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econometrics**  
clarity from complexity

New or improved rail  
lines – Evaluation case  
studies of local  
economic impacts

Bromsgrove Case Study  
January 2018

Department for Transport Rail  
Group

Our ref: 22961201







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### A Current and Expected Train Service Provision at Bromsgrove

## Executive Summary

### Background

The Bromsgrove case study is part of a Department for Transport (DfT) ex-post evaluation study considering the economic impacts of investments made in new and improved railway lines. Bromsgrove was selected as a baseline case study to enable a review of what the situation was prior to improvements being implemented. The scale and timing of the improvements delivered through future electrification and re-signalling at Bromsgrove means that there is some potential to detect economic impacts.

Bromsgrove is located in the West Midlands, complementing the five other case studies within the project that are in the South East, South West and East Midlands. The other case studies are for Swindon (where the service improvements have not yet been delivered), Corby, Leamington Spa and Falmouth (where investment has been delivered) and Oxford (which involves both baseline and retrospective elements).

Within each of the six case studies, three central hypotheses are being tested:

1. That improved rail services will, by making rail travel more convenient for local people, encourage additional rail trips including some generated trips and some captured from other modes.
2. That improvements to the station and services will make the affected area a more attractive place to:
  - i. live;
  - ii. work; and / or
  - iii. locate a business.(investment and employment effects).
3. That businesses located within the station catchment area with improved services will benefit from improved access to potential employees, customers, and suppliers, resulting in greater productivity (productivity effects).

In this report we:

- examine the socio-economic characteristics and market for rail travel in Bromsgrove;
- identify comparison areas to allow us to better isolate impacts from the rail improvement versus other factors;
- explore the baseline conditions in Bromsgrove and comparison areas in terms of rail service provision;
- identify pre-intervention economic trends and conditions;
- hypothesise how post implementation economic impacts might arise; and
- make suggestions for follow-up research.

### Economic, socio-demographic and transport context (Chapter 2)

Bromsgrove has a population size of 29,600 residents and is located on the south-west edge of the Birmingham built up area, approximately half way between Birmingham City Centre (13 miles) and Worcester (16 miles). Bromsgrove rail station is situated in the south of the town and the current (non-electrified) service between Birmingham New Street and Bromsgrove is

operated by London Midland, with 2 trains per hour (tph) in the peak and 1 tph in the off-peak period.

Employment in Bromsgrove has been volatile in recent years, with the employment rate falling after the recent recession, improving from 2011 to 2013 but falling again since. While absolute levels of employment in Bromsgrove have fallen over the past six years, the proportion of residents in work is above the national and regional average. The high rate of employment among the resident population reflects its proximity to, and reliance upon, the much larger labour market located in Birmingham. Since a significant quantity of Bromsgrove residents commute to jobs in Birmingham, the industrial mix within Bromsgrove is, therefore, typified by secondary services such as retail, health and education.

### **Comparison areas (Chapter 3)**

Comparison areas are used within the evaluation to disaggregate the effects of the rail investment from more general trends, such as increasing rail use nationally. For the Bromsgrove case study, the comparison areas of Longbridge and Droitwich Spa were selected. Each of the three areas are broadly comparable in terms of population, deprivation and local economies and have broadly similar catchments and significant outward commuting flows, but do not act as a large interchange or regional hub. Longbridge is served by frequent, electric Cross City services, which will serve Bromsgrove following the investment, while Droitwich Spa is served by less frequent diesel services, with a broadly similar service to Bromsgrove today.

### **Expected outcomes of the transport intervention (Chapter 4)**

Following the introduction of the enhanced timetable at Bromsgrove, we would expect rail patronage to increase. Additional rail demand at Bromsgrove may arise through existing rail users travelling more frequently, trips shifting from other modes, or newly generated journeys which take advantage of the opportunities presented by the enhanced rail service. However, it is unlikely that passenger numbers at Bromsgrove would reach or exceed those at Longbridge due to the proximity of Longbridge to Birmingham City Centre.

### **Economic impact (Chapter 5)**

The most likely potential economic impacts of the investment at Bromsgrove is that there may be an increase in the attractiveness of Bromsgrove to households. As residents are likely to benefit from reduced generalised transport costs<sup>1</sup> when travelling to Birmingham, the number of people commuting between Bromsgrove and Birmingham could increase. This could result in upward pressures on population, housing demand, and subsequent induced demand for other local services in the Bromsgrove station catchment area.

It may also increase the attractiveness of Bromsgrove to businesses, encouraging businesses to locate there and hence increase local employment. Further, pre-existing Bromsgrove firms will likely benefit from increased agglomeration benefits, as the closer linkage to the centre of

---

<sup>1</sup> Generalised transport costs refer to the overall “cost” to a user of making a journey, including financial costs (such as rail fares or vehicle fuel costs) and the monetised, perceived value of time spent travelling. Perceived values of time depend not only on the overall time spent travelling but also consider the frequency of services, level of crowding and proportion of waiting time which evidence suggests impacts on a users’ perception of the length of the journey taken.

economic mass in Birmingham City Centre allows them increased opportunity for trade with other firms in the wider West Midlands region, and a relative increase in productivity as generalised transportation costs are reduced. Other firms may decide that the increased level of connectivity makes the possibility of relocation to Bromsgrove an option.

### **Proposal for further work (Chapter 6)**

It is suggested that the best way of identifying what changes have happened to rail usage following the improvements will involve collecting a mixture of primary and secondary data, focusing on the defined case study area and comparison areas.

The suggested primary research, across Bromsgrove station and its comparators, could include:

- station user surveys;
- residents' surveys; and,
- business surveys.

The secondary data we suggest collecting includes:

- station usage data, such as the provided by the Office of Rail and Road (ORR);
- business data, with sources such as the Business Register and Employment Survey, and the Business Structure Database;
- Land Registry data concerning house prices; and
- ONS census data.

Potential options for future econometric analyses are also discussed.

# 1 Introduction

1.1 This report sets out the baseline position for the Bromsgrove case study which forms part of a wider study into the economic impacts of investment in new or improved rail lines. In total, six case study reports have been produced and are supplemented by an Executive Summary document and a Technical Report. Bromsgrove was selected as a baselining study designed to review the situation prior to improvements being implemented. The focus of this report is the baseline conditions at Bromsgrove, though reference is also made to the impacts which are expected from the improvements, and therefore the hypotheses that are to be tested through ex-post monitoring and evaluation.

1.2 This introductory chapter provides some brief background to the wider project and to this case study. Further information about the project and the methodological approach being used can be found in the accompanying Technical Report. This chapter is followed by chapters which:

- provide a brief overview of socio-economic characteristics and market for rail travel in Bromsgrove (Chapter 2);
- introduce the chosen comparison areas (Chapter 3);
- explore the baseline conditions in terms of rail service provision (Chapter 4);
- set out the pre-intervention economic trends and conditions (Chapter 5); and
- draw out key implications for suggested follow up research (Chapter 6).

## **Overall aims of the project**

1.3 The ultimate purpose of this project is to generate evidence to increase understanding of the economic impacts of rail infrastructure investments, including the relationship between the provision of improved rail services and economic growth. This is intended to provide evidence for accountability purposes, as well inform future decision-making by policymakers.

1.4 This project involves six case studies:

- two baseline case studies (of which Bromsgrove is one and Swindon is the other) where service enhancements are yet to be delivered;
- three retrospective case-studies (Corby, Leamington Spa and Falmouth) where investment has been delivered; and
- one composite study (Oxford Parkway) involving both baseline and retrospective elements.

1.5 Within each of the case studies, three central hypotheses are being tested:

1. That improved rail services will, by making rail travel more convenient for local people, encourage additional rail trips including some generated trips and some captured from other modes.
2. That improvements to the station and services will make the affected area a more attractive place to:
  - i. live;
  - ii. work; and / or
  - iii. locate a business. (investment and employment effects).

Potential economic outcomes may include increased employment within the catchment area of the station and increased demand for housing, potentially leading to increased commercial and residential property prices.

3. Businesses located within the station catchment area with improved rail services will benefit from improved access to potential employees, customers, and suppliers, resulting in greater productivity (productivity effects).

- 1.6 While these are generic hypotheses, each case study has been purposely selected to include different transport interventions that will deliver different outputs under different circumstances and lead to a diversity in the scale, nature and distribution of economic outcomes that may be realised. The remainder of this report considers the specific features of the Bromsgrove case study.

## **The Bromsgrove case study**

### **Why was Bromsgrove chosen as a case study?**

- 1.7 Bromsgrove was selected as a baseline case study for several reasons:
- the scale of the improvements delivered through future electrification and re-signalling means that there is potential to detect economic impacts;
  - the timing of the improvements fit with the project timescale;
  - we could identify suitable comparator stations to help distinguish the impacts of the improvements to Bromsgrove from wider trends; and
  - its location in the West Midlands meant that it complemented other case studies located in the South East, South West and East Midlands.
- 1.8 One complication connected with this case study is the fact that while the primary improvement being evaluated is forthcoming electrification and associated timetable improvements, a new and improved station has recently been built (opened in July 2016), replacing the existing station. The baseline work therefore has an additional role in helping to disaggregate the effects of the new station from the new timetable, as well as in setting the baseline conditions in advance of post-implementation analysis.

**What are the key features, aims and timeline for the Bromsgrove electrification?**

1.9 Figure 1.1 illustrates the current rail network in the West Midlands. Bromsgrove is located to the south west of Birmingham.

Figure 1.1: Network West Midlands zonal rail network



Source: Network West Midlands

1.10 The Network Rail West Midlands and Chilterns Route Utilisation Strategy (RUS), published by Network Rail in May 2011, identified the need to develop options to accommodate the current and future passenger demand between Birmingham New Street and Bromsgrove<sup>2</sup>. For example, in 2011 most commuters into Birmingham came from the Black Country regional

<sup>2</sup> West Midlands and Chilterns Route Utilisation Strategy, Network Rail (May 2011)

centres of Tamworth, Litchfield and Bromsgrove<sup>3</sup>. In addition, there is expected to be significant housing and population growth along the Birmingham to Worcestershire corridors, including a target of 7,000 new homes by 2030 as set out in the Bromsgrove District Plan<sup>4</sup>. Such growth could lead to increasing rail patronage at Bromsgrove, irrespective of any service enhancements, and hence the methodology within the case study will aim to disaggregate these effects as much as possible.

- 1.11 One element of the passenger service enhancement strategy to achieve this objective is to provide electrification and re-signalling of the line between Barnt Green and Bromsgrove, thereby enabling extension of the current electric Cross-City services from Longbridge.
- 1.12 In 2014, the first phase of this strategy was successfully delivered when electric Birmingham Cross-City services to Redditch increased from two to three trains per hour. The second phase plans to extend the enhanced service from Longbridge to Bromsgrove. This will be achieved through extension of the overhead electrification for 4.5 miles from Barnt Green to Bromsgrove and is estimated to lead to growth in demand between 2.4% and 3.4% per year.
- 1.13 To realise the full extent of benefits from these improvements, a new station opened at Bromsgrove in 2016, 200 metres to the south of the old site. This new station has provided additional platforms, the capability to reverse trains arriving from Birmingham, and improved passenger facilities including a 325-space car park and a new bus interchange. This is a significant increase from the previous 25 car parking spaces, and there are plans to develop the station as a Park and Ride site serving the Birmingham commuter and leisure markets.
- 1.14 The additional rolling stock needed to run more frequent services have already been leased to London Midland and are now in operation. The overhead electrification equipment is due to be energised on completion and, following the timescales required for driver training, the introduction of electric passenger services to Bromsgrove is forecast for May 2018. Cross-City Line services which currently terminate at Longbridge are hence expected to extend to Bromsgrove, increasing the service frequency at the station.
- 1.15 Bromsgrove is currently served by a diesel-operated semi-fast hourly off-peak / half-hourly peak service from Birmingham New Street to Hereford / Worcester, with a journey time of approximately 21 minutes. From May 2018, this will be supplemented by three electric Cross-City Line trains to Lichfield / Four Oaks via Birmingham New Street, which currently terminate at Longbridge, with a journey time of approximately 35 minutes to New Street. These will call at all stations on the Cross-City Line between Birmingham and Bromsgrove, and be operated by higher-capacity electric vehicles. While this service will be higher-frequency, it may also lead to some increased journey times due to more stops on the route.
- 1.16 Full details of the changes in services expected are outlined in Appendix A<sup>5</sup>.

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<sup>3</sup> Midlands Connect Technical Report, Steer Davies Gleave, July 2014, p.15

<sup>4</sup> Bromsgrove District Plan 2011-2030, p.20

<sup>5</sup> The details in this section were correct at time of analysis in December 2017. Actual service patterns and improvements are to be confirmed and may be subject to change.

## 2 Economic, socio-demographic and transport context

### Introduction

- 2.1 This chapter outlines the socio-economic and transport context of the case study, providing an overview of the geography of Bromsgrove and how it compares to the wider West Midlands.

### Overview of Bromsgrove

#### Where is Bromsgrove, and what is the geography of the town?

- 2.2 Bromsgrove is located on the south-west edge of the Birmingham built up area, approximately half way between Birmingham City Centre (13 miles) and Worcester (16 miles). Administratively, Bromsgrove is located within a local authority of the same name, and is in the county of Worcestershire. It has a population of 29,600 residents, according to MOSAIC<sup>6</sup> postcode data from 2015, and lies on the main rail route between Birmingham and Worcester (see Figure 1.1). The Bromsgrove district is shown in Figure 2.1 below, highlighted in pink.

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<sup>6</sup> MOSAIC is a consumer classification system, developed by Experian, and source of local population data

Figure 2.1: Bromsgrove within the West Midlands



### Transport networks in and around Bromsgrove

- 2.3 Bromsgrove is positioned at the south-west corner of the Birmingham motorway box. The M42 starts in the north of the town and the M5 borders its western edge. Additionally, the town is intersected on its east side by the A38. These roads are becoming increasingly congested, highlighted by the fact that five of the busiest sections on the M5 are between J4A and 7 (Bromsgrove to Worcester south)<sup>7</sup>. This has contributed to concerns about air quality in Bromsgrove due to diversionary routes when the M5 is congested<sup>8</sup>. The *London to Scotland West Route Strategy Evidence Report* by the Highways Agency (2014) raises concerns about the planned growth in housing and employment around Bromsgrove which may result in congestion and other issues on the A38 corridor.
- 2.4 Rail transport is hence likely to become more important in the future in facilitating local growth aspirations, while mitigating the challenges of congestion and poor air quality. Bromsgrove rail station is situated in the south of the town, opening on a new site in July 2016 approximately 200 metres from its previous location, following upgrades to station facilities. The current (non-electrified) service between Birmingham New Street and Bromsgrove is operated by London Midland, with 2 trains per hour (tph) in the peak and 1 tph in the off-peak period. The journey time is approximately 21 minutes. In addition, CrossCountry makes a limited number of calls at the station on their Cardiff to Nottingham service.
- 2.5 There is also a bus station adjacent to Bromsgrove High Street. Buses run to the wider area of Worcestershire and the West Midlands operated by First, Diamond Bus, MRD Travel and Clearway. There are no long-distance coach routes through Bromsgrove.

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<sup>7</sup> *Birmingham to Exeter Route Strategy Evidence Report*, Highways Agency, April 2014 p.6

<sup>8</sup> *Birmingham to Exeter Route Strategy Evidence Report*, Highways Agency, April 2014 p.29

**How does Bromsgrove’s economy compare to the wider region?**

2.6 Unemployment in the West Midlands follows a similar pattern to the national (England) trend, growing around 4% from the low of the Great Recession in 2009. As can be seen in Figure 2.2, however, employment in Bromsgrove more closely matched the pattern observed in the county of Worcestershire in which it is located. Employment continued to fall beyond 2009, with roughly 10% of the workforce lost between 2009 and 2011. Employment prospects in Bromsgrove improved to 2013, although there has been a weakening in local employment levels since.

**Figure 2.2: Employment Rate Index in Bromsgrove Local Authority**



Source: Annual Population Survey, Office for National Statistics (accessed 2017)

2.7 While absolute levels of employment in Bromsgrove have fallen over the past six years, as shown in Table 2.1 the proportion of working-age residents (those aged 16 - 64) in work is above the national and regional average.

**Table 2.1: Employment rate (aged 16 - 64), Bromsgrove Local Authority**

Area	2009	2010	2011	2012	2013	2014	2015
Bromsgrove	80.5%	75.4%	71.2%	78.5%	82.2%	78.4%	75.3%
Worcestershire	75.5%	74.3%	72.4%	75.9%	76.2%	78.3%	76.1%
West Midlands	68.2%	67.6%	67.2%	68.2%	69.0%	70.0%	70.6%
England	70.8%	70.3%	70.0%	70.8%	71.5%	72.5%	73.8%

Source: Annual Population Survey, Office for National Statistics (accessed 2017)

2.8 The volatility of employment within Bromsgrove Local Authority District coupled with the high rate of employment among the resident population reflects its proximity to, and reliance upon, the much larger labour market located in Birmingham. This is illustrated by Table 2.2 which shows the top 10 commuting destinations (Local Authority Districts) for residents of the Bromsgrove case study area (referred to as Bromsgrove from this point forward)<sup>9</sup>, based on all modes of transport. Almost three fifths of residents of the Bromsgrove case study area commute to a different local authority, suggesting that Bromsgrove itself is not a major centre of employment, and implies that its own employment market will not be a significant attraction for commuting from outside the local authority area.

