Midlands Connect Strategy: Powering the Midlands Engine

March 2017

Midlands Connect
Powering the Midlands Engine

Contents

Foreword

Sir John Peace

Chairman of Midlands Engine and Midlands Connect

I am honoured to introduce the Midlands Connect Final Strategy, which outlines this region's vision to become an engine for growth through investment in transport infrastructure for this generation and the next.

With this strategy we aim to improve the quality of life for those living in the Midlands as well as attract even more international businesses to the region. We believe that investing in this region's transport can benefit the whole country and create a positive ripple effect to boost the development of industry, skills and housing.

Back in July, we launched the Picking Up The Pace report, which set out a case for accelerating the planning and design stages of key transport projects in the Midlands so they can be built during the first half of the 2020s. This was the first stage of a journey which laid the foundations for the strategy set out here.

Along that journey, the route for Phase Two of HS2 was announced. This was a landmark moment that will ensure the Midlands and the UK will become major economic players on a global scale and must not be stalled if the wider UK economy is to prosper. Additionally, the announcement of the Government's Industrial Strategy highlighted the importance of infrastructure improvements to the success of the UK economy. And the Government's endorsement of Midlands Connect being integral to the Industrial Strategy was confirmed with £17 million in funding at the end of 2016 to draw up detailed plans for the transport links needed to power the Midlands Engine.

With Brexit on the horizon, Midlands Connect is vital to meeting the challenge of helping our regional economy flourish by securing further investment in our transport networks, allowing our businesses to become more efficient and boosting our export potential. This strategy is designed to secure further infrastructure funding needed to lay the groundwork for improved connectivity across the Midlands, bringing the east and west closer together and opening the region's businesses to the world.

The level of collaboration between our business and civic leaders to create this strategy is unrivalled and will result in a boom for the region's industries. In the coming year we will be working with government to push this strategy forward and bring success to the businesses and people in the Midlands.

Building on our momentum, the Midlands, together with government has an opportunity to use HS2 as a catalyst for growth and create a transport network that can deliver a once in a generation opportunity for long term economic success - not just for us here, in the Midlands Engine, but across the UK.

Thank you all for your continued support.

Executive Summary

The Midlands Connect Partnership

Midlands Connect is a pan-Midlands partnership of local transport authorities, local enterprise partnerships and local business representatives working with the Department for Transport and its key delivery bodies. The Partnership now forms the transport component of the Midlands Engine for Growth.

The Midlands is the largest economic area outside of London. It attracts more inward investment and creates more start-up businesses than anywhere in the UK outside of the capital. It is already home to six million jobs, and our companies export to 178 countries. A strong Midlands economy brings growth to the rest of the UK because the supplier and customer networks of our businesses spread far and wide.

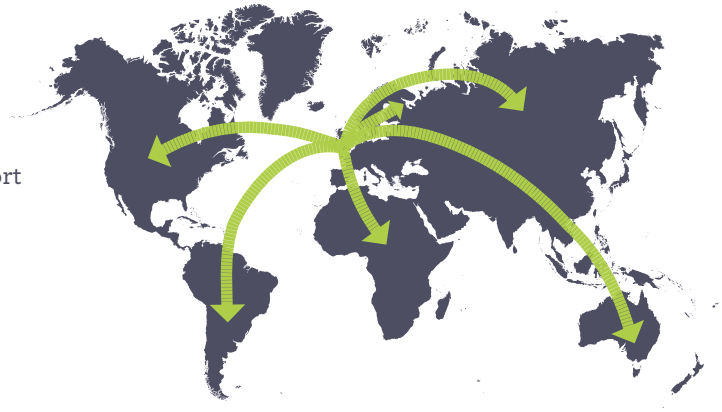
The Midlands is the first region to benefit from HS2. Through Midlands Connect, we are making sure the region is not only well connected to the three HS2 Stations (Curzon Street, Interchange and East Midlands Hub) but also the three stations served by classic compatible trains (Chesterfield, Crewe and Stafford). We also want to capitalise on the released capacity HS2 will bring. Road and rail networks that work in the Midlands also work for the UK because they bring regional economies closer together and improve access to markets, suppliers and consumers – both within the UK and overseas.

Whilst the Midlands economy is strong it is not reaching its full potential, with productivity below the national average. If we can improve transport connectivity between towns and cities within the Midlands and with key centres elsewhere, then we could boost economic growth to the benefit of both the Midlands and UK plc.

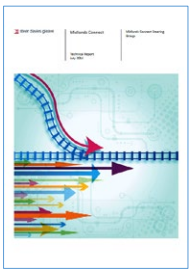
The Midlands Connect Strategy sets out our proposals for how we can start to turn some of this untapped economic potential into real growth: more and better jobs for local people, more trade and investment for local companies, and more opportunities for businesses to expand and for communities to thrive. Our work has been developed in close collaboration with the DfT, Network Rail, Highways England, HS2 Ltd and other key stakeholders.

Whist our vision is ambitious, it is built on a strong technical evidence base and does not assume unlimited financial resources. In addition to implementing existing commitments, we set out a limited number of priorities which we will develop further over the next three years, making use of the additional £17 million of Government funding announced in autumn 2016, to enable delivery to start in the period 2020-25. We also provide a set of longer term interventions for development and delivery over the following years.

Our objective is to establish a rolling 25-year programme of strategic road and rail improvements, split into five year 'blocks' consistent with expected road and rail investment periods and the implementation of HS2. This comprehensive long term approach will give much-needed certainty to businesses, communities and investors whilst also improving quality of life, improving skills and enhancing access to new opportunities – both within the Midlands and beyond.



The Midlands trades with **178** countries worldwide



January 2014
Partnership Formed

Summer 2014
Baseline Report

Summer 2015
Economic Impacts Study

Winter 2016
Emerging Strategy

Summer 2016
Picking up the Pace

October 2015
Strategy Development Launched

Spring 2017
Midlands Connect Strategy: Powering the Midlands Engine

Autumn 2017
Midlands Connect to feed into Rail Investment Strategy, Road Investment Strategy and HS2 Hybrid Bill

Figure 1: The Midlands Connect Journey

The Midlands Connect Strategy

Our strategy is built on a strong understanding of the changing economic geography of the Midlands, informed by the strategic economic plans developed by the Local Enterprise Partnerships, independent economic analysis, and engagement with the private sector through a comprehensive business survey. We have identified how transport connectivity supports economic growth in different sectors and locations across the Midlands - and importantly how and where it acts a as a barrier to growth.

As a result we have been able to establish a spatial framework for investment based on four strategic economic hubs and six intensive growth corridors which are critical to both the Midlands and the UK as a whole.

Strategic Economic Hubs:

- Birmingham, Solihull and the Black Country;
- Nottingham and Derby;
- Leicester and Coventry; and
- North Staffordshire.

Intensive Growth Corridors:

1. Birmingham – Coventry/Leicester – Northamptonshire – Milton Keynes and the South, and includes connections to Kettering, Corby and the East of England;
2. Birmingham – Black Country – Staffordshire and the North, and includes connections to Telford, Shrewsbury and North Wales;
3. Nottingham and Derby – the North;
4. Humber Ports – Lincoln – Nottingham – Derby – Birmingham and Nottingham – Derby – North Staffordshire;
5. Nottingham – Leicester – Coventry – Warwick and Thames Valley, and includes connections from Leicester to Birmingham; and
6. Birmingham – Worcester – Hereford and the Marches with connections to Wales and the South West.

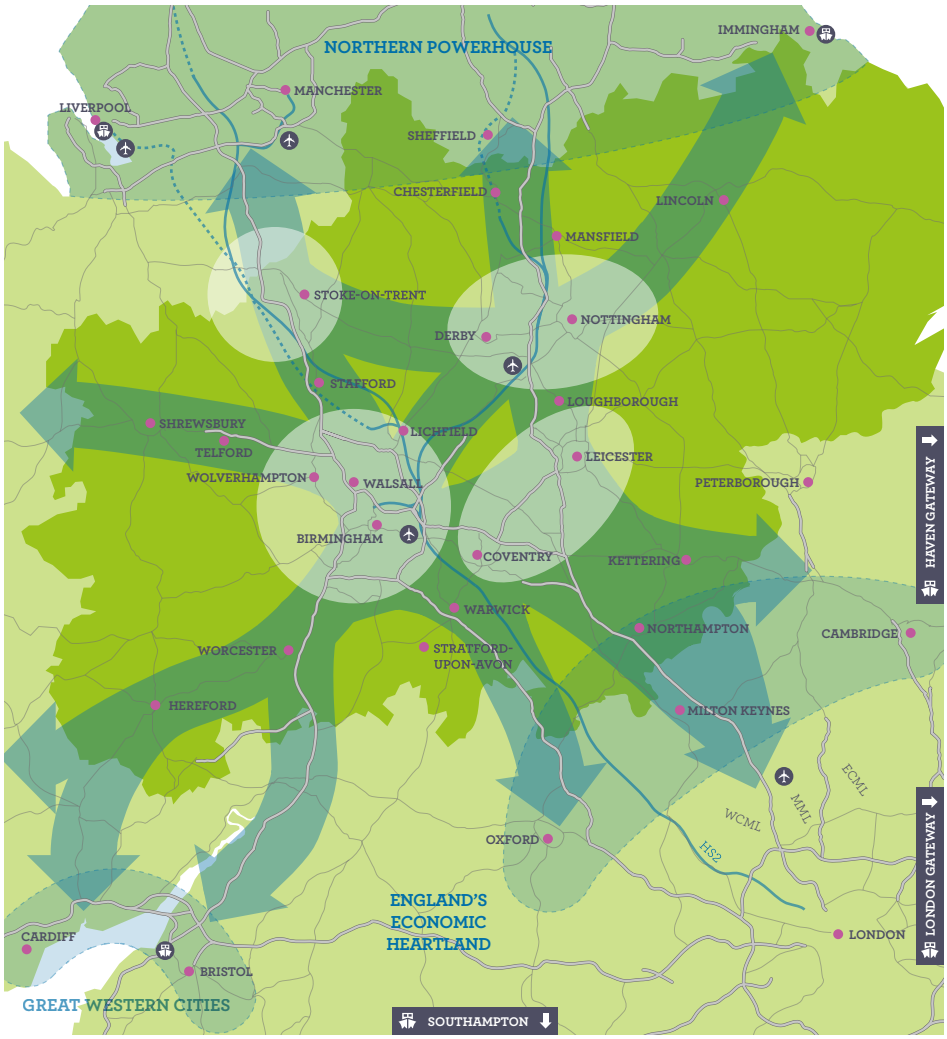


Figure 2: Midlands Connect Strategic Economic Hubs and Corridors

By targeting strategic transport investment in these hubs and corridors we aim to tackle congestion, support housing growth and improve the transport user experience. The Midlands Connect Strategy aims to transform the economy and improve quality of life by delivering the following outcomes:

Regionally Connected: Powering the Midlands Engine

- Transforming East to West connectivity will widen access to markets, supply chains and labour markets releasing the full potential across our whole region – from the Welsh Borders to the Lincolnshire Coast.

UK Connected: The Midlands transport networks power the UK economy

- Strategic road and rail networks that bring the country's economic regions closer together boosting productivity, access to markets and international gateways.

HS2 Connected: Getting the Midlands HS2 ready

- Investing in complementary connectivity will spread the growth unlocked by HS2 across the Midlands and the country as a whole.

Resiliently Connected: We move the nation's freight

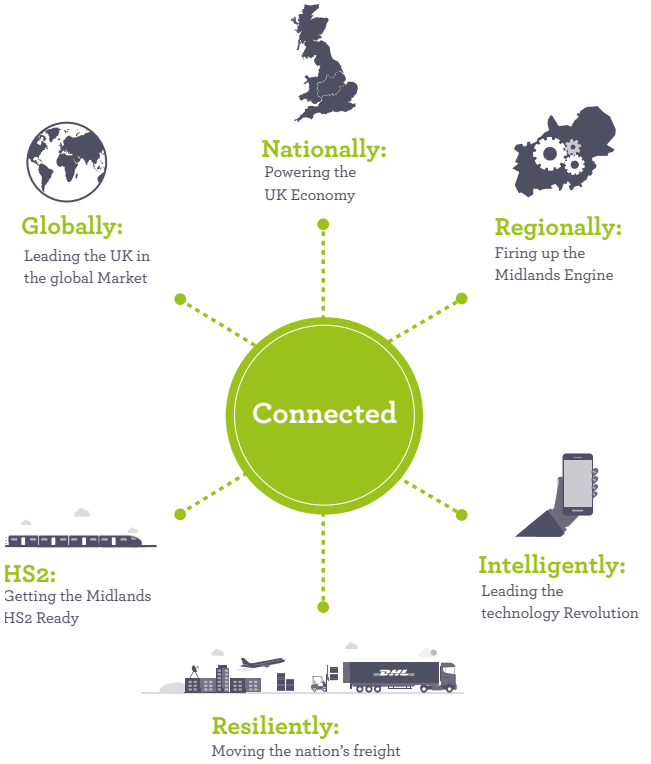
- Boosting productivity and growth by providing reliable road and rail networks – reducing costs to businesses.

Globally Connected: Leading the UK trading in the global market

- We will continue leading the UK in the global export market by increasing international transport links through our ports and airports – securing the UK's long term economic prosperity.

Intelligently Connected: Leading the technology revolution

- By applying innovation and technology such as integrated ticketing solutions, open data and driverless cars we can enhance journeys, provide transport planning solutions and reduce the need for expensive infrastructure.



Our initial analysis suggests that every £1 invested in the Midlands Connect Strategy will deliver at least £2 of economic benefits. As we work up specific proposals in more detail, we fully expect the economic benefits to increase substantially.

Our strategy could boost the economy by:

Midlands Connect Investment Priorities

Almost all the strategic road and rail enhancements that will be delivered up to 2020 have already been decided. Our early priorities therefore focus on ensuring the delivery of key Midlands' schemes already within the investment programmes of Highways England and Network Rail, and developing business cases for interventions that can start to be delivered in the period 2020-2025.

