected to be built on that side of the City. One of the ways to address this issue would be to construct a new station west of the City in order to provide access from the A4440 and to mitigate the effects of new development in the area (see table 5.16 for more details).

### **3.5.9 Rolling Stock Availability**

Rolling stock availability to accommodate growth sits within a complex and mixed context of partial Government leadership and specification, a private-sector 'supply side' and a highly regulated end-user in the form of the 'limited life' franchised Train Operating Companies.

Worcestershire has benefited from a range of rolling stock upgrades both in quality and capacity and will do so further from direct Department for Transport investment via the Great Western Main Line (GWML) electrification:

- **Snow Hill Lines** – Class 172 Turbostar stock introduced by London Midland in 2011 replacing the Class 150 ‘Sprinters’;
- **Birmingham-Hereford And Nottingham-Cardiff** – Class 170 Turbostar units formerly operated by Central Trains (now London Midland) and by Cross Country on Nottingham-Cardiff routes after 2004;
- **Chiltern Lines** – Class 168 Turbostar introduced in 2002 and loco/Mark III ‘InterCity’ types sets on Kidderminster-London Marylebone services introduced in 2011 (in this case procured commercially by Chiltern Railways);
- **Cross City Lines From Redditch** – Class 323 electric units introduced in 1993, operated by London Midland – these units will operate to Bromsgrove when electrified in 2018;
- **Great Malvern-Worcester-Bristol** – allocation of some regional Class 158 trains and refurbished Class 150 Sprinters, operated by GWR; these may be supplemented or replaced by Class 165 / 166 units released by GWR after electrification of the Thames Valley portions of the GWML is completed;
- **Cross Country** – new Voyager units introduced in 2001 which form the base provision of Cross Country services between South-West, North-West and North-East England. Also a number of loco-hauled MKIII coach ‘intercity’ trains operate between Plymouth and Edinburgh. This fleet is currently undergoing modifications to enable legislative compliance and to enable the rolling stock to operate beyond 2020.;
- **London Paddington-Worcestershire** – new InterCity Express bi-mode (diesel and electric) trains which will replace GWR High Speed Trains on the North Cotswold and South Cotswold routes from 2018/19 – these procured directly by the DfT.

The key issue for Worcestershire is that it remains a non-electrified network, other than between Bromsgrove, Redditch and Birmingham, for the foreseeable future with electrification planning for other routes tentative and uncertain (see Section 5.9 below for a fuller discussion of DfT and Network Rail electrification planning).

The case for electrification is very much driven by 1) long-term operating cost savings and 2) the secondary benefit of electric trains being able to accelerate more swiftly than diesels and provide capability for more frequent train services and hence more passenger capacity. For Worcestershire a number of the train service Conditional Outputs discussed at Section 7 may either depend upon, or become significantly more feasible with, electrification.

It had previously been assumed that, in advance of any further electrification of routes within the County, the previously committed GWML, Midland Main Line and TransPennine electrification schemes would have released diesel rolling stock which could ‘cascade’ to areas such as Worcestershire, in particular on routes such as Hereford, Great Malvern and Worcester to Birmingham where on-train passenger capacity is already at a premium on peak services. However, the Government’s July 2017 announcement that put on hold all



future electrification schemes means that alternative solutions to providing additional rolling stock will need to be found.

### 3.6 Committed Rail Industry plans relevant to Worcestershire

**3.6.1** Worcestershire's rail infrastructure is managed by 2 Network Rail Routes – London North Western (South), based in Birmingham, and Western, based in Swindon.

#### London North Western (South) Route

- Abbotswood Junction (Worcester) to Birmingham;
- Worcester to Droitwich Spa, Kidderminster and Bromsgrove.

#### Western Route

- Norton Junction to Worcester and Great Malvern (and Hereford);
- Cheltenham to Abbotswood Junction on the Bristol to Birmingham Line;
- Honeybourne to Norton Junction on the North Cotswold Line.

Their placement into London North Western Route groups them logically into the 'West Midlands Travel to Work' area, with management in Birmingham significantly closer to Worcester than that possible from Western Route at Swindon and with potential to offer greater focus than previously.

Having said that, the County's railway remains divided between 2 Network Rail routes, requiring WCC and other stakeholders to necessarily have to deal with more industry staff and departments as well as differing perspectives and imperatives. Further complications arise regarding any

services between Worcester, Hereford and South Wales, given that Hereford Station and the Welsh Marches Line comes under the management of the Wales Route. At times this will require WCC and other stakeholders to deal with a third branch of Network Rail. These multiple layers of differing industry staff, perspectives and imperatives challenges the grain of the "One Economy / One Railway" concept which seeks to maximise economic growth and social prosperity through a cohesive, efficiently run, regional (and national) rail network. However, WCC welcomes Network Rail's commitment in summer 2017 for both LNW and Western Routes to work together with the Council to ensure there is 'One Voice' on Worcestershire's rail priorities.

**3.6.2** The rail industry's current committed train service and infrastructure enhancement plans derive from the Department for Transport's 'High Level Output Statement' (HLOS) for the 5-year investment 'Control Period' CP5 2014-2019 – effectively what Government seeks to buy from the industry.

In turn Network Rail defines how it will facilitate and deliver these outputs within its CP5 Business Plan and Enhancement Delivery Plan (EDP). In 2015 delays in implementing projects such as Great Western electrification, together with increasing costs, led the Government to appoint a new Network Rail Chairman, Sir Peter Hendy, with a clear remit to review and re-plan CP5 delivery to greater levels of financial and programme confidence.

In November 2015 Sir Peter Hendy published his initial report "Re-planning Network Rail's investment programme: a report from Sir Peter Hendy to the Transport Secretary (Nov 2015)".

This was followed in March 2016 by his review of the CP5 Enhancement Delivery Plan which confirmed development and delivery programmes within CP5, those which would take place across CP5 and CP6 (2019-2024) and those which would commence in CP6.

Key projects of relevance to Worcestershire in the revised CP5 EDP include:

- Great Western Main Line Electrification;
- InterCity Express Programme (IEP);
- Great Western Main Line Specific Capacity Schemes including Henwick Turnback at Worcester;
- Bromsgrove Electrification;
- Bristol infrastructure and West of England rolling stock capability programme;
- Heathrow Western Access.

Taken together with the County's recently completed scheme at Bromsgrove Station and committed scheme for Worcestershire Parkway, these are described more fully at 3.6.3 to 3.6.8 below.

In July 2017 the Government published the 'High Level Output Statement' for CP6 which stated that the focus of investment for the next 5 years will be on maintenance and life-expired renewals of existing infrastructure rather than on new enhancements; a reflection no doubt on the cost increases and delays that have been incurred during CP5.

The Statement of Funds Available (SoFA), the Government's defined budget for the railway, will not be published until October 2017 and so

it is not known at this stage which of the deferred CP5 schemes will receive funding or be further deferred to CP7 or beyond.

### **3.6.3 Great Western Electrification And Intercity Express Programme**

Electrification of the Great Western Main Line (GWML) from London Paddington to Newbury, Oxford, Bristol Temple Meads, Bristol Parkway, Cardiff and Swansea was originally planned for completion by December 2017. Electrification will enable the introduction of new 'InterCity Express' bi-mode diesel / electric or electric only trains which have a faster running speed and more passenger carrying capacity over the current rolling stock, thus reducing journey times and improving the travelling experience.

The intention was that services between Worcester and London Paddington would be operated by bi-mode Intercity Express Programme trains with a new timetable planned from December 2018 to provide a regular interval hourly pattern. However, programme delays meant that a revised timetable for delivery was subsequently set out in the 2015 Hendy Review:

- Newbury, Bristol Parkway and Cardiff to be reached by December 2018;
- Oxford by June 2019;
- Bristol Temple Meads from Bristol Parkway by July 2019;
- Bristol Temple Meads completion by April 2020.

Unfortunately, further delays and significant cost-overruns meant that in November 2016 the Department for Transport announced that work on four sections of the project had been deferred, with completion planned between 2019 & 2024 (Control Period 6) and the extension to Swansea cancelled entirely. The four sections in question are:

- Oxford to Didcot Parkway
- Bristol Parkway to Bristol Temple Meads
- Bath Spa to Bristol Temple Meads
- Thames Valley branches to Henley and Windsor

The implication of these delays on the operation of the 2018 IEP timetable is still to be fully understood, although it is now known that all IEP trains will be bi-mode rather than a mix of bi-mode and electric-only rolling stock; thus enabling services to run through the sections that have been delayed for completion. Network Rail's Control Period 6 Business Plan (once published) should confirm whether or not this revised timetable for electrification remains correct.

### **3.6.4 GWML Capacity Schemes – Henwick Turnback At Worcester**

To support GWML electrification the revised EDP sets out an extensive range of capacity schemes across the GWML within the remainder of CP5. For the Worcester-London Paddington route this includes the provision of a turnback facility at Henwick, west of Worcester Foregate Street. This is specifically described as “(enabling) an hourly service to operate to and from London Paddington and Worcester Foregate St Station (City Centre) without the need to run to Malvern Wells to turn-back.” More generally it will also provide much

needed enhancements to the limited network capabilities in the area and permit service improvements for both operators and their services along the route.

The EDP noted that the Henwick scheme was authorised with a delivery date of December 2017 thus facilitating the proposed 2018 hourly train service timetable between Paddington and Worcester (and with Worcestershire Parkway due to open in 2019). At the time of writing Network Rail have begun work in this area and the scheme is expected to be completed and commissioned by January 2018.

Further work was undertaken by Network Rail and GWR during 2016 regarding the relationship between the performance characteristics of the new IEP trains (taking into account the reduced extent of electrification) and the detailed December 2018 train service. We understand that the hourly Paddington – Worcester service will still require the turn-back at Henwick (or some alternative location).

### **3.6.5 Bromsgrove Electrification**

This scheme extends the ‘Cross City line’ south to Bromsgrove and is part of a package of measures including the new station at Bromsgrove and the extension of overhead line electrification from Barnt Green. This will enable three Cross City line trains per hour to serve Bromsgrove, representing a radical transformation of rail services to the town.

The new relocated station at Bromsgrove, which opened in 2016, is initially being served by existing diesel-powered London Midland and Cross Country services.

The EDP proposed electrification was to have been completed in April 2017, with the new electric 3 tph service

commencing in May 2017. However due to project delays, re-franchising and the necessary driver training programme the electric service will now commence in May 2018. Notably and positively the EDP recognises the train service timetable relationship between this scheme and Worcestershire Parkway.

### **3.6.6 Bristol Infrastructure And Rolling Stock Capability Works**

2 key pieces of work are confirmed in the EDP at Bristol which will support 2 new London Paddington-Bristol Parkway-Bristol Temple Meads services from December 2018 – increased infrastructure to allow more paths between Parkway and Temple Meads, and new platforms (in the former Brunel train shed).

Of direct relevance to Bristol to Worcester services are the ‘gauge clearance’ works to widen, or alter, lineside structures to enable Class 165 and 166 units (as currently used on the North Cotswold Line) to operate between Temple Meads and Abbotswood Junction from May 2018.

### **3.6.7 Heathrow Western Access**

The EDP recognises the transformative impact of providing a western facing access at Heathrow to the Great Western Main Line. For Worcestershire passengers this will significantly enhance ease of access to Heathrow Airport with only a single change required at Reading Station.

Public consultation for this scheme is underway in 2017 and the EDP envisages work commencing on site at the beginning of CP6 (2019-2024) with commissioning by 2024. Again, these time scales will need to be reviewed in light of the publication of the CP6 SoFA in October 2017.

### **3.6.8 Worcestershire Parkway**

Worcestershire County Council is delivering Worcestershire Parkway at the point east of Norton Junction where the North Cotswold line crosses the Bristol to Birmingham Line. The project is, at the time of writing, progressing through the completion of the ‘GRIP5’ detailed design and work on site has commenced. The station is then anticipated to open in early 2019. The design of the new station is such that it will not jeopardise delivery of future enhancements along the North Cotswold Line (such as full or partial double tracking) as may be realised through the work of the North Cotswold Line Task Force or through Network Rail’s Long Term enhancements and renewals programmes.

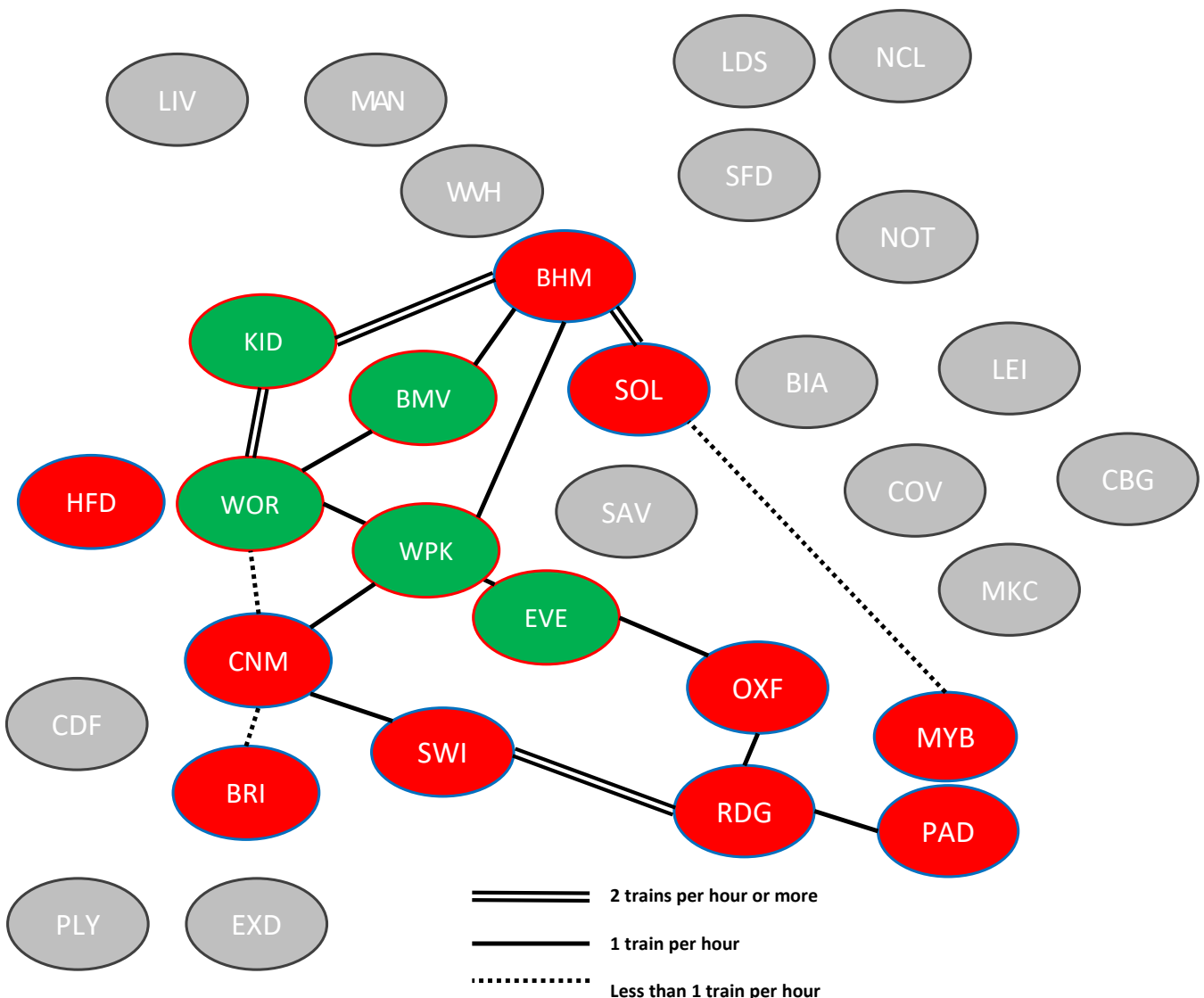
Parkway's location close to Junction 7 of the M5 will make it a strategic access point for the rail network for much of the County. It will have 500 car parking spaces. Services to Parkway will initially include:

- Hourly GWR Worcester – London Paddington services;
- Hourly Cross Country Cardiff – Nottingham services.

Once opened, the new station will serve to strengthen the case for further enhancements in service frequency and quality along the line, including at intermediate stations such as Pershore, Honeybourne and Evesham.

The enhanced connectivity that will be offered by Worcestershire Parkway and Bromsgrove electrification is illustrated at Figure 3.16 below (compared to 2016 as shown at Figure 3.8 above).

**Figure 3.16 – Direct Rail Connectivity To And From Worcestershire – 2018 With Worcestershire Parkway And Bromsgrove Electrification**



### 3.7 Refranchising Programme

The refranchising programme represents an opportunity for the conclusions of this Rail Investment Strategy to be used to lobby the Department for Transport for inclusion in franchise specifications.

Those refranchising processes relevant to Worcestershire which have commenced or are commencing imminently are:

- **West Midlands Rail (Currently London Midland):** franchise now awarded to Abellio and expected to commence in December 2018;
- **West Coast Franchise (Currently Virgin Trains):** franchise starts April 2019;
- **Great Western (Currently GWR):** franchise starts April 2019;
- **Cross Country (Currently Arriva):** franchise starts November 2019.

The full industry consultation timetable is discussed further at Section 5.3 below.

### 3.8 Ticketing

Rail fares are poorly understood by many passengers and industry stakeholders and fares are not always set in proportion to the distance travelled. There are a number of reasons why fares per mile vary considerably within the County; they are not mutually exclusive and fares may be subject to a complicated combination of factors, including:

- **Structure Of Fares Setting** – varies across the different routes in Worcestershire which are controlled by individual Train Operating Companies (TOCs), with different principles & practices;

- **Cross-Route Fares** – a journey may come under the consideration of a number of TOCs along its route or, along different routes through the same part of the County;
- **Historic Fares Setting Policy** – some of Worcestershire's fares are based on policies first established by British Rail;
- **Market Segmentation** – different ticket types for different classes of user;
- **Fares Regulation** – to correct fares anomalies by capping fares in a captive market;
- **Regulatory Flexibility** – some fares may be increased by TOCs by 2% over the regulatory cap within a weighted basket of fares;
- **Divergence** – between regulated and unregulated (no cap) fares;
- **First Class Fares** – large increase in fares for the premium of travelling first class;
- **Inflation** – widens the gap between fares over time.

It should be noted that rail fares regulation is set by central Government policy, over which there is little, or no, local control. Fare increase caps can vary year on year in response to changes in Government policy and TOCs will tend to increase fares by the maximum allowed each year particularly as passengers using these fares tend to be those with limited choices (e.g. commuting into Birmingham or London) and are therefore a captive market.

In addition, changes in fares quotas (such as the number of available advanced purchase, off-peak tickets) and split ticketing (buying a number of tickets between intermediate stops on a route in order to save money) have contributed to, at best, a confusing travel market and, at worst, an opinion of poor value and mistrust in the mind of many passengers.

# 4. Stage 2 – Review Of Worcestershire’s Development Proposals

## 4.1 Worcestershire – Population, Economy And Development

Worcestershire is an attractive and thriving County, stretching from the borders of the urban West Midlands to the Border counties of Herefordshire and Shropshire, the Cotswolds and the South West in Gloucestershire. The City of Worcester is at the heart of the County, with key towns at Redditch, Bromsgrove, Droitwich Spa, Kidderminster, Bewdley, Stourport-on-Severn, Tenbury Wells, Great Malvern, Upton-on-Severn, Pershore and Evesham.

The County has a population of 566,000, but grew less in the 2001-2011 Census period than many other West Midlands areas, including neighbouring authorities such as Warwickshire. WCC and the Worcestershire Local Enterprise Partnership (WLEP) have ambitious growth targets, seeking to deliver 25,000 new jobs, £11.8bn of economic benefits (Gross Value Added) and 47,200 homes by 2030<sup>12</sup>. This represents significant levels of population growth over the next 15 years, likely to generate significant challenges for capacity and speed of the transport network and for environmental sustainability.

A number of strategic economic, transportation and development strategies have been produced with the objective of trying to manage and capitalise upon the benefits of this predicted population growth. Each is considered in turn, with key policy statements extracted to help justify future rail investment in Worcestershire.

## 4.2 Worcestershire LEP Strategic Economic Plan (SEP)

The WLEP’s Strategic Economic Plan (SEP) highlights a number of challenges facing the County and notes that “there is considerable scope to enhance Worcestershire’s rail infrastructure and services”:

- **SEP Section 2.3.2 ‘Place’** shows significant congestion points on the highway network within Worcestershire (in Figure 2.2) and Table 2.1 notes that these areas are ‘constraining economic growth’. It further notes that ‘improved rail connectivity’ is a key opportunity for growth;
- **SEP Section 2.3.4 ‘Business’** lists “major economic and demographic growth in Birmingham and Solihull” as both an opportunity and a threat. Improvements to the sustainable (rail) infrastructure that unlock access to and from these markets is key to maximising the opportunity benefits;
- **SEP Section 2.3.5 ‘Key Opportunities And Challenges’** lists “infrastructure to remove constraints and unlock growth” as one of the primary challenges that the SEP aims to overcome in the delivery of its objectives. In the context of localised road traffic congestion (ref. Section 2.3.2) and limited expansion capacity of the highway network, rail investment will be a key force to help deliver these aspirations.

<sup>12</sup> Worcestershire Local Enterprise Partnership, Worcestershire Strategic Economic Plan; March 2014

The SEP then outlines key policies and objectives to combat these issues, a number of which are particularly relevant to future rail investment:

- **Short Term Objective – 2015/16 (01)** – “To ask the Department for Transport (DfT) to deliver (North Cotswold Line) frequency and journey time improvements (under 2 hours) from Worcester to London and to include Worcestershire Parkway in the new Great Western Franchise”;
- **Transport Infrastructure Programme** – supports the Worcester area re-signalling and track re-modelling (noting that this is not something within the control of the WLEP) and improved services between Worcestershire and Birmingham / the West Midlands / HS2.