**Table 2.2: Top 10 commuting destinations (Local Authority District) for residents of Bromsgrove urban area (all modes)**

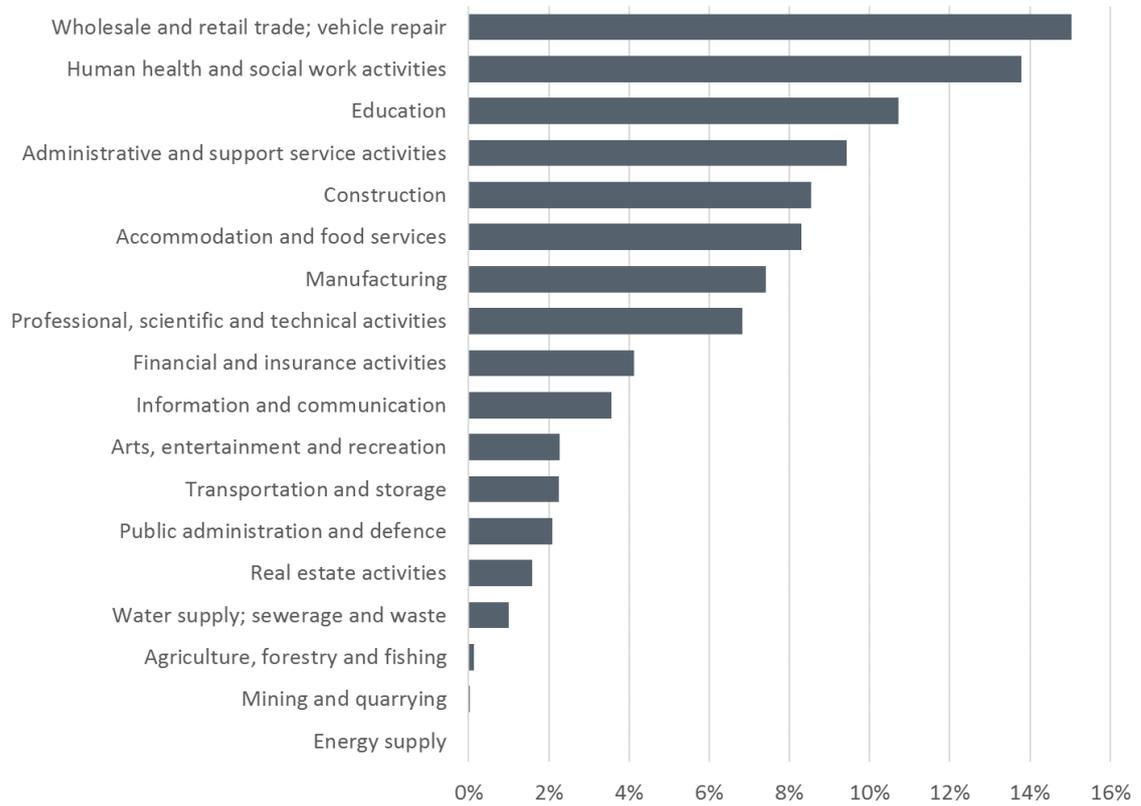
Rank	Destination	Number of commuters	Percentage
1	Bromsgrove	4,915	41.4%
2	Birmingham	2,037	17.2%
3	Redditch	1,154	9.7%
4	Wychavon	762	6.4%
5	Worcester	518	4.4%
6	Solihull	330	2.8%
7	Sandwell	313	2.6%
8	Dudley	312	2.6%
9	Wyre Forest	220	1.9%
10	Stratford-upon-Avon	219	1.8%

Source: Census Travel to Work data (2011), Office for National Statistics (accessed 2017)

<sup>9</sup> The Bromsgrove case study area represents a more tightly defined definition of Bromsgrove, covering only the urban area. This includes the following four Middle Super Output Areas (E02006705, E02006706, E02006707 and E02006708), and excludes the rural and semi-rural hinterlands that make up the remainder of Bromsgrove Local Authority District.

2.9 Since a significant quantity of Bromsgrove residents commute to jobs in Birmingham, the industrial mix within Bromsgrove is, therefore, typified by secondary services such as retail, health and education. As shown by Figure 2.3, each of these sectors represents more than 10% of total employment in Bromsgrove.

**Figure 2.3: Employment by industry in Bromsgrove Local Authority (2015)**



Source: Business Register and Employment Survey, Office for National Statistics (accessed 2017)

2.10 Table 2.3 outlines the most popular methods of travelling to work for residents of Bromsgrove. The mode share of rail is very small compared to that of car; however, this is true of most of the country. Other public transport options are similarly lightly used for commuting by Bromsgrove residents.

**Table 2.3: Method of Travel to Work for Residents, Bromsgrove Case Study Area, 2011**

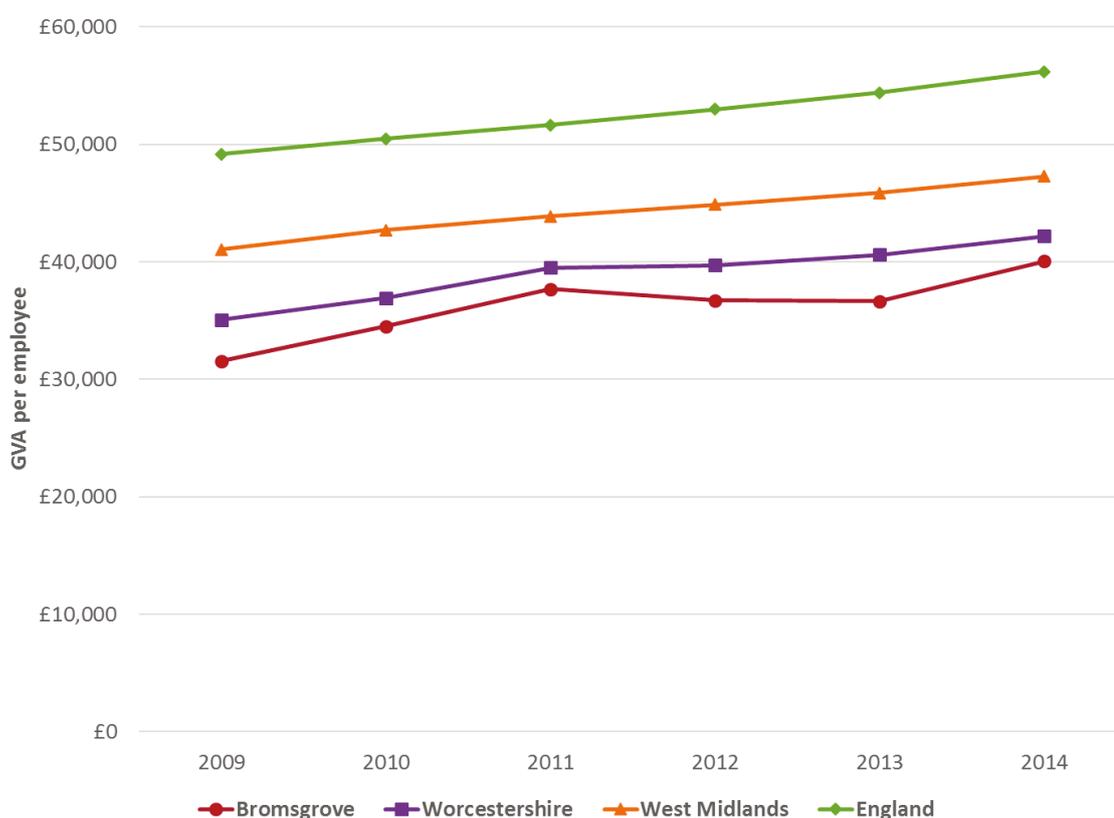
Mode	Bromsgrove	Percentage <sup>10</sup>
Underground, metro, light rail, tram	7	0.1%
Train	528	3.9%
Bus, minibus or coach	307	2.3%
Taxi	50	0.4%
Motorcycle, scooter or moped	87	0.6%
Driving a car or van	9,959	73.8%
Passenger in a car or van	721	5.3%
Bicycle	196	1.5%
On foot	1,578	11.7%
Other method of travel to work	56	0.4%

Source: ONS Census Travel to Work, 2011 (accessed 2017)

<sup>10</sup> The percentage figures are of those who commute to work, and are thus both in employment and do not work primarily from home.

2.11 Since the dominant industrial sectors in Bromsgrove are, typically, less productive and lower paid than many of the knowledge-based sectors which benefit from agglomeration economies, it is unsurprising that levels of Gross Value Added (GVA) per worker in Bromsgrove are lower than the regional and national averages. GVA per worker refers to the total value of goods and services generated by each worker within a given region or sector of the economy. Figure 2.4 shows that GVA per worker is £40,045 in Bromsgrove, eighteen percent lower than the regional average (£47,290 per employee) and 40% below the national average (£56,170 per worker)<sup>11</sup>. Over the period observed, however, GVA per worker has grown considerably faster in Bromsgrove (4.9% per year) when compared to the West Midlands (2.9% per year) and England (2.7% per year).

Figure 2.4: GVA per worker in Bromsgrove Local Authority



Source: Regional GVA by Local Authority and Annual Population Survey, Office for National Statistics (accessed 2017)

<sup>11</sup> Note that these figures do not correspond to the Sub-National Accounts which measure output per filled job, rather than output per employee. GVA at Local Authority District is not a national statistic, but has been produced by the Office for National Statistics in response to user requirements. As such, the figures should be considered indicative only.

## Rail usage at Bromsgrove

### What have been the recent trends in usage of rail services at Bromsgrove station?

- 2.12 Around 2,100 trips take place at Bromsgrove station daily, of which 51% are made using a Season Ticket<sup>12</sup>. Findings from the Bromsgrove resident survey (see Table 2.4) indicate that a significant majority of the towns' population use rail services at least annually: 65% of residents use Bromsgrove station at least once a year, with 35% of respondents using the train at least once a month. Usage amongst employed respondents and those not in paid employment, was greater than for those that are retired: 42% and 43% of employed and not-in-work respondents use the train at least once a month; while only 22% of retired respondents reported the same level of usage.

**Table 2.4: Bromsgrove resident survey – how frequently do you use the train? (October 2016)**

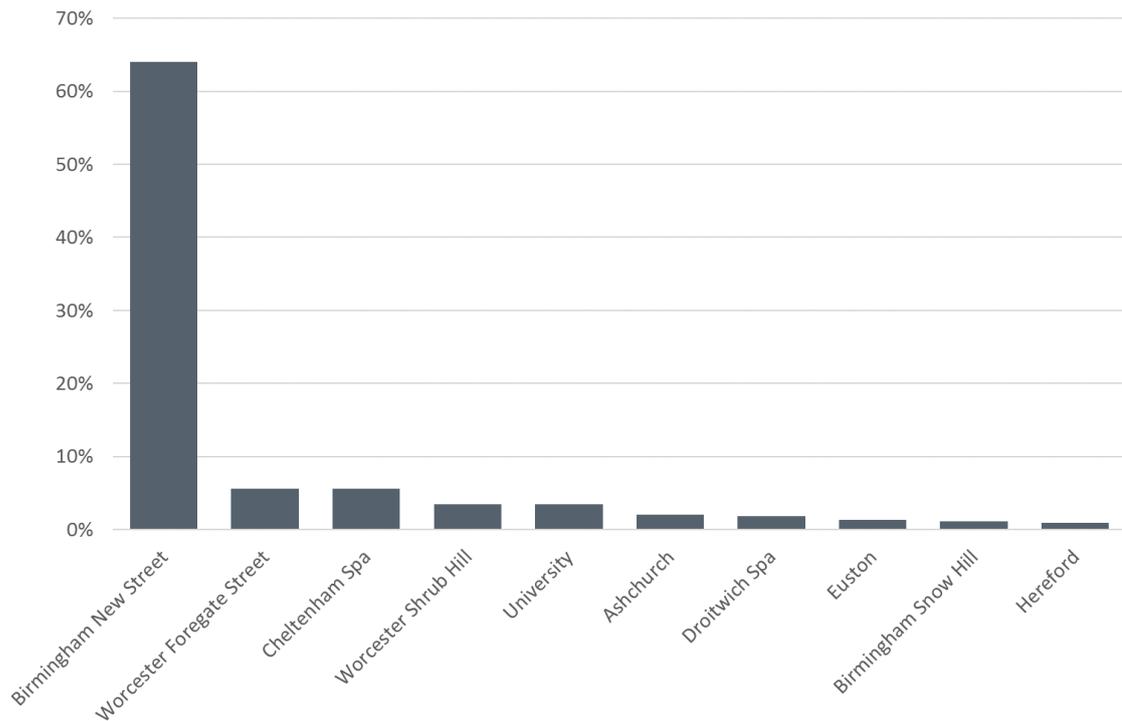
Frequency of use	Proportion of respondents
At least once a week	9%
Less than once a week but at least once a month	26%
Less than once a month but at least once a year	30%
Less than once a year or never	30%
Don't know/not applicable	4%

Source: Bromsgrove resident survey (n = 500). Figures may not add to 100% due to rounding. (accessed 2017)

<sup>12</sup> Based on ORR station usage data. In 2015/16 there were 619,880 entries and exits.

2.13 Most passengers using Bromsgrove station travel to Birmingham New Street. As shown in Figure 2.5, more than 60% of all trips are to/from Birmingham New Street, with a further 9% to/from Worcester (Worcester Foregate Street and Worcester Shrub Hill combined) and 6% to Cheltenham Spa. While there are considerable opportunities to interchange at Birmingham New Street, this is not reflected in the ticket-purchasing habits of Bromsgrove station users, with the data suggesting that comparatively few travel to other destinations. This dataset does not, however, account for the possibility that passengers may buy a separate ticket to continue their journey from Birmingham.

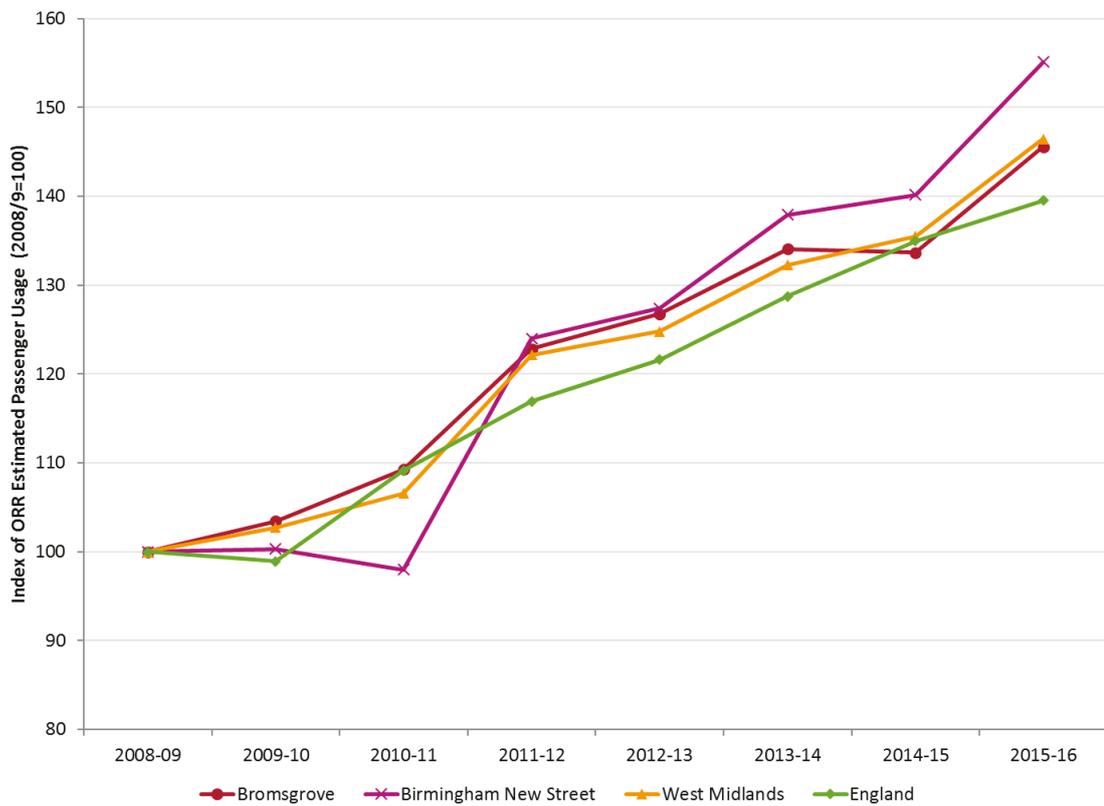
**Figure 2.5: Top 10 stations for all journeys to/from Bromsgrove (2014-15)**



Source: Origin-Destination Matrix, Office for Rail and Road (accessed 2017)

2.14 As illustrated in Figure 2.6, between 2008/09 and 2015/16 the volume of rail trips starting and ending at Bromsgrove increased by 46% (5.6% per year on average), in line with the West Midlands region average. In contrast, Birmingham New Street witnessed growth of 55% (6.5% per year on average) over the same period, although growth was broadly flat between 2008/09 and 2010/11, recovering sharply afterwards. For 2008/09 to 2009/10 this could be attributed to the fall in rail demand during the late 2000s economic recession, and reflects the wider trend in national rail ridership during this period. However, in the case of Birmingham New Street the more recent falls in demand in 2010/11 could also be attributable to the works taking place at the station. Growth at Bromsgrove, in contrast, has been strong but broadly steady since 2008/09, in line with the West Midlands region.