Midlands Connect Strategy - Our Early Priorities

Regionally Connected

- Delivery of the A45 Stanwick to Thrapston upgrade (Northamptonshire)
- Development of Birmingham to Nottingham (including HS2 Hub Station) and Birmingham to Leicester rail services
- Development of Coventry to Leicester and Coventry to Leamington rail enhancement business cases
- Development of a business case for enhanced capacity on Derby-Stoke-Crewe rail services
- Work with partners to develop schemes including Hereford bypass to improve connectivity to the South West and Wales

UK Connected

- Delivery of Midland Mainline upgrade & electrification
- Development of a business case for the Midlands Rail Hub - creating capacity for an additional 10 train paths per hour into Birmingham from across the Midlands; improving east - west connectivity
- Development of a business case for the Midlands Motorway Hub - developing a long term plan for the nation's motorway crossroads
- Development of a business case for upgrading the A1(M)

Resiliently Connected

- Delivery of M1(Junction 19 to 23a) and Birmingham Box (M5-M42) Smart Motorway Schemes
- Delivery of A46 Newark Northern Bypass
- Development of A46 (M40 to Syston) upgrade business case
- Strategic study for potential expressway route on A46 between M5 and M40
- Development of business cases for the M6 Junction 15 to 16 Smart Motorway scheme and Junction 15 upgrade
- Development of a business case for Phase 1 of upgrading the A5 between the A38 and the M1

HS2 Connected

- Development of business cases for use of HS2 released capacity and classic compatible services
- A52 Corridor Multi-Modal Study (Derby, Nottingham, HS2 Hub Station and East Midlands Airport)
- Development of a business case to upgrade the A50 at Uttoxeter

Globally Connected

- Delivery of the A14 Cambridge to Huntingdon improvement scheme to improve connectivity to the Haven Ports from the Midlands
- Development of business cases for improving connectivity to Birmingham International Airport and East Midlands Airport (through A52 Corridor Multi-Modal Study)

Intelligently Connected

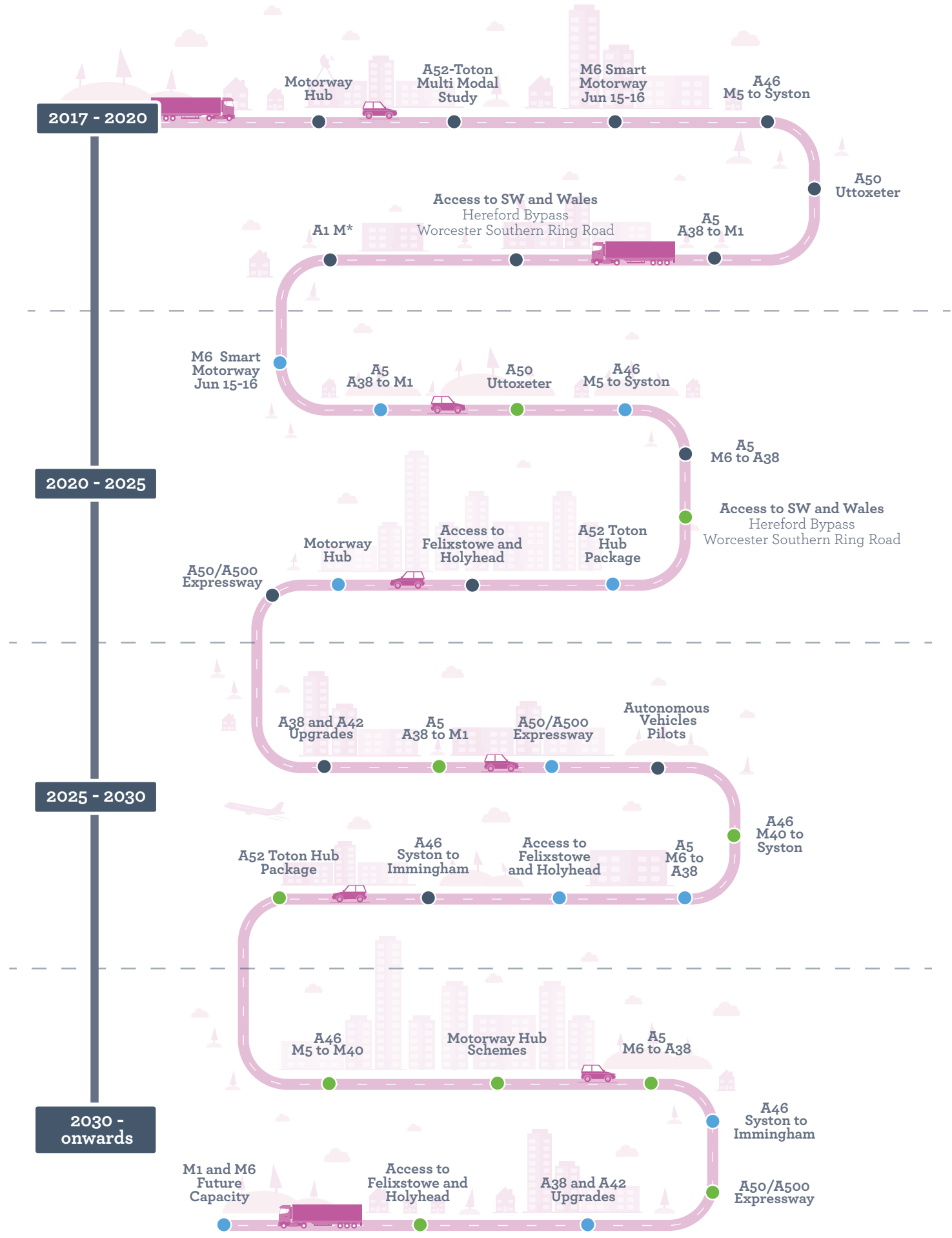
- Active participation in national rail smart ticketing initiative led by the Department for Transport and Rail Delivery Group in order to ensure regional needs and integration with multi-modal travel
- Further development of multi-modal smart ticketing and information options within the Midlands'

Midlands Connect Strategic Programme

Working with our partners, our 'Picking up the Pace' report established our focus for development and delivery priorities over the next 25 years; the projects which are vital to ensure that there is a powerful Midlands at the heart of the UK's economy, and to enable our businesses and communities to thrive.

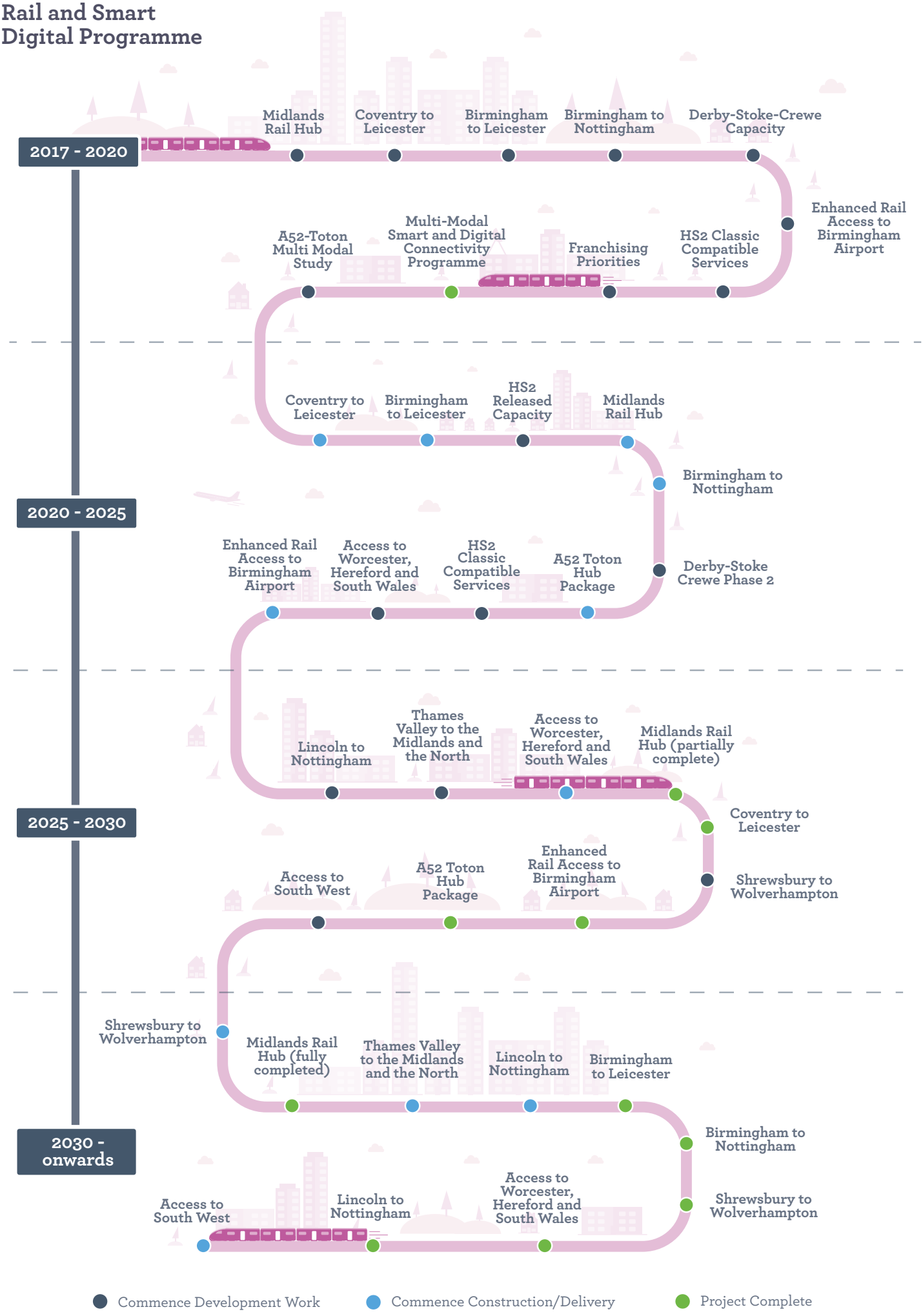
The Midlands Connect priorites for investment programme is set out below showing periods of development and delivery for each project. It is divided into five year 'blocks' consistent with expected road and rail investment periods and the implementation of HS2. This programme will be kept continually under review.

Road Programme



*delivery programme to be determined

Rail and Smart Digital Programme



Our offer to the Government

This strategy provides a sound evidence base for the transport needs of the Midlands and the UK economy, both now and in the future. Whilst our focus is the Midlands we recognise that the Government must take a national perspective and that there will also be financial constraints determining the pace and scale of what can be achieved. We will continue to add to and strengthen the evidence behind our strategy, to ensure that the Midlands has a strong voice when decisions on major infrastructure spending are made.

Our role is to help the Government and our partners build a future pipeline of projects that are affordable within the national context and deliver the strongest possible outcomes. Our commitment is to continue working in partnership with the DfT, Highways England, HS2 Ltd and Network Rail by providing coherent, evidence based propositions to be considered through existing decision making processes.

As our partnership strengthens and matures we will deepen the shared understanding of what is achievable. Through speaking with one voice we can provide the clear leadership to unlock the potential of our region.

Midlands Connect Governance

Midlands Connect is currently a voluntary partnership. Leadership and accountability is provided by the Strategic Board comprising an independent chair, Sir John Peace, elected members from six local transport authorities, four LEP chairs and representatives of HS2 Ltd, Network Rail and Highways England. Our governance structure also includes a Partnership Advisory Board with representatives of all member organisations; a Programme Steering Group and a Technical Advisory Group.

Since the Cities & Local Government Devolution Act received Royal Assent in 2016, Midlands Connect has been exploring options for becoming a Sub-National Transport Body. This work is ongoing, and the partnership intends to agree an initial proposal by the end of 2017.

However, through our current voluntary arrangements, we have already established strong governance, trust, and collaborative working amongst all partners, culminating in this strategy.

Midlands Connect Next Steps

The completion of this strategy sets a clear and robust focus for the Midlands. Our 'Picking Up the Pace' report set out a case for accelerating the planning and design stages of key transport projects in the Midlands so they can be built during the first half of the 2020s.

In autumn 2016 the Government announced a further £12 million of funding to continue development of our strategic programme for a further three years, and to further build our capability and influence. The Government also awarded the partnership a further £5 million specifically to develop the Midlands Rail Hub concept.

As we move forward we will engage closely with all our members, but particularly the delivery bodies, to seek opportunities to share resources and jointly fund our activities. The recent jointly-funded study into the Midlands Motorway Hub with Highways England and the Smart on National Rail joint programme between the DfT and the Rail Delivery Group are early examples.

Over the next three years we will focus on demonstrating the value of investing in Midlands transport infrastructure. This is essential to power the Midlands Engine, drive economic growth and support social mobility for generations to come.

1 Setting the Scene

1.1 Introduction

As the first region to benefit from HS2, the Midlands Connect Partnership is seizing this once in a lifetime opportunity to drive UK growth.

The partnership spans local authorities, LEPs, business groups, our two main airports, HS2 Ltd, Highways England, Network Rail and the DfT. Outside the Midlands we are working with England's Economic Heartland, Transport for the North, the Welsh Assembly and other bordering local authorities to ensure this strategy delivers for the UK as whole.

Our region is one of the fastest growing regions in Europe, attracting more inward investment and creating more start-up businesses than anywhere outside the capital. A strong Midlands economy brings growth to the rest of the UK because the supplier and customer networks of our businesses spread far and wide.

In transport terms we lie at the heart of the country's strategic transport networks – connecting Wales, the North, Scotland and the South of England to each other. A Midlands network that works brings our economic regions closer together boosting productivity, access to markets and international gateways.

This transport strategy is focused on economic outputs - setting out the transformational rail, road and digital infrastructure that will power the Midlands Engine for Growth. Our strategy is anchored around transforming our intensive growth corridors and hubs shown on Figure 1-1 below. These are explained in more detail in Chapter 2 of this strategy.

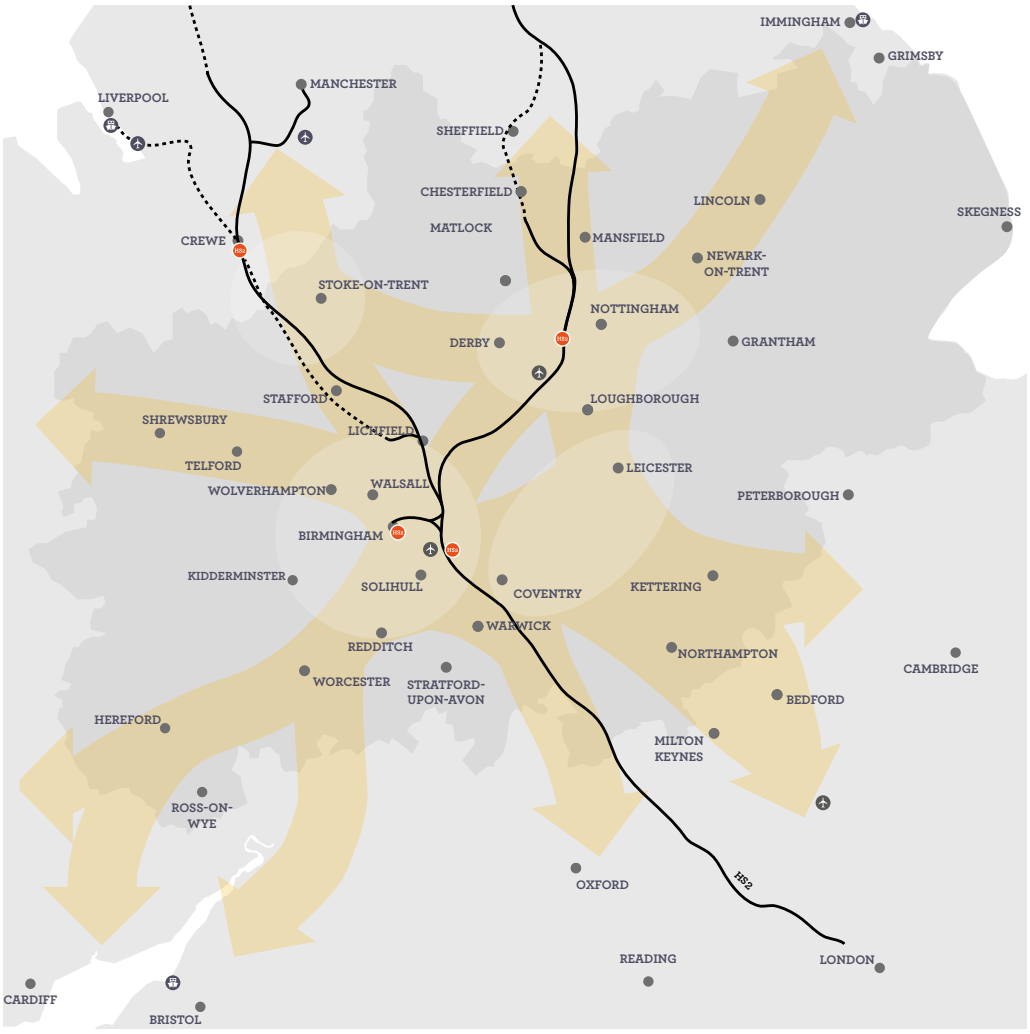


Figure 1-1 Midlands Connect Partnership Area, Intensive Growth Corridors and Economic Hubs

1.2 Purpose of this Strategy

Recognising the strength and economic potential of the Midlands, in October 2015 the Government provided £5 million to boost the development of this Midlands Connect Strategy.

This document now sets out our transformational strategy for how transport will drive the long term economic success of our region by better connecting the economic hubs in the Midlands to each other, and to national and international gateways.

This strategy is powering the Midlands Engine, through which we are stimulating growth in both large and small businesses and, above all, ensuring a better quality of life for Midlanders.

We have translated our investment needs into an implementation programme which we will look to develop and influence with our delivery partners and Government in order to realise our economic potential.

We now need to turn our potential into a reality.

Figure 1-2 The Midlands Connect Journey

1.3 Our Ambition

The Midlands is at the centre of the UK, and for centuries has been at the heart of the UK's manufacturing and industrial success. We lead the UK's export market and our global role has been levering in more inward investment.