In addition, there is clear commitment to support the construction of Worcestershire Parkway and the Kidderminster Rail Station Enhancement scheme (the latter being a short-term ‘Local Growth Fund’ initiative) and which is set to transform the station building, forecourt and highway access by mid-2019. Both are being delivered at the time of writing and will actively improve accessibility to and from the County by rail, and reduce reliance on private car travel.

### 4.3 Worcestershire’s Local Transport Plan 4 (2017 – 2030)

4.3.1 WCC’s 3rd Local Transport Plan (LTP3) has been refreshed and updated and is to be replaced by LTP4. This Rail Investment Strategy highlights a number of rail constraints and policy objectives in order to support prioritised delivery of, and which should be carried into, the final LTP4.

The introduction to the main LTP4 document sets out three ways in which WCC will target increasing transport capacity in order to maximise sustainable access to employment and tourism, reducing congestion (and therefore air-borne pollution) and journey times, and supporting economic growth:

- **Transport Technology** – in order to offer increasingly attractive opportunities to help manage demand on the transport networks, tackle congestion and support growth;
- **Travel Choice** – increasing travel choice to allow the economy to grow and diversify, prioritising investment in alternative travel modes with a particular focus on rail. The rail network is recognised for its significant potential to accommodate and support economic diversification and planned growth. It also has an important role to play in achieving modal shift from road to rail, tackling congestion, emissions of nitrogen dioxide and particulates and of carbon dioxide and other greenhouse gases, as well as reducing road-vehicle collisions;
- **Capacity Enhancement** – in relation to rail this means significant investment in the County’s stations, rail infrastructure and rolling stock.



The previous LTP3 set out WCC's Top 10 rail priorities within the main document, whereas under LTP4, the rail priorities are set out within this Rail Investment Strategy (appended to the main report). The LTP3 Top 10 rail priorities were set out as follows, with 2017 status shown in *italics*:

- 1 – Worcestershire Parkway (*opening 2019*);
- 2 – Bromsgrove new station (*opened 2016*);
- 3 – Birmingham to Worcester services (*December 2018*);
- 4 – Cotswold line improvements (*to be completed by the end of 2018*)<sup>13</sup>;
- 5 – Signal and line capacity enhancements in Worcester;
- 6 – Cross City line south service improvements;
- 7 – Kidderminster railway station improvements (*delivery planned for 2019*);
- 8 – Cycle and car parking;
- 9 – Birmingham to Bristol services;
- 10 – Worcester railway station improvements (*Foregate St completed; Shrub Hill Masterplan completed in 2017*).

All of these priorities remain significant in 2017 and the new LTP4, with further development required even with those where progress has been made. One core purpose of this Rail Investment Strategy is to provide the economic evidence and priority order for these interventions and thus shape the development and direction of the LTP4.

#### 4.3.2 North East Worcestershire Transport Strategy

The North East Worcestershire Transport Strategy, covering Bromsgrove and Redditch Districts, has limited reference to rail services, although it notes that 66% of residents drive to work despite there being 6 railway stations in the 2 districts (Redditch, Alvechurch and Barnt Green on the Cross City Line, Bromsgrove (on the Birmingham - Bristol line) and Hagley on the Kidderminster Line and Wythall on the Stratford-upon-Avon-Birmingham Line). This implies that access to and the level of rail services from the stations need to be improved if modal shift in the region is to be achieved away from the private motor vehicle.

The key rail focus of the Strategy is the relocation of Bromsgrove Station, which opened in July 2016, along with support to the rail industry for the new Alvechurch Loop on the Redditch line (delivered in 2015) and aspirational station enhancement schemes at Hagley, Alvechurch and Wythall.

<sup>13</sup> Network Rail delivered improvements outside of the remit currently being considered by the North Cotswold Line Task Force

### 4.3.3 South Worcestershire Transport Strategy

The South Worcestershire Transport Strategy covers the City of Worcester, Wychavon and Malvern Hills Districts. It notes that there is an infrequent train service between Worcester and Cheltenham Spa and that there is no direct access to Cross-Country rail services. It specifically states that “this lack of strategic rail accessibility directly impacts on Worcestershire’s competitiveness as a place to do business”.

It principally focuses upon the now-delivered station enhancement schemes at Worcester Foregate Street and Malvern Link, aspirational schemes at Droitwich Spa, Pershore, Hartlebury and Hagley, North Cotswold Line doubling, Worcester re-signalling and the possibility of re-opening the Honeybourne-Stratford-upon-Avon route.

### 4.3.4 Wyre Forest Transport Strategy

The Wyre Forest Transport Strategy notes that there are only 2 National Rail stations in the district despite its size of approximately 200km<sup>2</sup> and 100,000 residents. The stations at Kidderminster and Blakedown are served by local

services to Worcester and the West Midlands and a limited direct service to London Marylebone. Notwithstanding this there was a 67% growth in rail travel from 2004 – 2009. The District is noted as having some of the most deprived areas in the County (e.g. the Rifle Range area of Kidderminster and the Areley Kings area of Stourport-on-Severn). A more recent 2015 ‘Nomis’ report stated that the District had around 4.6% unemployment, compared to a 5.2% national average indicating that there may be some economic recovery in the area<sup>14</sup>. Despite its proximity to both south Worcestershire and the West Midlands conurbation, over 65% of people who live in the area work in the area.

Tourism plays an important role in the Wyre Forest economy, thanks to the presence of the West Midlands Safari Park and the Severn Valley Railway. Both venues are located close to Kidderminster and thus an improved rail service to and from the town would benefit the economy.

The key rail focus of the Strategy is Kidderminster and Blakedown station enhancements and Kidderminster to Birmingham journey time enhancements.

<sup>14</sup> <https://www.nomisweb.co.uk/reports/lmp/la/1946157198/report.pdf>

### 4.3.5 A Developing Vision Of The North Cotswold Line

Separately from LTP3 but driven by seeking agreement in respect of the Worcestershire Parkway scheme with the DfT, Network Rail and the Train Operators, In 2015 WCC commenced formulation of a Shared Vision for the development of the North Cotswold Line (as illustrated at Figure 4.1) the first of which was published by GWR in mid-2016. The second 'Joint Vision' was published in autumn 2016. This focused firstly on train service enhancements (including those required to meet the objectives of WCC and the WLEP) and secondly the infrastructure necessary to meet these rather than being led by the latter. This latter Joint Vision has been used for ongoing discussions with the rail industry and neighbouring LEPs and local authorities.

Its particular components relevant to this Rail Investment Strategy included:

- A 2 trains per hour Worcester to London Paddington frequency with 1 tph as a limited stop 'Express' service to offer headline journey times of 2 hours or less, and 1 tph as a 'semi-fast' service to provide an hourly service from all stations;
- Assessment of the options to enhance services west of Worcester to Great Malvern & Hereford;

- Assessment of the enhanced infrastructure, facilities and staffing required to deliver the Joint Vision;
- Assessment of the options to provide later evening services;
- Assessment of the potential future value of re-opening the Stratford-Honeybourne line as a secondary priority only once the value of the enhanced Worcestershire - Oxfordshire - London services have been realised.
- Joint engagement with the rail industry, Herefordshire, Gloucestershire and Oxfordshire to develop an integrated 'economic case' for North Cotswold Line improvements;
- An incremental development plan for the route between 2015 and the opening of HS2 in 2026 (N.B. HS2 development work at London Euston 2018-2021 will affect West Coast Main Line services and may encourage more Worcestershire passengers to use the North Cotswold Line just as Worcestershire Parkway opens).

The WCC Vision's relationship to Network Rail's long-term plans for the North Cotswold Line is discussed further at Section 5.6.1. The Vision document is shown at Figure 4.1.



Figure 4.1

Worcestershire County Council

# Worcestershire's Vision for the North Cotswold Railway Line

September 2015

## Summary

- Worcestershire's strategic objective is to increase economic growth through inward investment and export opportunities, with 25,000 new jobs and GVA of £11.9bn by 2025 and 45,000 new homes by 2030.
- Transforming the County's rail connectivity to London, Oxford, the Thames Valley, Heathrow, Birmingham, Bristol, Cardiff, Manchester, the North East and HS2 is central to meeting this objective.
- Worcestershire Parkway, opening in 2017, funded by Worcestershire County Council and the LEP, will provide the new capacity essential to growth in access to North Cotswold and Cross Country services.
- Our vision for the North Cotswold Line is staged development to a half-hourly service with substantively reduced journey times between Worcestershire, Oxford, the Thames Valley and London.
- Worcestershire seeks to benefit from and add value to schemes such as Great Western Electrification, InterCity Express (IEP), East-West Rail, Heathrow Western Access, CrossRail and HS2.

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## An Incremental Development Plan (IDP) for the North Cotswold Line

- Worcestershire would support a 2015-2025 Incremental Development Plan for the line to be delivered in partnership with Government, Oxfordshire, Gloucestershire and the rail industry.
- The development from slow 2-hourly to fast half-hourly services on the Chiltern Line and resultant passenger growth and economic development is a clear template for the North Cotswold Line.
- In preparing the IDP, we would welcome joint work with Oxfordshire and Gloucestershire to integrate each party's specific economic cases for enhanced North Cotswold Line services.
- Achieving the economic benefits of more frequent, faster passenger services is our principal desired output, supported by rather than defined by any particular infrastructure proposals.
- Worcestershire's vision for incremental development of the passenger service is consistent with committed Government and rail industry schemes:

- 2015 – North Cotswold Line service enhancement economic case (WCC/GCC/OCC/LEPs)
- 2015 – Faster journey times; c. hourly service; line speed enhancements (FGW/NR)
- 2017 – Worcestershire Parkway (WCC/WLEP)
- 2017 – InterCity Express trains introduced to existing timetable (DfT/FGW)
- 2018 – Infrastructure enhancements needed to support IEP services (DfT/NR)
- 2018 – Full InterCity Express hourly service with sub-2 hour journey time (DfT/FGW)
- 2018/25 – Future delivery of faster half-hourly services and associated infrastructure (DfT/NR)
- 2026 – High Speed 2 Phase 1 and enhanced services on released network capacity (DfT/HS2/NR)

### Acronym Index

<b>FGW:</b>	First Great Western
<b>GCC:</b>	Gloucestershire County Council
<b>GVA:</b>	Gross Value Added
<b>HS2:</b>	High Speed 2
<b>IDP:</b>	Incremental Development Plan
<b>IEP:</b>	InterCity Express Programme
<b>LEPs:</b>	Local Enterprise Partnerships
<b>NR:</b>	Network Rail
<b>OCC:</b>	Oxfordshire County Council
<b>WCC:</b>	Worcestershire County Council
<b>WLEP:</b>	Worcestershire Local Enterprise Partnership

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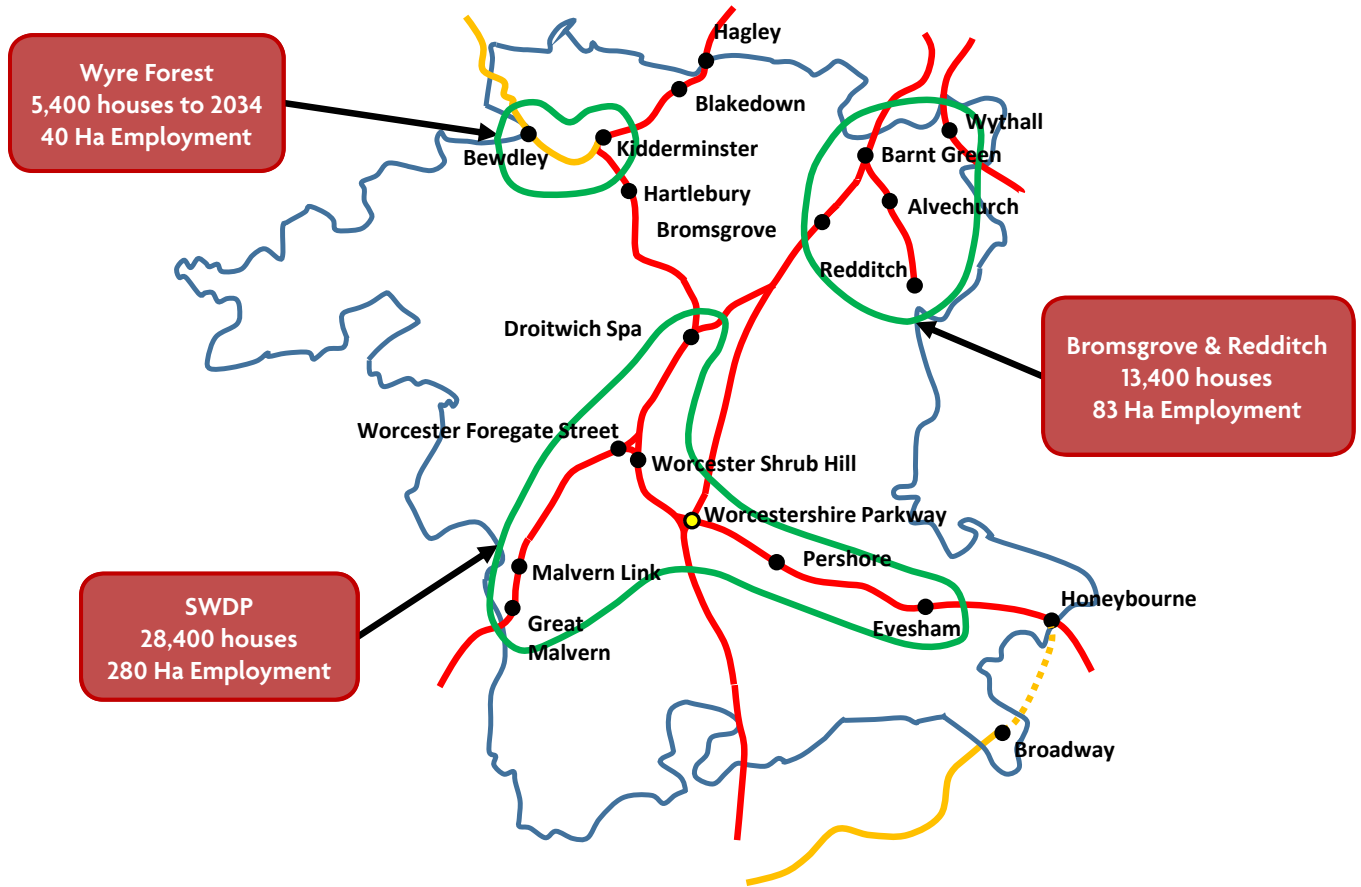
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In Spring 2016 the Great Western Railway (GWR) hosted an event attended by WCC, other local authorities, Local Enterprise Partnerships, rail industry stakeholders and businesses at which GWR launched a Joint Vision document for the North Cotswold Line as a whole. The event was chaired by Lord Faulkner of Worcester and was addressed by the then Prime Minister, David Cameron, who encouraged unified purpose and preparation of a compelling case to create confidence in the ambition for the route. The organisations attending agreed to the formation of a North Cotswold Line Task Force (NCLTF) to progress the delivery of the joint Vision and its inaugural meeting was held in July 2017. At the time of writing the North Cotswold Line Task Force had begun delivery of its first-year programme of works, seeking to scope an agreed set of train service, infrastructure, programme and

funding options. WCC is the lead authority for the NCLTF, reflecting its strength of commitment to the route's future services, as evidenced by the work undertaken as part of this Rail Investment Strategy.

Subsequent work since publication of both Vision documents led to the milestone meeting of MPs, DfT, NR, GWR, Worcestershire, Oxfordshire & Gloucestershire County Councils (and respective LEPs) and rail interest groups on the 29th November 2016. Under the chairmanship of Lord Faulkner of Worcester the organisations agreed to the formation of the North Cotswold Line Task Force (NCLTF). The NCLTF has a remit to progress the delivery of the Joint Vision and the inaugural meeting was held in July 2017. At the time of writing the North Cotswold Line Task Force had begun delivery of its first-year programme of works.

Figure 4.2 – Housing And Employment Growth In Worcestershire



#### 4.4 Local Plans

**4.4.1** Worcestershire is set to experience significant growth in terms of new dwellings and employment sites up to 2030. There are a number of Local Plans which apportion this growth across the different regions of Worcestershire; ‘Wyre Forest’, ‘Bromsgrove & Redditch’ and ‘Wychavon, Worcester & Malvern Hills’ (covered by the South Worcestershire Development Plan – SWDP).

All the Local Plans are at different stages of review, with Wyre Forest currently being developed (consultation on the Preferred Option closed in August 2017). Bromsgrove & Redditch Plans were adopted in January 2017 and the SWDP

was adopted in February 2016. The policies within these plans are (or have the potential to be) important justifiers for rail investment.

A review of the 3 Local Plans for Worcestershire has highlighted that approx. 47,200 new dwellings and 403ha of new employment sites have been allocated for the County (although as noted above, not all of these plans have been adopted). The focus of this growth is shown in Figure 4.2 above. It is clear to see that the development is focused along the key rail corridors in the County.

#### 4.4.2 South Worcestershire Development Plan

The South Worcestershire Development Plan 2016 (SWDP – adopted in February 2016) contains a number of rail focused statements and policies:

- PARAGRAPH 75 (C) notes “Important elements of the... rail network cross [the County] and have a very important bearing on the area’s competitiveness and attractiveness [in relation to employment]. This needs to be considered within a strategic planning context, to ensure the future provision and enhancement of the area’s transport network is maximised”;
- PARAGRAPH 75 (D) notes “Growth across south Worcestershire... will place demands upon facilities that serve a wide catchment area.” It further notes that rail (and road) investment will be key to supporting this growth;
- SWDP [POLICY] 4 (J) notes four sites that will be safeguarded from development that would otherwise “prejudice future enhancements to the rail network” (these sites being Worcestershire Parkway Station, Cotswold & Malvern Line, Droitwich Spa to Stoke Works and Stratford to Honeybourne Line including the former Chord Lines at Honeybourne Junction).

4.4.3 The justification for this latter policy notes that “integrated investment in transport infrastructure is required... to accommodate the growth in travel demand” and that some of the ways to achieve this will be through “excellent access to improved regional and inter-city rail services” and the removal of “rail network capacity and reliability pinch points”.

4.4.4 These themes are further developed as follows:

- SECTION 16 cites Worcestershire Parkway as one of the key ways in which the current poor quality rail access to Birmingham, Bristol & Cardiff will be addressed;
- SECTION 18 cites access to stations improvements within key County towns as a further way to improve both accessibility to the national rail network and sustained modal shift from road to rail (with infrastructure improvements around Droitwich Spa, Evesham, Worcester Shrub Hill, Malvern, Pershore & Hartlebury Stations prioritised in Appendix I);
- SECTION 29 requires developers to give serious consideration to the impacts of their development on the wider transport networks, including rail.

4.4.5 Within the SWDP it is clear that rail is seen as an important enabler of development in the south of the County; investment in rail should be focused accordingly. It is important that other Local Plans currently under development also reflect the value of rail investment.

## 4.5 Wider West Midlands Rail And Development Strategies

4.5.1 There are a number of other plans, policies and inter-authority structures which address, or are relevant to, rail travel and the need for investment in the West Midlands rail network:

- **Greater Birmingham Housing Allocations** – which seek to provide locations for Greater Birmingham’s housing growth outside of its borders, including in Worcestershire;
- **West Midlands Strategic Transport Plan 2017-2026** – covering the Metropolitan Area;
- **West Midlands Rail Vision 2014** – the most recent overarching strategic vision for the network serving the West Midlands Travel to Work Area (although this is due to be updated during mid-late 2017);
- **Midlands Connect Strategy: Powering the Midlands Engine 2017** – a broader alliance of West Midlands and East Midlands authorities and Local Enterprise Partnerships (including Worcestershire) examining strategic connectivity of rail and road across and within the 2 regions in order to improve transport connectivity and thereby boost economic growth.

## 4.5.2 Greater Birmingham Housing Market Allocations

The provision of new housing in the West Midlands is currently under review. As part of the review process, the Planning Inspector has identified a need for around 198,000 new dwellings in the Greater Birmingham Housing Market Area (HMA) between 2011 and 2031<sup>15</sup> (the HMA stretches to the boundary of Wyre Forest District<sup>16</sup>). As the review progresses, the north Worcestershire authorities may be asked to accommodate at least some of this allocation although it should be noted that these findings, and the quantum of allocations, are yet to be formally adopted. A more recent Objective Assessment of Housing Needs (April 2017) has stated that Wyre Forest District is to be considered as a HMA in its own right and should not be allocated housing from the Greater Birmingham area.

The Greater Birmingham & Solihull LEP (GBSLEP) and the Black Country LEP (BCLEP) have agreed that any new housing allocations external to the City should be focused on Urban Extensions and transport corridors.

The 3 principal Worcestershire rail corridors – Kidderminster, Bromsgrove and Redditch – may thus form a logical focus from this perspective. For Worcestershire sustainability of any such development would depend upon maximising the service frequency and capacity of these 3 rail corridors.

<sup>15</sup> [EXAM\\_145 - PBA\\_OAN\\_Report\\_March\\_2015.pdf](#)

<sup>16</sup> [Strategic-Housing-Needs-Study-Stage-2-Report-Nov-14.pdf](#)

### 4.5.3 West Midlands Strategic Transport Plan

The West Midlands Strategic Transport Plan (STP) covers the period 2017 - 2026. Produced by Transport for West Midlands to achieve their long-term “Movement for Growth” vision. Its two key principles are to:

- Ensure all parts of the West Midlands region are plugged into the two new HS2 stations that will be delivered in the region.
- Deliver transport investment along priority corridors to achieve new jobs & homes and the aims of the WMCA's Strategic Economic Plan

Whilst it is focused on Birmingham and the West Midlands Metropolitan Area it does have implications for Worcestershire, the Plan noting that TfWM will work with WCC to “ensure joined up transport strategy & enhanced services for the Journey to Work area”.

One of the Plan's ‘Long Term Themes’ is to achieve a ‘rail renaissance’ and provide better local services, quality of passenger facilities, more seats and longer trains.