Figure 2.6: Index of station usage 2008-9 to 2015-16



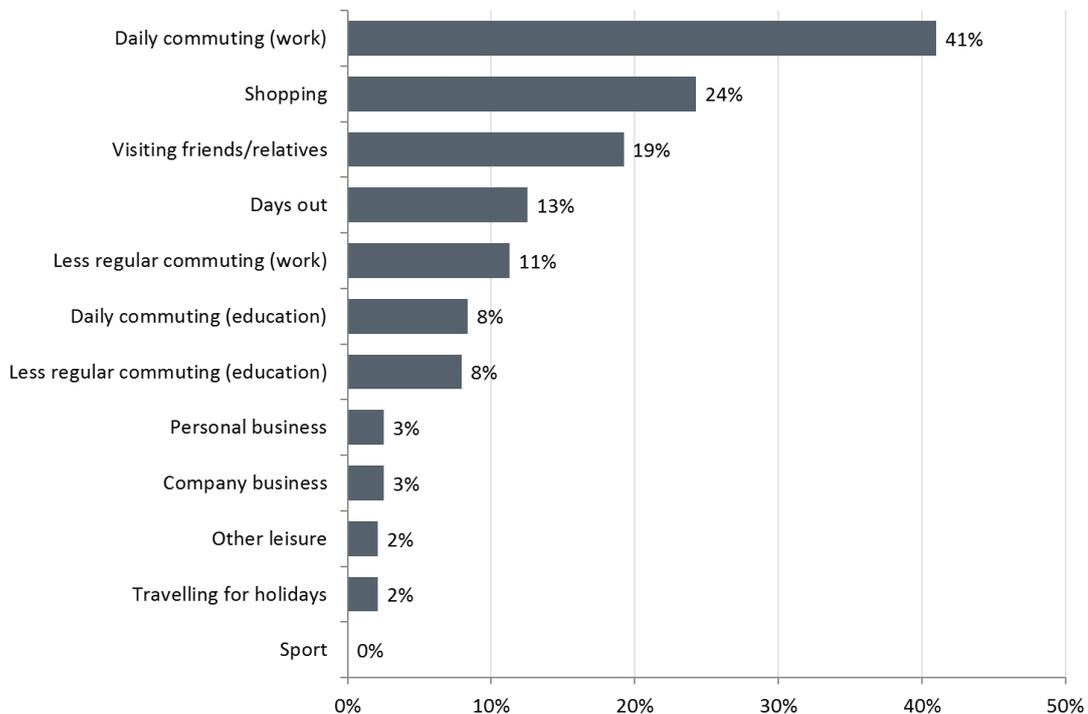
Source: National Rail Trends and Estimates of Station Usage, ORR (accessed 2017)

**How do people currently use rail services at Bromsgrove station, for what purpose and how satisfied are people with them?**

2.15 This section includes evidence from station user surveys, undertaken in October 2016, at Bromsgrove railway station. Interviews took place on the main platform, and a mixture of times were selected to ensure that both peak-time and off-peak station users were surveyed. Further details on the surveys are available in the Technical Report.

2.16 Figure 2.7 outlines the purpose of trips of Bromsgrove station users, sourced from the station user survey. It indicates that daily commuting accounts for the largest share of trips from Bromsgrove station, at 41% of trips, with 11% for less frequent commuting and 3% for business. Broadly, this is in line with the England average; 54% of trips by rail in 2015 were for commuting or business<sup>13</sup>. Leisure trips, especially for shopping purposes and visiting friends or relatives account for a significant proportion of the remaining trips.

**Figure 2.7: Bromsgrove station users survey – for what journey purpose do you use this station?**



Source: Bromsgrove station user surveys (2016). Base = respondents not first time users of station (n = 239)

2.17 Station users, residents and local businesses were asked their views of Bromsgrove station and the rail services there. In summary:

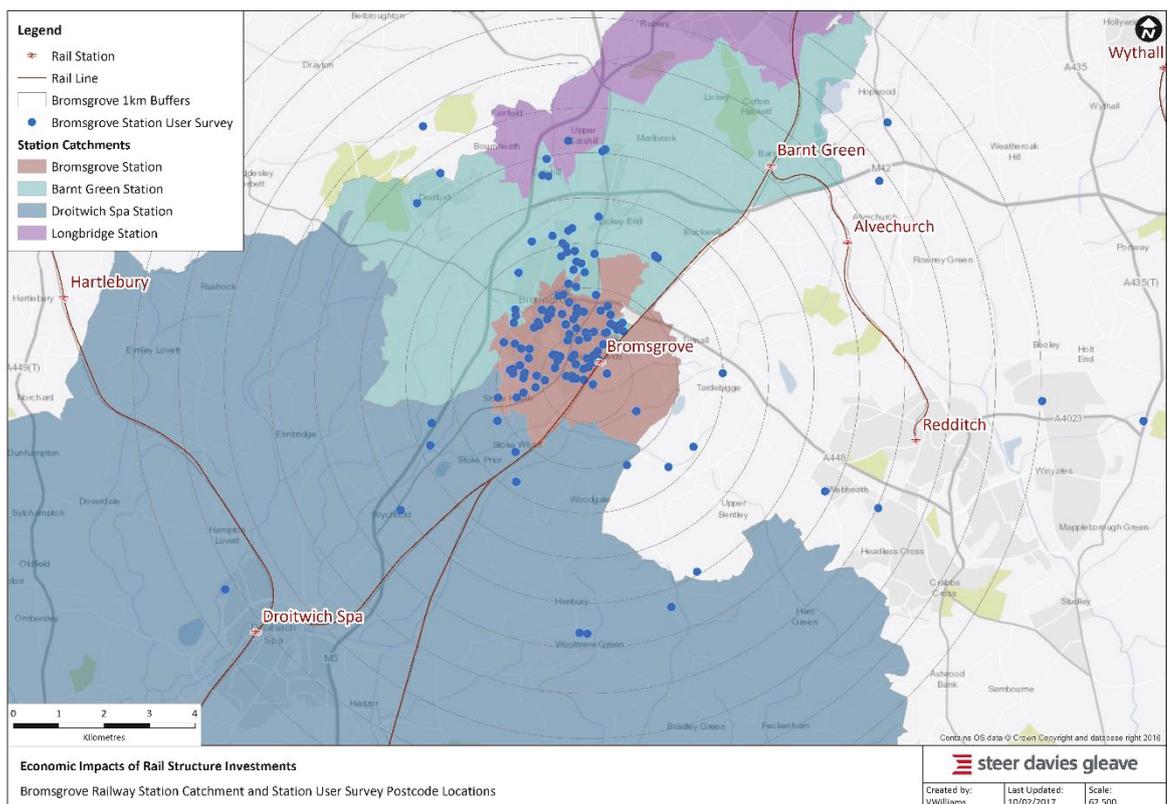
- station users are broadly satisfied with their station, with 41% very satisfied and a further 36% fairly satisfied with their experience of the station. Only 6% are dissatisfied with their experience at the station;

<sup>13</sup> Department for Transport Statistics, Table NTS0409, 2015

- satisfaction rates are higher within the residents’ survey than within the station user survey – of the respondents who had used Bromsgrove station, 86% were very or fairly satisfied with the station;
- station users appeared to be less satisfied with the train services overall, with only 67% of users fairly or very satisfied with the services available. Residents who use local train services were more satisfied with train services overall, with a satisfaction rate of 76%, potentially reflecting differences in the frequency of rail use between these groups; and
- local businesses are also broadly satisfied with Bromsgrove station (44% very satisfied plus 39% fairly satisfied), but view services slightly less positively (just 30% very satisfied plus 45% fairly satisfied).

2.18 Figure 2.8 indicates the catchment area of Bromsgrove station, as derived from the responses to the station user survey. The evidence suggests that 80% of station users live within 3km of the station, and 89% within 5km. This highlights that, as a baseline, the station’s catchment area is concentrated on the locality of the station, and that few access rail services at Bromsgrove by road across longer distances. However, the recent rebuilding of Bromsgrove station included the provision of an expanded car park, which may result in the expansion of this catchment area in future.

Figure 2.8: Origin of Bromsgrove station user survey respondents, October 2016<sup>14</sup>



<sup>14</sup> The colours refer to the station catchments, as have been previously estimated for DfT, based on the attractiveness of each station based on the local geography and service pattern.

## Summary

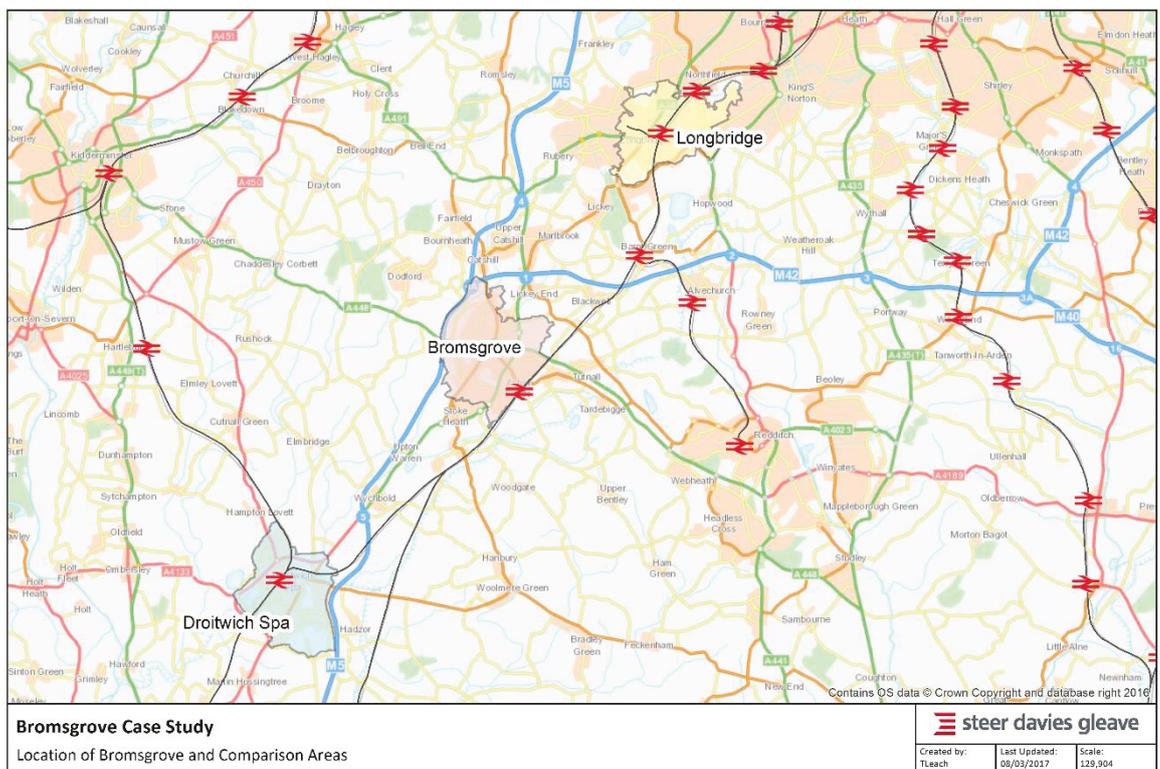
- 2.19 Bromsgrove's economy has largely tracked that of Worcestershire, and the employment rate has generally exceeded the West Midlands regional and England national averages. However, its GVA per worker has consistently been lower than that of the county, region and nation since 2009.
- 2.20 A significant number of commuters in the Bromsgrove local authority area travel to Birmingham for work. Birmingham New Street is also the most popular destination from Bromsgrove station by far, with over 60% of journeys concluding there.
- 2.21 In general, the evidence suggests that there is presently broad satisfaction with Bromsgrove station amongst current station users.

# 3 The comparison areas

## Introduction

- 3.1 Comparison areas are used within the evaluation to disaggregate the effects of the rail investment from more general transport and economic trends, such as increasing rail use nationally. This chapter introduces the comparison areas used within the Bromsgrove case study, justifies their selection and identifies any relevant differences between the comparison areas and the Bromsgrove intervention area.
- 3.2 Comparison areas and stations were selected based on their transport provision characteristics and local demographics, to ensure that they represented comparable areas to Bromsgrove. For this case study the comparison areas of Longbridge and Droitwich Spa, together with Bromsgrove, are illustrated below.

Figure 3.1: Location of Bromsgrove, Longbridge and Droitwich Spa



## Selection of the comparison areas

### How (and why) were the comparison stations selected?

- 3.3 Two comparison areas were identified– Longbridge and Droitwich Spa, defined based on a series of local MSOAs<sup>15</sup>. Both areas are served by stations on the same stretch of railway line, with broadly similar catchments – they act as local stations for a local town or suburb of Birmingham, with significant outward commuting flows, but do not act as a large interchange or regional hub.
- 3.4 Each station has a different service pattern, with Longbridge offering more frequent services and located two stops closer to Birmingham, and Droitwich offering comparable services and located one stop further from Birmingham. This service pattern formed a key justification for selecting these stations, as outlined in the following section.

### How do rail services of the treatment and comparison areas compare?

- 3.5 Around 50% of electrified services from Birmingham currently terminate at Longbridge, with the remaining services operating to/from Redditch on a separate branch to Barnt Green. Therefore, Longbridge currently has excellent connectivity with Birmingham, with 6 trains operating to/from the station in each off-peak hour.
- 3.6 When the electrification programme is completed, trains which currently terminate at Longbridge will be extended to/from Bromsgrove, which will hence benefit from additional services (approximately 3tph in total) to Birmingham. Electrification will not be extended beyond Bromsgrove to Droitwich so train frequencies south of Bromsgrove will remain constant. Following completion of the electrification scheme and introduction of the new timetable, Bromsgrove will receive a connectivity enhancement and Droitwich will not.
- 3.7 Consequently, we would expect current rail usage at Bromsgrove to currently demonstrate similar characteristics to that at Droitwich. However, post-electrification we might expect rail usage at Bromsgrove to more closely resemble current usage at Longbridge, as increased train frequencies encourage more people to travel by rail.

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<sup>15</sup> Longbridge is defined as the following MSOAs: E02001950, E02001952, E02001955, E02001957, and Droitwich as E02006749, E02006750, E02006751 and E02006752.

## Comparison of socio-economic characteristics

- 3.8 Each of the three areas are broadly comparable in terms of population, deprivation and local economies. Our analysis of MOSAIC postcode data (based on the MSOAs defined previously) suggests that Longbridge has the largest overall population of 32,200 in 2015, of which approximately 63% are of working-age; Bromsgrove 29,600 (of which 62% are of working-age) and Droitwich 23,800 (of which 59% are of working-age)<sup>16</sup>.
- 3.9 Table 3.1 outlines the population within given distances of these three railway stations; both Bromsgrove and Droitwich Spa have approximately 6,000 people within a one-kilometre catchment, although within Longbridge this figure is greater as a result of the settlements' location within the Birmingham urban area, rather than a smaller commuter town outside it.

**Table 3.1: Population within given distance catchments of Bromsgrove, Longbridge and Droitwich stations, 2015**

Station	< 1 km	1km – 2km	3km – 5km
Bromsgrove	5,780	22,110	119,680
Longbridge	13,530	48,230	356,990
Droitwich Spa	6,700	17,450	80,650

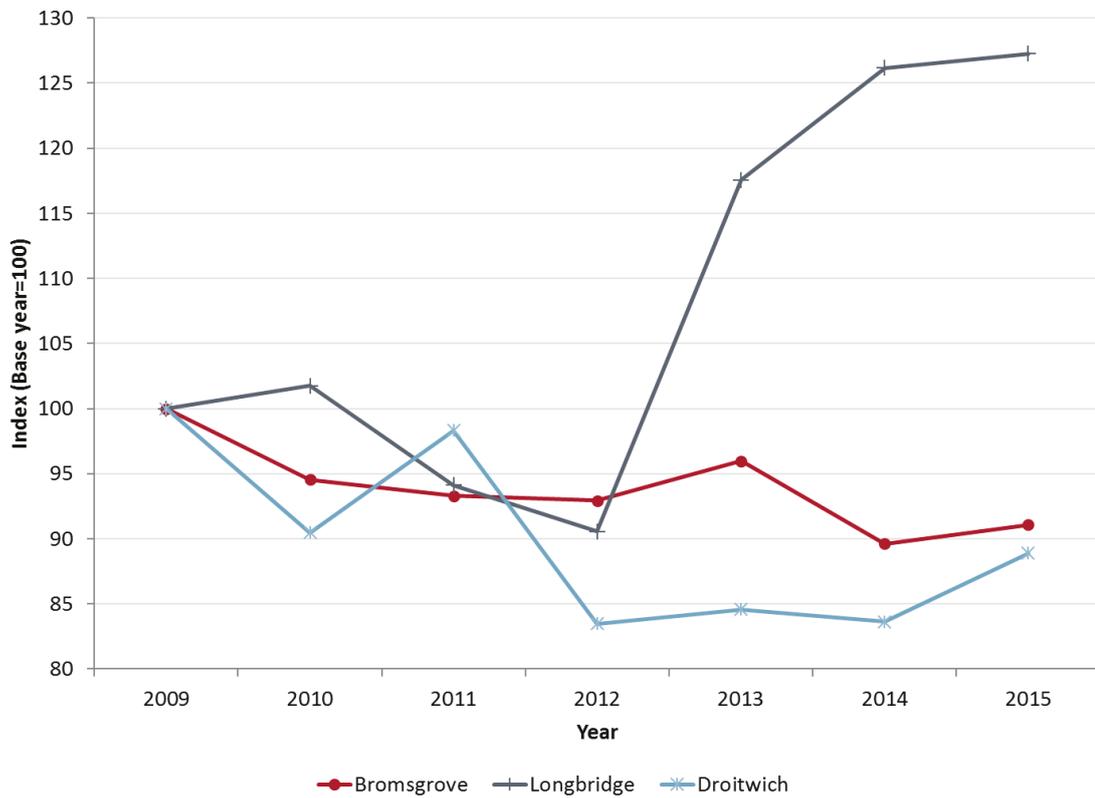
Source: MOSAIC Population Estimates (postcode level), 2015 (accessed 2017)

<sup>16</sup> Neither of the two comparison areas – Droitwich and Longbridge – have a relevant corresponding district (each being a relatively small town or suburb within a larger district). Therefore, the basis for comparison was an aggregation of several lower-level MSOAs that correspond to the built-up areas of each town.