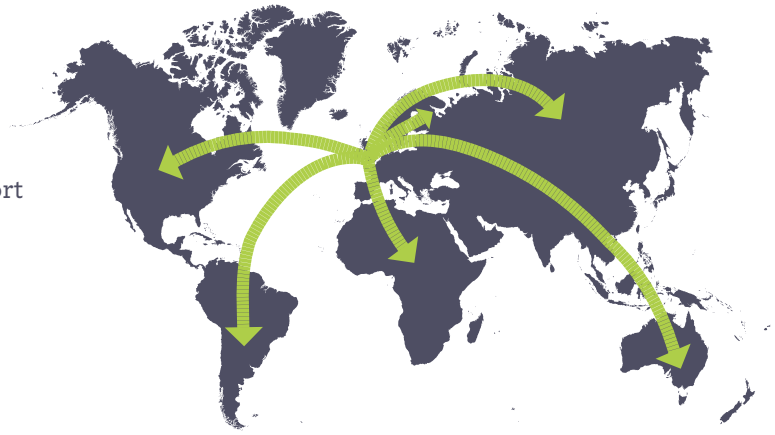
Our vision for an even stronger economy and a Midlands Engine which powers the UK, linking to the rest of the world, is within our reach.

£2.8bn

Only UK region with an export surplus to China - **£2.8bn**

130%

Inward investment projects grew by **130%** between **2011** and **2015**



The Midlands trades with **178** countries worldwide

The Midlands Engine

The UK's Industrial Strategy sets out how cross-cutting issues of infrastructure, education, innovation and fiscal policies can work together to enable the UK's economy to grow, become more efficient and be more competitive on an international stage.

The Midlands has a vital role to play in achieving the national ambition. The Midlands Engine Partnership is currently working on a strategy to shape how our region, which accounts for £1 in every £8 of GVA generated in the UK, can maximise its contribution to UK success.

Fired up in late 2015, the Midlands Engine for Growth focuses on the following key themes:

- skills;
- innovation;
- transport;
- promoting the region; and
- finance for business.

Midlands Connect powers the Midlands Engine.

Central to achieving the region's growth potential is closing the productivity gap with the rest of the UK. Raising Gross Value Added (GVA) per worker to the national average would alone grow the Midlands' economy by £25 billion per annum. Our strategy will help deliver one fifth of the GVA per worker through direct economic outcomes from transport infrastructure.

The Midlands Engine Strategy will lead the way in supporting the Government to deliver the Industrial Strategy. It will show how we will equip Britain with a powerful Midlands to help compete on the world stage by building on our strengths in advanced manufacturing, as the home of UK logistics activity, UK food and drink production and as the UK's dominant exporter. It will also describe how sectors with high growth potential, such as high technology and professional services, will be supported.

300,000

jobs set to be created within the Midlands Engine

Along with skills and innovation, transport is a key enabler of the economic performance and growth which the Midlands Engine seeks to achieve. In key growth sites direct transport investment can help unlock over 300,000 potential new jobs.

Exploiting Technology

Working with the Midlands Engine Innovation Group, we have created a world-class research and innovation partnership involving government agencies, global industry leadership in technology and commerce and leading universities right across our region to drive cutting-edge research innovation and skills development. This will give the Midlands a much needed boost to productivity, to ensure we have a highly-skilled workforce for the years ahead in a post-EU Britain.

This strategy will support the economic ambition of the Midlands Engine by influencing the planning of nationally significant rail, road and digital infrastructure. We will work with the Government to support the Industrial Strategy by rolling out smart ticketing across multiple transport types in the Midlands.

Our research shows that what happens in the Midlands is important to the rest of the UK because the supplier and customer networks of our businesses spread far and wide; and because we lie at the heart of the country's strategic transport networks.

This unique position means that Midlands Connect's focus is not just on providing the conditions for businesses to prosper in the Midlands, but across the whole country. By doing so, we aim to improve the quality of life of everyone who lives, works or visits the Midlands. Whilst our role is at a pan-regional level, we look forward to seeing the benefits of our work arising in individual towns and cities in the Midlands, the North, the East, South West and Wales.

We will get the best possible return for the UK on every pound invested by supporting multi-modal investment in transport which drives growth and, in turn, generates additional funds for investment. This principle underpins the Midlands Connect objectives as set out below.

To support the vision of the Midlands Engine through a transport strategy to transform our strategic transport networks

To maximise economic growth through increasing productivity of existing businesses and unlocking the creation of new jobs across the region

Furthermore we want the Midlands to be the test bed for future innovation and are therefore keen to work with the Government and universities to develop pilots and help bring ideas from concept to delivery. This includes using technology to reduce the need to travel, Connected Autonomous Vehicles and Network Rail's digital railway ambitions.

By leading growth in technology from the Midlands, including driverless cars or piloting platooning of freight vehicles, the UK can become a global centre of excellence for application of these technologies in a sustainable environment where defined standards and legal and regulatory boundaries can be established. This will enable manufacturers to produce globally-accepted products driving accelerated market demand and economic growth. In addition this will help to achieve our transport outcomes. Figure 1-3 below exemplifies how technology could be exploited in more detail.

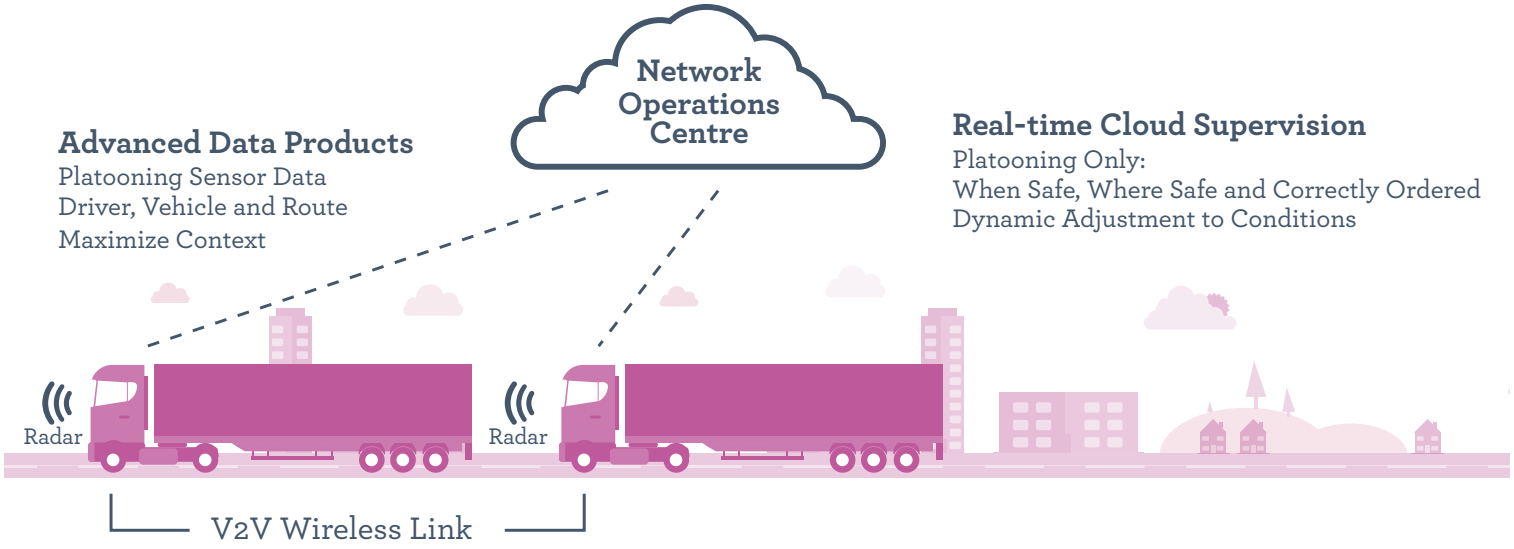


Figure 1-3 Opportunities to Exploit Technology

Our Intended Outcomes

Delivery of the Midlands Connect Strategy could transform north/south and east/west connectivity and journey time reliability, improving social mobility and supporting business enterprise. This includes planning for tomorrow's problems as well as addressing today's.

We will focus on investment in transport research, technology, infrastructure and services that will enable a more effective use of the region's road and rail networks, thus alleviating and mitigating the impacts of high volume and disruption.

By securing significantly more investment we will drive growth by creating transport networks that are efficient, reliable and resilient.

Above all, this could also improve the quality of life of those living and working in the Midlands:

- commuters spending less time sitting in traffic congestion or on crowded trains;
- people having better access to employment and leisure activities in the region and beyond;
- the negative impacts of travel on our lives, such as noise and pollution, could be reduced; and
- opening up new job opportunities sharing prosperity across the region and the UK.

In this strategy we set out a phased programme of development and delivery of projects that we believe will deliver the transport conditions needed to power up the Midlands Engine for Growth.

In the short-term, our focus is on ensuring existing commitments are delivered and on developing the most pressing schemes. Our programme reflects this.

Our longer term ambition is set out in a phased, coordinated and ongoing programme of delivery over the next 20 to 30 years.

2 The Midlands Economy and our Transport Needs

2.1 Introduction

The Midlands is important to the UK's economy: accounting for one in six jobs, and being home to many world-leading companies.

However there are some particular challenges around overall skills levels, the proportion of knowledge intensive business, the level of investment made by SMEs in innovation, and some poor strategic connectivity following a period of underinvestment.

This strategy seeks to transform these challenges in to opportunities by unlocking new jobs, and enabling existing businesses to operate more efficiently, transforming the productivity of our economy.

The overall number of jobs, and rate of employment in the Midlands is accelerating, but many locations, still face the ongoing challenge of pockets of entrenched high unemployment. Furthermore, whilst the Midlands accounts for 17.4% of the UK's jobs, it only delivers 15.6% of the total economic output. Productivity (average GVA per worker) is £37,700, 10% below the UK average. Raising productivity to the national average would in itself grow the Midlands' economy by £25 billion per annum.

Figure 2-1 GVA per worker (£000s) in 2014
Source Midlands Connect Cambridge Econometrics data

2.2 The Midlands Economy

The Midlands is home to nearly 6 million jobs, accounting for more one in six UK workers. The Midlands has a high proportion of jobs and GVA in manufacturing compared to the UK average. Driven by our competitive advantage in this sector we are the principal hub for UK logistics.

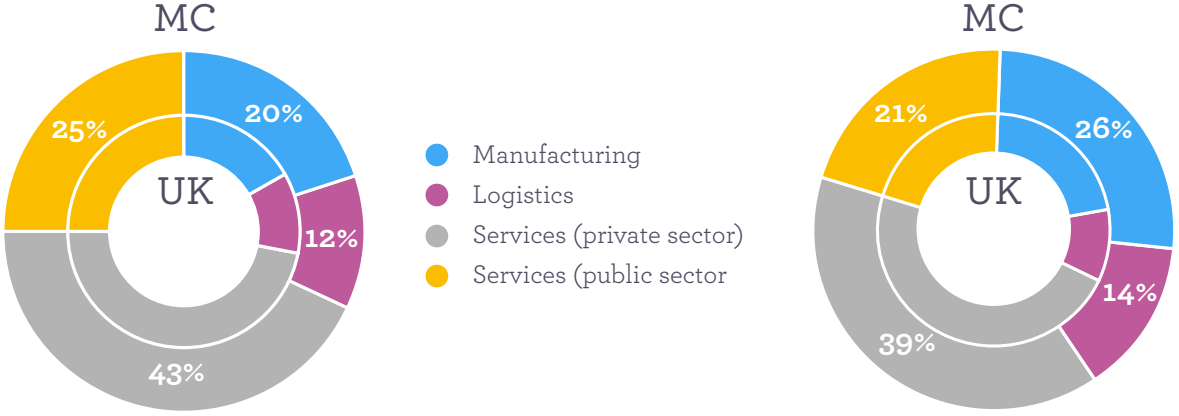


Figure 2-2 Employee jobs (left) and GVA (right) by sector 2014
(Source: Midlands Connect Cambridge Econometrics data)

Figure 2-3 East Midlands Airport is the largest UK air freight operation outside Heathrow

Our manufacturing sector for example accounts for a quarter of all UK manufacturing jobs and production. The advanced manufacturing heartland in the central Midlands area is home to leading companies such as Jaguar Land Rover, JCB, Toyota, Rolls Royce and Bombardier.

Because of its location, the Midlands is the centre of the UK logistics sector, accounting for approximately 20% of UK jobs and GVA. Logistics activity is strongest adjacent to the strategic transport networks from Stoke-on-Trent in the north west to Milton Keynes in the south east but is most heavily concentrated in the 'golden triangle' in Northamptonshire and Leicestershire. The UK's leading freight-focused airport at East Midlands Airport makes for a compelling reason to ensure continued competitiveness.

Over 100,000 people are employed in business, professional and financial services in Birmingham, including companies such as Deutsche Bank; whilst in Nottingham the business services sector employs over 75,000 people and contributes £4 billion to the local economy. Companies including Capital One, Experian and Ikano Bank all have a presence in the city. However, the Midlands is under-represented in terms of professional services and accounts for only 11% of UK professional services GVA showing the potential for growth in this sector.

We have strong food and drink production in locations such as Burton upon Trent and Leicester, together with clusters of food related farming in Worcestershire, Herefordshire, Shropshire and Staffordshire. Lincolnshire has the highest concentration of food production and agritech in the Midlands and is home to over 60 fish processing related companies which process 70% of UK fish.

These sectors are all reliant on reliable transport links for supply chains and customer markets to maintain their competitive advantage.

In the ceramics industry we have over 350 business in North Staffordshire accounting for 32% of all UK ceramics businesses and 60% of all jobs. The industry is worth around £650 million direct to the economy with related tourism in Stoke-on-Trent attracting over four million visitors each year and generating over £850 million per annum. The Lincolnshire Coast also makes a substantial contribution to the Midlands tourism economy generating over 15 million visitor days per annum.

The Midlands Engine is home to the largest number of medical technology and device companies in the country. We have a strong life science pedigree that stretches from Nottingham, with its centrepiece at BioCity, to Birmingham, with the newly opened Institute for Translational Medicine.

In the automotive manufacturing sector, the Midlands is leading the research into new technologies and intelligent mobility. Through Midlands Connect, we will harness the potential to use real time information which will lead to far more effective use of our networks, for example, through controlled connected vehicles running in convoys. Developing this strategic information and improving connectivity will reduce unnecessary travel and running of empty freight and logistics vehicles.

Our strategy will build on these proven strengths and exploit the natural advantages offered by the Midlands' location at the heart of the UK. Through transforming our transport connectivity we will widen labour markets, business markets (customer and supplier) and stimulate growth in our key sectors and locations.

2.3 Location - the Midlands' Natural Advantage

The Midlands transport networks are pivotal to the competitive advantage of the Midlands. Our location at the centre of the UK means that we are well-placed to serve UK and global markets. The transport networks passing through the Midlands are critical to supporting the needs of the whole UK economy. Improving the strategic transport networks in the Midlands will help support growth in both the Midlands and wider UK economy.

Everyone does business with the Midlands. Our location means that Midlands businesses have unrivalled access to UK suppliers and markets, and a choice of routes to export products to Europe, Asia and North America. But we need high performing transport networks to fully exploit our locational advantages. Our strategy aims to deliver those networks.

Our goal however isn't just to grow the Midlands economy, it's to grow UK plc – to exploit our position in the country to help all parts of the UK to prosper by enabling the quality of connectivity to, from and through the Midlands. Supporting the Midlands Engine is supporting the UK Engine.

Midlands Connect is the transport component of the Midlands Engine, but of course we know that overcoming our economic challenges requires more than just investment in transport. Other components of Midlands Engine are considering how investment in skills, business support and land availability, together with transport, will deliver our vision of an economy which drives the prosperity of the nation.

2.4 The Midlands Airports

Air connectivity is essential for businesses to thrive in a globalised economy. UK trade value by country is highly correlated to the number of passengers travelling for business purposes, emphasising the indispensable nature of airports as enablers of international growth of UK businesses. Improving access to support passenger growth is essential in opening up wider business travel destinations, particularly to the Americas and the Far East.

Birmingham Airport is the seventh largest airport in the UK, third largest outside London and the airport of choice for residents of the West Midlands. In 2015, it served a record 10.2 million passengers and experienced a 21% growth in long haul passengers, as more and more airlines are attracted to the Airport and the Midlands region, connecting new destinations. The connectivity it provides boosts the economy by over £1 billion a year.

In 2026 Birmingham Airport will become the UK's first and only HS2-connected airport, dramatically enlarging its catchment area into London and growing the Midlands Engine. Independent analysis has shown that if HS2 was in operation in 2014, the Airport would have served 750,000 additional passengers that year and provided an extra economic boost of £52 million GVA.