Rail links to Bromsgrove, Redditch, Stourbridge, Kidderminster, Droitwich Spa and Worcester are seen as part of the key passenger rail corridors into & out of the Midlands in order to create a central ‘Hub’ for travel to work and economic development. The WMSTP notes that the features of these corridors should be speed, capacity, permanence, integration and accessibility and that Improvements should be sought to improve service frequency, reliability, operating hours and image and perception.

Capacity, stations, rollingstock & Park & Ride facilities remain mainstays of the STP along with a commitment to work with regional partners to deliver the objectives. However, there are few overt references to Worcestershire. WCC will continue working with the WMCA to develop these objectives and provide stronger links between the County and West Midlands region.

### 4.5.4 West Midlands Rail Vision

The West Midlands Rail Vision was published in Autumn 2014 by the West Midlands Transport Authority on behalf of both the metropolitan and surrounding Shire and Unitary authorities. In taking a broader strategic perspective than the West Midland Local Transport Plan beyond the Metropolitan area, its focus was on:

- Preparation for West Midlands rail devolution, now in progress;
- The opportunity represented by HS2 to release capacity and re-cast services; and
- As with Network Rail's Markets Studies (Section 5.2), on the economic and jobs benefits the region's railway network could generate.

For Worcestershire the Vision discussed:

- The potential benefits in access to labour markets and jobs if a 5% reduction in generalised journey times to Birmingham could be delivered (N.B. this is tested within this Rail Investment Strategy – Section 5);
- Electrification of the Snow Hill Lines as an aspiration;
- Stations needing step-free access – Great Malvern (surprisingly omitting Worcester Shrub Hill);



- A Zonal ticketing structure as aspired to by Worcestershire County Council;
- The benefits of Worcester (sic) Parkway as a means of enhancing the County's regional and national connectivity.

In principally considering the regional networks feeding the West Midlands metropolitan area, the Vision did not aim to address the strategic Cross Country network in detail (notwithstanding its reference to Worcestershire Parkway), nor was the North Cotswold Line considered. As such the Vision was not able to assess Worcestershire's role in a holistic manner.

West Midlands Rail is now developing this Vision through both a 'Single Network Vision' and its own Rail Investment Strategy (due for adoption in Spring 2018).

The outputs from this Rail Investment Strategy may usefully be input into these strategies and WCC will continue close working relationships to develop enhancements that will jointly contribute to the objectives of the WMCA and WCC. These will include:

- Additional on-train capacity and standardised timetables:
- Stronger links between the County and West Midlands region (e.g. Stourbridge / Wythall etc.)
- Later and more frequent services between Worcestershire and Birmingham (including from Bromsgrove / Kidderminster / Redditch / Worcester).

#### 4.5.5 Midlands Connect

Midlands Connect is a collaboration of 28 local authorities, 11 Local Enterprise Partnerships, Network

Rail, Highways England, High Speed 2, Central Government and the business community, developing a cross-West and East Midlands transport strategy, including both rail and roads.

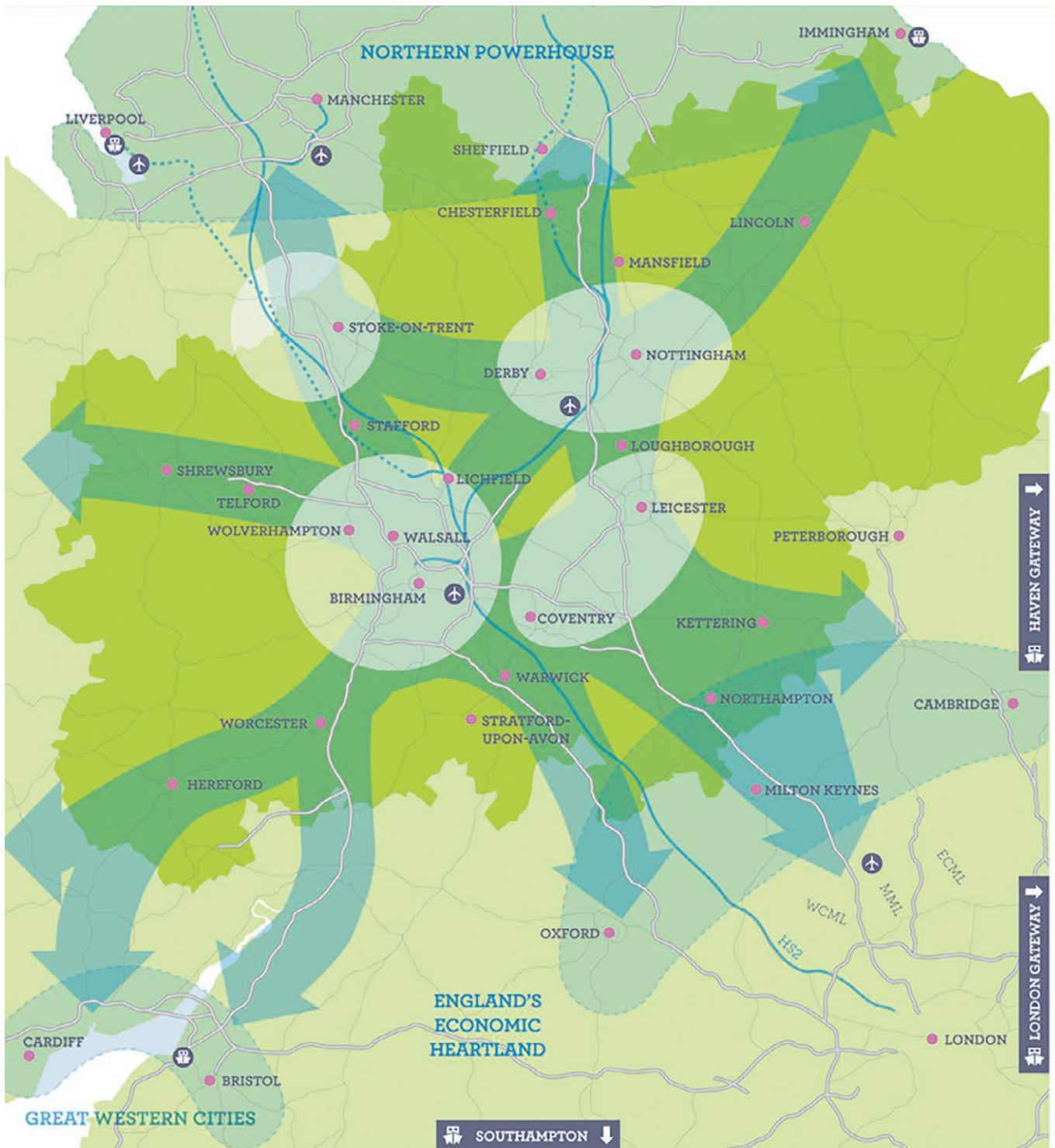
Both Worcestershire County Council and Worcestershire Local Enterprise Partnership are members of Midlands Connect.

Midlands Connect's first piece of work was undertaken by Atkins with its May 2015 "Economic Impact Study" assessing how modal shift to rail releases economic benefits in terms of "business journey time savings". The study identified broad development corridors within the 2 regions, and forecast high-level economic benefits up to 2036. It has also investigated agglomerated benefits and labour market impacts in a similar way to the economic modelling undertaken by SYSTRA within this Worcestershire Rail Investment Strategy.

This synergy between the economic modelling approaches of Network Rail's Markets Studies, Midlands Connect and the SYSTRA model used in this Rail Investment Strategy is an important feature supporting WCC's future input into Midlands Connect's ongoing work.

Worcestershire is included in 2 corridors – Corridor 6 towards Bristol and Corridor 6A towards Great Malvern, Hereford and Cardiff, as shown at Figure 4.3, although the North Cotswold Line is conspicuously absent despite its importance for Worcestershire's economy and connectivity. WCC, as a member of Midlands Connect, is seeking to address this oversight through its ongoing work with the organisation. Up to £79m of economic growth and 19,000 new jobs are projected by 2036 through proposed rail journey time improvements.

Figure 4.3 – Midlands Connect Corridors (Source Midlands Connect Powering The Midlands Engine)



In April 2016 Midlands Connect published “Picking up the Pace” to its constituent bodies as a positioning statement in advance of its “Emerging” and “Full” Strategies which have since been published. Picking up the Pace set out 2 broad rail network propositions:

- **Midlands Rail Capacity And Connectivity Package** – to “address the fundamental constraint to improved rail services for the Midlands as a whole” noting that “progressing development of Midlands Rail Capacity and Connectivity Package is the highest rail priority for the Midlands”;
- **Specific Corridor Connectivity Enhancements** – for the Birmingham-Burton-Derby-Nottingham, Coventry-Leicester and Birmingham-Leicester rail corridors.

“Picking Up the Pace” and the subsequent full Midlands Connect Strategy “Powering the Midlands Engine”, which was published in March 2017, present overall strategic ambitions that are both wide and urgent in their expression. However, other than in reference to the WLEP’s economic ambitions, the strong manufacturing base in Worcester and in illustrating Worcestershire’s location almost as a ‘through-route’ along the Midlands Connect Corridors, the County is little mentioned in either document. Its relationships to the Thames Valley and London along the North Cotswold Line, the South West or the North Midlands are notably overlooked.

It has been assumed that Worcestershire is included in the overall Connectivity Package noted above, and it features, albeit silently, in data suggesting journey time improvements between Hereford, Great Malvern and Birmingham may generate £2.2m in GVA per annum (the latter being significantly lower than the GVA outputs from enhanced connectivity set out later in Sections 6 and 7 of this Rail Investment Strategy).

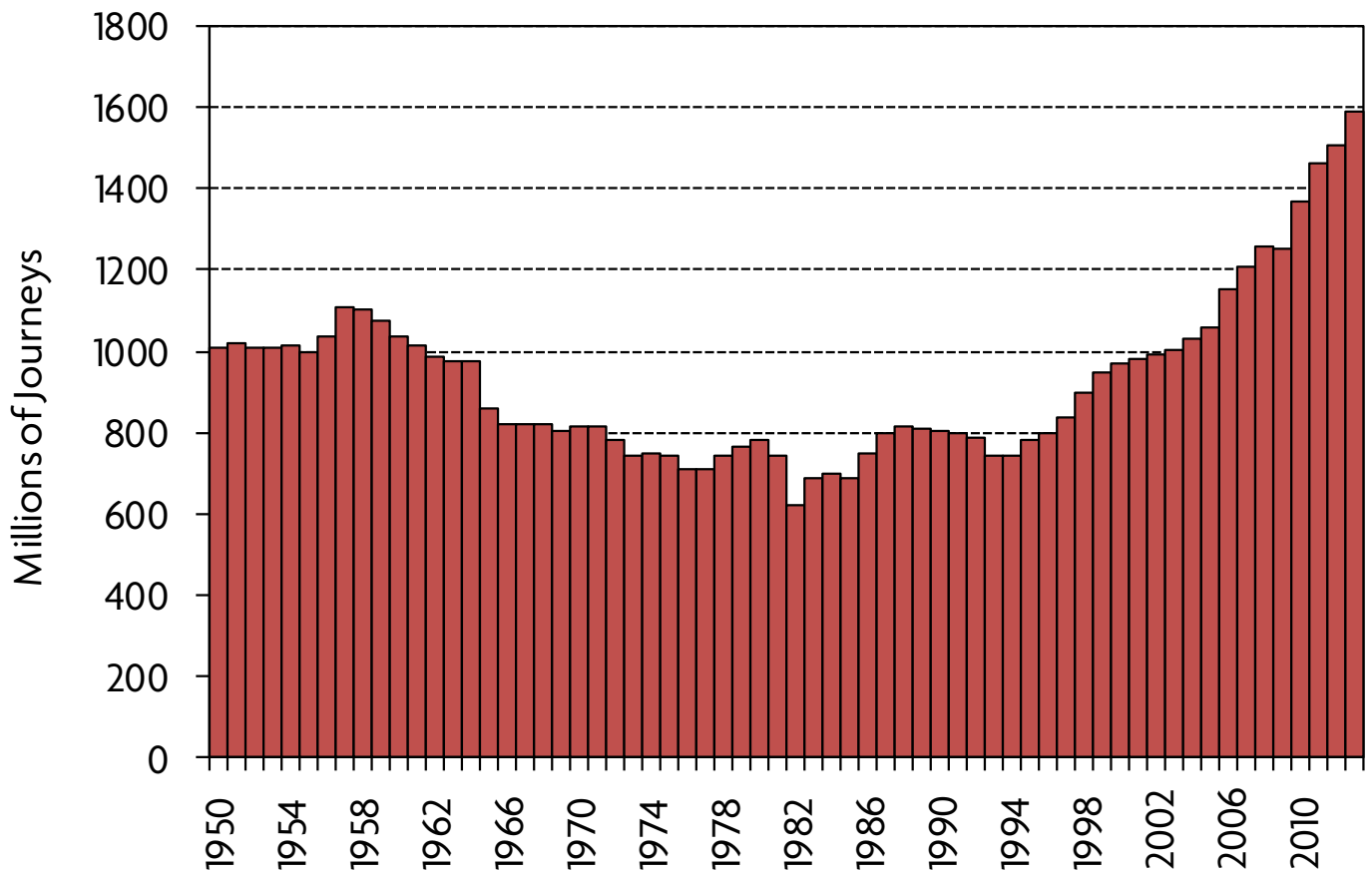
However it is vital that Worcestershire’s economically-driven rail connectivity needs are explicitly communicated, understood, and of significantly higher priority within the Midlands Connect process, particularly because these needs still appear to be under-addressed within Midlands Connect’s Strategy of March 2017. The priority for Worcestershire should be the inclusion of the North Cotswold Line as one of the Specific Corridors for Connectivity Enhancements in addition to those already featuring within the “Picking up the Pace” publication.

# 5. Stage 3 – Rail Industry Plans & Gap Analysis

## 5.1 Rail Industry Context

Since 1994 the number of passenger journeys carried on the UK's rail network has doubled, as shown on the graph at Figure 5.1.

Figure 5.1 Passenger Journeys On The UK Rail Network



Surprisingly there is no clear industry consensus on why this has happened. However, there are clearly some important macro-economic factors, as well as action the industry has taken to stimulate demand. But there has been a seminal change in the attitude of the population to rail travel. There are a number of factors:

- There has been an increase in economic prosperity and consumer spending;
- No major motorways have been built since the M6 Toll Road in 2003, following a decade of little motorway investment;
- Average earnings until 2009 were going up faster than commuter fares, which from privatisation until 2004 were pegged to annual increases of RPI-1%;
- House price increases mean that it is often economically sensible for people to live in a cheaper place and commute;
- There has been substantial growth in the student population since the early 1990s, leading to growth in the number of younger people using the train;
- Train frequencies have increased, journey times have on many routes reduced, and through-journey opportunities have improved;
- Customer service on much of the rail network has improved.

The rail industry response to this growth in patronage has resulted in a rail network which for all intents and purposes is now full. Significant sums have been invested by Network Rail over the last 15 years to increase the capacity and capability of the network to support the increased demand. Similar investment has been made in new and additional rolling stock. It is the case, however, that except at the margins, the introduction of any new train service of value requires investment in additional infrastructure and rolling stock to support it.

The prospect of continuing growth in rail usage over the coming decades, driven by continuing economic growth of the sort envisaged in the WLEP's Strategic Economic Plan, led to the establishment of an industry "Long Term Planning Process" (LTPP), managed by Network Rail, but with wide involvement from the 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 Control Period 6 funding settlement (2019-2024) and in associated franchise specifications.

## 5.2 West Midlands Rail Franchise

In parallel, the Government is moving towards increasing regional devolution, including for transport. Significant elements of the West Midlands Franchise have been specified locally by West Midlands Rail, within which Worcestershire has a partnership role, ahead of the start of the new West Midlands Rail Franchise in December 2017. Details have now been published of the important service enhancements that will be delivered for Worcestershire.

### The Cross-City Line will benefit from:

- Investment in more than 100 new electric carriages, designed and dedicated to the Birmingham Cross-City line extension to Bromsgrove, and to be introduced from 2020 (pending the completion of the electrification of the line to Bromsgrove in December 2018). This will deliver three electric trains per hour between Birmingham and Bromsgrove;
- Earlier and later services between Redditch and Birmingham and between Birmingham and Lichfield;
- Increased Sunday frequency between Birmingham and Longbridge to provide 4 services per hour Monday to Saturday by December 2018 and by May 2021 3 to Bromsgrove and 3 to Redditch;

- A robust strategy to deliver services during the autumn leaf-fall period;
- A service quality regime to improve stations, trains and customer service for passengers.

**The Birmingham to Hereford (Birmingham – Bromsgrove – Worcester – Great Malvern – Hereford) line will benefit by:**

- An additional evening service from Birmingham to Worcester, and an earlier first service from Worcester to Birmingham on Monday to Friday by December 2018;
- Enhanced Saturday evening service to provide a regular hourly service between Birmingham and Worcester by December 2018;
- Additional evening services between Birmingham and Hereford in both directions on Saturdays by December 2018;
- Enhanced frequency on Sundays between Hereford and Birmingham with at least 5 additional services in each direction by May 2021;
- Earlier first services between Birmingham and Hereford in both directions on Saturdays by May 2021.

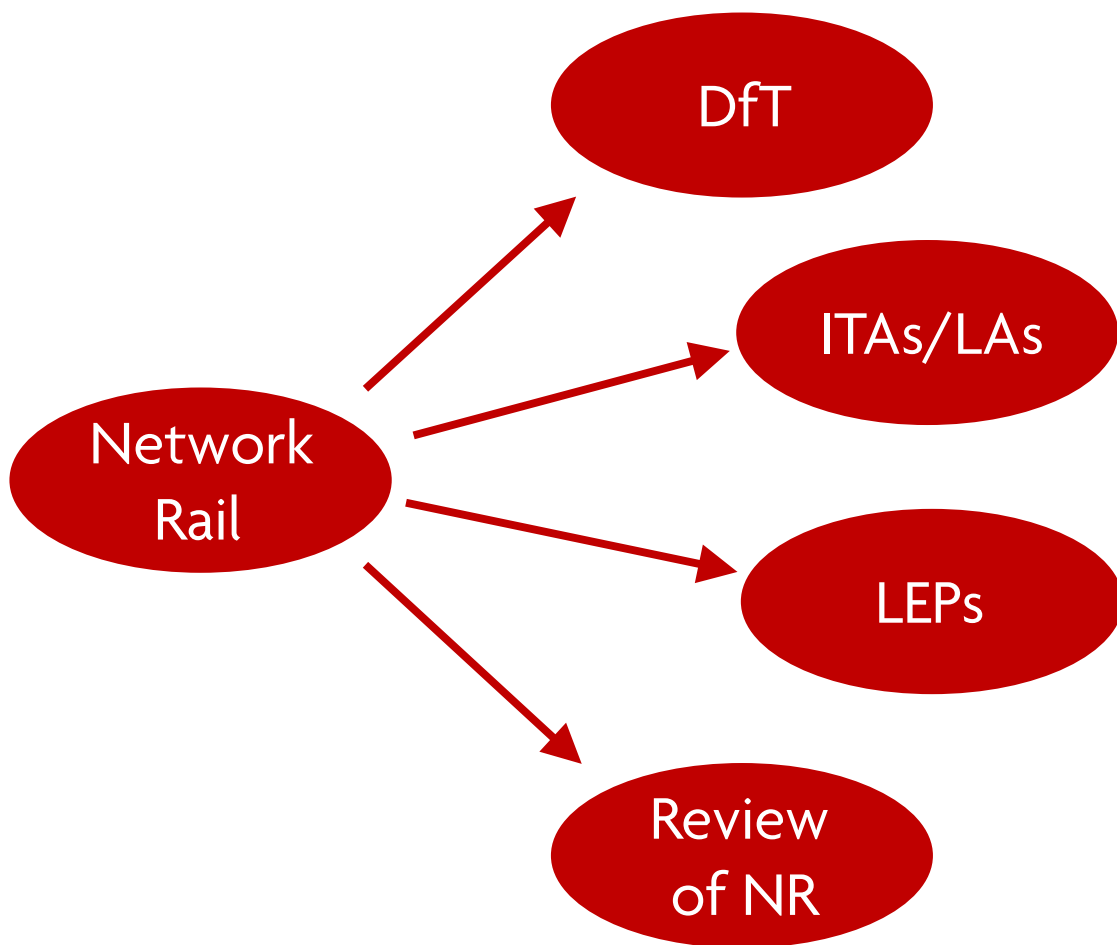
**The Birmingham Snow Hill line (Worcester – Kidderminster - Birmingham – Stratford-upon-Avon – Leamington) will benefit by:**

- Carriages will be fully refurbished and supported by investment in 80 new diesel carriages, introduced from 2020 and dedicated to operating services in and around Birmingham;
- Enhanced evening frequencies between Birmingham and Kidderminster, Birmingham and Solihull, and Birmingham and Shirley in each direction Monday to Friday by December 2018;
- Enhanced frequencies by May 2021 on the Snow Hill lines on a Sunday with services from Birmingham increasing to 2 trains per hour to Stratford-upon-Avon, 3 trains per hour to Shirley, 3 trains per hour to Solihull, 6 trains per hour to Stourbridge Junction with 4 extending to Kidderminster;
- Earlier first services on the Snow Hill lines by May 2021 on a Sunday.

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 Fund monies and mechanisms such as prudential borrowing, illustrated by the approach developed for funding Worcestershire Parkway.

The impact of this political context on the balance of power for future industry developments is shown diagrammatically at Figure 5.2.

Figure 5.2 – Potential Changes In The Rail Industry ‘Balance Of Power’



### 5.3 Forecast Growth In Passenger Usage To 2023 And 2043

Within the Long Term Planning Process, Markets Studies (2014) and Western Route Study (2015), Network Rail projected passenger growth from a base in 2012 to 2023 and to 2043. For Worcestershire there are three key corridor forecasts:

- **Bristol To Birmingham Corridor** – 40% to 2023 and 97% to 2043;
- **Long-Distance Services Into Paddington** – 29% to 2023 and 99% to 2043;
- **West Midlands Services** – 49% to 2023 and 114% to 2043.