3.10 Deprivation within both Droitwich and Bromsgrove is in line with the national average, although Longbridge is significantly more deprived, with most LSOAs (Lower Super Output Areas) within the top 20% deprived LSOAs in England. Each of the three districts is ultimately comparable in that they represent a town or suburb on the south-west fringe of the Birmingham urban area.

3.11 Both Bromsgrove and Droitwich have a strong local economy, with a claimant count rate (the percentage of the working-age resident population claiming Job-Seekers Allowance) of 1.35% and 1.28% in 2015 respectively, whilst the claimant count is greater in Longbridge at 3.11%. Figure 3.2 indicates the recent trends in employment within each of the three settlements; while both Droitwich and Bromsgrove have experienced a steady decline in employment numbers in recent years, reflecting a trend for jobs to be concentrated in larger settlements elsewhere, the number of jobs within Longbridge has increased rapidly, and is now 27% greater than in 2009. This is reflective of recent regeneration initiatives within the area, following the closure of the MG Rover plant.

Figure 3.2: Index of Employment between Bromsgrove, Droitwich and Longbridge



Source: Business Register and Employment Survey, Office for National Statistics (accessed 2017)

- 3.12 Table 3.2 indicates the employment rates from the Annual Population Survey for the local authority areas which each area sits in. These statistics must be interpreted with caution, as the comparison areas under study represent a small proportion of the local authority area; this is likely to be particularly acute for Longbridge, which sits in the much larger Birmingham local authority area. However, the evidence suggests that both Bromsgrove and Wychavon enjoy rates of employment above the regional and national averages, and, as the Bromsgrove case study area and Droitwich Spa comparison area represent a much larger share of their respective local authorities than is the case for Longbridge, these results offer a better indication of the state of local employment.

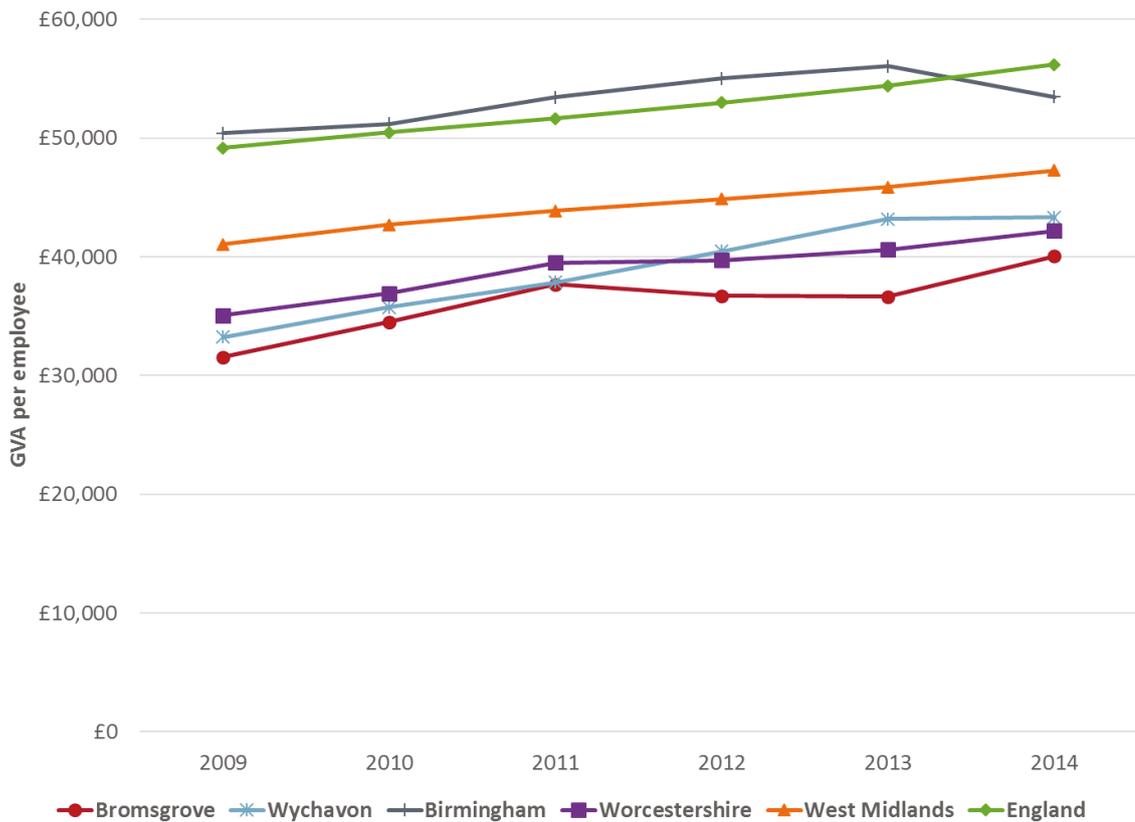
**Table 3.2: Employment Rate (16-64 year olds) by local authority, 2015**

Local Authority	Employment Rate (16-64)
Bromsgrove	75.3%
Birmingham	61.4%
Wychavon	79.5%
West Midlands	70.6%
England	73.8%

Source: Annual Population Survey (accessed 2017)

3.13 Figure 3.3 represents GVA per worker, and again, this data is only available at a local authority level, meaning Bromsgrove is represented by the Bromsgrove local authority area, Longbridge by the Birmingham local authority area, and Droitwich Spa by the Wychavon local authority area. Again, the figures for Longbridge must be interpreted with some caution, as the agglomeration effects of the much larger Birmingham local authority area likely to result in the GVA per worker levels not being applicable to the local Longbridge area. However, the figures suggest that there is a shared upward trajectory in GVA per worker over time across the three local authority areas, despite some volatility in Birmingham and Bromsgrove.

Figure 3.3: GVA per worker, 2009-14



Source: Regional GVA by Local Authority and Annual Population Survey, Office for National Statistics (accessed 2017)

3.14 Table 3.2 indicates the distribution of employment within Bromsgrove, Droitwich and Longbridge within key economic sectors. Employment in Bromsgrove is most concentrated in the service sector, especially within Retail (16% of jobs), Health and Social Care (14%) and Education (11%), reflecting the area’s nature as a small town, with significant commuter flows to Birmingham and the wider West Midlands. Only a small proportion (5%) are employed in professional and scientific activities.

3.15 Within Longbridge, employment is more dominated by Professional, Scientific and Technical Activities (27% of jobs), with Health and Social Care also accounting for a larger share (20%); in part, this reflects the major commercial and office development that has taken place in Longbridge on the former manufacturing site of MG Rover. Droitwich still retains a significant share of employment in Manufacturing, at 19% of all jobs, in comparison to Longbridge and Droitwich.

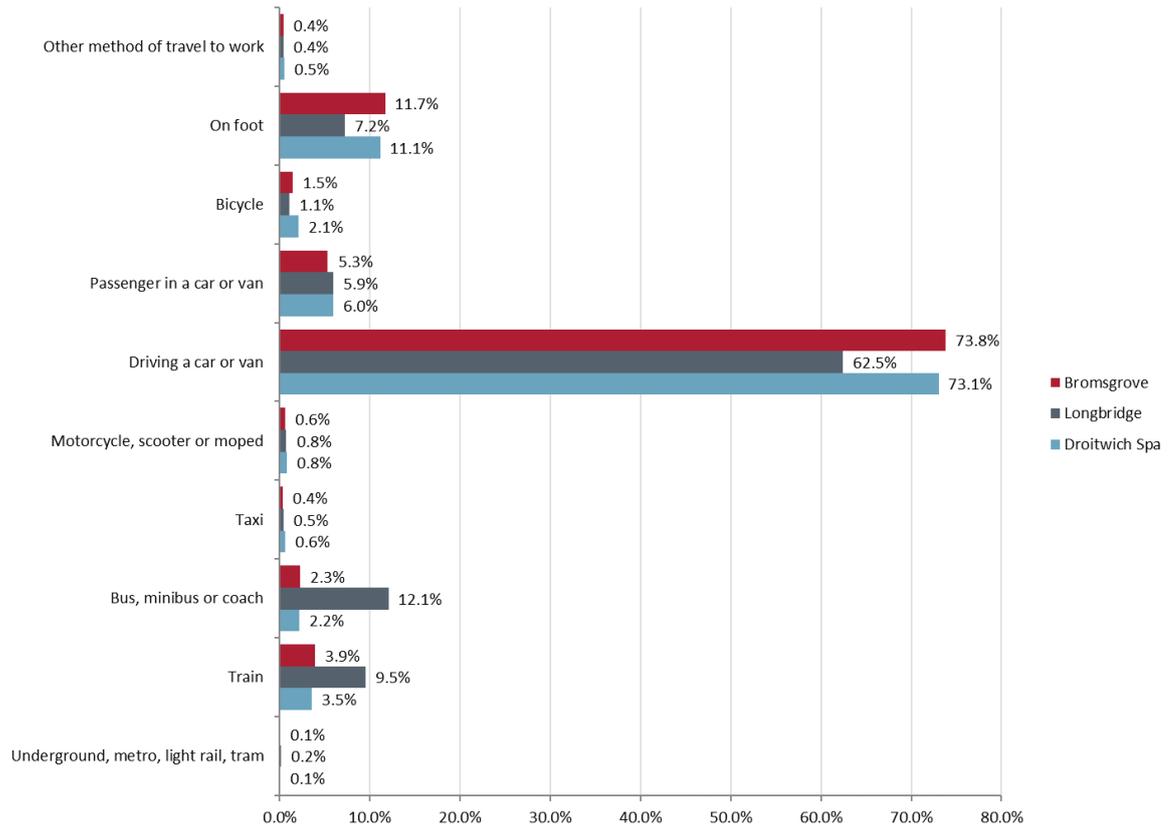
**Table 3.3: Sectoral distribution of employees in Bromsgrove, Longbridge and Droitwich, 2014**

Economic Sector	Bromsgrove	Longbridge	Droitwich Spa
Professional, Scientific and Technical Activities	5%	27%	5%
Human Health and Social Work	14%	20%	15%
Education	11%	14%	9%
Wholesale and Retail and repair of motor vehicles	16%	13%	24%
Accommodation and food service activities	7%	6%	4%
Manufacturing	8%	4%	19%
Administrative and Support service activities	9%	3%	7%
Construction	6%	3%	4%

Source: Business Register and Employment Survey (accessed 2017)

3.16 Figure 3.4 illustrates the most popular means of commuting in Bromsgrove, Longbridge and Droitwich Spa. It is evident that public transport options, particularly rail, are considerably more popular in Longbridge than in Bromsgrove or Droitwich Spa, and a smaller proportion of the population drive to work in Longbridge than in the other two areas. This is likely to be linked to the existing Cross-City line services at Longbridge, which will be extended to Bromsgrove by the rail intervention.

**Figure 3.4: Method of Travel to Work in Case Study and Comparison Areas, 2011**



Source: ONS Census 2011, Travel to Work data (accessed 2017)

- 3.17 Table 3.4 outlines the top ten commuting destinations for residents of Bromsgrove and Longbridge and Droitwich Spa. The data indicates that Longbridge residents are significantly more likely to commute to Birmingham than to any other destination; however, Birmingham is also the local authority covering the Longbridge area, and therefore this figure will capture both local area commutes and commutes to Birmingham city centre. It is thus difficult to identify the level of similarities between Bromsgrove and Longbridge in terms of the balance between local employment and that further afield based on this data. However, it appears that Droitwich Spa has a similar balance of local and more regional commuting to that in Bromsgrove, although the destinations differ.
- 3.18 Additionally, this data buttresses the contention that Bromsgrove does not attract a significant volume of inbound commuting. Longbridge and Droitwich Spa comparison areas are well connected to Bromsgrove by road and rail, and despite this, Bromsgrove-bound commuting represents only 7% of all outbound commuting from those areas.

**Table 3.4: Top 10 outbound commuting destinations for case study area and comparison area residents, by local authority, 2011**

Rank	Origin: Bromsgrove CSA			Origin: Longbridge CSA			Origin: Droitwich Spa CSA		
	Destination	Number	%	Destination	Number	%	Destination	Number	%
1	Bromsgrove	4,915	41%	Birmingham	8,529	70%	Wychavon	4,188	44%
2	Birmingham	2,037	17%	Bromsgrove	830	7%	Worcester	1,799	19%
3	Redditch	1,154	10%	Solihull	594	5%	Birmingham	683	7%
4	Wychavon	762	6%	Redditch	394	3%	Bromsgrove	633	7%
5	Worcester	518	4%	Sandwell	346	3%	Wyre Forest	296	3%
6	Solihull	330	3%	Dudley	208	2%	Redditch	279	3%
7	Sandwell	313	3%	Coventry	124	1%	Malvern Hills	253	3%
8	Dudley	312	3%	Stratford-on-Avon	110	1%	Sandwell	148	2%
9	Wyre Forest	220	2%	Warwick	98	1%	Solihull	134	1%
10	Stratford-on-Avon	219	2%	Walsall	77	1%	Stratford-on-Avon	131	1%

Source: ONS Census 2011, Travel to Work data (accessed 2017)

## Summary

- 3.19 The comparison areas of Droitwich and Longbridge are broadly comparable with Bromsgrove in terms of population, with Bromsgrove falling between the two in population terms.
- 3.20 Employment has been growing significantly faster since 2009 in Longbridge than in either Bromsgrove or Droitwich Spa.
- 3.21 There are significant differences between the three areas in terms of the sectoral composition of employment, with Professional, Scientific and Technical Activities predominating in Longbridge and Manufacturing playing a key role in Droitwich. In Bromsgrove, meanwhile, employment is more evenly distributed between sectors.

- 3.22 Bromsgrove's method of travel to work profile is much more similar to that of Droitwich than that of Longbridge; however, the key result of the rail intervention will be to bring service levels at Bromsgrove to a similar level to those at Longbridge.
- 3.23 It is difficult to compare Bromsgrove to Longbridge accurately in terms of commuting destinations due to the limitations of the data available. However, there appear to be similar patterns between Bromsgrove and Droitwich Spa in terms of the balance between local and regional commuting.

## 4 Expected Behavioural Outcomes of the Transport Intervention

### Introduction

- 4.1 This chapter revisits the evidence presented in the previous two chapters to discuss further the baseline situation regarding the provision and use of rail transport for Bromsgrove and the comparison areas of Droitwich and Longbridge. It also considers the effects that might be expected from the electrification, re-signalling and, most importantly, associated change in service pattern at Bromsgrove. In terms of the hypotheses being tested, this chapter is focused on hypothesis one: “that improved rail services will, by making rail travel more convenient for local people, encourage additional rail trips including some generated trips and some captured from other modes.”
- 4.2 This chapter includes evidence from station user surveys<sup>17</sup>, undertaken in October 2017, at Bromsgrove, Longbridge, and Droitwich Spa railway stations; and surveys amongst residents of Bromsgrove.

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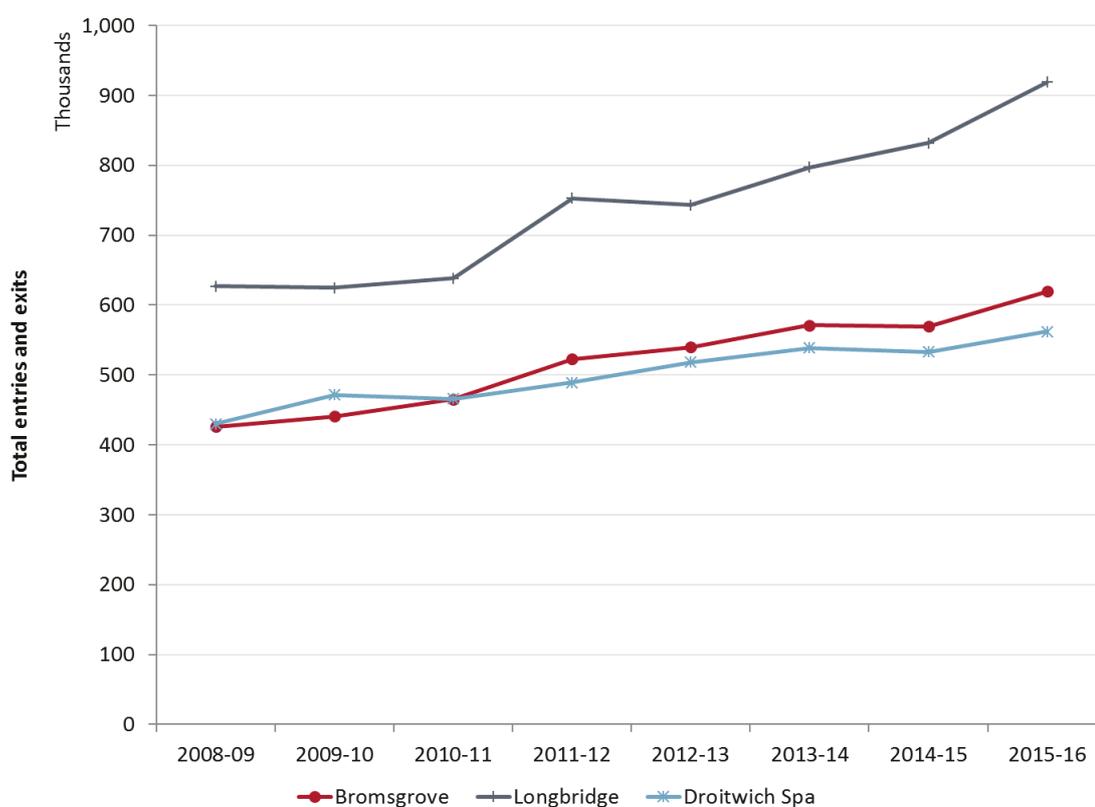
<sup>17</sup> Interviews took place on the main platform at each station, and a mixture of times were selected to ensure that both peak-time and off-peak station users were surveyed. Further details on the surveys are available in the Technical Report.