Birmingham Airport could be serving 50 million passengers a year by 2050. It is embarking on a process to explore possibilities for its future to meet growing aviation demand, support the economy and seize the opportunity presented by HS2. This is part of realising the Airport's vision of becoming the UK's first fully integrated airport, with seamless interchange between high-speed rail, rail, road, and other public transport solutions. The work being undertaken will feed into Birmingham Airport's next Master Plan, enabling businesses and communities to consider how to best boost the economy at the centre of the country and maximise the benefits of HS2.

East Midlands Airport is already the airport of choice for business travellers from Derby, Nottingham and Leicester travelling to Scotland, Ireland and mainland Europe. The airport's plan is to extend the service to principal mainland European destinations, with efficient onward connections to North America, the Far East and the rest of the world.

Through joined-up collaboration between airports and airlines; marketing and promotion of air services; and raising awareness of the Midlands as a destination will help secure:

- improvements in air connectivity to mainland European business destinations;
- improvements in direct air connectivity to the main US business centres; and
- efficient connections to long haul destinations via Dublin, Amsterdam and other hubs.

2.5 How Transport will Unlock Growth

There is a growing body of evidence about the relationships between the movement of people and goods and the economy, and in particular how investment in transport can drive economic growth both directly and indirectly. Whilst there is still much to learn about the detailed causality of transport at a local level, there is general consensus on their impacts on the economy.

Our strategy sets out how it is possible to maximise these effects by focusing on investment that overcome the barriers to growth through providing the efficient, reliable strategic road and rail networks with the capacity, connectivity and resilience to directly raise productivity.

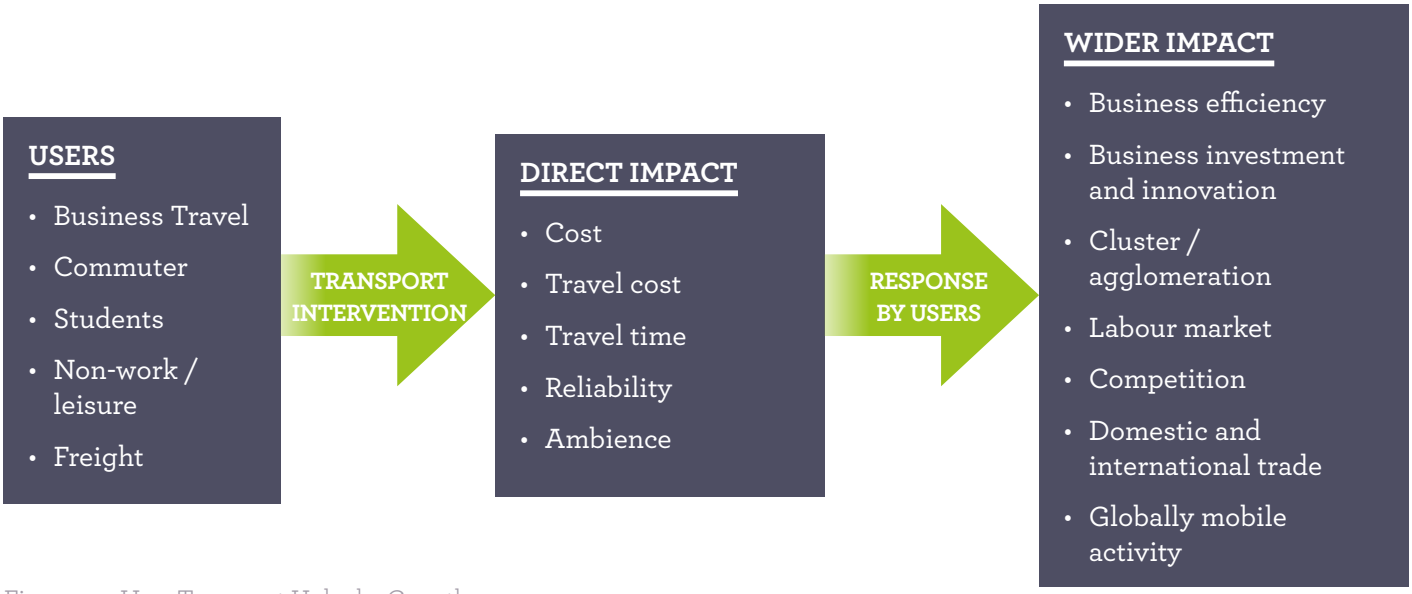


Figure 2-4 How Transport Unlocks Growth

A recent Centre for Cities[1] report adds further weight to the importance to the national economy of regions increasing their 'export base'.

The report emphasises the importance of cities in driving growth and attracting inward investment. City centres are highlighted as having the largest clustering of economic activity. "Despite accounting for just 0.08% of land, they were home to 8% of businesses and 14% of jobs in 2015..... 32% of Britain's high skilled jobs in the service exporter market being located in city centres."

Attracting foreign investment puts an even greater emphasis on cities. In 2015, 30% of foreign owned service exporting firms were in city centres (11% for all service exporting) and 40% of foreign owned goods exporting businesses were in the suburbs (28% for all goods exporters).

The Midlands has been very successful in bringing in foreign investment, creating over 48,000 new jobs between 2011 and 2015 and safeguarding over 23,000 existing jobs. If we are to continue to grow our export based market in goods and services and attract further inward investment, then key barriers such as access to city centres, reliability on our highway networks in the suburbs and access to international destinations need to be addressed.

2.6 Driving and Unlocking Growth in our Key Sectors

This strategy will raise economic output by delivering investment which will drive growth by enhancing the performance of the strategic road and rail networks. Investment will be targeted where it will deliver the strongest economic growth for the UK as a whole, as well as putting money in the pockets of Midlanders and enhancing their quality of life.

We can achieve this by targeting our large and fast growing cities and corridors where there is potential to both drive enhanced economic performance and unlock locations where transport is constraining growth.

In particular this means:

- Driving economic growth and raising productivity:
  - supporting our manufacturing sector by ensuring reliable highway journey times to supply chains and markets in urban peripheries and intensive growth corridors;
  - helping our manufacturing and logistics sectors to access overseas markets and suppliers by improving connectivity to international gateways, especially road access to ports;

[1] Centre For Cities: Cities Outlook 2017

- supporting our professional services sector to realise productivity gains by ensuring fast and reliable rail travel to and from suppliers and clients, especially inter-city journeys and to/ from airports;

- Removing transport barriers to unlock economic growth:
  - providing sufficient peak period rail capacity for growth in professional services jobs in city centres;
  - broadening labour markets, particularly to areas with high and intermediate skills by reducing peak period road and rail journey times;
  - ensuring the transport network is resilient to incidents, events and maintenance needs to provide journey time certainty all day, every day;
  - working in tandem with other Midlands Engine initiatives (such as skills) to maximise direct and the indirect effects, to ensure transport improvements are not constrained;
  - working with local transport authorities on managing the interfaces between strategic and local networks and helping them to improve intra-urban transport;
- Raising the quality of life of Midlanders:
  - ensuring fast and reliable journey times for journeys to and from work and ensuring that train journeys are comfortable and convenient; and
  - improving the way that the public can plan, pay for, and travel on the transport networks across the region.

Figure 2-5 Percentage of businesses that consider the road network critical to their access to suppliers and customers Midlands Connect Business Surveys 2015

2.7 Realising our Growth Opportunities

The Midlands Engine's ambitions for growth will require the delivery of significant amounts of new employment floor space across the Midlands. Our LEP partner's Strategic Economic Plans contain aspirations for over 700,000 jobs, of which over half are located in our key growth sites (detailed in Figure 2-6) that could be unlocked by transport investment. The Midlands Engine Pitch Book contains more information specific sites. Although it does not show every employment site across the Midlands, it provides details of those sites that are likely to have the most impact on regional economies – either in terms of number of potential jobs, or in terms of strategic impact, for example in supporting high value research and development functions.

2.7.1 Making the most of HS2

Six HS2 stations will serve the Midlands Connect area: three HS2 Stations (Curzon Street, Interchange and East Midlands Hub) and three stations served by classic compatible trains (Chesterfield, Crewe and Stafford).

This is a great opportunity as over 50% of the Midlands economy is in sectors which are expected to benefit the most from HS2. We therefore need to ensure that we maximise the benefits of HS2 to the Midlands, particularly in helping to unlock our key growth sites, by ensuring that each station can be easily accessed from our hubs and corridors.

Jobs in sectors with the greatest potential to benefit from HS2 are clustered in the cities (such as Derby, Nottingham, the Birmingham conurbation, Coventry and Stoke-on-Trent) and surrounding areas (such as immediately north and south of Birmingham) as well as a relatively high share in Shropshire.

This strategy complements the HS2 Growth Strategies, bringing forward interventions that will add value and make the Midlands truly "HS2 ready".

Growth Sites

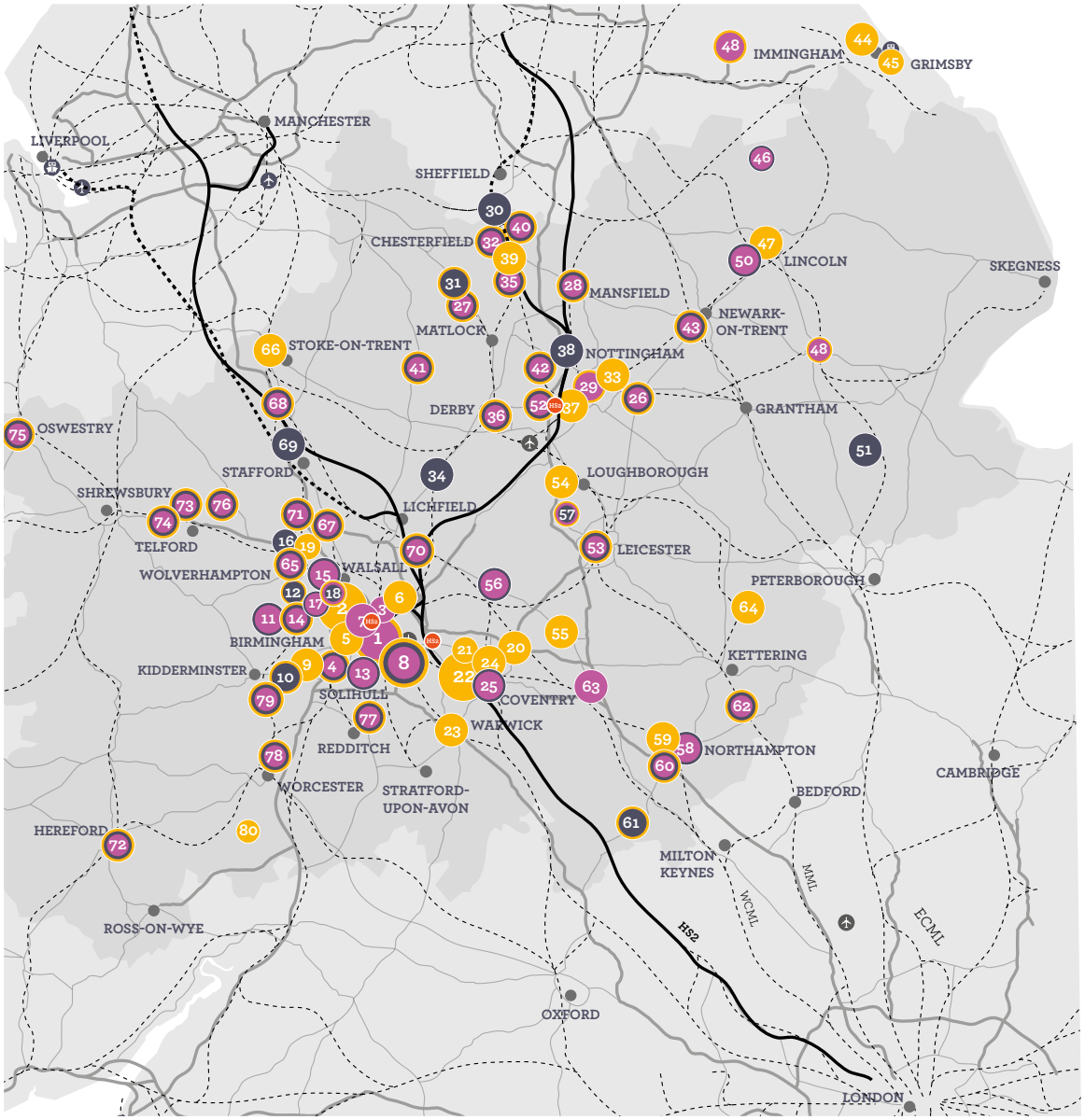


Figure 2-6 Strategic growth sites in the Midlands

Bubble size represents job growth

0 - 1,000
1,001 - 10,000
10,000 +

Key Manufacturing Logistics Producer Services

Birmingham and Solihull

1. Birmingham Curzon HS2
2. City centre Enterprise Zone
3. HS2 Washwood Heath maintenance depot
4. Longbridge
5. Paradise
6. Peddimore – employment proposal.
7. Snow Hill
8. UK Central
9. Birmingham Smithfield
10. Birmingham Life Sciences Campus (Selly Oak and south Edgbaston)
11. Aston Manufacturing Hub
12. Perry Barr
13. East Birmingham (Bordesley Park)

Black Country

14. Brierley Hill sites (Waterfront, Archill & Harts Hill)
15. Darlaston Existing EZ Sites
16. I54 plots (remaining)
17. Park Rose Industrial Estate, Smethwick
18. Sandwell Gateway Regeneration Opportunity
19. Wolverhampton Business Park

Coventry and Warwickshire

20. Ansty Park & Phase 2
21. City Centre South
22. Coventry Friargate
23. Tournament Fields, Warwick
24. Whitley Business Park
25. Whitley South

D2N2

26. A46 Corridor sites
27. A6 Enterprise Corridor
28. Berry Hill
29. Broadmarsh and Southern Gateway
30. Callywhite Lane
31. Cawdor Quarry
32. Chesterfield town centre, Waterside, HS2 station and A61 Growth Corridor
33. Creative Quarter, Nottingham
34. Drakelow Park
35. Former Biwater
36. Infinity Park, Derby
37. Nottingham Enterprise Zone
38. Rolls Royce site, Hucknall
39. The Avenue
40. Peak Resort
41. Ashbourne Airfield Expansion
42. Stanton Ironworks Regeneration
43. Newark Growth Sites

Greater Lincolnshire

44. Able Marine Energy Park
45. Europarc
46. Land at Hemswell Cliff
47. Lincoln Science and Innovation Park
48. Normanby Enterprise Park
49. Sleaford Enterprise Park
50. Teal Park, North Hykeham
51. Food Enterprise Zone, Holbeach

Leicester and Leicestershire

52. East Midlands Gateway
53. Leicester Strategic Regeneration Area
54. Loughborough Science and Enterprise Park
55. Magna Park
56. MIRA Enterprise zone and Technology Park
57. Coalville Growth Area

Northampton

58. Northampton South East (Houghton Gate and Martin's Farm)
59. Northampton Town Centre (not waterside)
60. Northampton Waterside enterprise zone
61. Silverstone
62. Wellingborough Stanton Cross

South East Midlands

63. DIRFT III, Daventry District
64. Priors' Hall at Corby

Stoke-on-Trent and Staffordshire

65. Enterprise Zone, I54
66. Ceramic Valley Enterprise Zone
67. Kingswood Lakeside
68. Meaford
69. Redhill Employment Park
70. Lichfield Employment Site
71. Bericote Four Ashes

The Marches

72. Hereford Enterprise Zone
73. Hortonwood
74. Hortonwood West
75. Oswestry Innovation Park
76. Telford T54

Worcestershire

77. Redditch Eastern Gateway
78. Worcester Technology Park
79. Kidderminster
80. Malvern Hills

2.8 Our Transport Needs

The Economic Impacts Study (2015) tested the impacts of 10% and 20% reductions in Generalised Journey Times (GJTs) for key movements across the Midlands for the 2026 and 2036 forecast years. These hypothetical GJT changes were selected as they were considered to provide a robust insight into the potential scale of the economic benefits which could be unlocked across the Midlands. The Economic Impact Study reported that, in 2036, if journey times were cut by 20% across all of the intensive growth corridors we could achieve:

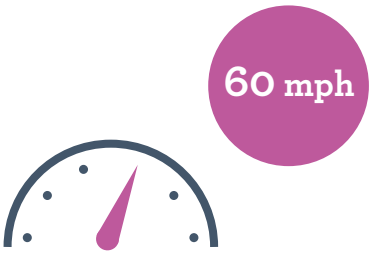
- £460 million per year in business journey time savings;
- £1.1 billion per year in static agglomeration benefits;
- 306,000 additional jobs; and
- £33 million per year in labour market impacts.