Using the 97% growth factor on the Bristol-Birmingham Corridor as an average prediction for Worcestershire, the impact of this growth on daily passenger numbers and car park capacity is shown at Table 5.3 – a development of Table 3.2, with added car park capacity created at Worcestershire Parkway (500 spaces in 2019). The final three columns in the table also show the desired number of car parking spaces for the County’s stations; both in terms of the numbers needed to provide 2015/16 capacity at a sensible ratio of spaces per passenger (1:4) and then uplifted with the same 97% growth factor to 2043. It should be noted that in the short-term, the opening of Worcestershire Parkway will cause some abstraction of passengers from Worcester Shrub Hill and Foregate Street stations but this will be readily refilled by suppressed demand that currently exists within the City.

**Table 5.3 – Impact Of Growth To 2023/2043 On Station Passenger Numbers And Car Park Capacity**

Station	Annual Usage 2015/16	Daily Return Passengers	2015/16 Car Park Capacity	Passengers Per Car Park Space 2017	Forecast 97% Growth To 2043 (14/15 base)
Worcester Foregate Street	2,293,021	3,572	-	n/a	4,348,789
Kidderminster	1,619,928	2,523	224	11	3,076,970
Redditch	1,002,294	1,561	196	8	1,695,519
Bromsgrove	619,880	966	251	4	1,121,343
Worcester Shrub Hill	618,467	963	121	8	1,172,942
Droitwich Spa	561,908	875	45	19	1,050,537
Great Malvern	557,012	868	122	7	1,070,100
Hagley	544,318	848	33	26	946,498
Worcestershire Parkway	opens 2019	597	500	opens 2019	755,298
Malvern Link	344,232	536	96	6	617,646
Barnt Green	270,142	421	60	7	494,982
Evesham	255,476	398	70	6	488,016
Alvechurch	167,154	260	70	4	285,303
Pershore	100,690	157	17	9	187,760
Blakedown	97,028	151	10	15	180,645
Honeybourne	57,978	90	42	2	110,670
Wythall	55,044	86	-	n/a	101,930
Hartlebury	50,088	78	20	4	77,519
<b>Total COUNTY</b>	<b>9,214,660</b>	<b>14,951</b>	<b>1,877</b>	<b>8</b>	<b>17,782,467</b>

**Table 5.3 – Impact Of Growth To 2023/2043 On Station Passenger Numbers And Car Park Capacity (continued)**

Station	Car park spaces needed 2043 (15/16 capacity)	Number of new spaces needed 2043 (15/16 capacity)	Growth since 2009/10	Desired 2015/16 car park capacity	Car park spaces needed 2043 (15/16 desired)	Number of new spaces needed 2043 (15/16 desired)
Worcester Foregate Street	n/a	n/a	54%	n/a	n/a	n/a
Kidderminster	441	217	22%	300	591	291
Redditch	384	188	17%	180	355	175
Bromsgrove	494	243	41%	350	690	340
Worcester Shrub Hill	238	117	-28%	150	296	146
Droitwich Spa	89	44	19%	70	138	68
Great Malvern	240	118	20%	150	296	146
Hagley	65	32	16%	33 (as is)	33 (as is)	0
Worcestershire Parkway	985	485	opens 2019	500	985	485
Malvern Link	189	93	38%	120	237	117
Barnt Green	118	58	22%	60	118	58
Evesham	138	68	25%	90	177	27
Alvechurch	138	68	21%	120	237	117
Pershore	33	16	71%	100	197	97
Blakedown	20	10	14%	40	79	39
Honeybourne	89	47	65%	90	177	87
Wythall	n/a	n/a	23%	0	n/a	0
Hartlebury	39	19	108%	40	79	39
<b>Total COUNTY</b>	<b>3,702</b>	<b>1,825</b>	<b>32%</b>	<b>2,403</b>	<b>4,685</b>	<b>2,086</b>

It is noted that GWR, WCC and Wychavon District Council are currently working on a detailed business case for car park expansion at Pershore Station that will refine these estimates of future year car parking requirements.



These levels of projected growth are remarkable, but not without substance given the fact there has been 32% growth across the Worcester stations since 2009/10, and will need to be accommodated through continued rail investment if they are to be realised. Stark impacts (against the 2013/14 baseline) include:

- Dramatic volume increases by 2043 for Worcester Foregate Street and Kidderminster – respectively from circa 3,500 to 6,800 passengers per day and from circa 2,500 to 5,000 passengers per day;
- A further 1,825 car park spaces are required at County stations above those additionally provided at Bromsgrove and Worcestershire Parkway simply to retain the 2018 1 in 8 ratio of spaces to passengers (as discussed in more detail at 3.5.7).
- A further 2,086 spaces would be needed at County Stations in order to achieve a desired 1 in 4 ratio of spaces to passengers by 2043.

#### 5.4 Route Studies, Long Term Planning Process And Refranchising

Following the publication by Network Rail of four national Market Studies in 2013 (Long Distance; Regional-Urban; London & South East; Freight), a series of regional/route based studies is now underway under the Long Term Planning Process.

The first purpose of the studies is to identify a ‘direction of travel’ out to 2043 forecasting the level of services and connectivity that might be required at that point. These are expressed as a series of “Conditional Outputs” – high level statements of frequencies, journey speeds, connectivity and capacity, and in terms of an “Indicative Train Service Specification”. This is a diagram showing train services that illustrate one possible way in which the Conditional Outputs might be met. Worcestershire-related diagrams from the Western Route Study (2015) are shown later in this chapter at Tables 5.6, 5.7, 5.10 and 5.11.

The second purpose is to set out “Choices for Funders” for Network Rail’s Control Period 6 (2019-24). These are lists of schemes that could be included as steps on the way towards delivery of the 2043 position, and could have a business case in the period out to 2024.

These Choices for Funders are intended to be for consideration by the Department for Transport (as well as other funders), for inclusion in its ‘High Level Output Statement’ – what DfT seeks to buy from the rail industry – and Network Rail’s subsequent funding settlement for Control Period 6 (2019 – 2024) (CP6). Inclusion of a scheme in a Route Study does not therefore necessarily mean it will happen, as the total of calls on the enhancement budget will be greater than the available funds. The timetable for conclusion of the CP6 settlement is shown at Table 5.4. This Rail Investment Strategy is timely in forming a base from which WCC can work with the DfT and Network Rail to develop and deliver schemes planned for CP6 that are relevant to the County.

Recent developments since the WRIS was drafted in summer 2016 have seen the Government announce that the focus of Control Period 6 work will now be on maintenance and renewals, rather than infrastructure enhancements and this could have a direct impact on the County (depending on which schemes are taken forward within the SoFA and which are deferred until CP7 or beyond).

Combined with this announcement has been the publication of the Hansford Review, which has made recommendations for Network Rail to become more commercially competitive and for a greater emphasis on 3rd Party investment and delivery models in order to deliver future enhancement schemes.

**Table 5.4- HLOS Process For CP6**

High Level Output Statement (HLOS) Process for CP6	Timescales
Initial Industry Plan	September 2016
HLOS / SoFA	July 2017 (published) / awaited October 2017
Network Rail Business Plan	Winter 2017
ORR Draft Determination	Summer 2018
Start of Control Period 6	April 2019

In parallel with the conclusion of the CP6 settlement will be the renewal of various rail franchises, including those covering the Bristol to Birmingham Line, the West Midlands and the North Cotswold line. An integrated timetable of the re-franchising and Long Term Planning Process is shown at Table 5.5 below.

**Table 5.5 – Rail Industry Planning Process Timetable Relevant To Worcestershire**

Franchise or Route Study Consultation	Timetable
Hendy Review – CP5 (2014-2019) – Delivery Plan Published – Revised Enhancements Delivery Plan	– COMPLETE – Published January 2016 – Published March 2016
West Midlands and Chilterns Route Study – Consultation draft – Final version	– Published June 2016 – Published July 2017
Post HS2 Timetable Work (“Capacity Plus”) – Consultation draft – Final version	– “Winter” 2016 (awaited 2017) – “Autumn” 2017 (estimate 2017)
West Midlands Franchise – Consultation on ITT – ITT Issued – Award – Start	– COMPLETE – COMPLETE – COMPLETE – December 2017
West Coast Franchise – Consultation on ITT – ITT Issued – Award – Start	– COMPLETE – “Autumn” 2017 – November 2018 (estimate) – April 2019
Wales & Borders Franchise – Consultation on ITT – ITT Issued – Award – Start	– COMPLETE – COMPLETE – June 2018 – October 2018
Great Western Franchise – Consultation on ITT – ITT Issued – Award – Start	– August 2017 (awaited) – February 2018 – December 2019 – April 2019
Cross Country Franchise – Consultation on ITT – ITT Issued – Award – Start	– April 2018 – August 2018 – July 2019 – October 2019
DfT HLOS (High Level Output Statement) Process for CP6 (2019-2024) – Initial Industry Plan (dependent on the Shaw Review) – HLOS / SoFA – Network Rail Business Plan – ORR Draft Determination	– COMPLETE – Published July 2017 / October 2017 – Winter 2017 – Summer 2018
Chiltern Franchise – Consultation on ITT – ITT Issued – Award – Start	– May 2020 – October 2020 – August 2021 – December 2021

If the recommended outputs from this Investment Strategy are to be realised then ongoing development work will need to align with these rail industry planning timescales. Registering priorities for investment during the consultation stages allows the industry time to reflect on, and incorporate changes into, the franchise or study specifications. The findings of the Hansford review are also welcome as they provide greater opportunity for WCC and its partners to work with the industry to develop and deliver the WRIS enhancement schemes, potentially sooner than Network Rail will be able to manage - to the benefit of the industry and Worcestershire residents alike.

## 5.5 Network Rail Route Studies Relevant To Worcestershire

Worcestershire's rail network is addressed in two Route Studies; the Western Route Study, which was published in final form in August 2015, and the West Midlands & Chiltern Study, the draft consultation for which was held soon after completion of the first draft of the Rail Investment Strategy in June 2016.

The boundary of the two Studies is Norton Junction/Abbotswood Junction in the vicinity of Worcestershire Parkway. The North Cotswold Line and Bristol to Birmingham Line are addressed within the Western Route Study, and the Hereford-Great Malvern-Worcester-Kidderminster-Bromsgrove-Birmingham and Redditch-Birmingham routes within the West Midlands Route Study area.

Many of the issues are common to both study areas because of the overlap of train services and this again reflects the need for the industry to more broadly recognise the concept of "One Economy / One Railway".

## 5.6 Western Route Study

The Conditional Outputs of the Western Route Study relevant to Worcestershire are described below and illustrated at Figures 5.6 – 5.11.

### 5.6.1 Worcester – Oxford – London Paddington

The Route Study refers to the Long Distance Markets Study's Conditional Output of "2 to 3 trains per hour at 100mph" between Worcester and London Paddington. In its interpretation of this it defines the 2043 Route Study Conditional Output as:

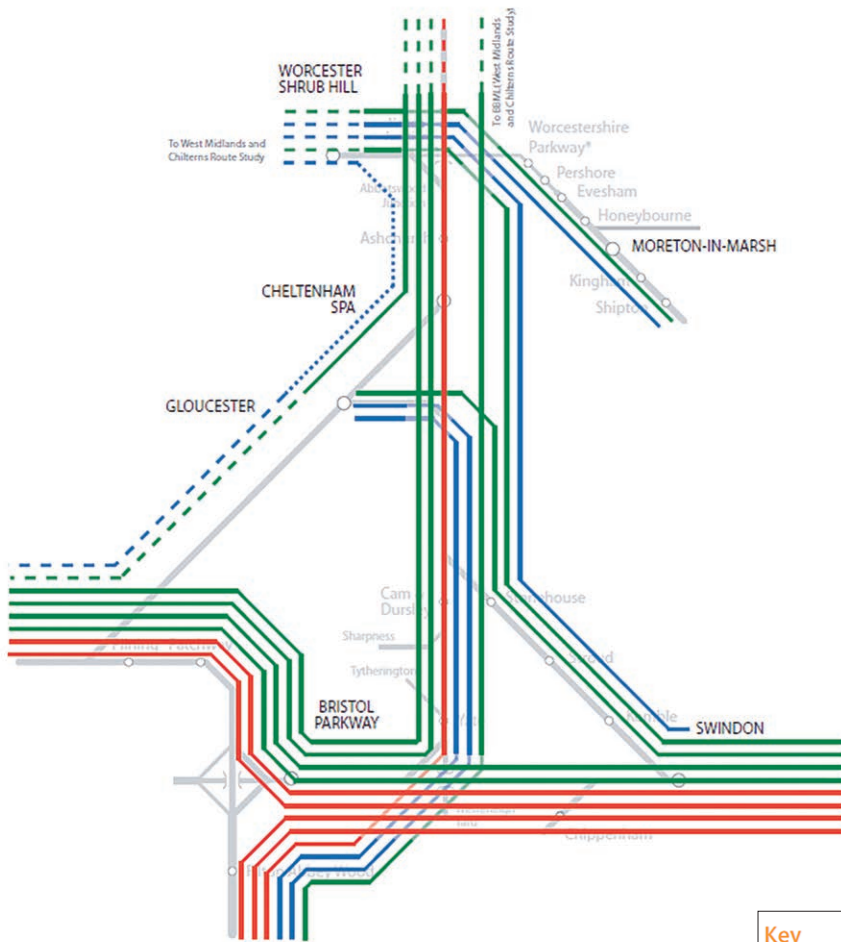
- 2 trains per hour Worcester – London Paddington;
- 2 trains per hour Worcester – Oxford.

It recommends that one of the Worcester-London Paddington services is routed via Cheltenham Spa and Swindon (not stopping at Gloucester, to ensure that the journey time is competitive) and the second via the North Cotswold Line and Oxford. The second train per hour between Worcester and Oxford is proposed as an additional stopping service.

In respect of the Worcester-London 2 tph service, the Study notes that "this is only one possible means of meeting the Conditional Output. It would be possible to route the additional train via Oxford should improvements be made to the North Cotswold route; a train routed that way could potentially offer faster journey times than via Cheltenham."

The Route Study's graphical presentations of its proposals are shown at Figures 5.6-5.7. It should be noted that these diagrams were produced by Network Rail and are based on their Route Study templates.

Figure 5.6 – Western Route Study Indicative Train Service Specification (ITSS) Worcester-Bristol Parkway



**Key**

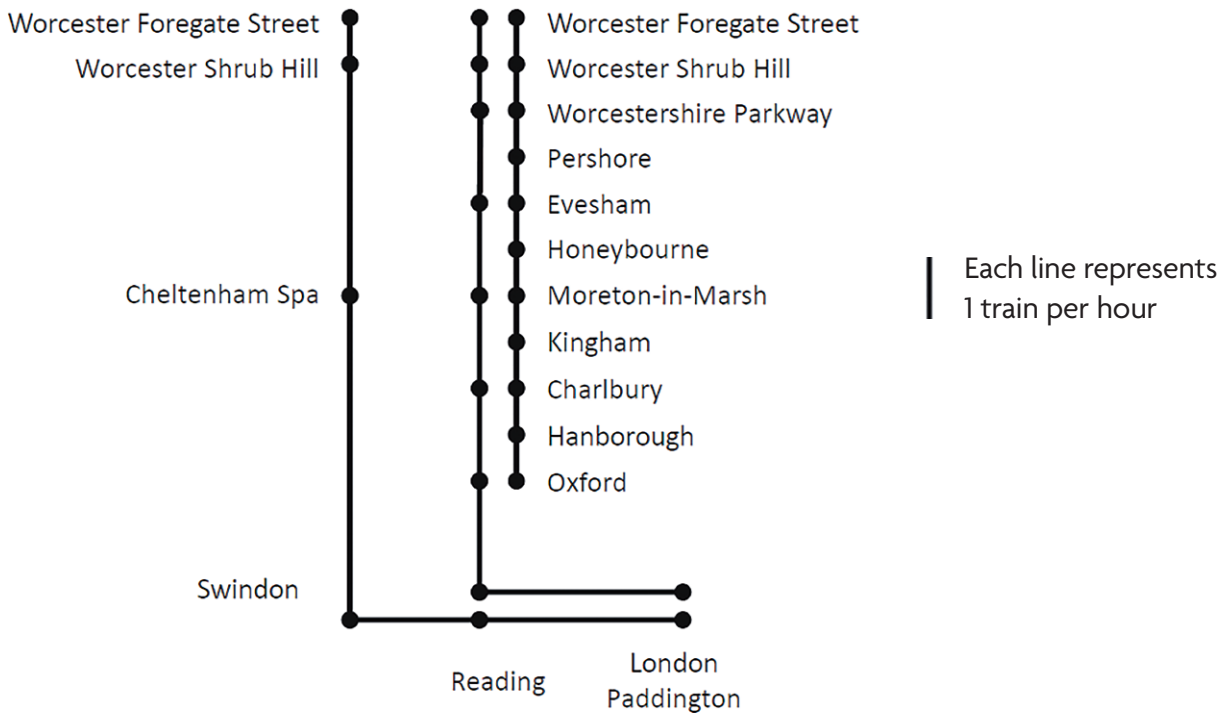
- 1 Standard Train Per Hour
- Exit from Route Boundary (cross boundary Service)
- 1 Standard Train Path Per Two Hours
- Split Routing per two hours
- Limited Stops
- Local All Stops
- Stopping Pattern Not Defined

Figure 5.7 – Western Route Study ITSS Worcester-Oxford (Source For Both Figures – Network Rail)



Acknowledging that Figures 5.6 and 5.7 are difficult to interpret, Figure 5.8 illustrates a simplified interpretation of the Route Study’s proposals as train services per hour between Worcester and Oxford and Worcester and London.

**Figure 5.8 – Interpretation Of Network Rail’s Western Route Study Worcester-Oxford-London Conditional Output**<sup>17</sup>



The stopping pattern of the 2 North Cotswold Line services is indicative only, representing a ‘1 Fast/Express and 1 Stopping’ train concept, similar to that developed on the Chiltern Railways Birmingham Snow Hill – London Marylebone route, and a concept supported in the Joint Vision “Vision for the North Cotswold Railway Line” (Section 4.3.5).

A terminating service at Oxford is however unlikely to be acceptable to Worcestershire County Council (or Gloucestershire and Oxfordshire

Councils) both in failing to provide a 2 tph London service and through-services to London from smaller Worcestershire (and Oxfordshire) stations. This is a core ‘gap’ in the Route Study’s proposals. WCC’s indicative preferred service is very clearly based on 2 tph direct to London and an example service pattern is shown at Figure 5.9, although further investigation is necessary to confirm the final stopping pattern (Oxfordshire County Council’s desire for 3 tph between Hanborough and Oxford is also shown).

<sup>17</sup> It should be noted that under Network Rail’s proposals the second train to London, via Cheltenham Spa, would not be able to call at Worcestershire Parkway due to the nature of the line splitting south at Norton Junction and prior to Worcestershire Parkway Station.

**Figure 5.9 – Worcestershire County Council Preferred North Cotswold Line Train Service**



In assessing the potential for 2 tph between Worcester and Oxford the Route Study makes clear that this can only be accommodated on the single lines west of Evesham and east of Charlbury at the absolute maximum limit of performance. Therefore infrastructure work would be required to re-double some or all of the remaining single line sections. No comment is made about the likely year in which demand would justify the increase in service over the current 1 tph. It is expected that the service would be operated by bi-mode IEPs.

There is some emerging concern that the sectional running times of bi-mode IEPs will be similar to current HST timings and slower than current Class 180 timings between Worcester and Oxford. As a result, improvements in Worcester to London journey times are most likely to be achieved via:

- Faster electric running times between Oxford, Didcot and London Paddington;
- The ‘1 Fast/Express and 1 Stopping train per hour’ concept shown at Figures 5.8 and 5.9.

These uncertainties within the Route Study were one of the drivers behind the establishment of the North Cotswold Line Task Force, which by its formation brings a focus to achieving the “Vision for the North Cotswold Line” within a reasonable and defined timescale.

## 5.6.2 Bristol To Birmingham Line

The Western Route Study addresses the Bristol to Birmingham Line as far as Abbotswood Junction, east of Worcester. It defines both the local service specifications within the Bristol and Cardiff to Worcester Corridors and the long-distance strategic services between the West of England, South Wales, Birmingham and onwards to north-west and north-east England.

Again, based on the Markets Study's Conditional Outputs for 2043, it presents a Base Indicative Train Service Specification, but in this case adds a cheaper alternative:

- **Base Specification**

- 1 tph Bristol-Manchester and 1 tph Plymouth-Newcastle/Edinburgh (as 2017);
- 1 tph Cardiff-Nottingham (as 2017) via Worcestershire Parkway;
- 2 tph Cardiff-Bristol Parkway-Birmingham to Manchester or Leeds i.e. 5 tph between Cheltenham and Birmingham on the Worcestershire Parkway route;
- 1 train every 2 hours Cardiff-Worcester-Great Malvern;
- 1 tph Swindon-Worcester Shrub Hill-Birmingham-North West England (thus providing 2 tph Swindon-Worcester when taken together with its proposed 1 tph Paddington-Swindon-Cheltenham- Worcester).

- **Alternative Specification**

- 1 tph Bristol-Manchester and 1 tph Plymouth-Newcastle/Edinburgh as per the Base;
- 1 tph Cardiff-Bristol Parkway-Birmingham to Manchester or Leeds i.e. 3 tph between Cheltenham and Birmingham on the Worcestershire Parkway route (as 2017);
- 1 tph Cardiff-Nottingham diverted via Worcester Shrub Hill and 1 tph Cardiff-Worcester (and possibly on to Great Malvern);
- 1 tph Swindon-Worcester Shrub Hill-Birmingham-North West England as per the Base.