## Comparisons of trends in station use

### How does rail use differ between the treatment and comparison areas?

4.3 Figure 4.1 below shows recent trends in station usage at Bromsgrove, Longbridge and Droitwich. Patronage at Bromsgrove is very similar to Droitwich Spa, likely a result of the similarly limited rail service at both stations compared to Longbridge, which serves approximately 50% more passengers per year. However, growth in passengers at Bromsgrove (5.5% per year) has been significantly higher than at Droitwich (3.9% per year). It is also worth noting that the trajectory of growth in Bromsgrove is similar to that in Longbridge, though Bromsgrove receives significantly less patronage.

Figure 4.1: Station entries and exits 2008-9 to 2015-16



Source: Estimates of Station Usage, ORR (accessed 2017)

- 4.4 As shown by Table 4.1, a greater share of journeys to/from Bromsgrove involve travel to central Birmingham than both Droitwich and Longbridge. Passenger flows at Bromsgrove are dominated by journeys to Birmingham New Street, which account for 64% of trips, compared to 53% and 18% at Longbridge and Droitwich respectively.
- 4.5 Journeys to/from Longbridge are more widely distributed across the Greater Birmingham conurbation and along the Cross-City Line, with Redditch accounting for 9% of trips and University and Five Ways – both key destinations in inner Birmingham for work and leisure – accounting for 4.5% and 4.3% respectively. This is likely a result of the better service pattern available on the frequent Cross-City Line, which service more stations directly more frequently than the more limited services currently at Bromsgrove, which to the north only serve University and New Street. The improvements at Bromsgrove will involve extending the Cross-City line to the station.
- 4.6 Journeys at Droitwich are more concentrated to the south, with 41% of passengers travelling to the county town of Worcester, which is significantly closer geographically to Droitwich than Longbridge and Bromsgrove. Only 18% of trips are to New Street (hourly service), with a further 7% to Snow Hill and Moor Street (separate half-hourly service), indicating that the town and station appears to be much less reliant on Birmingham and the city's job market.

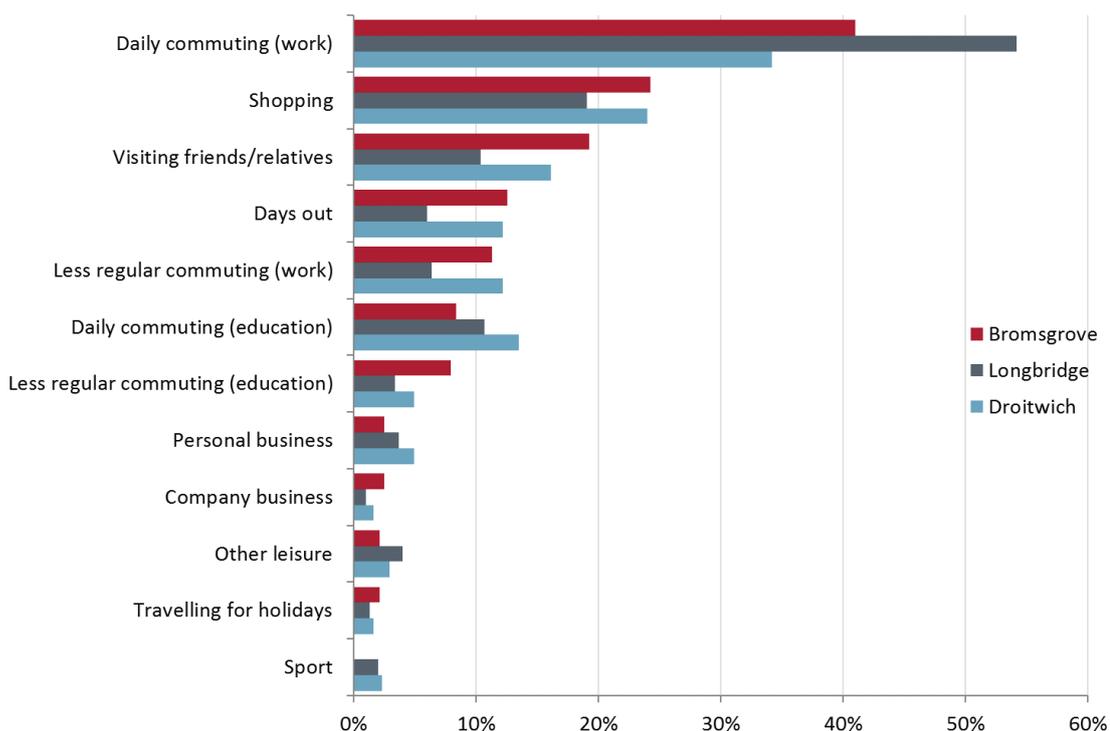
**Table 4.1: Top 10 stations for journeys to/from Bromsgrove, Longbridge and Droitwich Spa (2014-15)**

Rank	Bromsgrove		Droitwich Spa		Longbridge	
1	Birmingham New Street	64.0%	Worcester Foregate Street	26.7%	Birmingham New Street	53.1%
2	Worcester Foregate Street	5.6%	Birmingham New Street	18.1%	Redditch	8.9%
3	Cheltenham Spa	5.6%	Worcester Shrub Hill	14.5%	University	4.5%
4	Worcester Shrub Hill	3.5%	Kidderminster	6.7%	Five Ways	4.3%
5	University	3.4%	Birmingham Snow Hill	3.9%	Bournville	4.0%
6	Ashchurch	2.1%	Birmingham Moor Street	3.2%	King's Norton	3.8%
7	Droitwich Spa	1.8%	Great Malvern	2.8%	Selly Oak	1.9%
8	Euston	1.3%	Bromsgrove	1.9%	Aston	1.2%
9	Birmingham Snow Hill	1.1%	University	1.9%	Northfield	1.2%
10	Hereford	1.0%	Stourbridge Town	1.5%	Euston	1.2%

Source: Origin-Destination Matrix, Office for Rail and Road (accessed 2017)

4.7 Figure 4.2 indicates the purpose of rail journeys for users of Bromsgrove, Droitwich and Longbridge. Journeys from Longbridge are more likely to be daily commuting, which accounts for 54% of trips, reflecting the station’s location on the edge of the Birmingham conurbation, and hence closer, than Bromsgrove and Droitwich, to the large employment market within Birmingham City Centre. Daily commuting, by comparison, accounts for 41% of trips from Bromsgrove and 34% of trips from Droitwich, likely reflecting the increased distance to Birmingham City Centre. Trips from Droitwich are instead more likely to be for leisure activities (shopping, visiting friends and days out), as well as for educational purposes and less regular work commuting.

Figure 4.2: Station users survey – for what journey purpose do you use this station?



Source: Bromsgrove, Longbridge and Droitwich station user surveys (2016). Base = respondents not first time users of station (Bromsgrove station users (n=239), Longbridge station users (n = 299), Droitwich station users (n = 304)).

## Expected impacts of rail improvements

### How is the transport intervention anticipated to affect the convenience of the rail service? (Hypothesis 1)

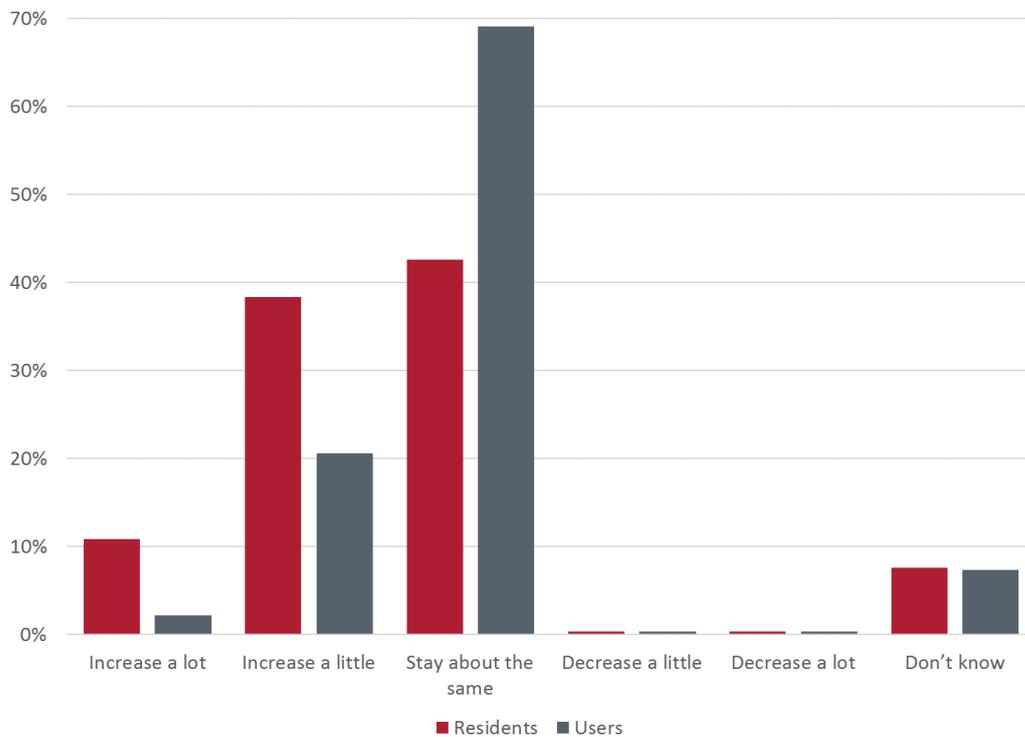
4.8 Following introduction of the enhanced timetable, and associated reduction in generalised cost<sup>18</sup>, we would expect rail patronage to increase. From May 2018 onwards, the rail service at Bromsgrove will be broadly similar to the current service at Longbridge and therefore we might expect patronage to more closely resemble that at Longbridge.

<sup>18</sup> Generalised cost is the sum of monetary and non-monetary costs of a journey, including the fare, in-vehicle time, frequency and interchange penalties etc.

- 4.9 It is unlikely that passenger numbers at Bromsgrove would reach or exceed those at Longbridge, due to the proximity of Longbridge to Birmingham City Centre and therefore the lower generalised costs associated with journeys between the two. There is, however, considerable scope for growth with 50% more journeys from Longbridge than Bromsgrove at present. Demographic trends highlighted earlier, including a lower level of deprivation within Bromsgrove, also indicate that residents within the latter could be more willing to commute further to Birmingham for work in order to live in Bromsgrove. Figure 4.2 suggests that one might expect the majority of this growth to occur in commuting trips, with the proportion of commuters from Longbridge currently considerably higher than from Bromsgrove.
- 4.10 It is possible that CrossCountry may consider calling services from Birmingham to Bristol, Exeter and Cornwall at Bromsgrove, if the increased size of the car park is able to increase the station catchment across a wider geography. However, at present there is no commitment to do this, and it is unclear whether any impact on long-distance journey times would significantly impact the Bromsgrove economy.

- 4.11 Additional rail demand at Bromsgrove may arise through existing rail users travelling more frequently, trips shifting from other modes, or newly generated journeys which take advantage of the opportunities presented by the enhanced rail service. Figure 4.3 provides some insights regarding the potential source of additional rail journeys at Bromsgrove.
- 4.12 The survey of residents suggests that a significant proportion of additional demand at Bromsgrove would come from individuals who use rail less frequently, as it indicates that Bromsgrove *residents* are significantly more likely to increase their use of rail following the improvements than Bromsgrove station *users*. From the residents’ survey, the proportion of residents who report that they will travel more by rail is 52% for those travelling by rail at least once a month, compared to 47% for those who travel by rail less frequently.
- 4.13 While not only those who currently frequently use rail are expected to benefit, frequent rail users are expected to account for the greatest increase in trips - of these ‘frequent’ rail users identified in the residents’ survey, 16% they would increase their rail use ‘a lot’ compared to 6% for less frequent users. This contrasts with the results of the station users survey, which indicates that just 23% of existing users will travel more following introduction of the revised timetable at Bromsgrove.
- 4.14 It is not possible, from the evidence available, to anticipate whether the additional rail trips from non-users will be transferred from other modes or be newly generated, nor is it possible to identify from which modes any transfer would affect. Chapter 6 outlines some options for monitoring these anticipated changes, when the rail service frequency improvements have been made.

**Figure 4.3: Residents and station users survey - when these improvements have been completed, how will your travel by train change?**

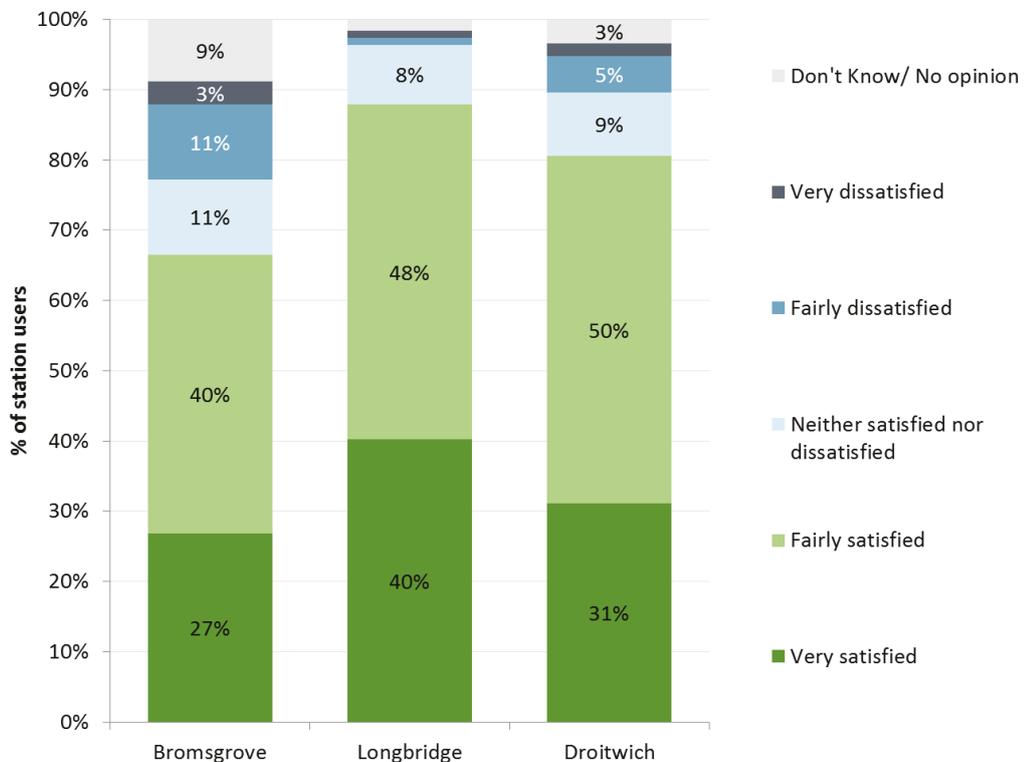


Source: Bromsgrove residents (n = 331) and station users (n = 272) survey

- 4.15 We would normally expect the change in rail demand associated with a major timetable change to materialise over a number of years. Lags will occur because:
- people may not be aware of the change in rail service. This is particularly the case for improvements, but it also applies to changes in performance (reliability and punctuality) whether improvements or deteriorations;
  - people develop habits and it takes time to change these; and
  - some people may have constraints. In particular, commuters may need to move home or job to benefit from improvements in rail services, while others may need to buy a car in order to change mode (where there is a deterioration in rail services).

4.16 The improvements to the rail services, including the new station, should be reflected in the levels of satisfaction with the services. As shown by Figure 4.4, respondents using Longbridge station had the most positive opinion of their station’s train service overall: 88% of individuals responded positively about the train service, followed by 81% of respondents from Droitwich and 67% of respondents from Bromsgrove. This suggests that station users from Bromsgrove are less satisfied with their train service than those from Longbridge or Droitwich, potentially as a result of recent disruption due to construction of the new station, or higher levels of crowding than elsewhere. Following enhancement of the rail service and the introduction of electric rolling stock, we would anticipate satisfaction levels at Bromsgrove to increase towards the levels observed at Longbridge currently.