The report recommended that further work would be required to assess the actual potential scale of reduction in GJTs for the Conditional Outputs (detailed below). This has been part of the core focus of this strategy development. We translated this high level aspiration into a set of conditional outputs as set out in the Emerging Strategy (2016). These were used to guide option development and testing.

The technical approach has been to start with transformational options and then consider the benefits, costs, deliverability and relative economic case for options in terms of scale, complexity or costs.

Our technical work has confirmed that we should continue with our headline conditional outputs with the exception of the rail speed aspiration which we have reduced down to 70mph as a minimum. This reflects both the deliverability of some of the infrastructure required and the need to support growth in local/ regional stopping services. For key national connections, such as our aspiration for Nottingham to London in 90 minutes we will still seek to exceed this speed.

Our updated headline conditional outputs are set out in Figure 2-7. These are set out in more detail in Chapters 4, 5 and 6 alongside the interventions that we need to achieve them.



Highway Journey Times

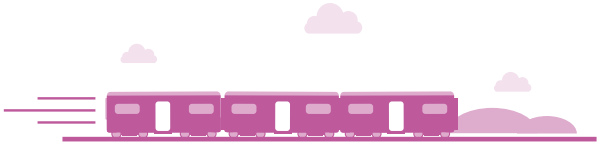
"To achieve a mile a minute on the Strategic Road Network"

To achieve an average **speed of 60 mph** on the SRN between our key centres, national and international destinations.

Highway Journey Times

"Journey Times should be reliable for people and freight"

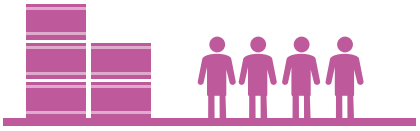
The journey time (in normal conditions) should be **no more than 20% higher** than the average journey, any time, everyday.



Rail Services

"Direct and fast links between our key centres, national and international destinations"

Key centres served by direct service. Journeys with end to end **speeds of 70mph** where possible



Rail Capacity

"We carry all the freight and people that we want to"

Off peak
Everyone gets a seat

Peak
No more than 20 minutes standing

Freight
Sufficient rail freight capacity

Figure 2-7 Midlands Connect headline conditional outputs to drive economic growth

2.8.1 Harnessing the Potential of Intelligent Mobility

There is now a real opportunity to exploit our ability to harness and focus our resources in technology and digital connectivity.

In developing this strategy, we established the smart connectivity programme, to look at both emerging and future aspects of the transport network, as well as quick wins that could be deployed to deliver earliest passenger and business benefits.

We have and will continue to harness all of the pertinent research and development activities that are either planned or underway.

Our technology road map (see Figure 2-9) shows how in the future we can maximise the efficiency of our networks.

There are currently many projects underway that are looking at aspects of future travel, led by a range of organisations, clients and suppliers. Although there are degrees of cooperation there is an opportunity for Midlands Connect to facilitate the delivery of much higher value outcomes much more rapidly.

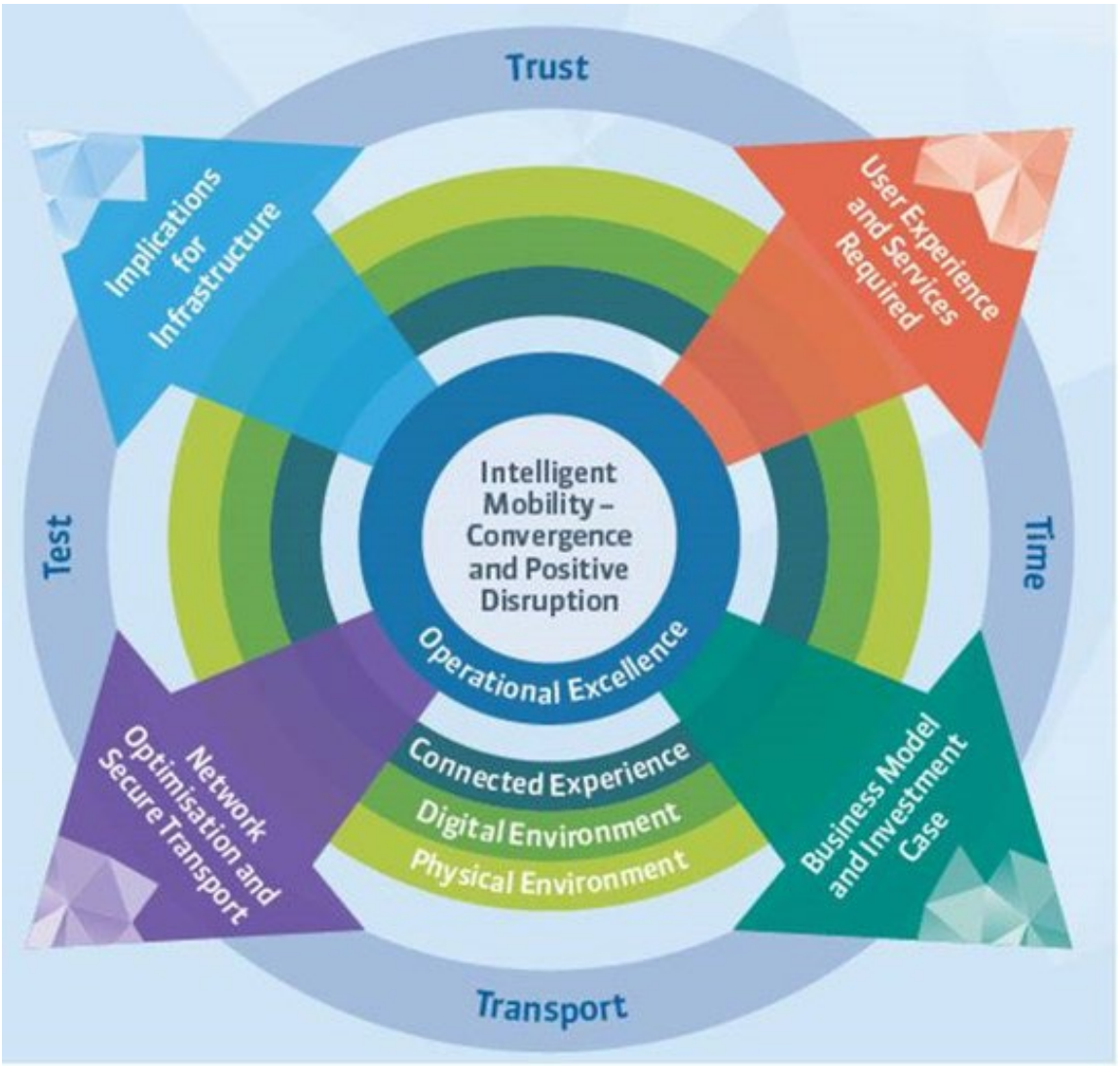


Figure 2-8 The potential of intelligent mobility

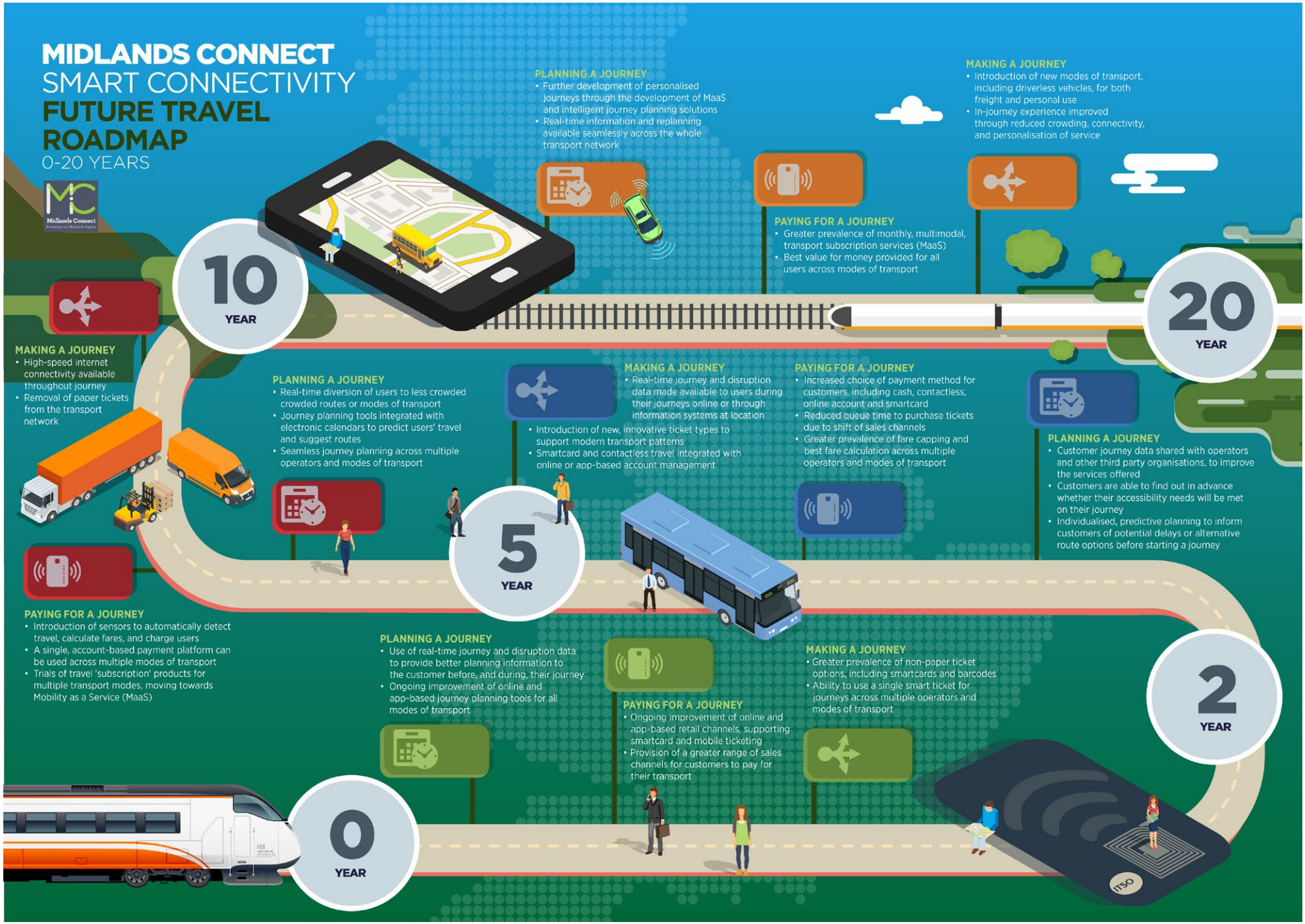


Figure 2-9 The Midlands Connect Smart Connectivity Roadmap

2.9 The Midlands Connect Corridors and Hubs

The 30,000 km[2] Midlands Connect area spans the central belt of the UK from the Welsh border in the west to the Lincolnshire coast in the east. The eleven major urban areas are home to over half of the jobs in the Midlands and account for over half of total economic output[2].

Throughout the Midlands Connect work we have recognised the importance of clusters of economic activity around our towns and cities, making them the region's economic powerhouses.

The Midlands has nationally important clusters in manufacturing (including automotive and transport equipment) and logistics (including the 'golden triangle' and the UK's leading freight-oriented airport). In addition, there are important clusters of professional services in the centres of Birmingham and Nottingham. These clustering effects will be increasingly important to the future success of the Midlands economy.

There are numerous economic benefits from being in close proximity to other businesses that undertake similar activities. This leads to a process of agglomeration, increased competition and economies of scale that benefit the wider business community in the cluster.

Clusters are place-specific and sector-specific, with relevant supporting services (e.g. universities, research and development, innovation) being located in the same geographic area. Clustering enables flows of information between firms, service providers and institutions and supports commercial activity and innovation.

There is, therefore, clear potential to derive significant economic benefits by facilitating agglomeration through improving connectivity between economic clusters across the Midlands. This is likely to be through connecting existing economic activity, which is focused on existing towns and cities in the Midlands. Most of the strategic growth sites (detailed earlier in the chapter) are located in or near to these urban areas.

The map has helped us to identify those areas that are likely to form the main focus for economic growth in the Midlands: a network of 'intensive growth corridors' connecting the main urban areas and strategic growth locations. These corridors, comprising and connecting the urban areas, are where most jobs are located, and these will be the main focus for agglomeration and growth in the Midlands.

[2] Based on Centre for Cities definition of Primary Urban Areas.

It goes without saying that economic growth will also occur outside these hubs. Many of the strategic development sites identified by the Local Enterprise Partnerships are around the periphery of the hubs, or in a number of intensive growth corridors which are focused on major transport corridors. These sites are expected to accommodate most of the future growth in the Midlands. This growth will come about because of the proximity of these sites to the strategic road and rail networks which define the corridors; linking the sites, and the hubs within the Midlands to key economic centres elsewhere in the UK and to international markets and suppliers via ports and airports.

They are critical to the UK as a whole and support the areas which form the main focus for economic growth in the Midlands.

The 'intensive growth corridors' are:

- **corridor 1:** Birmingham – Coventry/Leicester – Northamptonshire – Milton Keynes and the South, and includes connections to Kettering, Corby and the East of England;
- **corridor 2:** Birmingham – the Black Country – Staffordshire and the North, and includes connections to Telford, Shrewsbury and North Wales;
- **corridor 3:** Nottingham and Derby – the North;
- **corridor 4:** Humber Ports - Lincoln – Nottingham – Derby – Birmingham and Nottingham – Derby – North Staffordshire;
- **corridor 5:** Nottingham – Leicester – Coventry – Warwick and Thames Valley, and includes connections from Leicester to Birmingham; and
- **corridor 6:** Birmingham – Worcester – Hereford and the Marches with connections to Wales and the South West.

Our four 'hubs' are the key centres of economic activity in the Midlands, and the places where the travelling needs converge: Birmingham, Solihull and the Black Country; Nottingham and Derby; Leicester and Coventry; and North Staffordshire.

Our strategy focusses on exploiting the locational and economic advantages of our hubs and corridors to enable and support economic growth in those locations where conditions are already most favourable. Figure 2-10 provides further details of these.

End note - all the analysis in this chapter is based on the make-up of the Midlands Connect partnership at November 2016.