These 2 specifications are illustrated at Figures 5.10 and 5.11.



Figure 5.10 – Bristol-Birmingham Line 2043 Itss: Base Specification (As Figure 5.3 Above)

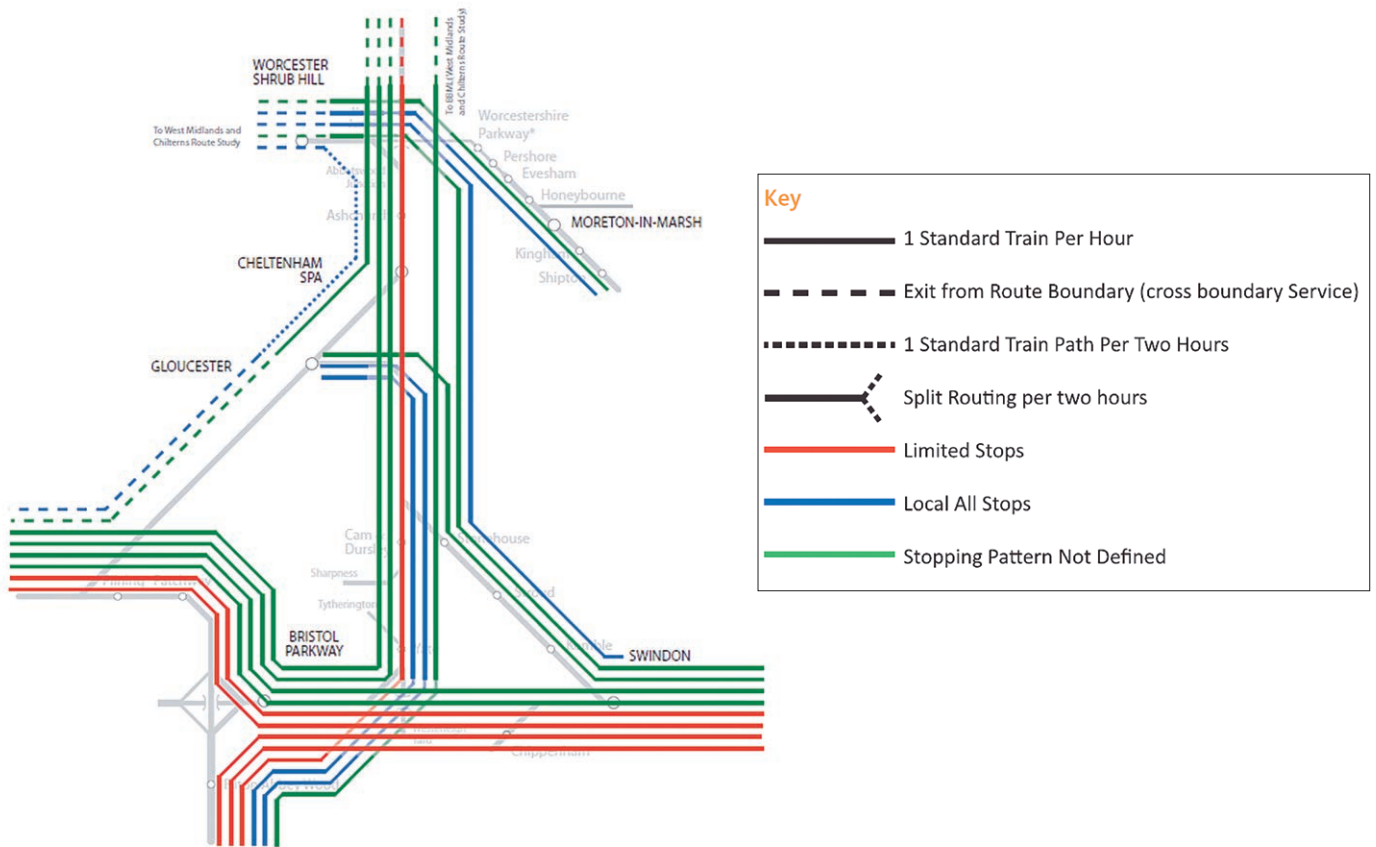
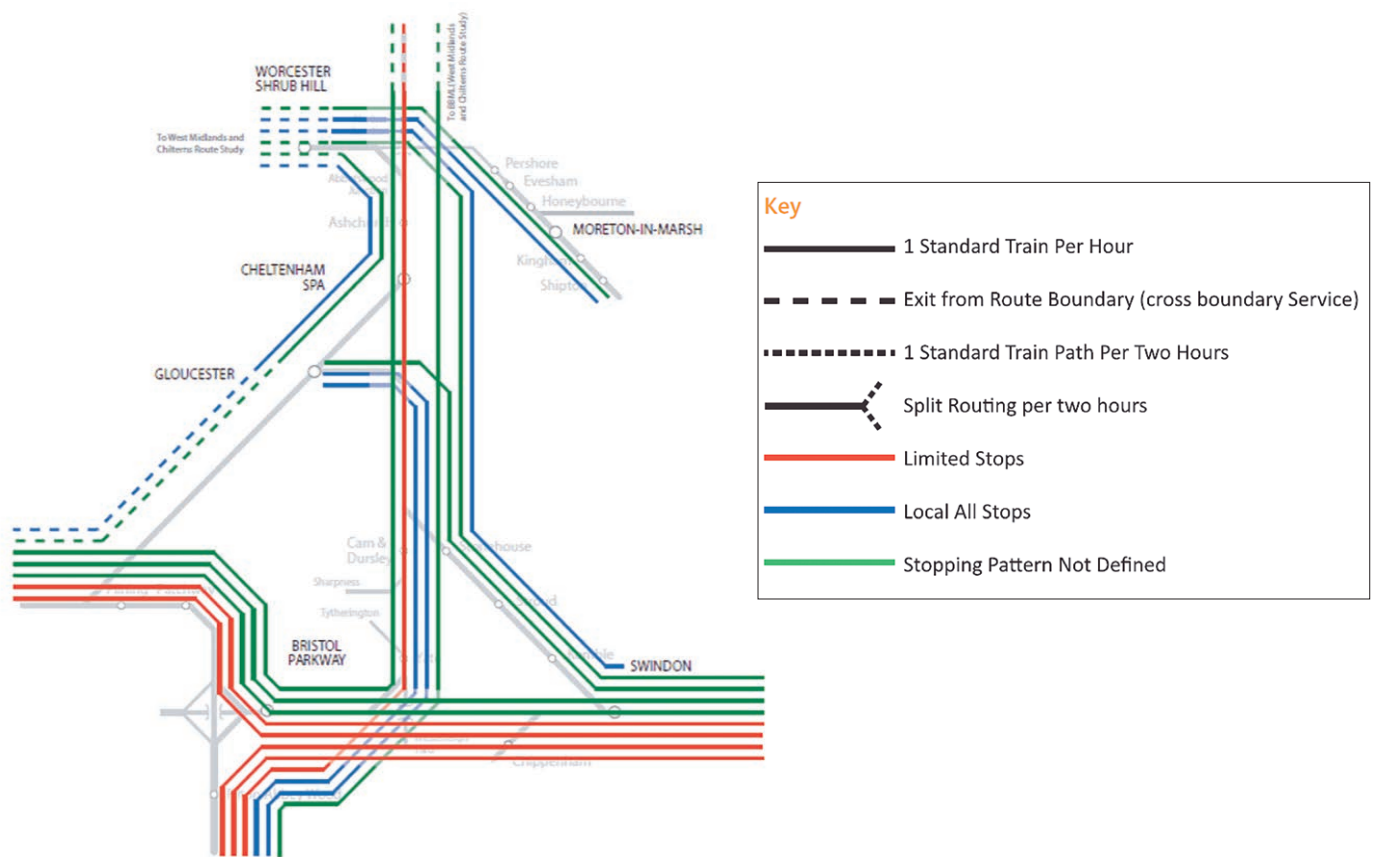


Figure 5.11 – Bristol-Birmingham Line 2043 ITSS: Alternative Specification <sup>18</sup>



<sup>18</sup> It should be noted that both of these diagrams have been extracted from the Network Rail Route Study and the marginal importance given to Worcestershire Parkway within the diagrams is reflective of the fact the Route Studies were produced before the new Station was a committed scheme.

These 2 specifications offer considerable food for thought from the Worcestershire perspective, in particular:

- **South-West To North-West And North-East England Services**  
– The assumption that the Bristol-Manchester and Plymouth-Newcastle Cross Country services have a clear role to 2043 notwithstanding the HS2 Phase 2 extension beyond Birmingham to North-West and North-East England after 2033; both being potential services for the County to access at Worcestershire Parkway;
- **Cardiff To North-West And North-East England Services**  
– The further opportunity represented with the Base Specification’s 2 trains per hour between Cardiff, Birmingham and North-West and North-East England, again in the context of Worcestershire Parkway;
- **New Connectivity For Worcester Shrub Hill** – The opportunity for Worcester Shrub Hill to offer direct services both to Swindon and north-west and north-east England (note that train services between Worcestershire Parkway and Worcester Shrub Hill will also offer the potential for a ‘shuttle link’ between the City and new Parkway Station);
- **Cardiff To Nottingham Services** – The implications of the Alternative Specification’s apparent diversion of the Cardiff-Nottingham service via Worcester Shrub Hill – positive for Shrub Hill but requiring clarity regarding other strategic services calling at Worcestershire Parkway;

- **Worcester – Bristol Services**  
– Apparent replacement by Worcester to Cardiff services.

These are reflected upon further in Chapter 7 where the WCC’s own prospective Conditional Outputs are prioritised.

## 5.7 West Midlands And Chilterns Route Study

The final West Midlands and Chilterns Route Study was published in July 2017. Within the Study consideration has been given to the need for additional capacity between Bromsgrove / Redditch & Birmingham, and Hereford - Worcester - Birmingham to meet demand up to 2043 along with improving compatibility with the Midlands Connect strategies and the development of the Midlands Rail hub.

The Route Study notes around £30m of economic benefits and approximately 2,000 new jobs could be realised by 2026 if a 20% improvement in rail generalised journey times were achieved. It also notes that the two routes from Worcestershire into and out of Birmingham (Snow Hill Lines and Bromsgrove - Worcester - Hereford Lines) will be at or over capacity by 2023 in the peak hours and then full and standing from Worcester northwards by 2043.

To address this, the Route Study puts forward train lengthening as a short-term capacity solution - recommending 33 new train vehicles will be needed to serve Bromsgrove & Redditch and 36 to serve Worcester / Stourbridge however only 2 extra to serve Hereford via Bromsgrove.

In the longer term (to 2043), the Route Study “unconstrained Indicative Train Service Specification” proposes a number of service enhancements (it should be noted that these options aren’t linked to the service patterns that could actually be delivered based on existing infrastructure constraints):

- 2 trains per hour between Hereford - Worcester - Birmingham;
- 5 trains per hour between Worcester - Birmingham (1 fast);
- 8 trains per hour between Bromsgrove - Birmingham.

On the Snow Hill lines, it proposes 2 semi-fast and 2 stopping services between Worcester - Kidderminster - Birmingham.

On the Hereford - Bromsgrove - Birmingham Line, the Route Study then identifies some of the key infrastructure constraints that would prevent these service options from being delivered - including the single track constraints between Hereford & Worcester and the capacity constraints between Barnt Green and King's Norton. Various track, signalling and electrification enhancements are then put forward to address these capacity issues (although firm commitments are not made as to when these would be provided).

Similarly on the Snow Hill Lines, the Route Study notes the slow journey times between Kidderminster & Worcester and that train lengthening is only a short-term capacity solution. In the longer term, the Route Study proposes infrastructure enhancements in the Rowley Regis area but these are high-level aspirations, currently at the GRIP1 stage.

It also promotes the need for a new chord at Boardesley to allow increased usage of Birmingham Moor Street in order to better integrate services with High Speed 2 - including those from Worcestershire.

## 5.8 Worcester Area Re-Modelling And Re-Signalling

As noted at Section 3.5.2 the Worcester Area is significantly constrained by the mechanical signalling and the track rationalisation undertaken in the 1960s and 1970s. Re-connecting the independent single lines through Worcester Foregate Street is an absolute priority to increase flexibility,

capacity and consistency of calling patterns at both Shrub Hill and Foregate Street.

Worcester Area infrastructure west of Norton Junction is absent from the Western Route Study. This is because Network Rail and the TOCs have agreed that the Hereford – Worcester – Birmingham route would be better included within the West Midlands & Chilterns Route Study because around 70% of passenger flows are Birmingham-bound.

Now published in final form, the West Midlands and Chilterns Route Study assumes that the Henwick Turnback will be completed during 2019 and proposes the following track layout enhancements in the Worcester Area:

- Double tracking the Droitwich to Worcester Foregate Street curve with new crossovers between Rainbow Hill Junction and Foregate Street Station;
- New crossover at Worcester Shrub Hill after Tunnel Junction;
- Improved turnback capability in the Malvern area.

The Route Study also recognises that signalling renewals in the Area are required (noting that it is a once in 30 year opportunity). The draft Route Study proposed that the renewals were undertaken during CP6 with the aforementioned track enhancements further developed as part of the signalling renewals project.

However, the final version of the Route Study now proposes works only to extend the life of the assets through the end of CP6. Enhancing Worcester area capacity is one of the core Conditional Outputs of the WRIS and it is a key deliverable under consideration by the North Cotswold line Task Force. Early stage discussions regarding the viability of bringing these enhancements forward have therefore begun between WCC and Network Rail.

## 5.9 Electrification – Bristol To Birmingham Line, Snow Hill Lines And ‘Electric Spine’

The Network Rail Markets Studies, Route Studies and the Hendy Review all looked forward to further electrification aspirations after completion of the Great Western Main Line scheme, drawing upon the DfT’s High Level Output Statement for CP5 (2014-2019) which envisaged a rolling programme of further electrification, and the parallel Network Rail ‘Electrification Route Utilisation Study’ of 2009.

The Western Route Study Consultation Draft (October 2014) envisaged potential electrification schemes including:

- Bristol to Birmingham – including the Worcester Loop from Abbotswold Junction to Shrub Hill, Foregate Street, Droitwich Spa and Stoke Works Junction;
- Swindon to Cheltenham and Gloucester to Severn Tunnel Junction (for Cardiff);
- Chiltern Route and Snow Hill Lines;
- Worcester to Great Malvern and Hereford;
- ‘Electric Spine’ covering the Southampton-Reading-Oxford-Leamington-Coventry-Nuneaton and ‘East-West’ Oxford to Milton Keynes route.

Electrification of the North Cotswold Line was not envisaged, with the assumption that the bi-mode capability of the InterCity Express trains will meet the route’s requirements.

In July 2017 the Secretary of State for Transport announced that future electrification schemes other than partial completion of Great Western Main Line electrification would be put on hold indefinitely.

Figure 5.13 illustrates the previously committed electrification schemes relevant to the County (in green) and the aspirations that were noted in in the Draft Western Route Study (blue). Figure 5.14 illustrates the revised picture of electrification following the DfT’s announcement in November 2016 to defer completion of four sections of the GWML until CP6 (2019 – 2024) and the July 2017 announcement by DfT putting all future schemes on indefinite hold.

WCC will now need to work closely with the rail industry to fully explore the implications of these scaled back proposals, both in terms of alternative solutions to the connectivity and capacity benefits lost in the scaling-back and the revised rolling stock cascade that was previously expected following electrification.

Figure 5.12 – Committed And Aspirational Electrification Schemes

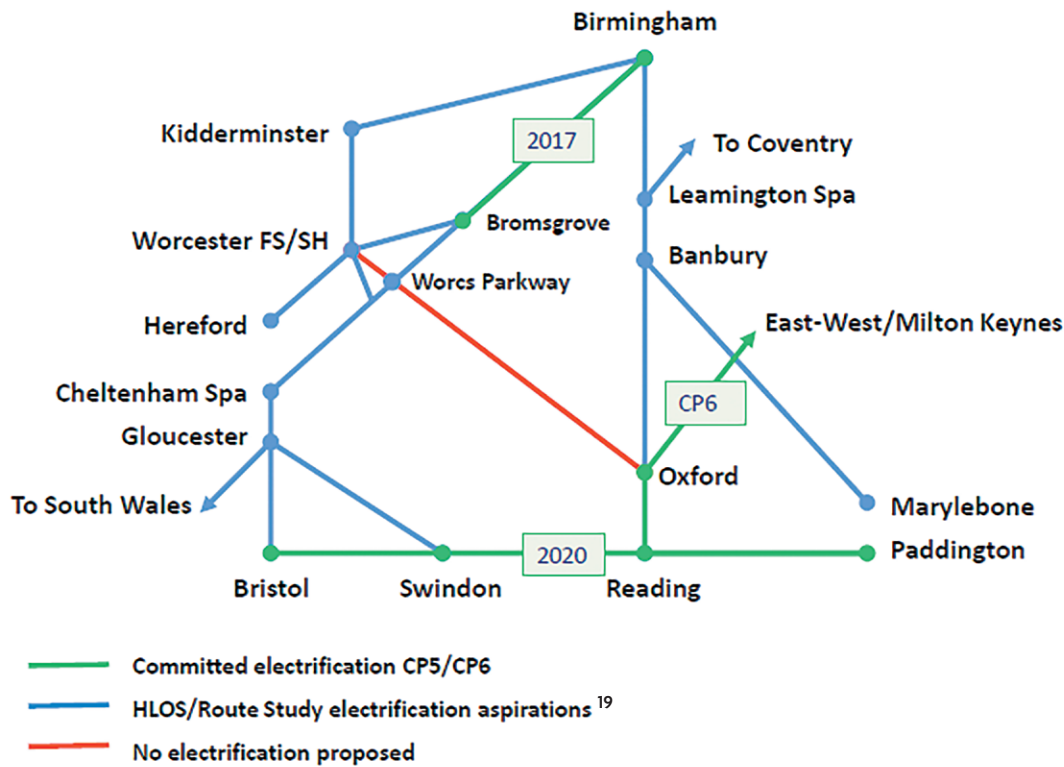
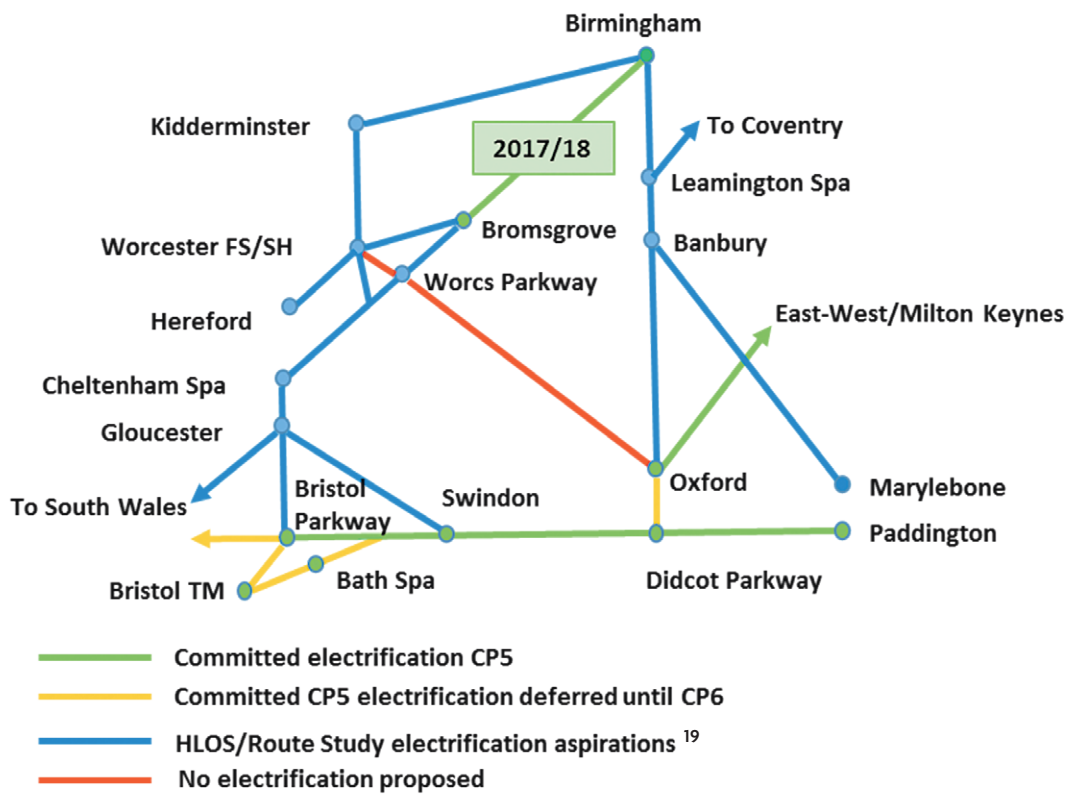


Figure 5.13 – 2016 (and updated following the Government’s announcement in July 2017)



<sup>19</sup> HLOS/Route Study Electrification aspirations now on indefinite hold

## 5.10 HS2 And Wider Connectivity

5.10.1 HS2 is being delivered in two phases; the first from London to Birmingham, with an expected completion date of 2026, and the second phase in two arms beyond Birmingham, the western portion leading to Manchester and the eastern portion to Leeds by 2033. Phase 2A, from Lichfield to Crewe is now expected to be delivered early (around 2027).

Figure 5.14 – Intended HS2 Network (Source: HS2 Limited)



HS2 will deliver 2 key transformative outputs:

- **UK-Wide Journey Times** – HS2 will radically reduce journey times from the West Midlands, not only to London, but to a whole series of destinations in the “Northern Powerhouse” – Manchester, Sheffield, Leeds and Derby/ Nottingham – and onwards to Scotland;
- **New Capacity And Journey Opportunities On The Classic Network** – HS2 will, in effect, transfer the fastest long-distance services from the West Coast, Midland and East Coast Main Lines to HS2, releasing substantial capacity on those routes – and by direct implication on the West Midlands regional network – for growth, and allowing timetable re-casts to facilitate new journey opportunities currently not possible. For example, HS2 could allow the WCML timetable to be recast to allow 2 fast tph between Birmingham New Street and Milton Keynes (currently only 1 fast tph is possible).