Figure 4.4: Station users survey - based on your experiences of your station how satisfied are you with the train service overall?



Source: Bromsgrove (n=272), Longbridge (n=306), and Droitwich (n=325) station user surveys

## Measuring the change in rail usage

- 4.17 This section briefly discusses how the change in rail patronage could be measured, since changes in travel behaviour, such as increased rail usage, can act as a precursor to economic impacts.

### How might this change be measured?

- 4.18 To provide a clear assessment of the impact of timetable enhancements, coupled with the quality element of different rolling stock, it will be necessary to gather data on rail patronage at Bromsgrove and the comparison stations. Periodic rail ticket sales data for journeys to/from Bromsgrove, Droitwich and Longbridge are available from the LENNON database which stores transactions details of all rail tickets that have been sold.<sup>19</sup> Since most travellers from Bromsgrove use a season ticket, LENNON data may also need to be supplemented with season ticket user survey data, to better understand the trip-making habits of those who purchase weekly, monthly and annual season tickets.
- 4.19 An alternative to using LENNON data would be to use data provided by the ORR in the form of annual Station Usage Statistics, and the Origin Destination Matrix (ODM). While these data are only provided annually, they have the advantage of taking into account all ticket types including those issued by the local authority. More information about the ORR data is available in the Technical Report.
- 4.20 In parallel with data on rail usage it will be necessary to capture information on events and disruption affecting rail services and rail usage. This could be captured from formal sources such as Network Rail's Schedule 4 and Schedule 8 reporting requirements, or crowd-sourced using Application Programming Interface (API) feeds from public-facing websites such as the National Rail Enquiries 'service disruption' page, and associated Twitter feeds.
- 4.21 Finally, since ticket sales data says nothing about travel patterns before/after the intervention, further rounds of station user surveys will be needed at Bromsgrove, Longbridge and Droitwich, to understand how travel patterns and journeys have changed. These should be as brief as possible to maximise response rates, and maintain comparability with the baselining study presented in this report to enable robust comparison of results.

## Summary

- 4.22 Growth in rail usage at Bromsgrove has exceeded that at Droitwich Spa since 2008-09, but the total number of entries and exits has remained considerably below that at Longbridge throughout this period.
- 4.23 Daily commuting for work is the most common journey purpose at all three stations. In terms of destinations, Birmingham New Street is the start or end point for more than half of trips to or from Bromsgrove and Longbridge, but for less than a fifth from Droitwich Spa.
- 4.24 Survey data suggests that there will be an increase in station usage at Bromsgrove due to the planned rail intervention. It would be expected that the improvements would lead to higher

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<sup>19</sup> The rail industry financial year is split into thirteen periods, each lasting four weeks.

satisfaction with the rail services from the station, bringing Bromsgrove into line with Longbridge on this metric.

- 4.25 Measuring these effects will require both rail usage data, and further station usage surveys, to capture changes in travel behaviour and attitudes towards the improved service provision.

# 5 Expected Economic Impacts of Transport Intervention

## Introduction

- 5.1 This chapter considers the potential economic impacts expected to be associated with the rail improvements at Bromsgrove and its consequent impacts on rail patronage identified in Chapter 4.

## Expected Economic Impacts

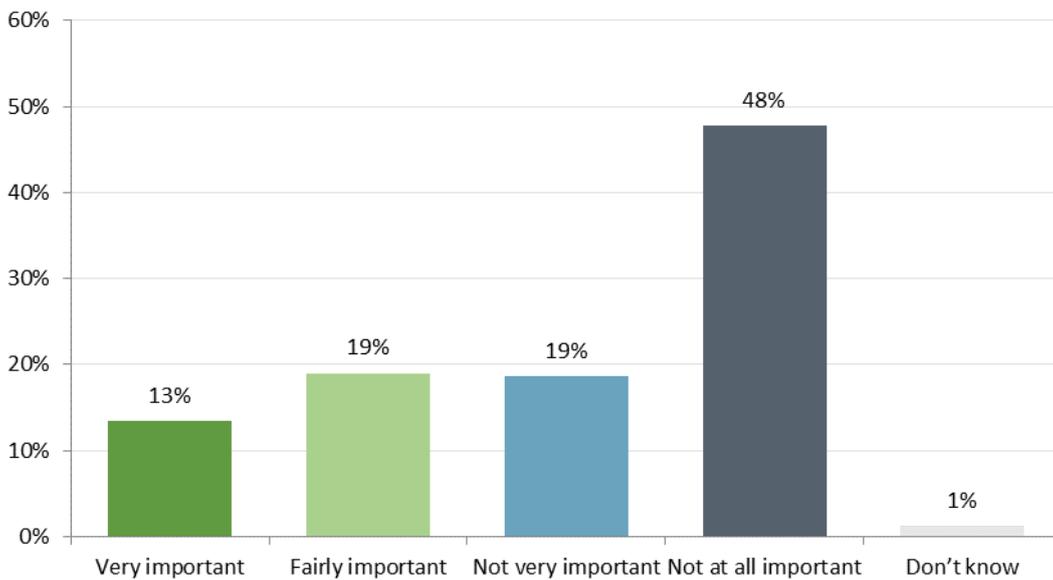
### Introduction

- 5.2 Enhanced connectivity delivered by the improvement works is hypothesised to make Bromsgrove a more attractive place to live (Hypothesis 2i) and work (Hypothesis 2ii). The reasoning behind these hypotheses is that residents are likely to benefit from reduced generalised costs when travelling to Birmingham, and hence the number of people commuting between Bromsgrove, Birmingham and elsewhere on the Cross-City Line would be expected to increase in both directions. This could result in upward pressure on population, housing demand, and subsequent induced demand for other local services within the catchment area of Bromsgrove station.
- 5.3 In addition, the improved connectivity could increase the attractiveness of Bromsgrove to businesses, encouraging new businesses to locate there and hence increasing local employment (Hypothesis 2iii). Existing firms within Bromsgrove could also benefit from increased agglomeration, since they will be 'closer' to the large economic mass located in Birmingham City Centre, and will have better access to potential employees, customers and suppliers both within the City Centre and in the Birmingham suburbs served by the Cross-City Line, resulting in increased productivity (Hypothesis 3). Other firms could also decide that the increased accessibility of Bromsgrove makes relocation to the town an option, resulting in an increase in both employment and GVA over a wide range of sectors in the Bromsgrove area in the longer term.
- 5.4 How these impacts can be identified and quantified through primary and secondary data analysis is explored in the following section.

**Hypothesis 2i) Improvements to the station and services will make Bromsgrove a more attractive place to *live*;**

5.5 This hypothesis relies on the premise that the quality of local rail services is one of the key factors which influence where people choose to live, and therefore a significant improvement in rail services in Bromsgrove will result in more people looking to move to the area. Primary research amongst Bromsgrove residents supports this hypothesis: just under a third (32%) of Bromsgrove residents said that the (existing) rail services were ‘very’ or ‘fairly’ important when deciding to move to their current address.

Figure 5.1: When moving to your current address, to what extent were rail services important to you?



Source: Bromsgrove residents survey, 2016 n=500.

5.6 Chapter 4 highlighted how improved service frequency at Bromsgrove is expected to result in an increase in rail patronage, especially for commuting trips to Birmingham City Centre. This increase in ridership ultimately stems from those making additional trips deriving a *benefit* from doing so – individuals living in Bromsgrove benefit from the ability to travel to Birmingham more conveniently, especially for commuting purposes – which makes Bromsgrove a more desirable place to live. Notably, the Bromsgrove residents baseline survey indicates that rail services are important both to commuters and to those not looking to commute by rail, but who wish to travel by rail for leisure purposes.

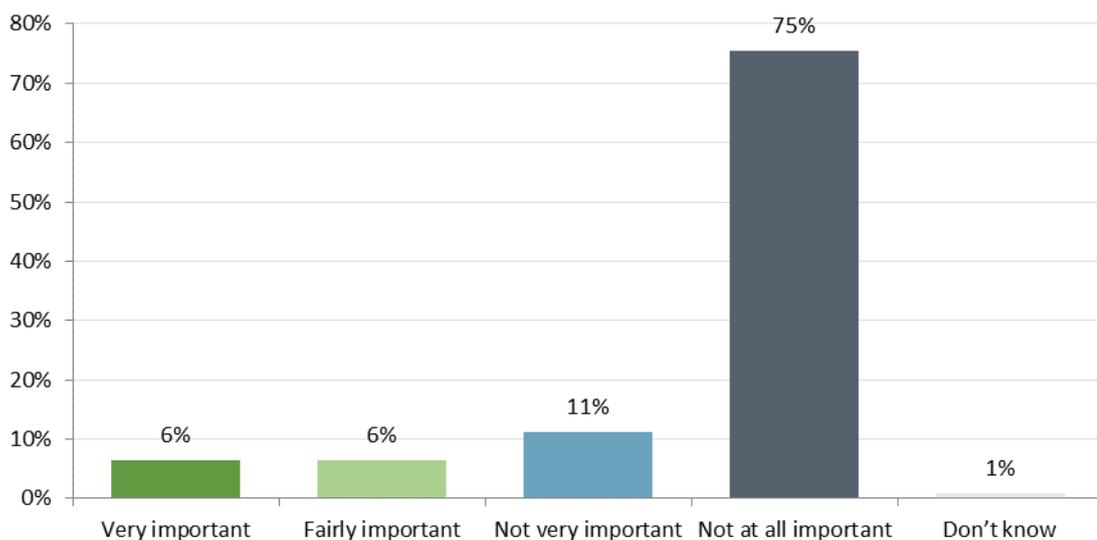
5.7 Increased attractiveness would hence be expected to deliver a positive impact on the local housing market (and specifically, properties located within the catchment area of Bromsgrove station). Increased demand for property would have the effect of increasing local property prices, and in turn increasing the viability and rate of delivery of new development. Paragraph 1.10 outlines the target of 7,000 new homes within the Bromsgrove District Plan, delivery of which would be expected to be supported by the improved rail accessibility delivered by the scheme.

5.8 In the longer term, it would be expected that Bromsgrove would become more reliant on rail services, as more people who want to travel by rail are attracted to the area. The stated importance of rail services – as identified in the residents’ survey – would be expected to increase, especially amongst those who have recently moved to the area.

5.9 Figure 5.2 illustrates the importance of rail services to residents of Bromsgrove when changing job, sourced from the residents’ survey. If individuals state that rail services are important when changing jobs, then rail accessibility is also likely to be an important consideration when choosing where to live – since individuals presumably will also wish to live, as well as work, near a station with good rail services.

5.10 While most respondents do not consider rail services to be at all important while changing job (75%), a significant minority (16%) consider services to be ‘very’ or ‘fairly’ important. Within Bromsgrove, this is likely to be those who commute to Birmingham City Centre (and hence are likely to rely on easy access by rail to their workplace) or those who lack access to a car, and are hence reliant on the rail (or bus) service to access employment.

**Figure 5.2: When moving to your current job, to what extent were rail services important to you?**

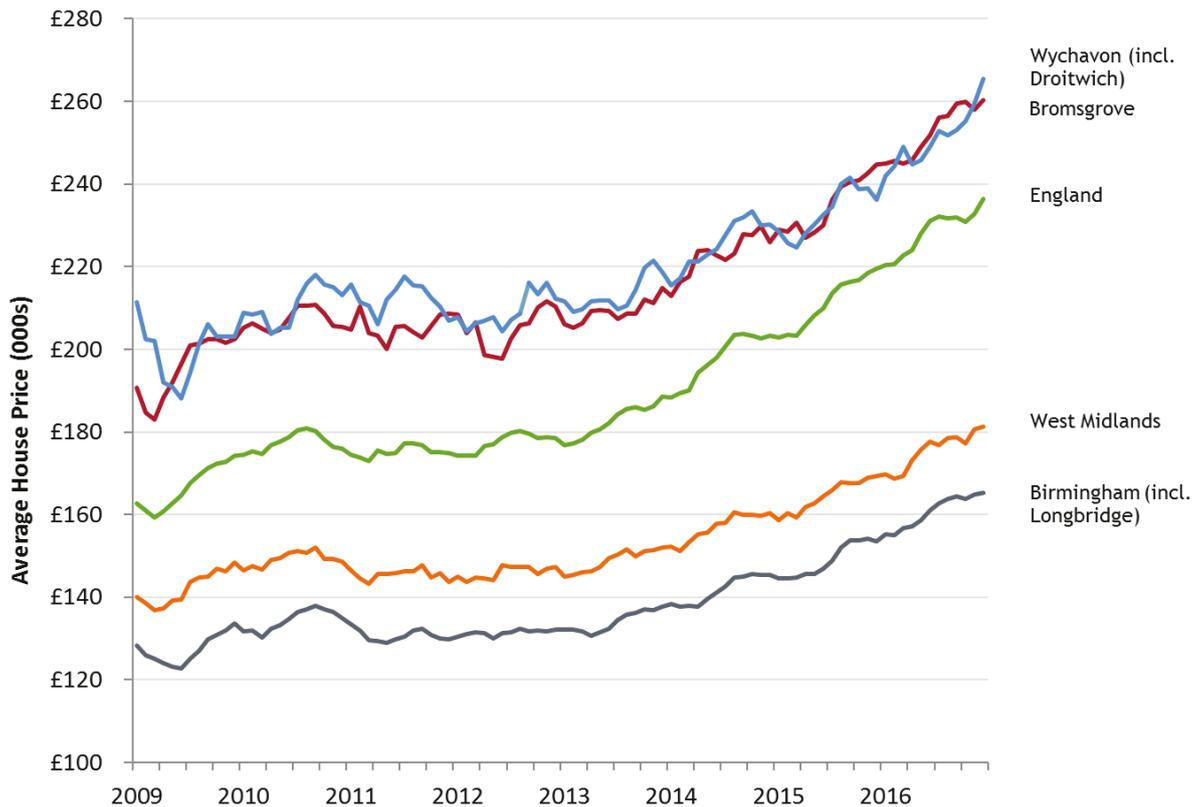


Source: Bromsgrove residents survey, 2016. Base=those in employment and moved jobs within last 7 years (n=126).

5.11 Figure 5.2 indicates the current property market trends within Bromsgrove, Longbridge and Droitwich, at a broader local authority level. Property prices in Bromsgrove and Wychavon (the local authority which includes Droitwich) are broadly similar, and although values in Birmingham (the local authority which includes Longbridge) are significantly lower, the overall property price trend for the three local authorities over the past eight years is very similar. If the hypothesis is correct, and all other explanatory variables remain constant, then house prices in Bromsgrove (particularly within closer proximity to the railway station) would be expected to increase more greatly, relative to prices in Droitwich and Longbridge, in the coming years, although considering the geography of the local authorities any overall change is expected to be limited.

5.12 Detailed Land Registry data, which includes the price paid for every residential property transaction in England, can be used to establish this relationship following completion of the rail improvements, including the distance to the station with which any price impacts are most pronounced. Differences in trends for particular types of property could also be identified, to further refine the analysis.

Figure 5.3: Property Price Trends in Bromsgrove (local authority level)



Source: Land Registry (accessed 2017)

**Hypothesis 2ii) Improvements to the station and services will make Bromsgrove a more attractive place to work;**

5.13 Approximately 10% of UK residents travel to work by rail<sup>20</sup>, and hence for some individuals the attractiveness of an area as a place to work will be directly linked to the accessibility by rail. Although Birmingham City Centre is likely to be the biggest beneficiary of this effect, since rail mode share is already high and the generalised cost of journeys to Birmingham is expected to fall further, the town of Bromsgrove could also benefit from inbound commuting becoming more attractive.

5.14 Increased rail accessibility (and increased rail patronage) to a workplace is likely to increase its attractiveness as a place to work, especially where employers are reliant on workers across an extensive labour market catchment or without access to a car. Rail improvements at Bromsgrove would therefore be expected to make the town a more attractive place to work,

<sup>20</sup> Department for Transport, Transport Statistics Great Britain, 2016

especially for those without access to a car for which the change in generalised cost of commuting to Bromsgrove will be greatest. Residents of Longbridge, and elsewhere on the Cross-City Line, tend to have higher levels of unemployment (as shown in Paragraph 3.9) and lower levels of car ownership, so could therefore benefit disproportionately from the improved accessibility of Bromsgrove for incoming commuting, which could contribute towards better employment opportunities for people living in Longbridge.