Midlands Connect Corridors and Hubs

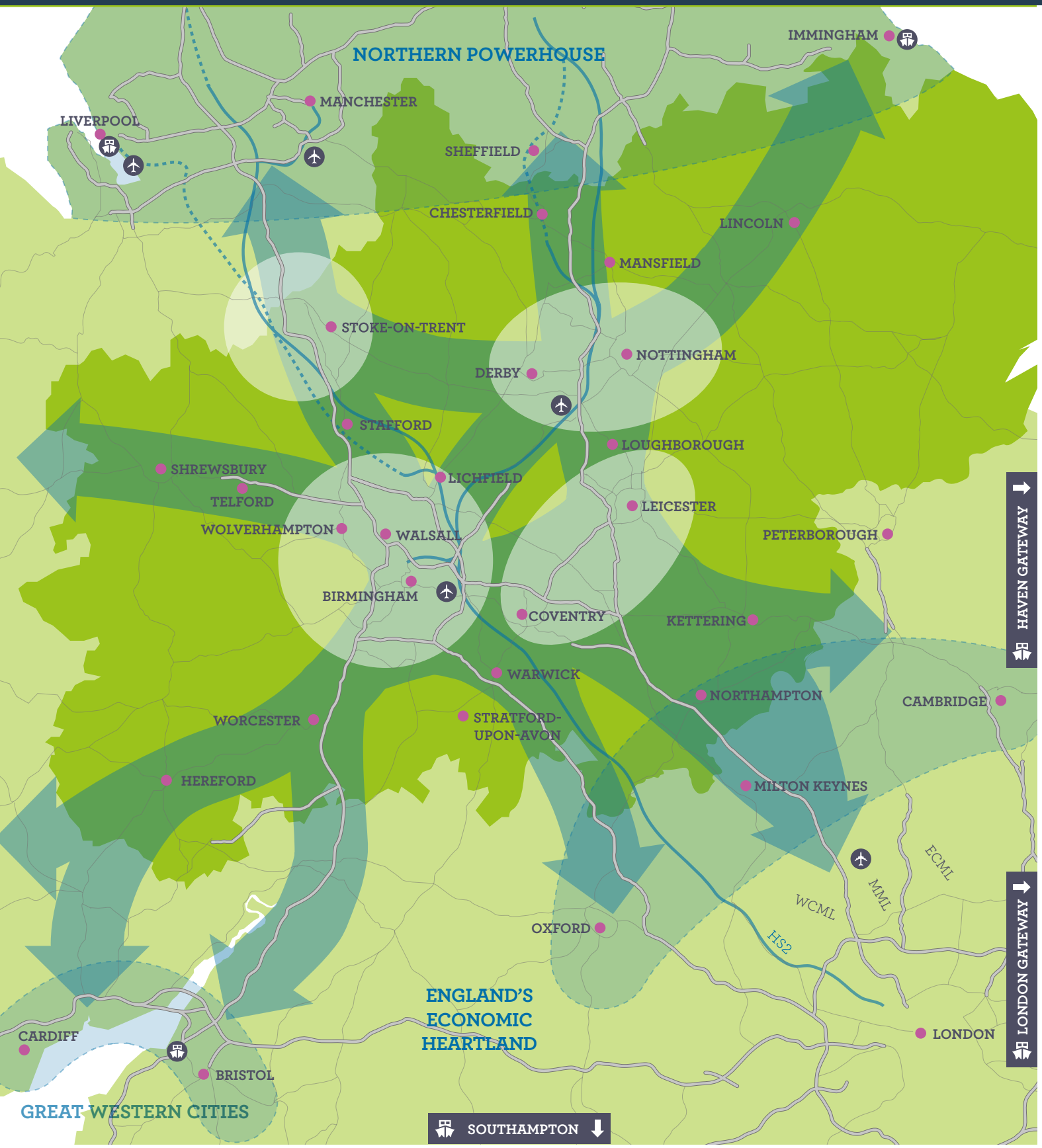


Figure 2-10 Midlands Connect Corridors and Hubs

3 Setting our Ambition

3.1 Introduction

As set out in Chapter 2 this strategy builds upon the Economic Impacts Study (2015) which demonstrated the significant economic potential of achieving 20% reduction in generalised journey time (the time taken for a whole journey door-to-door).

In developing this strategy this ambition has been translated into conditional outputs for rail and road which were set out in Chapter 2.

3.2 Our Ambitions for Rail

As part of the Midlands Engine, Midlands Connect understands the connectivity needs of our economic centres and in this chapter we set out the infrastructure and services to support those needs.

As we look forward, Midlands Connect will be involved in setting the standard of services which we expect to see from passenger rail franchises in the future. As well as services and stations, we want state of the art ticketing, information and comfortable on-board working environments for both commuters and business travellers.

We complement and bring together the work of the local authorities and sub-regional bodies such as West Midlands Rail to provide a unified position on strategic rail connections across our region.

To drive economic growth we want to see our rail network provides:

- direct and fast links between our key centres, national and international destinations;
- sufficient capacity to accommodate the volumes of freight and passengers needed to support our growing economy; and
- the ability to embrace the technology revolution to maximise the benefits for users, both people and goods, of our networks.

3.2.1 Direct and Fast Rail Connections

Our ambition is to have direct rail services between all key locations within the Midlands and to key centres elsewhere. Currently this is not the case, with no direct services for example between Leicester and Coventry, Solihull and Wolverhampton, or Nottingham and Birmingham Airport.

The speed of rail journeys is variable; journeys between key Midlands centres and London are relatively fast, but average speeds within the Midlands and to other locations are commonly slow (less than 50 mph). For example, a 52-mile rail journey from Birmingham to Nottingham takes 69 minutes, an average speed of just 45 mph.

Examination of journey times elsewhere in the UK shows that we can set a much higher ambition. For example, a comparable journey between Southampton Central and Reading of 50 miles takes just 49 minutes, at around 20 minutes faster.

3.2.2 Rail Capacity

Network Rail forecasts suggest that passenger overcrowding on trains will worsen in the future. In the Midlands these problems are expected to be most acute in the Birmingham area, with several locations (including on the Birmingham to Coventry corridor and on the Cross City Line towards University) forecast to have in excess of 140% seat utilisation in the peak.

Looking towards the future, HS2 will address some key strategic capacity issues and provide transformational national connectivity. There will, however, remain some capacity constraints to be addressed on other parts of the network reflecting the scale of population and job growth across the wider region. This will act as a brake on the Midlands economy which we must address.

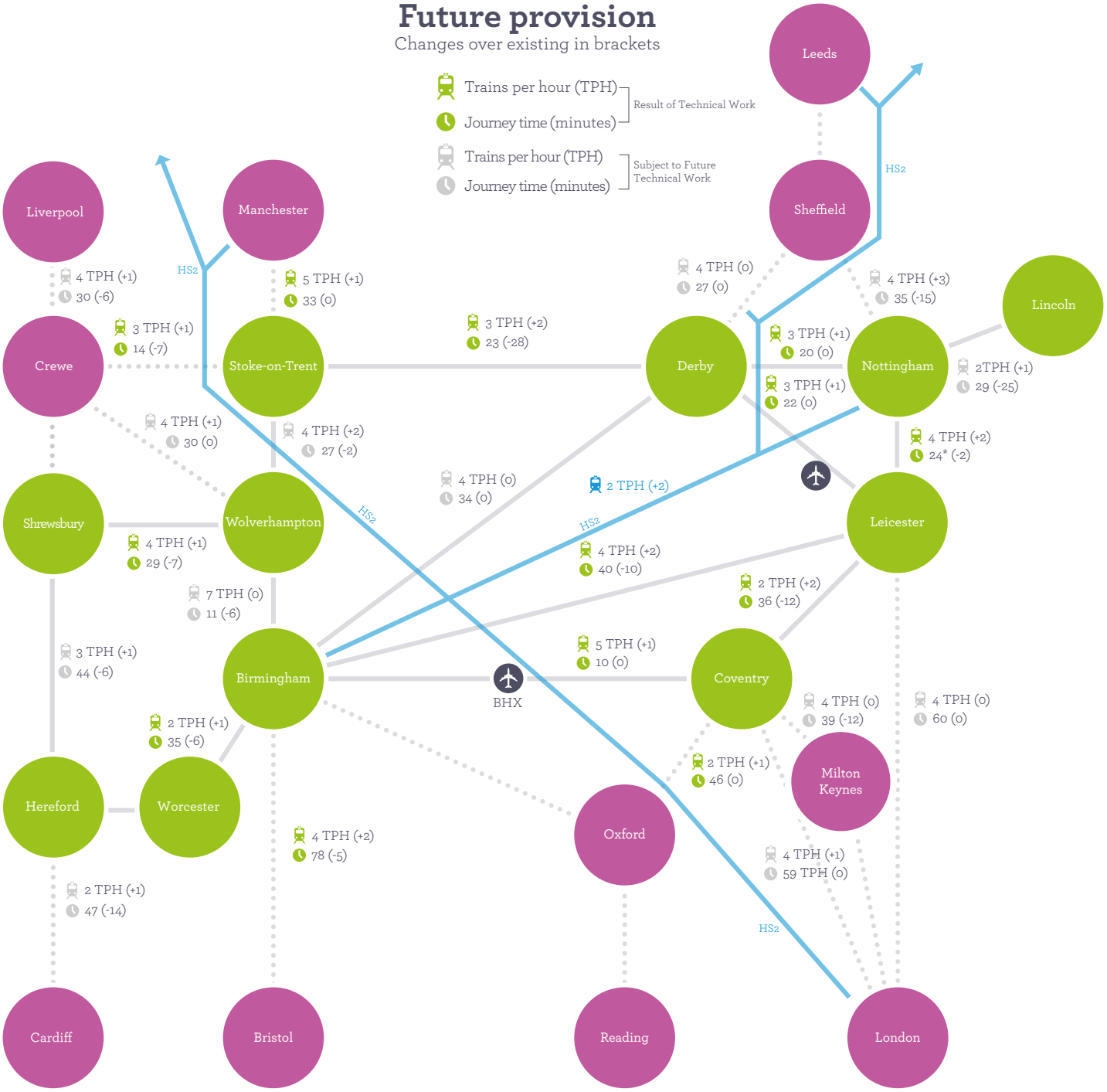
Our ambition is therefore to release this brake by seeking investment to secure more rail passenger capacity so nobody has to stand for more than 20 minutes on peak services into key centres and, in the off-peak, everybody has a seat.

The Midlands lies at heart of the UK rail freight network and hence plays a key role, both in terms of national and regional freight movements. Several routes are of particular importance, including the West Coast Main Line, Midland Main Line, the Birmingham to Derby Line and the route between the Midlands and Felixstowe via Peterborough.

3.2.3 Our Rail Aspirations

We have translated our journey time and frequency aspirations into a series of conditional outputs for passenger rail services between key economic centres. These are shown in Figure 3-1. From our technical work to date looking at the business case for investment, we are developing a clearer view on the best balance between achieving our ambitions, deliverability and value for money.

This work is ongoing and we will update the conditional outputs for the wider network as our programme of business case development continues.



*Change in current journey time is subject to confirmation of the improvements that MML electrification and upgrade will achieve alongside refranchising.

Numbers presented exclude stopping services and are based on semi-fast / fast services only
Not all routes shown

Figure 3-1 Midlands Connect Rail Freqency Aspirations and Journey Time Aspirations

3.3 Our Ambitions for Road

The strategic road network is not performing at the level we need to support our economy.

Road connectivity is 'critical' or 'very important' to 80% of logistics firms, 60% of manufacturing firms and 45% of professional services firms in the Midlands. Some 60% of these businesses report that conditions on the major road network causes them problems, and the situation is most acute for our logistics companies.

In aerospace alone, the supply chain consists of 400 core high-technology manufacturing companies and institutions, contributing over 40,000 largely highly skilled and high value jobs to the economy, all dependent on an increasingly unstable transport network.

Our own business research confirms that an effective, reliable and resilient road network is vital to our existing and future economy. The M6 north of Birmingham has been singled out by the Freight Transport Association (FTA) as being one of the three sections of road infrastructure nationally that are most in need of Government investment.

3.3.1. Improve Journey Times

Our aspiration is that we want average speeds of journeys on the Strategic Road Network (SRN) to be 60mph at all times of day and all days per week in line with the Government's vision which is set out in the current Road Investment Strategy.

Currently however, traffic congestion means that speeds are below this level on many parts of the SRN during peak periods but also in the inter-peak. Many of the sections of strategic network worst affected are key freight routes. As traffic continues to grow we expect these speeds to deteriorate, even with the currently planned levels of investment in the SRN.

3.3.2 Increase Network Resiliance

Our aspiration is simple – you should know how long it will take you to travel regardless of the time or day of the week. This means that journey times at certain times of the day or day of the week should vary little from one day to another, or from week to week.

Currently this level of reliability is rare on the SRN; journey times are inconsistent meaning the 'spread' of journey times is large.

Predicting journey times for individual trips is therefore very difficult, meaning that individuals or businesses build additional 'slack' into their journey plans, with consequent increases in cost and reduced quality of life.

Our target is that all journeys within each time period can be completed within 20% of the median journey time for that period. In other words, the 'spread' of journey times is reduced.

Implicit in our aspiration for consistent journey times is a resilient network that can cope with incidents and events. This is particularly important for time-critical freight movements such as those making refrigerated or 'just in time' deliveries or those to ports and airports.