On behalf of the Department for Transport, Network Rail is currently examining the potential for revised and re-cast services on the West Coast Main Line from 2026 when HS2 Phase 1 opens with particular reference to towns currently bypassed by long-distance services, such as Rugby and Northampton, and flows such as Birmingham-Milton Keynes which currently has only 1 fast train service per hour. The study, known as ‘Capacity Plus’, has been drafted, but not yet published at the time of writing.

## 5.10.2 HS2 And Worcestershire

The benefits of HS2 for Worcestershire are mixed. The key issues are:

- **West Midlands Network Capacity** – the released capacity on the West Coast Main Line may open up opportunities for revised use of Birmingham New Street, directly relevant to the operation of the Cross City Line;
- **Connections To HS2 At Birmingham Curzon Street** – for the Snow Hill Lines direct connectivity will be excellent with Birmingham Moor Street becoming an integrated part of Curzon Street Station; for Bromsgrove route connectivity from Birmingham New Street will continue to impose a journey time penalty and the general unattractiveness of need to cross between the 2 stations;
- **Access To Birmingham Interchange (Adjacent To Birmingham International)** – it is not unlikely that many Worcestershire passengers would seek to access Birmingham Interchange via the M5 and M42 as they do to Birmingham International and Warwick Parkway now, with the resultant further pressure on the motorway network;

- **Impact On Cross Country Network** – HS2’s benefit to Worcestershire thus depends on connectivity between stations in Birmingham or road access to Birmingham Interchange; the thrust of the Worcestershire Parkway scheme and the Conditional Outputs of this Rail Investment Strategy is to have the long-distance Cross Country network directly serve the County and this not to be compromised by HS2 leading to any loss of connectivity to the North-West and North-East England;
- **Pre-Opening Benefit** – there exists the opportunity for Worcestershire rail services to accommodate (and retain) demand from passengers displaced from West Coast Mainline (and other) services disrupted during the construction of HS2. A similar phenomenon was experienced by Chiltern Railways during the mid-2000’s when the West Coast Mainline route modernisation took place. This is especially pertinent to the 2018-2021 period when capacity into Euston Station will be affected just as Worcestershire Parkway and the IEP service commences.

## 5.11 Gap Analysis

**5.11.1** Table 5.16 summarises the Gap Analysis between the current service provision, committed rail industry schemes, the industry’s 2043 vision and the desired key improvements that are driven by Worcestershire’s economic needs, as identified in Stage 2 above. For each issue identified there are ‘enabling’ actions with a number of common industry planning and infrastructure themes that reflect the existing bottlenecks on the rail network to, from and within Worcestershire as well as its location towards the edges of different organisational zonal boundaries both within British Rail and since privatisation.

### 5.11.2 Common Planning Gaps

- **Connectivity To London And The Thames Valley Via The North Cotswold Line** – Rail industry planning offers little sense of programme urgency in developing a 2 trains per hour service along the North Cotswold Line (the aspiration is to have delivered this upgrade by 2033); the Western Route Study offers uncertainty about routing services via Oxford or Cheltenham Spa (the latter NOT supported in this Rail Investment Strategy) and it does not consider the benefits to be offered by connectivity to East-West at Oxford. The NCLTF has been established to tackle this lack of urgency given the criticality of these improvements for the County;



- **Worcestershire-Birmingham Connectivity** – rail industry planning offers none of the ambition for generalised journey time improvements towards Birmingham from the County that is contained, for example, in Midlands Connect’s approach;
- **Strategic UK-Wide Connectivity** – Notwithstanding the implementation of Worcestershire Parkway, rail industry planning does not address the City of Worcester’s or the County’s access to the strategic Cross Country services to South-West, North-West and North-East England;
- **Connectivity To Bristol** – Rail industry planning offers no ambition for direct, frequent connectivity between Worcester City or the wider County, Cheltenham Spa, Gloucester and Bristol; indeed the Western Route Study appears to suggest the limited 2-hourly connectivity of 2016 could be directed towards Cardiff as an alternative;
- **Wyre Forest And Bromsgrove Southbound Connectivity** – Rail industry planning focuses upon these areas’ northbound connectivity to Birmingham; whilst this is vital, economic regeneration, particularly in Wyre Forest, requires attention to connectivity towards the South West and London;
- **Electrification** – the refreshed Network Rail Electrification Route Study will now need to be heavily revised following the DfT’s July 2017 announcements regarding the future of electrification and WCC eagerly awaits the findings in order to better understand the implications for Worcestershire.
- **Access To The Rail Network And Stations** – The Long Term Planning Process and the Route Studies are silent on car park capacity, which as discussed at 3.5.6 is a structural barrier to passenger growth in Worcestershire; hence industry planning also assumes new station proposals will solely be generated by third parties. In the case of the County’s 2 largest stations – Worcester Foregate Street and Shrub Hill – there is acknowledgment of the need to enhance capacity within the stations themselves but little detail about how this would be achieved.

A common feature of the Gap Analysis is the need to work closely with the rail industry to understand how Worcestershire’s ambitions can be delivered within the context of DfT’s Control Period 6 (2019-2024) High Level Output Statement, Network Rail’s CP6 Industry Plan, re-franchising specifications and the ongoing Long term Planning Process, given the shift in focus of CP6 work to now be on asset maintenance and renewals rather than delivering enhanced infrastructure.

### 5.11.3 Common Infrastructure Gaps

The rail infrastructure gaps within Worcestershire are sufficiently well-known and understood by the rail industry and all its key stakeholders that a lack of priority and urgency can be generated by familiarity.

Infrastructure is not an end in itself but a means to an end, and this Rail Investment Strategy is driven by setting out the economic case for service improvements. The key common infrastructure gaps constraining Worcestershire's rail services – and the Conditional Outputs tested and discussed at Sections 6 and 7 – include:

- **North Cotswold Line Single Line Sections** – partial or full re-doubling required to facilitate a 2 trains per hour service to London;
- **Worcester Re-Modelling And Re-Signalling** – to remove the capacity constraints caused by the single line sections within the Foregate St-Tunnel Junction-Shrub Hill area and mechanical signalling;
- **Worcester Shrub Hill** – to understand how best to accommodate passenger growth generated by more train services operating through the station (whether proposed by the Western Route Study or this Rail Investment Strategy);
- **Droitwich Spa To Stoke Works** – re-doubling and re-signalling to facilitate more frequent service to Birmingham New Street;
- **Remodelling Abbotswood Junction** – to increase capacity through the junction;
- **Improving Car Parking And Highway Access** – to address existing suppressed demand and provide capacity for growth;
- **Electrification** – as noted at 5.8.



**Table 5.15 – Gap Analysis Of Worcestershire’s Rail Provision**

CURRENT GAP	ENABLERS OF CHANGE	DESIRED OUTPUT
Worcester – London journey times are slow; typical average speed 52mph	<ul style="list-style-type: none"> <li>• 2tph Worcester – Oxford INCLUDED AS OPTION IN WESTERN ROUTE STUDY, with one of these Worcester-London making fewer stops</li> <li>• Worcester re-signalling</li> <li>• Some additional redoubling of North Cotswold Line</li> <li>• Inclusion in GWR 2019 franchise specification</li> </ul>	Minimum 1tph Worcester – London in c.1 hour 50mins
Only 1tph Worcester – London	<ul style="list-style-type: none"> <li>• 2 tph INCLUDED AS OPTION IN WESTERN ROUTE STUDY, with one service operating via Cheltenham.</li> <li>• Worcester re-signalling</li> <li>• Remodelling of Abbotswood Junction</li> <li>• Inclusion in franchise specification</li> </ul>	2tph Worcester – London
Worcestershire is not part of the long-distance network. Limited regional and national connectivity other than via changes at Birmingham New Street.	<ul style="list-style-type: none"> <li>• Worcestershire Parkway opens up direct access to Cross Country Bristol-Manchester and Plymouth-Newcastle services</li> <li>• 2 tph Worcester-Oxford-London Paddington</li> <li>• INCLUSION WITH DfT CP6 HLOS</li> <li>• Potential Worcester Shrub Hill service to Bristol and Cardiff INCLUDED AS OPTION IN WESTERN ROUTE STUDY</li> <li>• Worcester/Abbotswood re-modelling-re-signalling</li> <li>• East-West Rail Interchange at Oxford</li> <li>• High quality interchange between Birmingham New St and Moor St and HS2 Curzon Street</li> </ul>	Direct Worcestershire Rail Connectivity to key UK economies and maximised value of connections to HS2 at Birmingham
Worcester – Birmingham journey times are slow, typical speed 57mph (1tph via Bromsgrove)	<ul style="list-style-type: none"> <li>• Introduction of Bromsgrove service as part of Cross-City line opens up the possibility of accelerating direct services between Worcester and Birmingham New Street.</li> <li>• Droitwich-Stoke Works doubling</li> </ul>	Faster service between Worcester and Birmingham
Kidderminster – Birmingham journey times are slow, typical speed 33mph	<ul style="list-style-type: none"> <li>• Remodelling of Snow Hill lines timetable to separate short distance stopping services from “inter-regional” trains</li> </ul>	Faster service between Kidderminster and Birmingham

(table continued overleaf)

**Table 5.15 – Gap Analysis Of Worcestershire’s Rail Provision (continued)**

CURRENT GAP	ENABLERS OF CHANGE	DESIRED OUTPUT
Limited peak-only direct services between Kidderminster and London	<ul style="list-style-type: none"> <li>• GWML electrification , IEP trains and 1 tph North Cotswold Line service could be extended to KID or SBJ</li> <li>• INCLUSION WITHIN CP6 DfT HLOS</li> <li>• Inclusion in GWR franchise specification</li> <li>• Worcester/Abbotswood re-modelling-re-signalling</li> </ul>	Hourly services between Kidderminster and London, via Oxford or Birmingham
Kidderminster – only available southbound destinations are Worcester and Great Malvern	<ul style="list-style-type: none"> <li>• INCLUDED AS OPTION IN WESTERN ROUTE STUDY (Cardiff-Nottingham option)</li> <li>• Birmingham – Bristol and Snow Hill Lines Electrification</li> <li>• New Birmingham-KID-Worcester-Bristol service</li> <li>• New Kidderminster-London Paddington service</li> <li>• Worcester /Abbotswood re-modelling-re-signalling</li> </ul>	Direct southbound services to Cheltenham, Bristol, Oxford and London Paddington
Bromsgrove has a very limited southbound service other than hourly to Worcester and Great Malvern and Hereford and 1 train per day to Cardiff	<ul style="list-style-type: none"> <li>• Birmingham – Bristol Electrification</li> <li>• New Birmingham-Bromsgrove-Worcester-Bristol service</li> <li>• Droitwich-Stoke Works doubling</li> <li>• INCLUSION WITHIN CP6 DfT HLOS</li> </ul>	Direct southbound services from Bromsgrove to Cheltenham and Bristol
Redditch is the end of the Cross City Line. No southbound service	<ul style="list-style-type: none"> <li>• Inclusion of an interchange on Cross-City service in franchise specification</li> <li>• Good quality road access to Bromsgrove or Worcestershire Parkway</li> </ul>	Access to direct southbound services to Worcester, Cheltenham, Bristol
Lack of car parking and access points to the network	<ul style="list-style-type: none"> <li>• Worcestershire Parkway</li> <li>• Redevelopment of Shrub Hill station to improve accessibility and sustainable access to the City</li> <li>• Additional parking at appropriate existing stations (including identification via specific parking studies)</li> <li>• Identification of new access points to the network</li> </ul>	Adequate car parking, and easy access to the network from all parts of the County. Possible new stations

(table continued overleaf)

**Table 5.15 – Gap Analysis Of Worcestershire’s Rail Provision (continued)**

CURRENT GAP	ENABLERS OF CHANGE	DESIRED OUTPUT
<p>The dynamics of Worcester do not work. Foregate Street and Shrub Hill are of poor quality, and difficult to access. West of the River Severn, there are major residential areas, with 2,500 more houses to come</p>	<ul style="list-style-type: none"> <li>• Masterplan for Shrub Hill station</li> <li>• Worcestershire Parkway</li> <li>• Consideration of new rail access provisions (such as a parkway station West of Worcester) to serve west of river developments &amp; avoid the need to cross the City (initial feasibility work has suggested this could be in the Rushwick area).</li> </ul>	<p>High quality gateways, easily accessible from all parts of Worcester and the surrounding area</p>
<p>Rail fares system is confusing and in many cases ticket prices offer poor value for money. This can deter passengers from travel, create mistrust and encourage use of non-sustainable modes.</p>	<ul style="list-style-type: none"> <li>• Meet with DfT, West Midlands Rail and the relevant TOCs to set out WCC’s objectives regarding rail fares improvements</li> <li>• Develop a new approach to London Fares reflecting the post 2018 NCL timetable changes</li> <li>• Develop a new approach to Cross-Country fares following the opening of Worcestershire Parkway</li> <li>• Creation of a Worcestershire ‘zonal’ fares system.</li> </ul>	<p>More advanced purchase fares to drive up demand, harmonisation of Worcestershire fares in line with West Midlands regional charges, ‘Greater Worcester’ banded tickets to harmonise prices.</p>
<p>Great Malvern has limited connections to Birmingham and London</p>	<ul style="list-style-type: none"> <li>• Worcester – Abbotswold remodelling and re-signalling</li> <li>• Implementation of digital signalling between Worcester and Great Malvern</li> </ul>	<p>Enhanced frequency of services between Great Malvern and Birmingham / London</p>

# 6. Stage 4 – Economic Testing Of Connectivity Options

## 6.1 The GVA And Jobs Model

One of the key components of the Rail Investment Strategy has been the work undertaken by consultants SYSTRA to examine the wider economic benefits for a number of options to improve rail services across Worcestershire. The benefits have been derived using an updated version of the Market Studies model first used by Network Rail in 2013.

The bespoke GVA / jobs model used for this analysis combines metrics of economic activity and projected 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 the latter attracts a significant time penalty. 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 new jobs created (note job creations are 'one-off' whereas GVA is per annum).

In assessing rail service enhancements in these terms, rather than as project specific Benefit-Cost Ratios (BCR), the GVA/Jobs model is innovative, being consistent with but extending beyond the Department for Transport's WebTAG guidance and existing rail industry tools such as the Passenger Demand Forecasting Handbook (PDFH).

This mirrors the approach being taken by Network Rail (in its 2013 Market Studies) and Midlands Connect, where both bodies are similarly seeking to understand the wider economic benefits of rail schemes.

The SYSTRA model focuses upon two key components:

- **Agglomeration** – GVA uplift and new jobs generated through enhanced productivity of businesses and workers being more easily accessible to each via faster transport connectivity; this is empirically derived from the relationship between the change in Generalised Journey Cost (GJC) of business travel and GVA via better transport connectivity.

These new jobs are expressed as one number for each assessed origin and destination together, and are thus overall jobs benefits to the UK-wide economy;

- **Accessibility And Regeneration: Labour Supply Jobs** – the number of committed jobs that will be facilitated by changes in rail capacity generated by new services, expressed as number of peak seats. These are jobs specific to Worcestershire.

It is important to recognise that the model does NOT include many elements traditionally forming part of rail scheme business cases, such as:

- New or abstracted rail trips (effectively an assessment of the net increase in capacity on a service or route);
- Financial benefits of fares, car parking (including the benefit:cost ratio) etc.;
- Environmental benefits such as reductions in emissions and air quality improvements;
- Highway decongestion benefits.

All of these important considerations will be required to be taken into account during subsequent development stages. However, the priority within this WIRS is to identify measures that will best support economic growth and development in the County in an industry recognised format.

## 6.2 The Connectivity Tests

The options assessed as part of the economic modelling have been driven in response to the gaps identified within Worcestershire's current connectivity via its rail service. For each of the 10 options tested, two scenarios were considered:

- Services introduced within December 2015 Working Timetable (given the timing of the original WRIS work);
- December 2015 Timetable with the inclusion of an operational Worcestershire Parkway.

The 10 services options tested are shown at Table 6.1:

**Table 6.1 – Identified Train Service Improvements For Worcestershire**

Option	Service Route	Routing Via	1TPH	2TPH	Notes
Option 1	Worcester – London Paddington	Oxford	(2hrs 15mins)	(1hr 50mins)	Inc. JT reductions shown
Option 2	Worcester – Cambridge	Oxford & East-West Rail	X	X	–
Option 3	Worcester – Birmingham	Bromsgrove (2TPH)	X	X	Inc. JT reductions shown
Option 4	Birmingham – Kidderminster – Worcester – Cheltenham Spa – Bristol	–	X	X	–
Option 5	Birmingham – Bromsgrove – Worcestershire Parkway (WRP) – Cheltenham Spa – Bristol	–	X	X	–
Option 6	Kidderminster – Birmingham – London Marylebone	–	X	–	–
Option 7	Kidderminster – Worcester – Evesham – Oxford – London Paddington	–	X	–	–
Option 8	Worcester – Evesham – Stratford – Solihull – Birmingham	–	X	–	–
Option 9	Manchester – Bristol	Worcestershire Parkway	X	–	In addition to those services initially planned to call at WRP
Option 10	Plymouth – Edinburgh	Worcestershire Parkway	X	–	In addition to Option 9

The rationale for each of these tests was developed within the proposal for this Rail Investment Strategy, and then agreed with WCC, and is repeated here for information:

- **Option 1 – Worcester, Evesham, Oxford, Reading (For Heathrow) And London Paddington**

A key test to evidence the case for a transformed 2 tph, faster North Cotswold Line service with new InterCity Express trains; data exists from the Worcestershire Parkway scheme – testing here provides the data within one consistent County-wide model;

- **Option 2 – Worcestershire To Milton Keynes And Cambridge**

Measuring the opportunity offered by East-West Rail interchange at Oxford;

- **Option 3 – Worcester – Birmingham Journey Time Reductions**

Valuing journey time reductions to the County's biggest neighbouring economy;

- **Option 4 – Birmingham – Kidderminster – Worcester SH – Cheltenham – Gloucester – Bristol**

- **Option 5 – Birmingham – Bromsgrove – Worcestershire Parkway – Cheltenham – Gloucester – Bristol**

Options 4 and 5 examine the value of a stopping service on the Birmingham-Bristol corridor, of Cheltenham/Gloucester and Bristol connectivity, and routing either via Kidderminster or Bromsgrove to provide further gradation in respect of the connectivity needs of their economies;

- **Option 6 – Kidderminster To London Marylebone Via Birmingham**

Examining the value of Kidderminster/Wyre Forest connectivity with London if a 1 tph service to London Marylebone were achievable;

- **Option 7 – Kidderminster To London Paddington Via Droitwich Spa And Worcester**

Examining the value of Kidderminster/Wyre Forest connectivity with 1 tph to London Paddington as an alternative, with the additional value of Droitwich-London;

- **Option 8 – Worcester – Evesham – Stratford – Solihull – Birmingham**

Initial indicative evidencing of the case for or against rail connectivity on the A46 Corridor – Worcestershire/Warwickshire/East Midlands axis (i.e. re-opening of the Stratford – Honeybourne Line);

- **Option 9 – Wolverhampton, Stoke-On-Trent, Manchester, Cardiff, Nottingham**

Valuing the Bristol-Manchester Cross Country services for Worcestershire Parkway – again a set of values exist within in the Parkway project, but this provides them within the one consistent County-wide model;

- **Option 10 – Worcestershire Parkway To Plymouth, Birmingham, Sheffield, York, Newcastle**

Assessing the case for wider UK connectivity for the County. Thus far the Parkway project has assumed the Plymouth-Newcastle service cannot call. This may no longer be the case after HS2 and electrification.



Options 1 to 7 are tested with and without Worcestershire Parkway to illustrate the Parkway-specific value of the new station to the County. Option 8, being dependent on a wholly new rail route, is assumed only when Parkway is delivered. Options 9 and 10 are incremental benefits to the base case service for Parkway when opened in 2019 and which assume 1 tph to London Paddington and 1 tph on the Cardiff-Nottingham service.