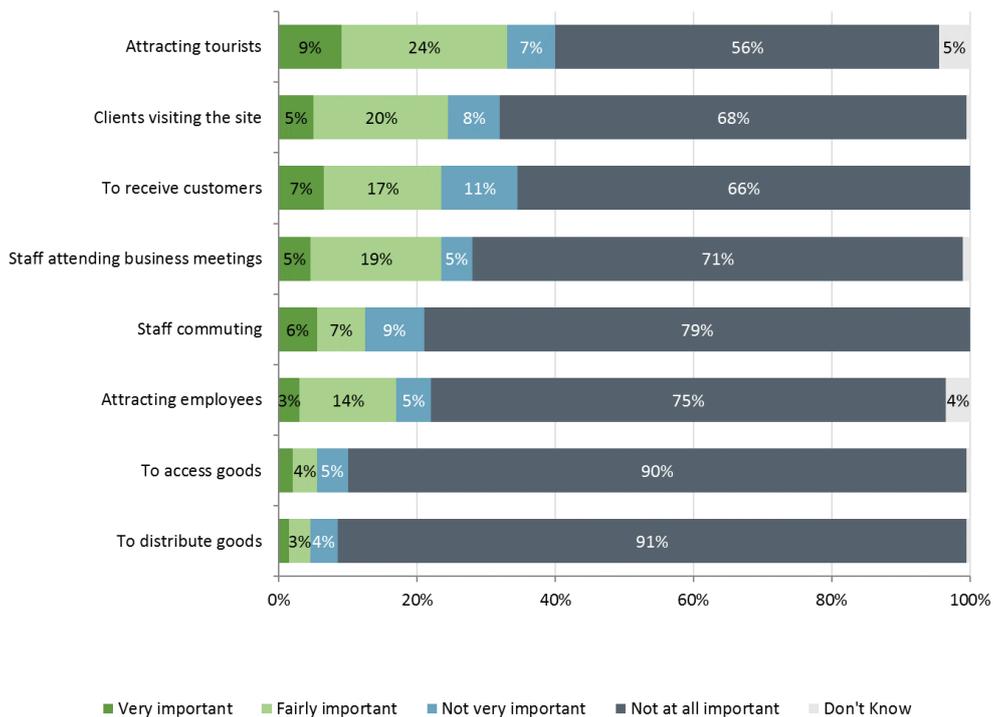
- 5.15 Therefore, if this hypothesis were correct, Bromsgrove would be expected to benefit from an increased level of local employment, since the town would become a more attractive place to work, potentially reversing the downward trend in local employment identified within Figure 2.2. Businesses are likely to report an increased proportion of workers commuting by rail, and greater ease with recruiting staff. Alternatively, the town could also benefit from increased productivity due to a larger labour pool, even if the total number of jobs remains constant, by facilitating a better skills matching of employers and workers.

**Hypothesis 2iii) Improvements to the station and services will make Bromsgrove a more attractive place to *locate a business*;**

5.16 Broadly, businesses value rail connectivity, and hence an improvement in Bromsgrove’s rail services would be expected to make the area a more attractive place to locate a business. Figure 5.4 shows the importance business survey respondents in Bromsgrove place on rail connectivity in relation to access for customers, goods and clients. Local rail services were considered ‘very’ or ‘fairly’ important for receiving customers (24% of businesses), attracting tourists (33%), and for client visits / attending business meetings (25% and 24% respectively). Rail was also valued in terms of its role in facilitating staff commuting (13%), although significantly less important for accessing and distributing goods.

5.17 Notably, the importance different businesses placed on rail for different activities depended on the sector in question: public sector, health, leisure and retail businesses – sectors within which the Bromsgrove economy is especially concentrated – value local rail services most in the ability to access customers, whilst tourist enterprises valued the role of rail in terms of attracting tourists and visitors. Similarly, services and leisure / retail firms in Bromsgrove most valued rail connectivity to attend meetings and facilitate client visits, while leisure / retail firms most valued the ability for rail to attract employees<sup>21</sup>.

**Figure 5.4: To what extent do you consider local rail services to be important to your business in terms of...**

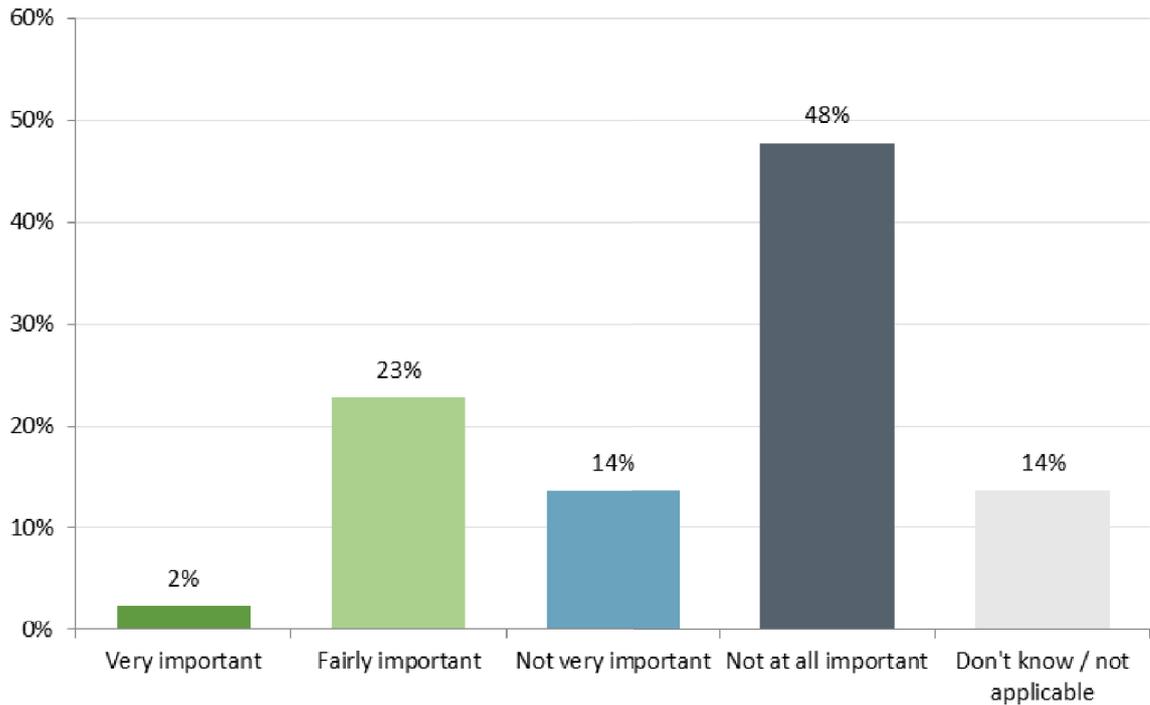


Source: Bromsgrove business survey, 2016 n=200.

<sup>21</sup> It should be noted that sample sizes for individual business sectors are small: manufacturing 69; Services 42; Public sector / health 44; Leisure/retail 45

5.18 Figure 5.5 summarises the importance of rail services to firms looking to move or expand within the next three years which are currently located within Bromsgrove, as sourced from the business survey. The data indicates that 25% of these firms view rail connectivity as ‘very’ or ‘fairly’ important in determining the location of their business. If businesses in Bromsgrove value the benefits of rail connectivity – as the evidence from the survey analysis demonstrates – then they would be expected to experience benefits were rail connectivity to improve.

**Figure 5.5: To what extent would you say issues related to local rail services were important or unimportant in determining the current location of your business?**



Source: Bromsgrove business survey 2016. Base=businesses very or fairly likely to move or expand in the next 3 years (n=44). Note small sample size.

5.19 Firms within Bromsgrove would be expected to benefit from improved labour market accessibility, since they will be ‘closer’ to the large labour markets within Birmingham and along the length of the Cross-City Line. This would be expected to make filling vacancies easier, enable better matching of workers with specific skills to relevant jobs, and hence enabling firms within Bromsgrove to become more productive. This would ultimately result not only in firms within Bromsgrove becoming more profitable (which could be passed into the local economy through increased wages) but also the town itself becoming a more attractive (and profitable) place to do business.

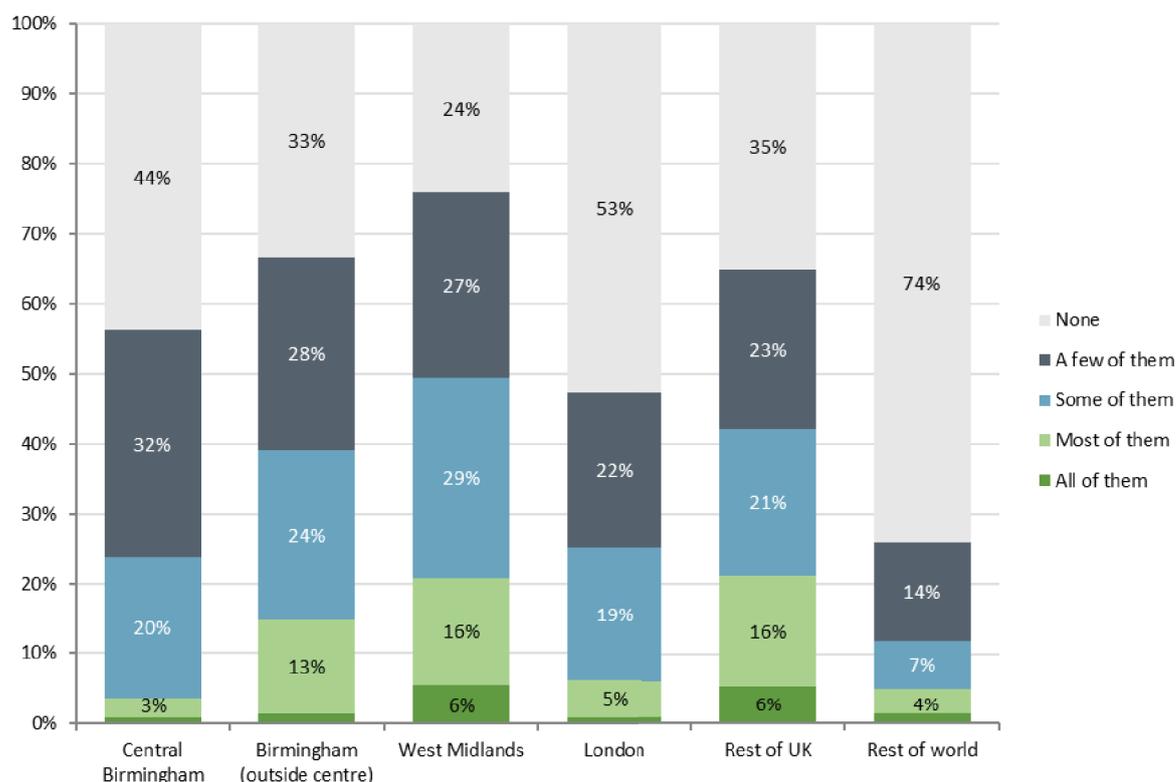
5.20 New business opportunities could also be presented with increased rail patronage: increased level of consumer service provision (including retail, takeaways and accommodation services) in the area immediately surrounding the station, or along the route between the station and the town centre, for example, could be generated from the additional footfall generated by new trips to the station.

5.21 Over time, these impacts could be observed through an increase in the number of businesses locating in Bromsgrove, together with the total number of workers employed in the town. Business survey evidence would also confirm whether firms have easier access to labour, and product and export markets, and the number of firms who state that local rail services are important to them would be expected to increase. This would confirm that the improvements to the station and services at Bromsgrove have had the effect of increasing the attractiveness of the town as a place to do business.

**Hypothesis 3) Businesses located within the station catchment area with improved services will benefit from improved access to potential employees, customers, and suppliers, resulting in greater productivity;**

5.22 Figure 5.6 illustrates the degree of interaction between firms located in Bromsgrove, and those located elsewhere within the West Midlands and the UK. Firms which businesses in Bromsgrove interact with are most likely to be located either across the wider West Midlands (excluding Birmingham), or elsewhere in the UK, with 22% respondents observing that ‘all’ or ‘most’ of the firms they interact with are located there in both cases. Businesses in Bromsgrove appear to be next most integrated with those in Birmingham (excluding centre), whilst least integrated with firms in Birmingham City Centre.

Figure 5.6: For the firms you interact with, to what extent are these based in...?



Source: Bromsgrove business survey, 2016 n=200.

5.23 Where rail connectivity from Bromsgrove is to be improved, the generalised cost of business travel by rail to not only Central Birmingham but elsewhere across the West Midlands would be reduced. This would be expected to have the effect of increasing economic interactions –

or agglomeration – between firms in Bromsgrove and those elsewhere. As rail use increases, businesses would be expected to benefit from improved access to potential employees, customers and suppliers located elsewhere, which would drive productivity gains. Businesses would be expected to benefit from increases in the ‘effective density’ of firms – especially within higher-skilled service sectors – which would increase competition within labour and export markets, additional face-to-face interactions between firms, and greater knowledge-sharing and cooperation.

- 5.24 Widespread evidence, such as the recent Transport Investment and Economic Performance (TIEP) report commissioned for the Department, highlights how these economies of agglomeration lead to wider productivity benefits, which would be expected to be felt by both firms in Bromsgrove and elsewhere. If the hypothesis were correct, firms would be expected to become more reliant on rail travel for business purposes, with customers, suppliers and business interactions more concentrated in areas best served by the rail network.

### Summary

- 5.25 The rail improvements could make Bromsgrove a more attractive place to live; this hypothesis could be tested through primary research directed at residents of the area, and may be reflected in increases in property prices in the area, at a faster rate than the property prices in Droitwich Spa and Longbridge, and the West Midlands region.
- 5.26 It could also be that increased rail accessibility would increase the attractiveness of an area as a place to work. This effect would be observed through greater numbers of businesses reporting that their employees make use of rail to commute to work, and easier recruitment of staff.
- 5.27 A further effect might be that businesses would be more likely to locate in Bromsgrove. This would be observed through both greater levels of employment in the town, and through an increase in the number of businesses. Business survey evidence would also indicate the role played by rail in driving any increases seen.
- 5.28 The hypothesised effect of the rail intervention on business productivity would be positive, with firms both in Bromsgrove and in other locations enjoying greater access to customers, suppliers and clients as a result of the improvements.

## 6 Proposal for future work

6.1 The new (post electrification) timetable at Bromsgrove is due to be introduced in May 2018. Analysis after the introduction of the new timetable can be used to determine if the objectives of the improvements have been achieved and the hypothesised economic impacts realised. Consideration will need to be given to the most suitable time periods to undertake ex-post analysis due to lags in behavioural change and economic impacts occurring, as well as collate the data required to measure any potential impacts. The Department will be best placed to decide the most appropriate timing for any follow-up work, given evolving policy needs and lessons learned from the overall project.

6.2 The baseline analysis has highlighted the following expected impacts which post-implementation work can assess. For each hypothesis, we have outlined what the ex-post work should investigate, before discussing the implications of this on data collection.

**Hypothesis 1: the improved rail service at Bromsgrove, by making rail travel more convenient for local people, will encourage additional rail trips**

6.3 To test the effect of improved convenience on rail patronage primary research can be used to identify the level of awareness and impact on attitudes and behaviours of the improved services at Bromsgrove. ORR station usage data can be used to quantify the changes in station usage at Bromsgrove, neighbouring stations (to identify or rule out any abstraction effects), and comparison stations (to enable wider underlying factors to be accounted for). Analysis of the ORR's Origin Destination Matrix<sup>22</sup> can provide further detail on any changes in trip flows and broad ticket types (seasons v non-seasons).

6.4 Primary research can be used to provide some further descriptive information concerning the changes in station usage observed, such as the types of trips that have been generated, and the profile of the people making them, including where they live and work. It can also provide information on the source of the new rail trips and, for example, any mode switching effects. These in turn can generate wider benefits which could be explored, such as an increase in physical activity attributed to people walking as part of their journey instead of using car.

6.5 There may be value in undertaking research amongst local residents and local businesses, as well as Bromsgrove station users. Including the wider resident and business populations in the

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<sup>22</sup> The Origin Destination Matrix is calculated each year by the ORR based on LENNON data and other sources. It provides a more reliable and consistent source of data than unprocessed LENNON data which is affected by issues such as non point-to-point tickets, travelcards and seasons of various types.

research will provide useful context in terms of, for example, awareness and attitudes regarding local rail services (and the improvements) and mode share information.

- 6.6 One further role of the primary research is in helping to dis-aggregate the effects of different improvements, particularly those relating to the new station compared with the electrification and associated timetable improvements. This can be done, for example, by comparing the changes in opinion ratings between different aspects of the local rail services such as the location of the station, and frequency of services.

**Hypothesis 2i: the rail service and new station has made Bromsgrove a more attractive place to live**

- 6.7 The rail improvements are expected to make it easier for people to travel between Bromsgrove and Birmingham and thereby increase the volume of people living in Bromsgrove and working in Birmingham. There may also be an increase in inward commuting to Bromsgrove, for example, from other towns served by the Cross-City Line.
- 6.8 If these effects do materialise, this should be reflected in the rail patronage data (see Hypothesis 1 above), and the number of rail commuters living in Bromsgrove. It may put pressure on the housing market in Bromsgrove which could be reflected in housing market indicators such as volume of transactions and house prices. The Land Registry is the most reliable source of data on house prices, though it is based on transactions, and requires a significant amount of processing for robustness.

**Hypothesis 2ii: the rail service has made Bromsgrove a more attractive place to work**

- 6.9 Data on employment levels in Bromsgrove can be sourced from the Business Register and Employment Survey (BRES), or the Business Structure Database (BSD). A key advantage of the BSD is that it is highly disaggregated so the analysis can be concentrated on the spatial area affected by the rail improvements (that is, the Bromsgrove station catchment area). Both sources provide a breakdown by industry type (SIC) which will be useful for understanding the types of business which are affected most by the rail improvements.
- 6.10 A sectoral analysis will be interesting to explore which sectors are most affected and particularly whether there is an increase in employment in more productive sectors compared with those that currently dominate the local economy.

**Hypothesis 2iii: the rail service has made Bromsgrove a more attractive place to locate a business**

- 6.11 An employers' survey can also be used to provide an indicator of the effect of the rail improvements on the attractiveness of Bromsgrove as a place to locate a business (hypothesis 2iii). The BSD can be used to monitor the number of businesses based in Bromsgrove, as well as the number of employees. An alternative source for the number of businesses is the Inter-Departmental Business Register (IDBR), though like the BRES, this data is only available down to Middle Layer - Super Output Area (MSOA) of geography.