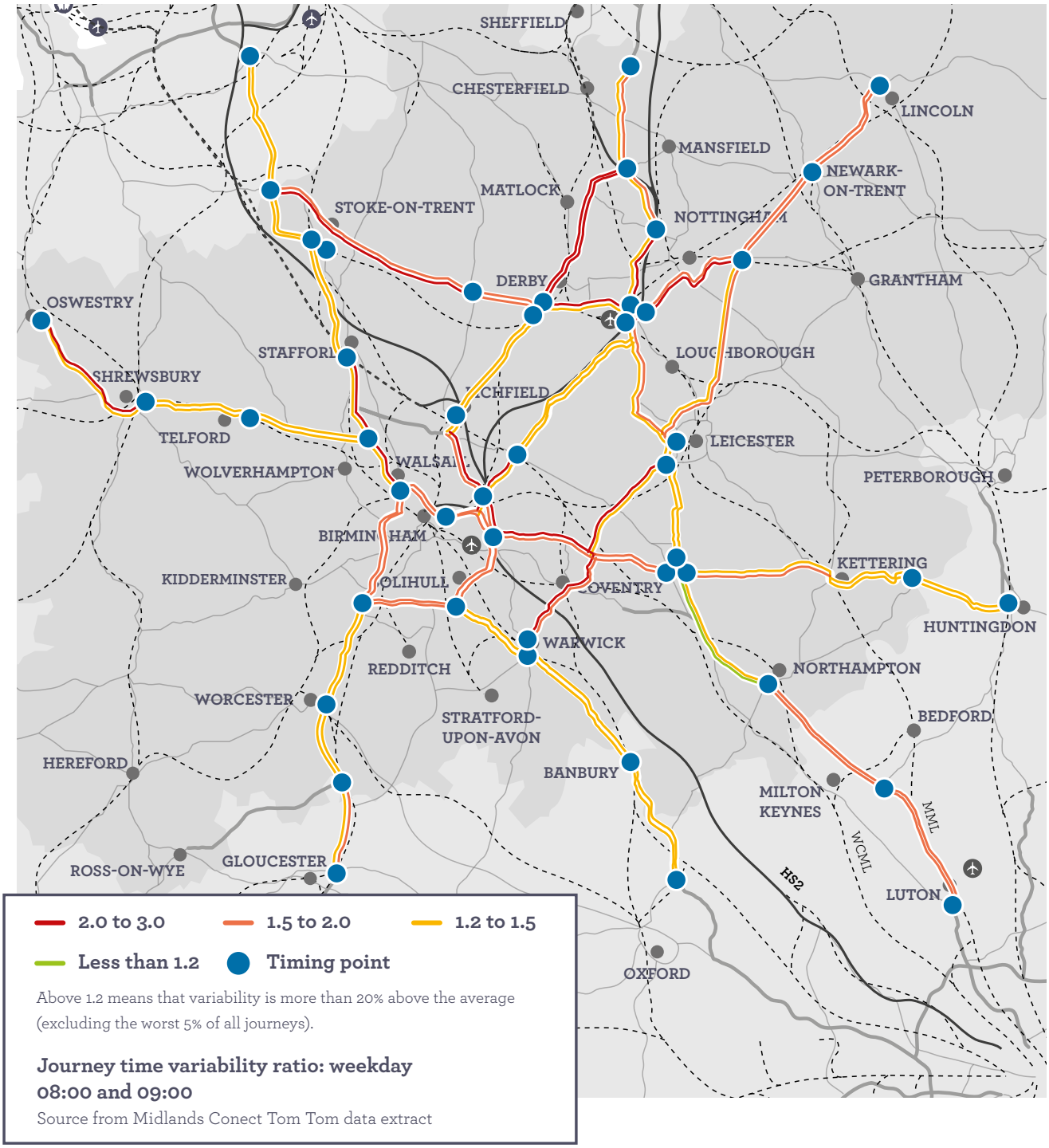


Figure 3-2 Current journey time variability on the strategic road network

3.3.3 Our Road Aspirations

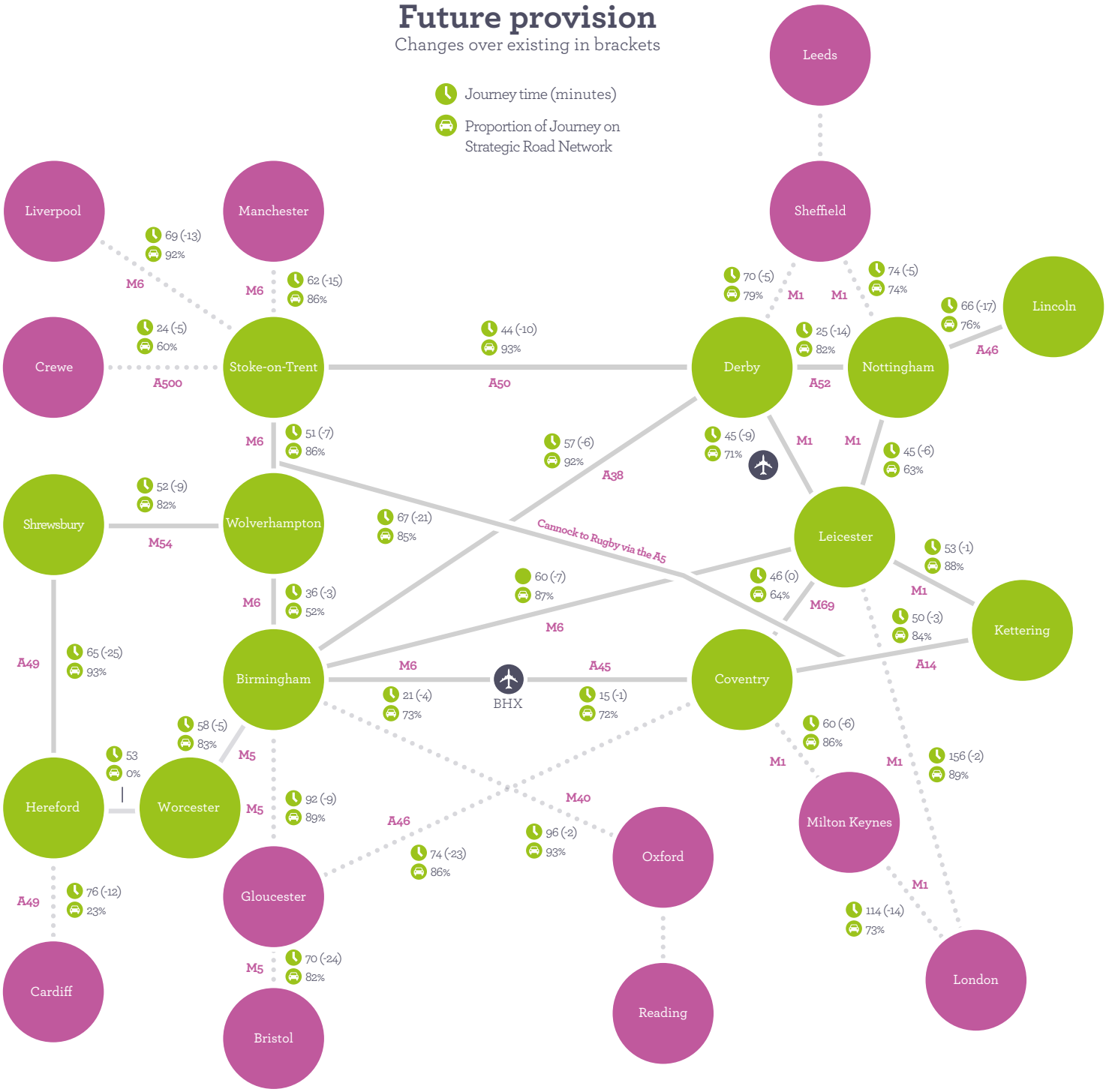
Our long term aspirations for road journeys are simple:

- people and goods can travel at an average of 60 mph on the Strategic Road Network;
- journey times do not vary significantly, being predictable at all times of day; and
- dynamically changing - that we embrace the technology revolution to maximise the benefits for users, both people and goods, of our networks.

Through our work to date we have a greater understanding of the value for money, economic potential and deliverability of schemes that we have developed into Strategic Business Cases. We have translated these into a series of conditional outputs for key linkages shown in Figure 3-3.

For the wider connections for which business cases are still to be developed they reflect the headline aspiration of 60 mph on the strategic network. We will refresh our conditional outputs for the wider network of connection as our programme of business case development rolls forward.

Midlands Connect Road Journey Time Aspirations



Numbers presented are based on Journey Times taken during the weekday morning peak
Morning Peak Journey Time Aspirations
Not all routes shown

Figure 3-3 Midlands Connect Road Journey Time Aspirations

4 Our Early Priorities

4.1 Introduction

This section brings together our early priorities and sets these against the economic outcomes underpinning this strategy, namely:

- **Regionally Connected:** Transforming east to west connectivity will widen access to markets, supply chains and labour markets releasing the full potential across our whole region – from the Welsh Borders to the Lincolnshire Coast;
- **UK Connected:** Strategic road and rail networks that bring the country's economic regions closer together boosting productivity, access to markets and international gateways;
- **Resiliently Connected:** We will boost productivity and growth by providing reliable road and rail networks – reducing costs to businesses;
- **HS2 Connected:** Investing in complementary connectivity will spread the growth unlocked by HS2 across the Midlands and the country as a whole;
- **Globally Connected:** We will continue to lead the UK in the global export market by increasing international transport links through our ports and airports – securing the UK's long term economic prosperity; and
- **Intelligently Connected:** By applying innovation and technology, from integrated ticketing solutions through to driverless cars, we can enhance journeys, provide transport planning solutions and reduce the need for expensive infrastructure. We will maximise open data and external data source integration to achieve this.

It is recognised that most, if not all, of our interventions support a number of these outcomes and their contribution to these is summarised in Chapter 6.

4.2 Existing Rail and Road Commitments

As outlined in Network Rail's Route Studies, a number of enhancements are currently underway or planned which will support our aspirations that we need to see completed in full:

- **East West Rail:** We welcome the new approach set out by the Secretary of State for Transport, Chris Grayling[3], creating an alternative body that will be the test bed for the country's first new fully integrated railway. The outcome will be a state of the art railway linking London, Oxford, Cambridge and the growth areas around Milton Keynes and Bedford.
- **NUCKLE Phase 1:** Services between Coventry and Nuneaton are expected to be upgraded to half-hourly as a result of the scheme;
- **Midland Main Line Upgrade:** We strongly welcome the Government's commitment to the Midland Mainline Upgrade and Electrification between Bedford and Sheffield. It is important that momentum is maintained, and that electrification to Corby and Sheffield is completed following the Hendy Review.
- **HS2:** The removal of long-distance services onto HS2 from 2026 / 2027 (Phase 1 / 2A) and 2033 (Phase 2B) is expected to release capacity on the key north-south routes in the Midlands, including the East Coast Main Line, Midland Main Line and West Coast Main Line; and
- **Smart Ticketing on National Rail Programme:** £80m of Government investment to accelerate smart delivery both nationally and regionally.

The current Road Investment Strategy (RIS) programme will see many improvements to the SRN across the Midlands. In 'Picking up the Pace,' we called for development work to begin quickly on four schemes in the Midlands which Highways England is committed to, namely:

- A46 Newark Northern Bypass;
- M5/M42 Birmingham Box Phase 4 Smart Motorway;
- A45 Stanwick to Thrapston; and
- M1 Junctions 19-23A Smart Motorway.

In its 2016 Delivery Plan update, Highways England has confirmed that the development work for these schemes will commence during RIS period 1 (i.e. by March 2020). We look forward to confirmation that these schemes will be taken forward to construction as part of the RIS Progamme commencing in April 2020. Other key schemes include:

- M42 Junction 6; and
- A50 Uttoxeter.

Regionally Connected: Powering the Midlands Engine

The Midlands Engine will lead the way in supporting the Government in delivering its Industrial Strategy and in rebalancing the British economy – stimulating growth in both large and small businesses - and above all ensure a better quality of life for Midlanders.

Transforming east-west connectivity will widen access to markets, supply chains and labour markets releasing the full potential across our whole region – from Shropshire to Lincolnshire.

4.3 Rail services between the East and West Midlands

There are strong relationships in the professional services sector between Birmingham, Nottingham, and Leicester in particular which have the highest share of jobs in this sector (23%, 32% and 16% respectively).

In Nottingham, the finance and business services sector employs over 75,000 people in the city and contributes £4 billion to the regional economy. Large employers include Capital One and Experian. Deutsche Bank in Birmingham is one of the city's biggest employers and the headquarters of HSBC's personal and business banking arm is moving its base from London to Birmingham, demonstrating the level of confidence that businesses are placing in the Midlands Engine.

However, despite their strengths, both the Greater Birmingham and Solihull LEP area and the Derby, Derbyshire, Nottingham and Nottinghamshire LEP (D2N2) have lower than average economic productivity when compared to the regional average.

[3] Secretary of State for Transport, Chris Grayling, 6 December 2016.

4.3.1 Rail Services between Birmingham and Leicester

Through our technical work we have identified the potential for a phased increase in the service frequency from the current two trains per hour to four trains per hour between Birmingham and Leicester.

In terms of journey speed, there is a strong case for the enabling infrastructure to increase journey speeds to at least and average of 60 mph, reducing journey times by 20% to around 40 minutes.

The infrastructure needed to deliver these improvements are relatively discrete and could be developed and delivered in parallel to the Midlands Rail Hub work. Further work will investigate the benefits to freight (particularly at Water Orton and Leicester) and the need to ensure the benefits of the infrastructure proposed are maximised for both passengers and goods.

Whilst we develop the longer term infrastructure interventions, in the short term we will seek to secure incremental improvements to capacity and journey quality through the re-franchising process. This could be through an appropriate rolling stock cascade or new trains.

4.3.2 Rail Services between Birmingham and Nottingham

HS2 is recognised as vitally important for enhancing the connections between Nottingham and Birmingham. A frequent, reliable, clock-face service connecting central Nottingham with Toton and the HS2 services to/from Birmingham will bring transformational change to the city centre to city centre connections.

Whilst we welcome the transformational benefits of the HS2 proposal, Midlands Connect has investigated options for improved direct services between the two city centres that could complement HS2 proposals. These are:

- a classic compatible service using HS2 infrastructure between Birmingham and Trent Junctions ; and
- a classic service via an upgraded freight line via Castle Donington (with a slower journey time than the classic compatible option, albeit still significantly better than the current service).

We intend to undertake further investigation of the incremental costs and benefits of a classic compatible option. We believe that it is also worth further understanding the classic network options as a further increment to the HS2 connections at this early stage, particularly if the classic compatible option proves unviable.

Further work is necessary to understand the costs and benefits of both options - individually and as a package. We look forward to working with the DfT, Network Rail and HS2 Ltd on taking forward the proposals for this important area.

Longer term on this corridor, building on Midlands Rail Hub and (separately) improvements to Trent Junctions capacity, we will look to provide further enhancements beyond Nottingham to Lincoln.

4.4 Improved rail connections from the East Midlands to Thames Valley – Phase 1

Our aspirations for this corridor are to better connect the main economic centres of the East Midlands together, and to provide connectivity to the Thames Valley, and better direct connections from Birmingham Airport to the Thames Valley.

Our work on this corridor has identified that there are a number of further improvements that could be made, and that there is potentially complex interactions between them. A phased approach will be taken for the next stage of work in which we will focus on two particular options: Coventry - Leicester and access to Birmingham Airport.

4.4.1 Rail Services between Coventry and Leicester

We will identify a preferred option and prepare a business case for a direct rail service between Coventry and Leicester. We will develop and test the business case for an incremental improvement above the frequency enhancements (with interchange) already planned between Coventry and Nuneaton. Such an approach will allow us to demonstrate the potential demand on this corridor to make the case for longer term solutions over and above this.

4.4.2 Leamington Spa to Coventry capacity and an additional Birmingham Airport service

The addition of a second Cross Country service from the south via Coventry presents an opportunity to improve rail connectivity to Birmingham Airport from key centres such as Reading and Oxford in the south east and Derby, Nottingham and Sheffield. This would provide a half hourly service which then provides passengers with a more viable alternative to accessing the Airport. This initiative will also help to support the connectivity for business and professional services across key centres such as Birmingham, Coventry and Oxford.

Capacity on the Leamington Spa to Coventry route is acknowledged as a key constraint by Network Rail. Analysis indicates that the projected 2019 service level represents the maximum capacity of the route, with any further growth necessitating infrastructure enhancements.

Key to delivering this is additional track capacity between Kenilworth and Leamington Spa. Timetable analysis will also be required to understand the implications of this change to the Coventry corridor as well as more widely on the Chiltern and East Coast Main Line routes.

4.5 Access to the South West and Wales

The South West of our region has important connectivity needs both within the region and to the South West and Wales. The A49 has the potential to alleviate pressure on the M5 and M6 for connections between South Wales and the Midlands and the North.

4.5.1 Hereford and Worcester Road Improvements

Road travel conditions to the South West are impacted by high seasonal flows on the M5 corridor in particular and poor access towards Hereford from the M5, including delays due to several junctions on the south side of Worcester. Long and unreliable journey times result in long 'planned' journey times, adding significant direct and indirect costs to business. The relatively peripheral location of Hereford impacts on business efficiency in the area. Through our engagement with the Welsh Assembly, connectivity between north and south Wales has been identified as one of their economic priorities.

This includes:

- improvement to the Worcester southern ring road in order to provide improved links within this south western corridor to locations such as Hereford; and
- a new bypass for Hereford (as part of the Hereford Transport Package) to relieve the strain on the A49 through the city, assisting growth at the Hereford Enterprise Zone (4,200 jobs) and facilitating the strategic movement of goods through the Marches (the Hereford southern link (part of the South Wye Transport Package) is the first phase of the bypass).

UK Connected: Powering Our National Transport Hub

4.6 Midlands Rail Hub – Providing the Foundations for Growth

The Midlands Rail Hub is vitally important and fundamental to the future success of the Midlands in terms of rail.

The need is clear – overcrowding already exists and will get far worse from the middle of next decade constraining the effectiveness of our existing businesses and restricting future growth in professional services. Rail services connecting Birmingham to other key Midlands towns and cities do not have sufficient capacity for growing labour markets and future demand. We need this scheme implemented as soon as practicable, given lead in times and wider industry capacity, to allow capacity issues to be overcome and to maximise the economic benefits of HS2.

The need for capacity improvements to across the Midlands is now recognised by the Government and we have been given £5 million to start to take forward the development work for this scheme.

It is a measured set of infrastructure proposals that will provide the reliability and capacity required to support our growth potential over the next 20 years.

We will be working closely with Network Rail and the rail industry over the next two years to develop the business case, train service and technical aspects of the Rail Hub to support the case for further investment in this vital programme.

During the course of this work we may identify complementary works along our east-west corridors that we will look to be implemented alongside the Rail Hub.

Over the longer term, further transformational schemes may be required but at this stage we believe the focus should be on the art of the possible.