### 6.3 The Results

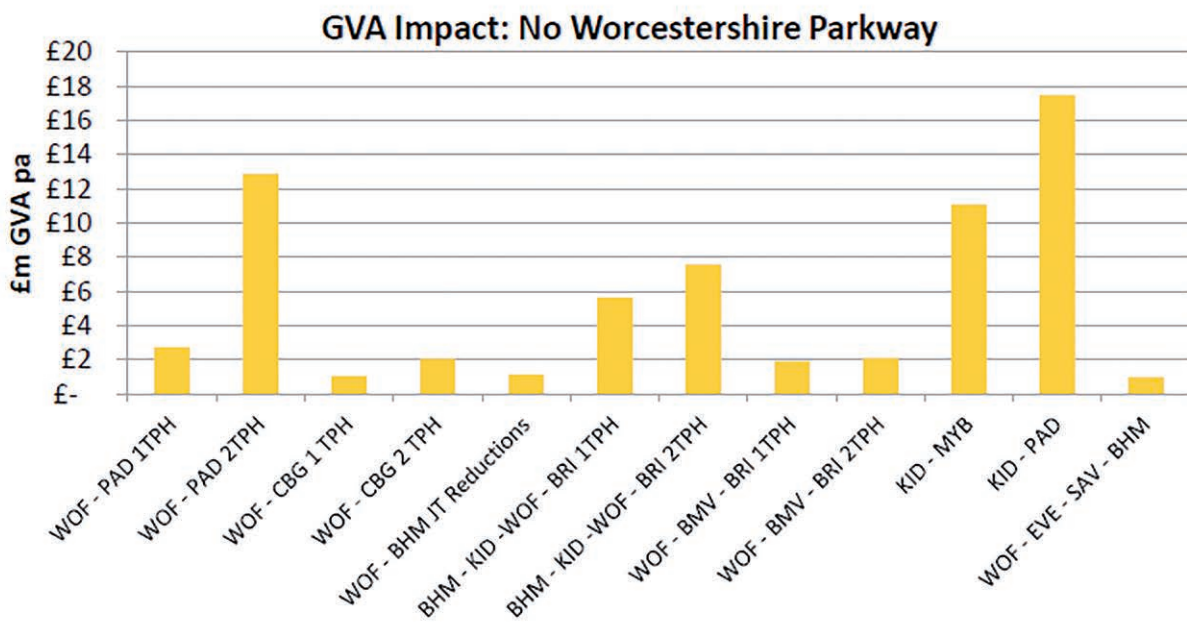
A summary of the economic benefits – new GVA and jobs – derived from each of the options tested is shown at Table 6.2:

**Table 6.2 – Summary Of WRIS Conditional Outputs**

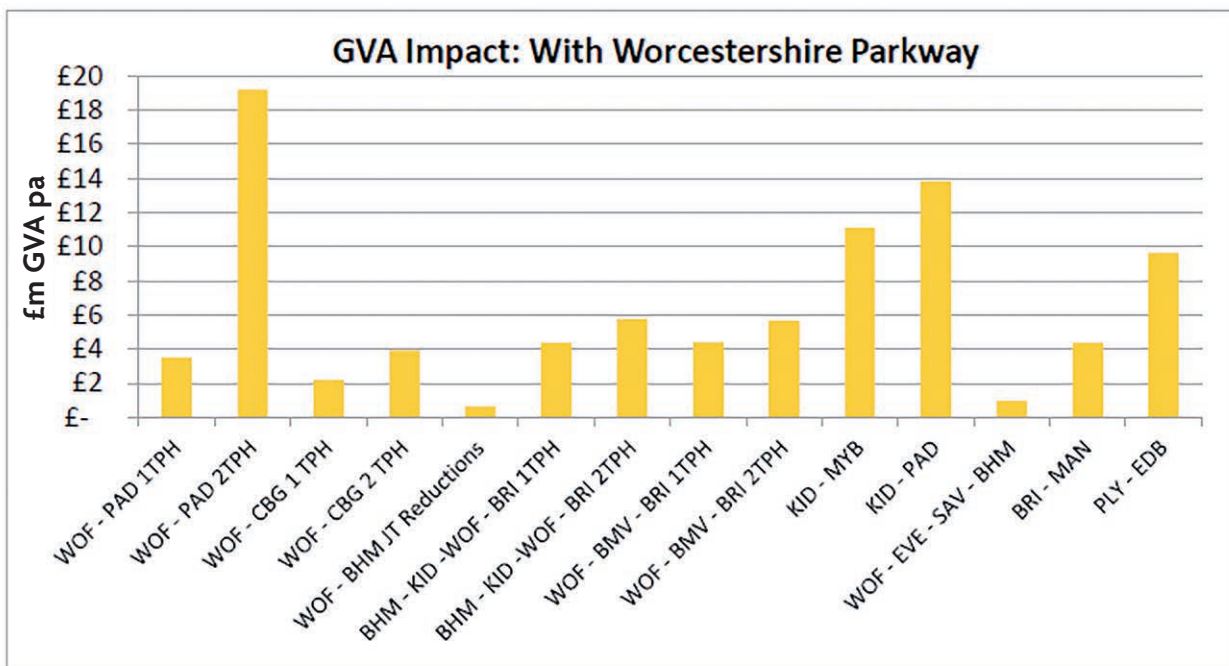
Option		Without Worcestershire Parkway		With Worcestershire Parkway	
		GVA pa	JOBS	GVA	JOBS
1	2 tph Worcester – London Paddington via Oxford	£12.65m	279	£19.04m	421
2	1 tph Worcester – Cambridge via interchange at Oxford and East-West Rail	£1.03m	27	£2.18m	54
3	Worcester Shrub Hill / Foregate Street – Birmingham Journey Time Reductions	£1.1m	31	£0.66m	19
4	2 tph Birmingham – Kidderminster – Worcester – Cheltenham Spa – Bristol	£7.56m	198	£5.73m	153
5	2 tph Birmingham – Bromsgrove – Worcestershire Parkway – Cheltenham Spa – Bristol	£2.1m	54	£5.66m	145
6	1 tph Kidderminster – Birmingham – London Marylebone	£11.09m	233	£11.09m	233
7	1 tph Kidderminster – Worcester – London Paddington Droitwich Spa benefits Total	£10.5m	221	£10.5m	209
		+£6.9m	+130	+£3.3m	+64
		£17.51m	351	£13.8m	273
8	1 tph Worcester – Evesham – Stratford-upon-Avon – Solihull – Birmingham	n/a	n/a	£1.0m	26
9	1 tph Bristol-Manchester calling at Worcestershire Parkway	n/a	n/a	£4.4m	108
10	1 tph Plymouth – Newcastle/Edinburgh calling at Worcestershire Parkway <i>in addition to Bristol-Manchester</i>	n/a	n/a	£9.6m	250

These results are illustrated in graphical form at Figures 6.3 and 6.4.

**Figure 6.3 – Economic Benefits Of WRIS Conditional Outputs (No Worcestershire Parkway)**  
 Source SYSTRA



**Figure 6.4 – Economic Benefits Of WRIS Conditional Outputs (With Worcestershire Parkway)**  
 Source SYSTRA





## 6.4 Conclusions From Connectivity Tests

The conclusions from this analysis can be summarised as follows:

- **One** – A faster, 2 trains per hour service between Worcester and London Paddington delivers the greatest economic benefits to Worcestershire of enhanced rail connectivity;
- **Two** – Direct hourly Wyre Forest to London connectivity follows as the second major benefit, significantly strengthened if routed via Droitwich Spa to London Paddington rather than via Birmingham to London Marylebone;
- **Three** – Hourly calls at Worcestershire Parkway in both the Plymouth to Newcastle/Edinburgh and Bristol to Manchester Cross Country services offer high value in connecting the County to other major UK economies;
- **Four** – Direct services from Worcestershire to Cheltenham, Gloucester and Bristol offer high value whilst requiring choices about routing and frequency via Kidderminster-Worcester Shrub Hill and/or Bromsgrove-Worcestershire Parkway;
- **Five** – Worcestershire Parkway plays a transformative role in the value of enhanced rail connectivity to Worcestershire, in essence by making rail easily accessible to the County's population;
- **Six** – Connectivity at Oxford to Milton Keynes and Cambridge via East West Rail has a value in itself and could support the case for routing Kidderminster services to London Paddington rather than London Marylebone;
- **Seven** – Faster journey times between Worcester Shrub Hill / Foregate Street and Birmingham are challenging to achieve and the modest improvements assumed in the GVA/jobs model do not deliver significant value when set against priorities One to Six;
- **Eight** – The economic value of reopening the Honeybourne-Stratford upon Avon route is limited for Worcestershire; further work in progress in summer 2017 by WCC suggests the principal economic benefits of the route would accrue to Warwickshire, principally driven by enhanced connectivity between Stratford-upon-Avon and London. Re-opening the route does not form a current priority for Worcestershire, although the County would work cooperatively with any promoter of the scheme, and within the NCLTF which is also considering the long-term value of the route.

# 7. Stage 5 – The Prioritised Conditional Outputs

**7.1** The first six positive propositions of the Connectivity Test Conclusions at Section 6.4 are described and discussed as Conditional Outputs in more detail below, and summarised in tabular form at Figure 7.7, illustrated in graphic form in relation to connectivity at Figures 7.8 and 7.9 and in relation to the economic value of other UK economies at 7.10 and 7.11.

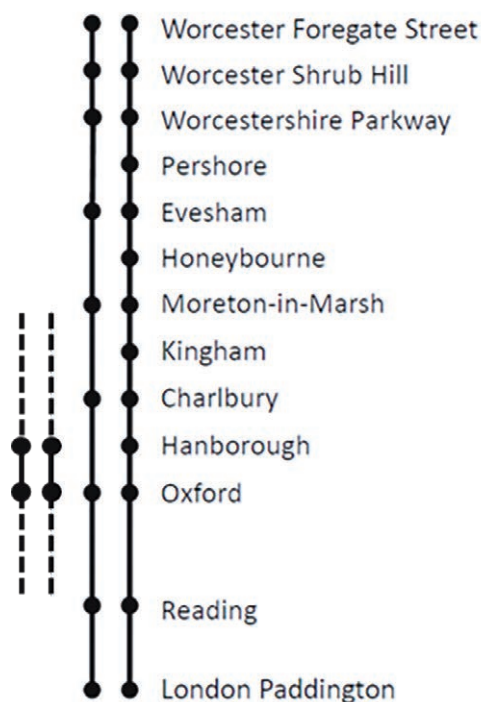
The combined value of the preferred Conditional Outputs is GVA of £50.42 million per annum and a total 1,151 new jobs (Figure 7.7).

**7.2 Worcester – London Paddington Via Oxford 2TPH: 1 Hour 50 Minute Journey Time**

The introduction of the InterCity Express (IEP) hourly service between Worcester and London Paddington in 2018, supported by Worcestershire Parkway, is a major (and welcome) point of change for the North Cotswold Line.

However, the economic evidence within this Rail Investment Strategy suggests that the 2018 service should be seen only as a further stage on an incremental development plan towards a full 2 trains per hour Worcester to London service, with significantly reduced journey times.

The service specification, similar to that successfully developed on the neighbouring Chiltern Line, assumes 1 limited stop service per hour (between Worcester and London) with a journey time of 1 hour 50 minutes, and 1 tph calling at all other stations on the North Cotswold Line. This is as illustrated at Figure 7.5 (along with Oxfordshire County Council's desire for 3tph between Hanborough and Oxford), a repeat of Figure 5.7 above.



**Figure 7.5 – Worcestershire County Council Preferred North Cotswold Line Train Service**

- Each line represents 1 train per hour
- Dashed line indicates final destinations beyond Oxford and Hanborough to be determined

As discussed at Section 5.5.1, Worcestershire County Council is unlikely to support the second London service per hour being routed via Cheltenham given journey time penalties, or the second North Cotswold Line service per hour terminating at Oxford as this would fail to enhance connectivity for the smaller stations and/or preclude the faster headline Worcester-London journey time. It will be key to the County that the smaller stations retain an hourly train service to and from London.

Achievement of the 2 trains per hour service would require:

- Establishment of and continued stakeholder support through vehicles such as the North Cotswold Line Task Force;
- Completion of further doubling of the Norton Junction to Evesham and Charlbury to Wolvercote Junction single line sections (and this clarity from DfT and Network Rail in the re-doubling options both organisations have been assessing during 2015/16);
- Inclusion within the CP6 HLOS and CP6 Industry Plan;
- Inclusion within the specification for the 2019 Great Western franchise.

**Conditional Output NCL 1: Provision of 2 trains per hour between Worcester and London Paddington, with 1 train per hour having a fast journey time of 1 hour 50 minutes or less**

### 7.3 Kidderminster – Worcester – Droitwich Spa – Oxford – London Paddington

Kidderminster has the existing limited direct London Marylebone service provided by Chiltern Railways, offering peak only services; connecting services can be used to Marylebone via Birmingham Snow Hill/Moor Street, to Euston via Birmingham New Street, or to Paddington via Worcester.

The GVA/jobs model delivers broadly similar results for a 1 tph service either to Marylebone or Paddington. Paddington is the recommended Conditional Output for 3 reasons:

- Kidderminster-Paddington services would also be able to call at Droitwich Spa and thus generate an additional £3.3m – £6.9m GVA (and between 64 – 130 jobs) which would otherwise not be realised by services provided on the Chiltern Line;
- It would add significant value to the hourly IEP London Paddington to Worcester service due to commence in 2018;
- An hourly service towards Marylebone has not proved to be feasible since the inception of the service in 2002; Chiltern Railways had sought to deliver such a service but this has been precluded by the 6 trains per hour frequency of local services north of Stourbridge Junction. Whilst the ‘Rowley Regis’ option for Snow Hill Lines services discussed at Section 5.6 could change the timetable structure, local service requirements are likely to predominate given the growth of commuting into Birmingham.

Delivery of this Conditional Output would require:

- Inclusion within the CP6 HLOS and CP6 Industry Plan;
- Inclusion within the specification for the 2019 Great Western franchise;
- Confirmation that the IEP trains could operate between Worcester and Kidderminster;
- Provision of additional car parking capacity at Kidderminster Station and/or development of Hartlebury or Blakedown stations to accommodate demand.

Photo courtesy of GWR.



Removal of the Kidderminster-Marylebone services is not a requirement of this option. However these exist today, to some extent, given Chiltern Railways' West Midlands stabling facilities being located at Stourbridge Junction, and the capacity they offer to support the local Snow Hill train service in the peak. Review of the role of the Marylebone services may be indicated in the context of any progressing of the 'Rowley Regis' option and the Chiltern re-franchising specification for 2022 onwards where a focus on maximising Chiltern capacity between Birmingham and London could be a feature.

A variant option could be extending the service to Stourbridge Junction itself, thus offering Stourbridge an hourly London service, and developing the more accessible Blakedown Station (compared to Hartlebury) as an 'overspill' for Kidderminster.

The concept of an hourly Kidderminster-London service does not specifically feature within any rail industry or local plan, but its delivery would be directly consistent with the WLEP's objective 2.3.2 on removing constraints to economic growth, particularly regarding links to the major tourist attractions of the Severn Valley Railway and West Midlands Safari Park, whilst adding value to its Short Term Objective 01 on pressing the DfT for a sub- 2 hour Worcester-London journey time (Section 4.2 above).

**Conditional Output NCL 2: Provision of 1 train per hour between Kidderminster and London Paddington via Droitwich Spa, Worcester and Oxford**

#### **7.4 Birmingham – Worcestershire – Cheltenham – Gloucester – Bristol**

The County's highly limited rail connectivity southwards towards Gloucestershire and Bristol, dependent on a 2-hourly frequency, slow train service or connections at Birmingham, is a key theme of this Rail Investment Strategy and WCC's LTP rail priorities.

The 2 options tested – Kidderminster and Worcester Shrub Hill to Bristol and Bromsgrove and Worcestershire Parkway to Bristol – both at 2 trains per hour, demonstrate significant GVA and jobs benefits, with the Kidderminster option the stronger of the 2.

Clearly providing both services (i.e. 4 trains per hour south of Abbotswood Junction) would not be operationally feasible. There are thus 2 choices to be assessed further:

- 1 train per hour on each route;
- A 2 trains per hour service on only one of the routes.

The Kidderminster option would directly contribute to objectives of the Wyre Forest Transport Strategy (Section. 4.2.6) in supporting regeneration of the economically-challenged District as well as the WLEP's SEP objective 2.3.2 as noted above.

Taken together with a potential Kidderminster-London Paddington service these 2 forms of new connectivity could be transformative for Wyre Forest.

It should also be noted that the benefits projected for the Wyre Forest District are not expected to arise solely from the origin labour market. The increased connectivity realised by the new train services would mean that towns, such as Kidderminster, become places where new businesses want to locate (yielding agglomeration benefits).

The Bromsgrove option would support the significant committed housing growth in the District and any further required under the Greater Birmingham Housing Market Area considerations (Section 4.4.2 above), and would utilise the new capacity and focus that the re-located Bromsgrove Station now offers following completion in Summer 2016.

Delivery of one or both of these Conditional Outputs would require:

- Inclusion within the CP6 HLOS and CP6 Industry Plan;
- Inclusion within the specification for an appropriate rail franchise –Cross Country – or engagement with the successful WMR franchisee when appointed;
- Electrification of the Bristol to Birmingham Line to provide the capacity for the service (Bromsgrove) as well as the Snow Hill Lines (for the Kidderminster service) <sup>20</sup>;
- Provision of additional car parking capacity at Kidderminster Station and/or development of Hartlebury or Blakedown stations to accommodate demand.

**Conditional Output WAB 1: Provision of a new direct train service between Kidderminster, Worcester, Cheltenham Spa, Gloucester, Bristol Parkway and Bristol Temple Meads**

**Conditional Output WAB 2: Provision of new direct train service between Bromsgrove and Worcestershire Parkway, Cheltenham Spa, Gloucester, Bristol Parkway and Bristol Temple Meads**

### 7.5 Bristol To Manchester And Plymouth To Newcastle/Edinburgh Via Worcestershire Parkway

The established Worcestershire Parkway scheme will use the hourly Cross Country Cardiff to Nottingham services as from 2019.

The additional value of Bristol to Manchester services has been recognised within the Parkway project by Cross Country as well as WCC. Table 7.6 illustrates the additional 230 daily passengers that could be expected at Parkway with the benefit of this service.

**Table 7.6 – Worcestershire Parkway – Incremental Demand From Bristol-Manchester Service (2015 Slide)**

2031	1 tph WPK-PAD 1 tph NOT-CDF		1 tph BRI-MAN		COMBINED	
	PA	Daily	PA	Daily	PA	Daily
All	440,000	650	154,000	230	594,000	880
Abstracted	295,000	435	103,000	154	398,000	589
New	145,000	215	51,000	76	196,000	291
Car Park		460		160		620

<sup>20</sup> Route electrification offers the capacity for additional service by reducing train journey times. This is achieved through faster acceleration rates of electric trains compared to the majority of existing diesel rolling stock. However, it is difficult to quantify the journey time reductions because of the unique factors that affect each route – number of stations, track gradients, passenger loading etc.



Timetable analysis has indicated that calls at Parkway may not be feasible until electrification however, given the uncertainty surrounding electrification, alternative means of calling these services at the station should be considered. Thus, at this stage it remains an aspiration rather than any form of commitment for the project.

For the Plymouth-Newcastle/Edinburgh services, there has thus far been a clear rail industry perspective, particularly from the DfT, that compromising journey times on these strategic services would not be acceptable.

The GVA and jobs analysis indicates that there would be a significant value of up to £10m GVA and 250 jobs with either or both services calling at Parkway, and given the County's 566,000 population this is unsurprising.

Both services would support the WLEP's SEP objectives on removing constraints to economic growth (Section 4.2 above), the South Worcestershire Transport Strategy's ambition for strategic rail accessibility (Section 4.2.3 above) and the South Worcestershire Development Plan's similar focus upon rail connectivity's contribution to the competitiveness and attractiveness of the area to inward investors (Section 4.3.2 above).

In simple terms both services would connect Worcestershire directly to the major economies of North West and North East England – a transformative output for the County (as illustrated graphically at Figure 7.11).

The requirement for electrification to support these 2 services clearly indicates that their achievement is not likely to be possible before CP7 (2024-2029) and the DfT's July 2017 announcement putting future electrification on indefinite hold has cast further doubt on the timescales for future schemes. However with the likely impact of HS2 Phase 2 on planning of Cross Country services not yet understood, beginning engagement now with the DfT to further develop the case for those services' future role for Worcestershire is recommended.

Delivery of one or both of these Conditional Outputs would require:

- Electrification of the Bristol to Birmingham Line;
- Development work to be included within the CP6 HLOS and CP6 Industry Plan and the 2019 Cross Country franchise specification;
- Planning for future car park capacity growth at Worcestershire Parkway.

**Conditional Output WRP 1: Introduction of calls at Worcestershire Parkway in the hourly Cross Country Bristol to Manchester service**

**Conditional Output WRP 2: Introduction of calls at Worcestershire Parkway in the hourly Cross Country Plymouth to Newcastle service**

## 7.6 Other Conditional Outputs

The context of forecast rail passenger growth, new train services (described in this Rail Investment Strategy) and the limited capacity of Worcestershire stations logically suggests 6 core infrastructure Conditional Outputs that will be essential to the long-term growth of the capability of the rail network to service Worcestershire's economic growth, namely:

- **North Cotswold Line Capacity Upgrade** – Doubling of part or all of the Norton Junction-Evesham and Charlbury-Wolvercote Junction sections;
- **Worcester Area And Droitwich Spa To Stoke Works Capacity Upgrade** – Providing additional capacity for services passing through Shrub Hill and Foregate Street and doubling of the Droitwich-Stoke Works single line (together with re-signalling);
- **Electrification** – Of both the Bristol to Birmingham and Snow Hill Lines;
- **New Car Park Capacity And/Or New Stations** – Addressing the structural shortfall of current car parking capacity and providing capacity for up to 100% passenger growth by 2043, either at existing or new stations (e.g. a new station at Rushwick – as detailed in table 5.16). Initial work on this has begun through the completion of WCC's draft WRIS2 car parks study which was completed in March 2017;
- **Worcester Shrub Hill Station Regeneration** – Transforming passenger facilities, capacity, access and multi-modal Integration to enable the station to support both current train services and those proposed in this Rail Investment Strategy (building on the findings of 2017's Shrub Hill Masterplan);
- **Ticketing And Fares** – Cross-industry review of ticketing and fares structures to match new and developing train services.

The first two of these used to lie firmly within the remit of the DfT and Network Rail, however, since its creation in November 2016 they now also fall under the remit of the North Cotswold Line Task Force. It is expected that the NCLTF will become the champion for these important Conditional Outputs; creating the desire within the industry and then managing the enabling works to turn them from concepts into reality. In addition, this Rail Investment Strategy provides the first level of economic evidence required to justify Worcestershire's needs within the rail industry, not only into the CP6 (2019-2024) planning process but also the industry's Long Term Planning Process to 2043.

The fourth – addressing car park capacity and access to existing or new stations – is within WCC much more direct sphere of influence, either through the provision of new highway and car parking infrastructure or in the development of new 3rd-party-delivered stations, such as the Worcestershire Parkway station that is being delivered by WCC. This has begun to be addressed within Part 2 of this Rail Investment Strategy is currently being developed.

The fifth – Worcester Shrub Hill – is being addressed within WCC's Masterplan that was drafted in March 2017, and which includes a Business Case taking account of the relevant train service Conditional Outputs. The Masterplan findings have shown that enhancements at the station could not only transform the rail infrastructure but also act as a catalyst for major economic regeneration in the area.