**Hypothesis 3: the rail service will improve access to employees, customers and suppliers, resulting in greater productivity amongst businesses in Bromsgrove**

- 6.12 Primary research with employers based in Bromsgrove can be used to provide descriptive information concerning how employers have looked to take advantage of the rail

improvements, and whether they have seen benefits in terms of the ease of recruiting employees and keeping connected with customers and suppliers. This can be used to explore the extent to which the improvements in services have started to generate agglomeration benefits, and productivity improvements.

- 6.13 To quantitatively assess productivity impacts one approach would be to use the BSD to undertake Difference-in-Difference (D-i-D) analysis, as done for the retrospective case studies within this wider project. This will involve quasi-experimental analysis in which outcomes are compared over time and between the treatment area (Bromsgrove) and comparison areas (Droitwich and Longbridge). Analysis can be undertaken for several outcome indicators such as employment, turnover and productivity (turnover per worker). A description of this type of analysis is available in the accompanying Technical Report. The Technical Report also summarises lessons learned from applying the D-i-D methodology for the retrospective case studies as part of the wider project. These learnings should be taken into account when returning to this case study and choosing an appropriate methodology. Alternative types of econometric analyses are suggested below.
- 6.14 Comparisons should be made by business sector, informed by the results from the primary research which should indicate which sectors appear to have been affected.

### **Suggestions for ex-post primary data collection**

- 6.15 Primary data collection is suggested amongst three sample groups:
- station users;
  - residents living within the station's catchment area; and
  - businesses based within the station's catchment area.
- 6.16 The questions asked within these surveys should focus on testing the hypotheses put forward for the effects of the investment at Bromsgrove though in addition, questions will need to be included which capture the basic characteristics of survey participants, and which can be used to ensure the samples are broadly representative (or if necessary can be used to re-weight the samples).
- 6.17 This data should be collected across each station (Bromsgrove and comparators), to allow for comparisons to be made on as wide a range of variables as possible.
- 6.18 The sample sizes for the primary research should be sufficient to ensure that changes between the pre- and post-surveys and differences between the intervention and comparison areas can be detected with a reasonable level of confidence. Future research will also need to ensure that the approach and survey methodologies are comparable to ensure that results for the pre- and post-surveys are consistent with one another.

### **Suggestions for ex-post secondary data collection and econometric analysis**

- 6.19 We recommend accessing a detailed data source able to be disaggregated by both sector and to small spatial areas, such as the BSD, which is available through either the ONS Virtual Microdata Laboratory or the UK DataService Secure DataLab. However other databases are available and a full investigation as to the most appropriate source should be considered. This source would need data related to the years leading up to both the opening of the new station

at Bromsgrove in 2016 and to the enhancement to rail services in 2018, and in the period that followed. Commuting patterns and other information taken from the 2021 census could also be analysed.

- 6.20 A variety of econometric methods might be applied, including difference-in-difference approach, or a panel data method, such as a fixed or variable effects regression. These would be used to attempt to more formally answer the sets of questions posed in the three hypotheses.

**Table 6.1: Recommended primary research content**

Hypothesis	Rail user survey (Bromsgrove, Droitwich, Longbridge)	Residents survey (Residents of the Bromsgrove, Droitwich, Longbridge catchment areas)	Business survey (Businesses located in the Bromsgrove, Droitwich, Longbridge catchment areas)
<p>1. RAIL CONVENIENCE: That an improved rail service at Bromsgrove will, by making rail travel more convenient for local people, encourage additional rail trips including some generated trips and some captured from other modes</p>	<p>Questions on the use and convenience of rail in order to make comparisons with the baseline (and with the comparator stations). For example:</p> <ul style="list-style-type: none"> <li>• When started using the station and reasons for doing so (to pick up reasons associated with the improvements)</li> <li>• Changes in use of rail and reasons (to pick up reasons associated with the improvements)</li> <li>• Satisfaction with the experience of using the station (to pick up the effects of the new station)</li> <li>• Satisfaction with experiences of local rail services from the station (to pick up the effects of the improved services from the station)</li> </ul>	<p>Questions on the use and convenience of rail in order to make comparisons with the baseline (and with the comparator stations). For example:</p> <ul style="list-style-type: none"> <li>• Use of rail including which stations used (to compare rail use penetration rates before v after improvements, and identify switching between stations)</li> <li>• Changes in use of different modes (to identify mode switching and trip generation effects)</li> <li>• Reasons for using preferred station (to pick up reasons associated with the improvements and distinguish between improvements to the station and to the services)</li> <li>• Awareness of the station and the services from it (to identify any lagged effects due to low awareness of improvements)</li> </ul>	<p>Questions on the use and convenience of rail in order to make comparisons with the baseline (and with the comparator stations). For example:</p> <ul style="list-style-type: none"> <li>• Use of rail for different purposes (employees travelling to work, business meetings, customer visits etc.)</li> <li>• Which stations used (to compare rail use before v after improvements, and identify switching between stations)</li> <li>• Awareness of the station and the services from it (to identify any lagged effects due to low awareness of improvements)</li> <li>• Satisfaction with the station (to pick up the effects of the new station)</li> <li>• Satisfaction with local rail services from the station (to pick up the effects of the improved services from the station)</li> </ul>

Hypothesis	Rail user survey (Bromsgrove, Droitwich, Longbridge)	Residents survey (Residents of the Bromsgrove, Droitwich, Longbridge catchment areas)	Business survey (Businesses located in the Bromsgrove, Droitwich, Longbridge catchment areas)
<p>2. ATTRACTIVE PLACE: improvements to the local line will make Bromsgrove a more attractive place to –</p> <ol style="list-style-type: none"> <li>a. Live</li> <li>b. work, and</li> <li>c. to locate a business</li> </ol>	<p>Questions exploring the influence of rail on where rail travellers choose to live and work in order to make comparisons with the baseline (and with the comparator stations). For example:</p> <ul style="list-style-type: none"> <li>• When moved to current address and Importance of rail when choosing where to live</li> <li>• When started current job and importance of rail when changing jobs</li> <li>• Satisfaction with experience of the station</li> <li>• Satisfaction with experiences of local rail services</li> </ul>	<p>Questions exploring the influence of rail on where local people choose to live and work in order to make comparisons with the baseline (and with the comparator stations). For example:</p> <ul style="list-style-type: none"> <li>• When moved to current address and Importance of rail when choosing where to live</li> <li>• When started current job and Importance of rail when choosing where to work</li> <li>• Satisfaction with experience of station</li> <li>• Satisfaction with experiences of local rail services</li> </ul>	<p>Questions exploring the influence of rail on where businesses choose to locate in order to make comparisons with the baseline (and with the comparator stations). For example:</p> <ul style="list-style-type: none"> <li>• When moved to current address and Importance of rail when choosing where to locate</li> <li>• Importance of rail to future location decision</li> </ul>
<p>3. IMPROVED BUSINESS ACCESS: Businesses located near to the station with improved services will benefit from improved access to potential employees, customers, and suppliers, resulting in greater productivity</p>			<p>Questions exploring how the local services are used by businesses to identify the influence of rail on improving access to potential employees, customers, and suppliers. For example</p> <ul style="list-style-type: none"> <li>• Importance of rail to the business for particular purposes including access for employees and customers</li> <li>• Views on connectivity with other key locations such as Birmingham</li> </ul>





# A Current and Expected Train Service Provision at Bromsgrove

A.1 This short annex presents details of the current and future train service at Bromsgrove, including service frequency, journey times, rolling stock and levels of crowding.

## Current Services

A.2 Services are currently largely operated by London Midland as part of their Birmingham New Street – University – Bromsgrove – Droitwich – Worcester – Great Malvern – Hereford service. This operates at a frequency of 1 train per hour off-peak, running along the entire length of the route, with additional services at peak periods.

A.3 Eight services run between Bromsgrove and Birmingham New Street during the morning peak (between 0621 and 0953), representing an approximately half-hourly service, although the intervals are not clockface. Two services during the peak are operated by CrossCountry, running between Gloucester – Stansted Airport and Cardiff – Nottingham, which form the only services arriving at New Street between 0800 and 0900. London Midland services during the peak start, instead of from Hereford, from Worcester or Malvern Link.

A.4 All services call at University station only between Bromsgrove and Birmingham, and have a journey time of 21 – 28 minutes. Both London Midland and CrossCountry services are typically operated by Class 170 diesel multiple units, first introduced in 1999.

A.5 Details of current crowding levels of services at Bromsgrove are shown in Figure A.1, which presents evidence from the Network Rail 2016 West Midlands and Chilterns Route Study (consultation draft). While services arriving at Bromsgrove from Droitwich are typically at capacity (85% - 100% seats taken), they have seats available leaving Bromsgrove, but become standing-only closer towards Birmingham (from University station). Figure A.2 presents the same map for 2023, which includes the forecast impacts of the capacity provided by investment at Bromsgrove.

A.6 It should be noted that whilst in recent years there have been minor timetabling changes to services at Bromsgrove, the basic service pattern and rolling stock has remained unchanged.

## Future Services

A.7 Following the full completion of the scheme, services at Bromsgrove will be supplemented by those operating on the Cross-City Line, with an additional 3 tph travelling between Birmingham New Street and Bromsgrove<sup>23</sup>. These services are expected to operate between

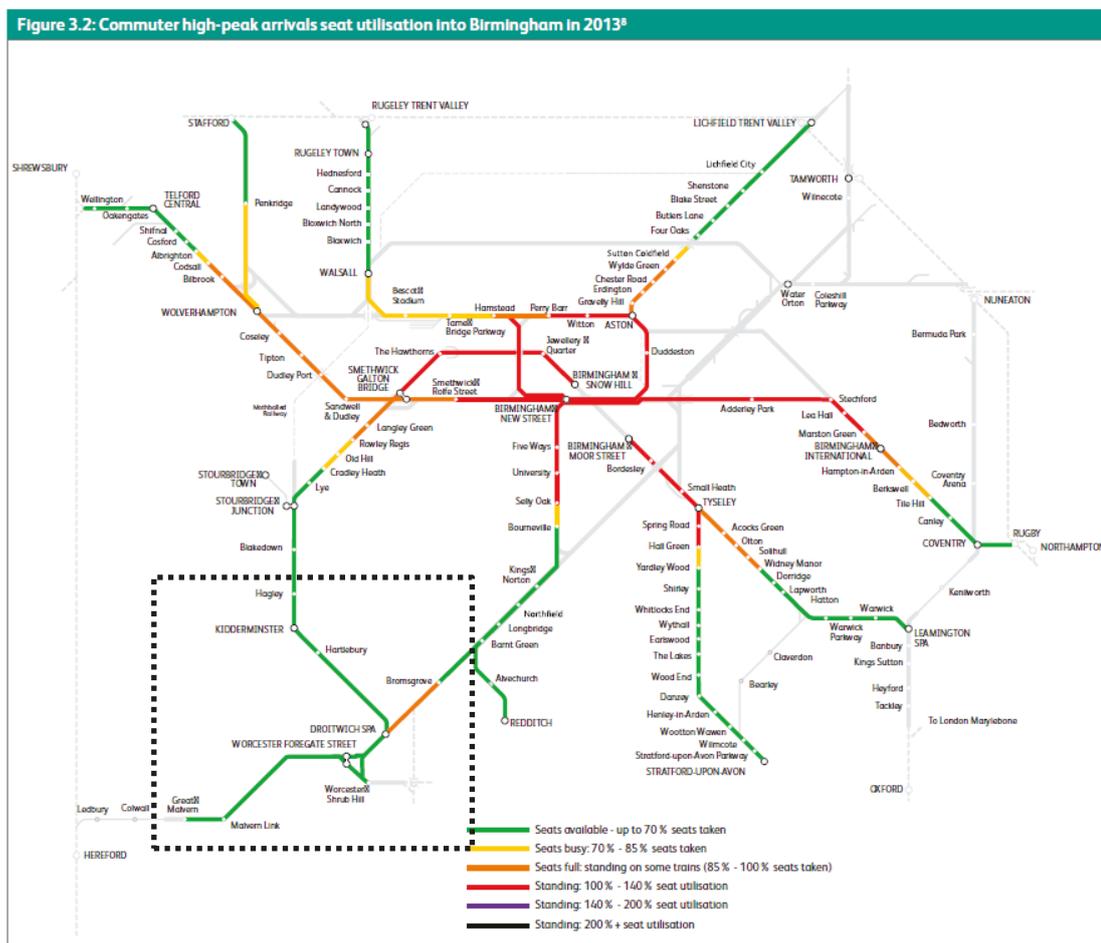
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<sup>23</sup> The details in this section were correct at time of analysis in December 2017. Actual service patterns and improvements are to be confirmed and may be subject to change.

the northern termini of the line in North Birmingham (Lichfield Trent Valley / Lichfield City / Four Oaks) and Bromsgrove, via Birmingham New Street, offering improved direct connectivity to elsewhere in the West Midlands compared to the current services.

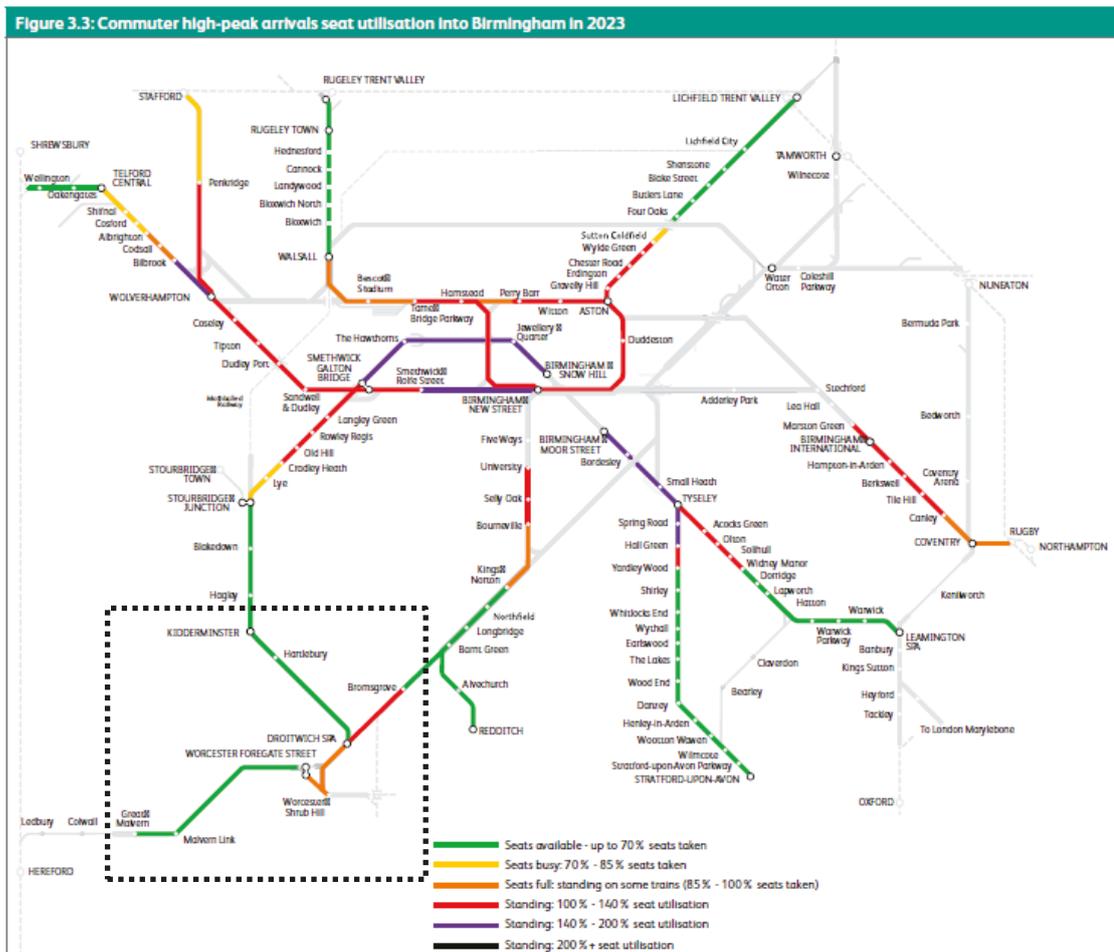
- A.8 These additional services will call at all stations of the Cross-City Line, and hence have a longer journey time of approximately 35 minutes to Birmingham New Street. They will, however, offer better accessibility to elsewhere in Birmingham (such to Longbridge and Aston). Services are expected to be operated by electric Class 323 trains, built in 1992-95.
- A.9 It is unclear as to the change in the diesel-operated services which currently operate to Bromsgrove from elsewhere following the electrification. While the off-peak, hourly service between Hereford and Birmingham will continue to call at Bromsgrove (this offers the only link south of Bromsgrove) it is unclear if the peak frequency of these services will continue to be higher, or if (limited) CrossCountry services will continue to call in the future.

Figure A.1: Crowding on high-peak services into Birmingham, 2013



Source: Network Rail – West Midlands & Chilterns Route Study, 2016. Note that data is not included within this publication for the routes outlined in grey. Dashed grey refers to freight-only lines.

Figure A.2: Forecast crowding on high-peak services into Birmingham, 2023



Source: Network Rail – West Midlands & Chilterns Route Study, 2016. Note that data is not included within this publication for the routes outlined in grey. Dashed grey refers to freight-only lines.