The sixth – ticketing and fares – is outside of WCC's direct control, but is an area where, perhaps, only WCC's Worcestershire-focus can bring current complexities and anomalies to the attention of the DfT and the 4 Train Operating Companies who set fares, and seek to achieve a more appropriate structure that will both attract new passengers in itself and support the new services proposed in this Rail Investment Strategy.

**Conditional Output ELC 1: Electrification of the Bristol to Birmingham Line, Snow Hill Lines and the North Cotswold Lines to support train service growth and development**

**Conditional Output NCL 3: Provision of additional Infrastructure capacity on the North Cotswold Line to support a 2 trains per hour Worcester to London Paddington service**

**Conditional Output WAB 3: Provision of additional infrastructure capacity at Worcester and Droitwich Spa – Bromsgrove to support train service growth and development**

**Conditional Output ACS 1: Provision of additional car park capacity at existing stations and/or new stations to accommodate forecast passenger growth to 2043**

**Conditional Output WOS 1: Worcester Shrub Hill Station Regeneration to support current and new train services under Conditional Outputs NCL 1, NCL 2 and WAB 1 and WAB 2**

**Conditional Output TKT 1: Cross-industry review of ticketing and fares structures to match new and developing train services**

## 7.7 Excluded Conditional Outputs

4 items have either been excluded from the preferred Conditional Outputs given their low GVA/jobs value when set against feasibility or likely cost, because they are schemes beyond the existing National Rail Network, or because they relate to benefits that will arise without intervention from WCC. These include:

- **Journey Time Enhancement Between Worcester And Birmingham**

The economic benefits of a small reduction on journey time on a commuting route are inevitably lower than those on longer distance strategic routes. In this case the likely infrastructure costs to generate relatively low GVA benefit perhaps reflects the Pareto '80:20' principle. It does NOT suggest that faster journey times to Birmingham would not be of value and electrification to Worcester and re-doubling Droitwich to Stoke Works may offer greater benefits in terms of train service frequency and reliability;

- **Honeybourne To Stratford-Upon-Avon Re-Opening**

Not considered due to its low GVA and jobs benefit to Worcestershire and the complexities of delivering the re-opened line (particularly towards the northern end of the route).

The location of the Stratford-upon-Avon to Honeybourne rail route primarily within Warwickshire limits the economic benefits its re-opening offers directly to Worcestershire (the benefits instead being accrued within Warwickshire, principally driven by enhanced connectivity between Stratford-upon-Avon and London). Given the WRIS seeks to provide an evidenced set of strategic priorities for the County's rail network as a whole, the Worcestershire-specific

benefits of re-opening the route are significantly lower than those for faster, more frequent services between the County, Oxford and London, calls in long-distance Cross-Country services at Worcestershire Parkway or frequent services between the County and Cheltenham, Gloucester and Bristol.

WCC is not opposed to the re-opening of the route, if and when a formal promoter for the scheme emerges, and recognizes that the aspiration is relevant across a number of local authority areas outside of the County. The North Cotswold Line Task Force (NCLTF) has now been established, bringing together the local authorities and Local Enterprise Partnerships, including those in Worcestershire, along the Oxford-Worcester-Hereford route, to seek to bring forward a major enhancement in services more swiftly than current rail-industry investment plans. Consideration of the potential role of the Stratford-Honeybourne route is included within the NCLTF's objectives.

- **Enhanced Direct Rail Connectivity For The Redditch Branch**

There is thought to be no feasible scheme to connect Redditch to the southbound Bristol-Birmingham Line;

- **Worcestershire To Milton Keynes And Cambridge Connectivity**

Whilst this test demonstrates a valuable GVA and jobs benefit to Worcestershire it will be facilitated by the committed East-West scheme and requires no direct intervention from WCC. It does, however, offer a further incremental benefit to the value of enhanced North Cotswold Line connectivity, and this has been included in the combined GVA and jobs value of the Conditional Outputs summarised at Table 7.7.

**Table 7.7 – Worcestershire Rail Investment Strategy Conditional Outputs**

Ref	Worcestershire Rail Investment Strategy Conditional Output	GVA	Jobs	When
NCL 1	Provision of 2 trains per hour between Worcester and London Paddington, with 1 train per hour having fast journey time of 1 hour 50 minutes or less	£19.04m	421	CP6
NCL 2	Provision of 1 train per hour between Kidderminster and London Paddington via Droitwich Spa, Worcester and Oxford	£13.8m	273	CP6
NCL 3	Provision of additional infrastructure capacity on the North Cotswold Line to support a 2 trains per hour Worcester to London Paddington service	-	-	CP6
WAB 1	Provision of a new direct train service between Kidderminster, Worcester, Cheltenham Spa, Gloucester, Bristol Parkway and Bristol Temple Meads	£5.73m*	153*	CP6
WAB 2	Provision of new direct train service between Bromsgrove and Worcestershire Parkway, Cheltenham Spa, Gloucester, Bristol Parkway and Bristol Temple Meads			CP6
WAB 3	Provision of additional infrastructure capacity at Worcester and Droitwich Spa – Bromsgrove to support train service growth and development	-	-	CP6
WPK 1	Introduction of calls at Worcestershire Parkway in the hourly Cross Country Bristol to Manchester service	£9.6m**	250**	CP6
WPK 2	Introduction of calls at Worcestershire Parkway in the hourly Cross Country Plymouth to Newcastle service			CP6
ELC 1	Electrification of the Bristol to Birmingham Line, Snow Hill Lines and the North Cotswold Line to support train service growth and development	-	-	CP6/7
ACS 1	Provision of additional car park capacity at existing stations and/or new stations to accommodate forecast passenger growth to 2043	-	-	CP5/6
WOS 1	Worcester Shrub Hill Station Regeneration to support current and proposed new train services and frequencies to London and South West England	-	-	CP5/6
TKT 1	Cross-industry review of ticketing and fares structures to match new and developing train services	-	-	CP5/6
-	GVA/jobs value of East-West connectivity at Oxford	£2.18m	54	CP6
	<b>TOTAL GVA AND JOBS</b>	<b>£50.42m</b>	<b>1151</b>	
<p>* Higher of the 2 potential services  ** Combined value  CP5 2014-2019 • CP6 2019-2024 • CP7 2024-2029</p>				

Figure 7.8 – Worcestershire Rail Connectivity 2016

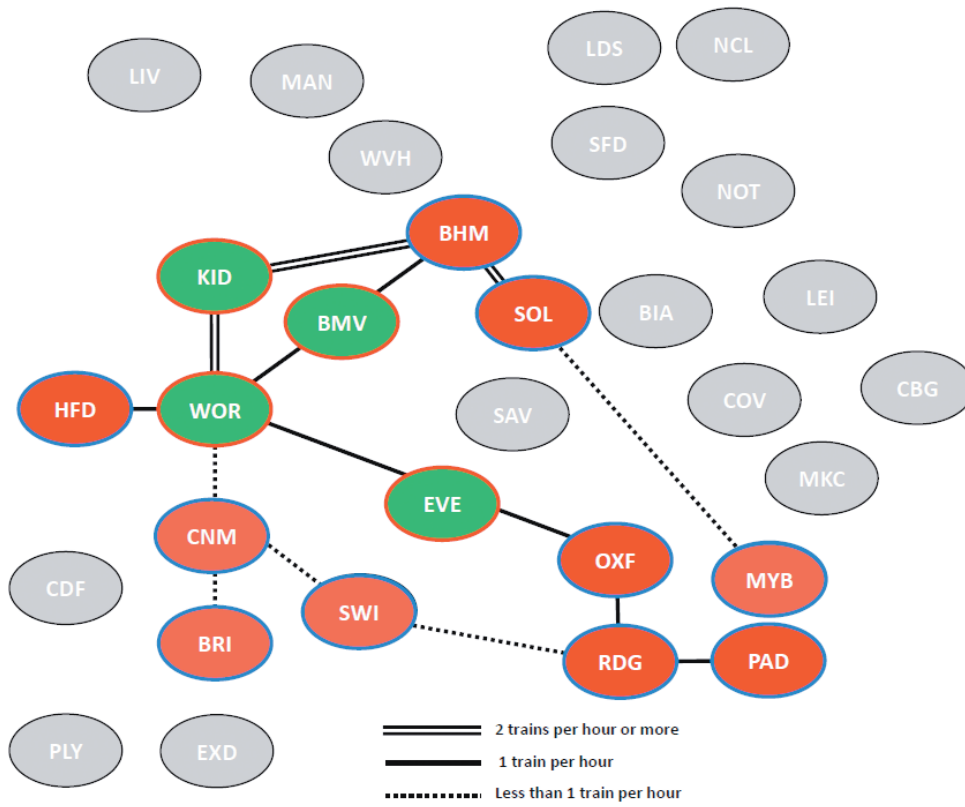


Figure 7.9 – Worcestershire Rail Connectivity With Combined Conditional Outputs

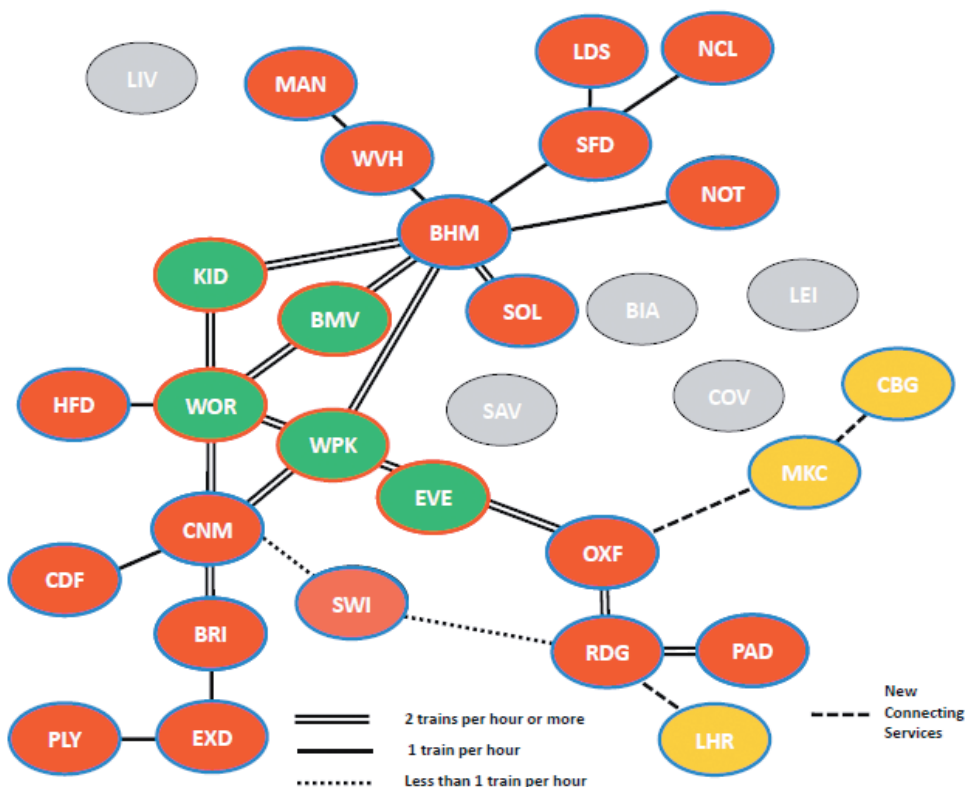


Figure 7.10 – Direct Rail Connectivity: Worcestershire To Other UK LEP Economies – 2016

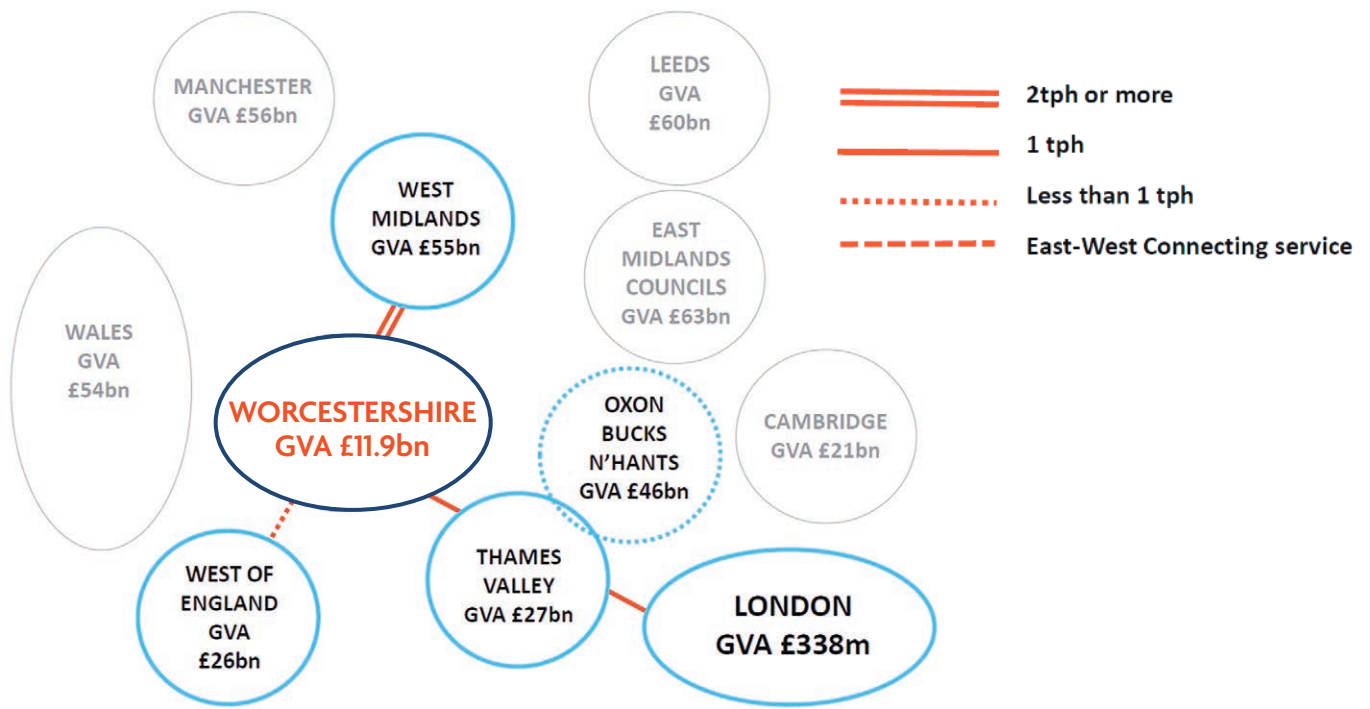
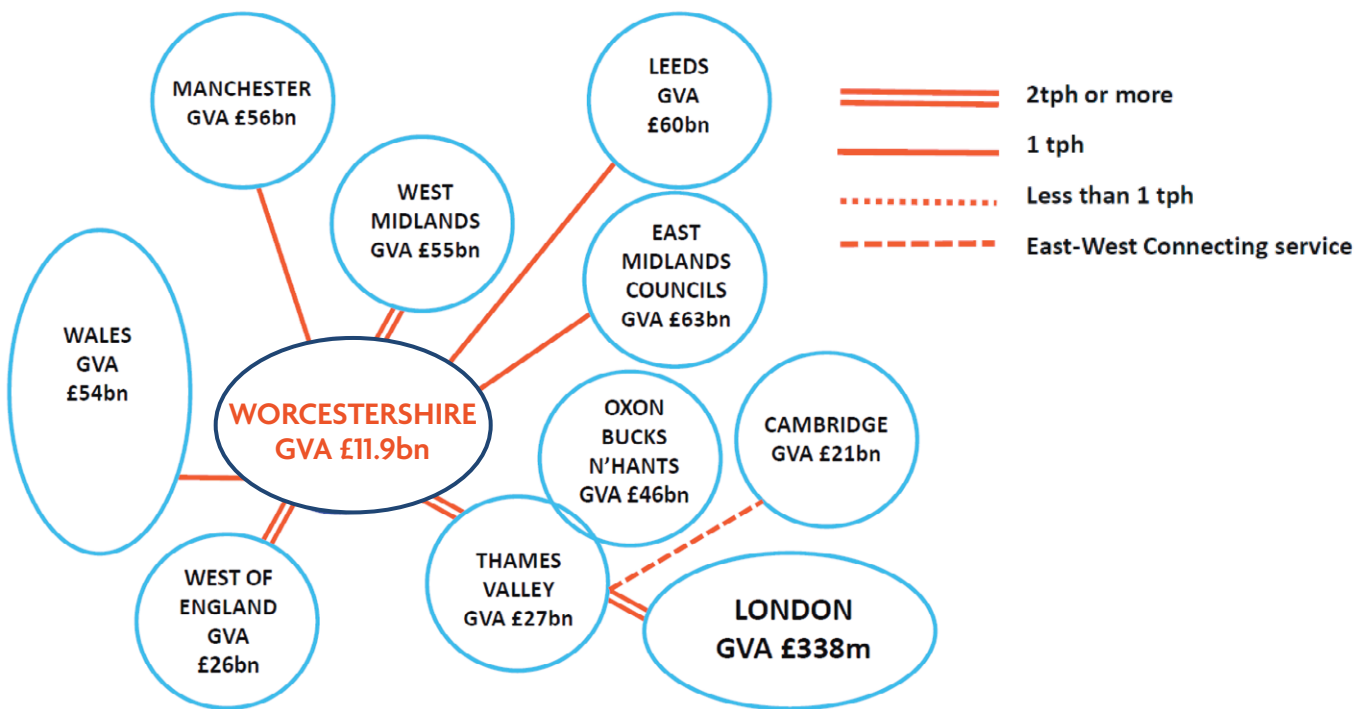


Figure 7.11 – Direct Rail Connectivity: Worcestershire To Other UK LEP Economies With Combined Rail Investment Strategy Conditional Outputs



# 8. Stage 6 – Making It Happen

**8.1** The rail industry's specific commitment to major structural change in Worcestershire's rail network is limited to the three key CP5 (2014-2019) committed schemes – the InterCity Express London to Worcester hourly train service, facilitating WCC's Worcestershire Parkway scheme and delivering Bromsgrove electrification and relocated station.

Whilst the industry's Long-Term Planning Process references potential investment in electrification, North Cotswold Line capacity, and re-signalling and re-modelling projects in Worcester, there is no specific commitment or programme for these schemes.

Key to the development of a rail network capable of supporting Worcestershire's ambitions for economic growth is active engagement by WCC and the WLEP with Government, the rail industry, politicians and other stakeholders in 3 areas:

- **Committed Industry Schemes** – Supporting delivery of existing industry commitments and their programmes including Great Western Electrification and IEP, East-West Rail, and the capacity schemes noted in the Hendy Review;
- **Prospective Industry Schemes** – Robustly lobbying for commitment in the DfT's CP6 (2019-2024) HLOS and Network Rail's CP6 Business Plan to development and delivery programmes for schemes of high importance to Worcestershire, such as Bristol to Birmingham and Snow Hill Lines electrification, North Cotswold Line Capacity upgrade and Worcester re-modelling and re-signalling;

- **Worcestershire Rail Investment Strategy's Conditional Outputs** – Placing WCC's aspirations firmly on the rail industry's agenda for CP6 and onwards, informing and explaining their vital economic purpose, and gaining industry support and enthusiasm for their development and delivery.

This will require WCC and the WLEP to make joint commitment to contribute to funding the development and delivery of some of the required schemes in the way both have done in respect of Worcestershire Parkway and Bromsgrove Station.

It is clear from current rail industry conditions that the delivery of major infrastructure projects such as electrification or the North Cotswold Line Capacity upgrade will not be led locally. The key for WCC, the WLEP and their partners will therefore be to lobby for and help facilitate their delivery by the rail industry and central Government.

**8.2** The particular and specific 'Next Steps' thus include:

- **One – North Cotswold Line Task Force (NCLTF)** – engagement with the key stakeholders forming the NCLTF in order to progress, and achieve delivery of, the shared Joint Vision for the North Cotswold Line;
- **Two – CP6 HLOS And Re-Franchising** – Lobbying DfT to include development and, where feasible, delivery of the Rail Investment Strategy's Conditional Outputs within industry Control Period 6 (2019-2024) and the re-franchising specifications for Great Western Railways, Cross Country and Chiltern Railways and active engagement with the new WMR franchisee;



- **Three – Long Term Planning Process** – Engaging DfT and Network Rail to include the Rail Investment Strategy Conditional Outputs in the Long Term Planning Process to 2023 and 2043 where these cannot be delivered in CP6;
- **Four – West Midlands Rail And Midlands Connect** – Maximising Worcestershire’s input into and influence upon the local partnerships of which it is a member, specifically West Midlands Rail and franchise devolution and Midlands Connect and its Powering the Midlands Engine Strategy (which currently does not include the NCLTF within its thinking);
- **Five – Other Stakeholders** – Engaging with neighbouring Local Enterprise Partnerships and local authorities with common interests e.g. Warwickshire, Oxfordshire and Gloucestershire, (not only through the North Cotswold Line Task Force), and the full range of authorities and LEPs with an interest in bringing forward Bristol to Birmingham and Snow Hill Lines electrification;
- **Six – Developing Projects Within The County’s Control** – Continuing to develop and deliver schemes such as Kidderminster Station regeneration, Worcester Shrub Hill Masterplan and station car park capacity upgrades (the findings of these latter studies have been extremely positive, with deliverable schemes recommended which are now under consideration regarding ‘next steps’ development).

It should be noted that some of the above ‘next steps’ are already underway (such as the creation of the North Cotswold Line Task Force). However, other activities (such as steps Two and Three) will be programmed into relevant work streams over the life of the LTP4.

With the completion of the Bromsgrove Station relocation project, Worcester Foregate Street and Malvern Link schemes and the current delivery of Worcestershire Parkway, Worcestershire is developing a strong track record of successful investment in its rail network.

Taken together with its commitment to evidencing the case for further development, the County is in a strong position to persuade Government and the rail industry to support its locally driven economic objectives.

# Worcestershire County Council

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