Midlands Rail Hub

Benefits

- Up to 10 extra trains every hour
- More freight trains
- New journey opportunities between East and West Midlands
- Unlocking new jobs across the Midlands
- Maximising benefits of HS2

Digital Railway

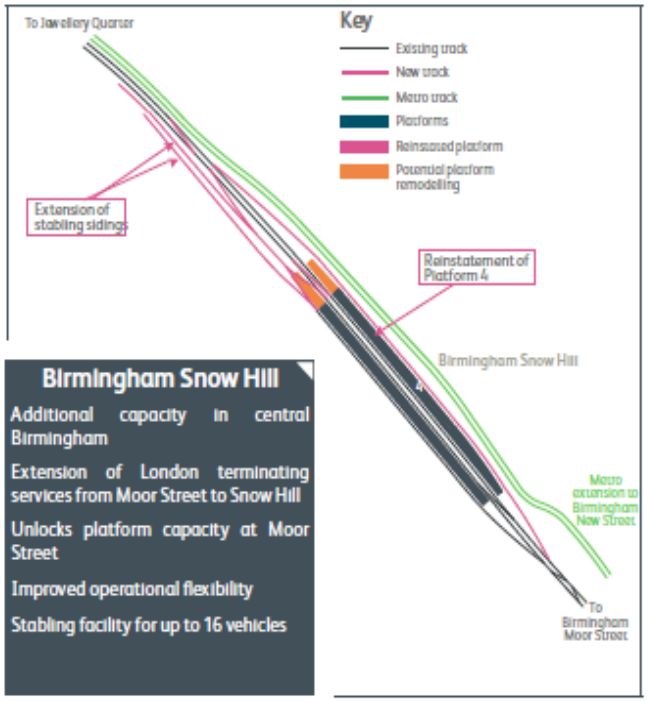
Benefits

- Better passenger information
- Informed journey choices
- Smarter ticketing

Water Orton

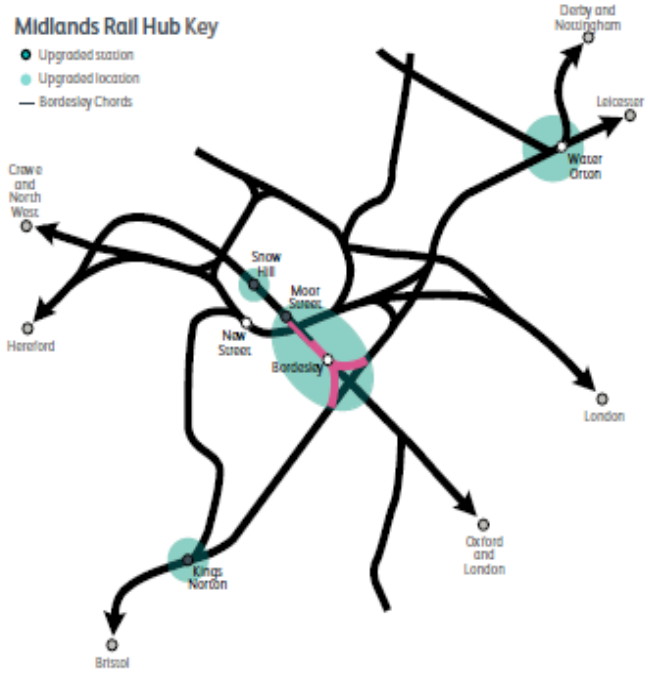
- Enables additional passenger services between East and West Midlands
- Capacity for freight growth
- Improved operational flexibility through seperated flows
- Improved access to to terminals at Kingsbury junction
- Improved performance
- Journey time improvements through Water Orton area

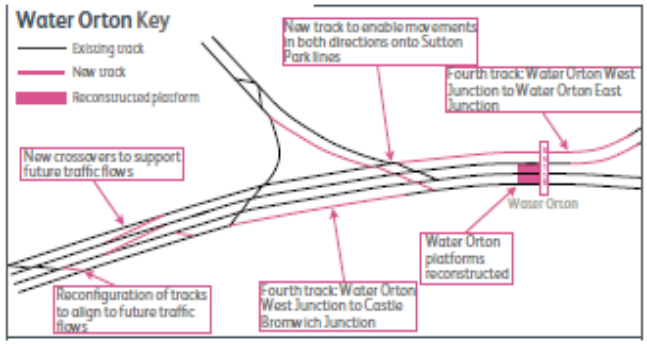
Midlands Connect
Powering the Midlands Engine

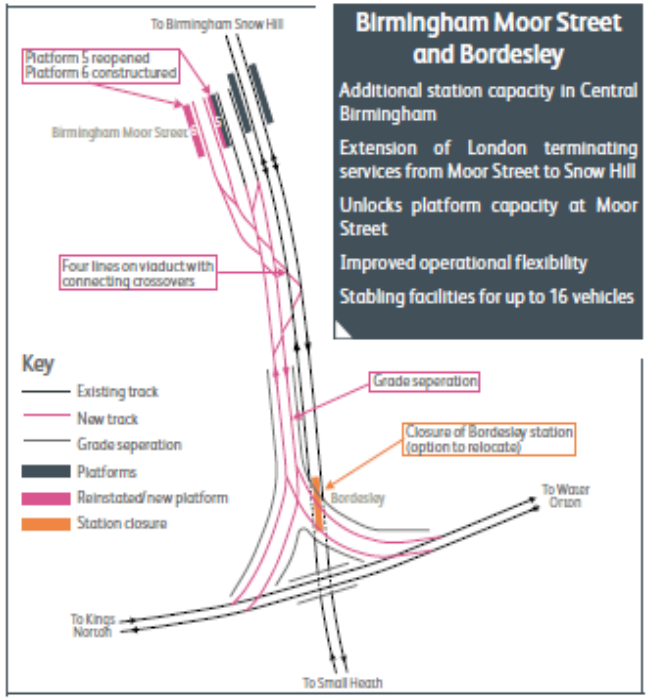


Birmingham Snow Hill

- Additional capacity in central Birmingham
- Extension of London terminating services from Moor Street to Snow Hill
- Unlocks platform capacity at Moor Street
- Improved operational flexibility
- Stabling facility for up to 16 vehicles

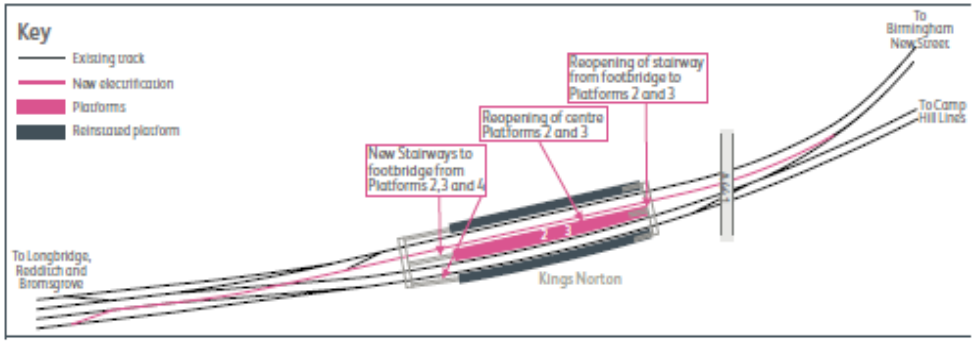






Birmingham Moor Street and Bordesley

- Additional station capacity in Central Birmingham
- Extension of London terminating services from Moor Street to Snow Hill
- Unlocks platform capacity at Moor Street
- Improved operational flexibility
- Stabling facilities for up to 16 vehicles



Kings Norton

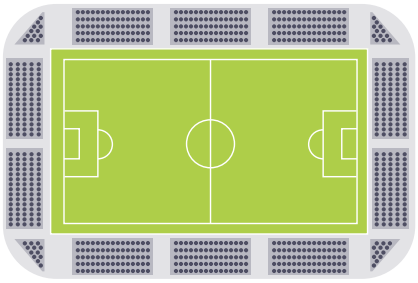
- Facilitates additional trains services and changed routeings into central Birmingham
- Increased capacity in the Kings Norton area
- Cross platform interchange to maintain connections to University and Selly Oak
- Improved station facilities
- Improved performance

Figure 4-1 Midlands Rail Hub

Midlands Rail Hub:

85,000
more seats each day

This is about the same capacity as



Leicester City,
Stoke City and
West Bromwich Albion
Combined

Figure 4-2 Midlands Rail hub infrastructure proposals

The Rail Hub is needed to support the high levels of growth in business and professional services over forthcoming years in key centres such as Nottingham, Worcester, Leicester and Derby.

The scheme is needed to unlock labour market and business to business access to key sites. For example. Birmingham City Centre Enterprise Zone alone can provide 40,000 new jobs - but these will not be realised within an uplift in the capacity of the rail network to provide the access and connectivity needed.

High quality rail access (including HS2) alongside further local tram, Park and Ride and bus measures led by the LEPs and local authorites will ensure that we provide for labour markets and business-to-business connections at a regional, national and international level - making the Midlands the place to invest.

4.7 Midlands Motorway Hub - Keeping the Nation Moving

Lying at the centre of the UK's Strategic Road Network, the M42, M5 and M6 around Birmingham play a vital role in the success of the UK's economy.

However, high traffic volumes mean that the performance of the motorway hub is often below what is needed. Congestion and poor resilience can result in long delays and unreliable journey times. These problems are well known.

The motorway hub provides strategic connectivity east-west and north-south at a national level and we need a plan to address today's problems and how to deal with future forecast traffic growth. Our planning will consider the potential role of the wider corridors, taking traffic away from the hub - making the Strategic Road Network as a whole work best for the UK economy. This includes routes such as the A5, A46 and further afield the A49 as a major strategic route within the study's 'area of influence.'

Through our work the pressing need for further investigation has been accepted. We have secured the commitment from Highways England to match Midlands Connect funding for a study to examine the current and long term issues up to 2040 for the Motorway Hub and identify long-term solutions. The study is intended to report in autumn 2017 to feed into the Strategic Road Network Initial Report as part of the development of the next RIS.

Both parties recognise the importance of building in outputs from this study into the next Road Investment Strategy (RIS) to start to plan and secure a long term future for movements through the Motorway Hub.

4.8 Influencing Rail Passenger Franchises

As rail franchises are renewed it is important that we maximise what we can in the short term as well as planning for growth enabled by new infrastructure. Building on our existing work with partners, including West Midlands Rail, and the other Train Operating Companies, we can take a pan-Midlands perspective seeking to influence how better network capability brought about by new investment can best be used to support our ambitions.

We will do this through dialogue with the DfT (or the Welsh Government) before and during the consultation phase, and through dialogue with shortlisted bidders.

As Table 4-1 shows, several franchises are due for renewal in the period to 2020. Consultation has already closed on a number of these and Midlands Connect has already provided a response. Our immediate actions are therefore to respond to the East Midlands franchise consultations and input and help shape the specification for the next Cross Country Franchise.

Franchise	EoI issued	Consultation starts	Invitation to tender issued	Contract award	Start of new contract
West Midlands		Closed	Aug 2016	Jun 2017	Oct 2017
East Midlands	Dec 2016	Spring 2017	May 2017	Mar 2018	Nov 2018
Wales & Borders [c]		Closed		Early 2018	
West Coast Partnership	Dec 2016	TBC[a]	Nov 2017	Nov 2018	Apr 2019
Cross Country	Mar 2018	Mar 2018 [b]	Aug 2018	Jun 2019	Oct 2019
Chiltern	May 2020	May 2020	Oct 2020	Aug 2021	Dec 2021

Table 4-1 Rail franchise timetables up to 2020

[a] Consultation on the former Inter City West Coast franchise closed in August 2016.
[b] Estimate
[c] Franchise procurement led by Welsh Government

UK Connected: Joining up our economic engines

The three economic areas of the North, London and the Midlands make up over half of the UK economy. Improving connections between these economic hubs will generate significant benefits.

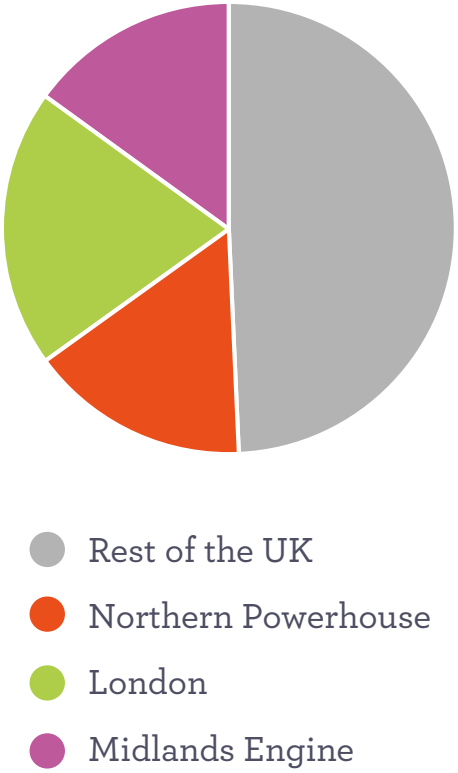


Figure 4-3 Share of GVA in the UK
(2013: Source Midlands Engine for Growth)

4.9 East Midlands to the North Rail Services Phase 1 (including North Staffordshire Line)

Improved rail connectivity between both the North Staffordshire hub and the Derby/Nottingham hub could act as catalysts for business and professional services in both economic centres. This will help to support a significant number of new jobs forecast to be generated in Nottingham and Derby (38,000) and Leicester and Coventry (55,000).

Better connectivity to these hubs could also provide better access to the HS2 stations at Crewe and Toton, raising their potential to unlock the growth of higher-value, rail-focused sectors in North Staffordshire.

A number of options exist for better connecting the East Midlands via Stoke-on-Trent to the North West by rail. We have explored the business case potential of upgrading the classic network but also examined classic compatible options. In the short term our early priority is to make the case for increased capacity on the classic network.

There is potentially a case for running classic compatible services from the Thames Valley and Leicester via this route from a northern facing connection at Toton (see section 4.21).

In taking forward this option, we will work in partnership with HS2 Ltd and Transport for the North (TfN) to develop a "system wide" approach to HS2, recently advocated by the Government for development.

4.10 Rail Freight Improvements

Rail freight is the most efficient way to move large volumes of freight on long journeys, especially as part of international supply chains. The key routes for the freight industry are the links to the ports at Felixstowe, Southampton and London, and for conveying stone products from Derbyshire and Leicestershire to the South East. These routes meet in the Midlands, providing through routes to the North, and access to major terminals in the east and west Midlands, both existing and planned.

Major growth in freight traffic is expected on three routes – the West Coast Main Line, the Midland Main Line and the route via Leicester and Peterborough to Felixstowe. Capacity is expected to become available on the West Coast Main Line with the opening of HS2, and works are already committed to restoring the four-track railway on the Midland Main Line which will enhance capacity for freight.

As part of the national strategy to allow for rail freight growth on the route between Felixstowe and the Midlands, interventions are expected near Felixstowe and Ely to cater for increased demand. Allowing for likely passenger service capacity requirements, the principal interventions in the Midlands are likely to be:

- improvements to the Water Orton junction, just east of Birmingham, will provide approximately 50% more capacity;
- restoring four tracks through Leicester, to eliminate unnecessary conflicts; and
- modern signalling Peterborough-Leicester (currently recommended by Network Rail for funding before 2024).

Water Orton is included in the scope of the Midlands Rail Hub Study, and Leicester falls within the scope of the Birmingham-Leicester and Access-to-Toton studies. The requirements of freight will be included in these studies. Midlands Connect will also support the work of partners in developing the other interventions that have been identified above.

Resiliently Connected: Reliable Networks

4.11 Building a more Resilient National Road Network

Underpinning our strategy is the desire to strengthen the strategic connectivity provided by the Strategic Road Network. Our early priorities are for Smart Motorway to be delivered whilst developing the business case for the A46 and A5 corridors as set out below. Longer term we will examine further enhancements on the A50 alongside the potential case for upgrading the A1 (M) to motorway standard.

The concept of a Major Roads Network – a wider network of roads that provides fully for regional and national strategic movements - was put forward by the Rees Jeffreys Road Fund in 2016. This is an area that Midlands Connect will consider as a priority starting in 2017 working with England's Economic Heartland, Transport for the North, the Welsh Assembly and other bordering local authorities.

4.12 Smart Motorways on the M6 Birmingham to the North

Following completion of the current programme, there is one remaining gap in Smart Motorway on the M6 between junction 15 and 16 on the M6. This section of the M6 provides a key local link to Stoke-on-Trent and has a critical role as part of a national strategic route to the North West.

Upgrading this section will ensure that we maximise the investment from the current Smart Motorway programme and provide greater national reliability and resilience.

This scheme is needed to deal with today's problems, as well as to support future economic growth. Northbound journeys on this section of the M6 are subject to significant variations in journey time– according to Highways England data, drivers must, on average, allow around 70% additional time to ensure they arrive on time if they are using this section of road[4].

To maximise the significant investment already made in Smart Motorways we would welcome the development of this scheme alongside the preparation of investment programme for the next Road Period due to commence in 2020.

4.13 A5 – South East to the North West

The A5 between M6 Junction 12 (west of Cannock) and the M6/M1 (close to Rugby) offers the potential to provide a strategic alternative to the Midlands Motorway Hub for people and freight travelling between London & the South East and the North West. In addition this section of the A5 provides an alternative routing option for accessing opportunities between the Marches, Black Country, Greater Birmingham and the East Midlands.

The A5 corridor itself is anticipated to experience growth in demand from advanced manufacturing and logistics developments such as the MIRA Enterprise Zone & Technology Park (2,000 jobs) , phase 3 of DIRFT near Daventry (9,000 jobs) and the 11,000 jobs anticipated at Magna Park in Lutterworth.

[4]http://www.fuelcardservices.com/fta-m6-must-be-a-priority-investment/

Our initial focus will be on the section of the A5 from the A38 to the M1. A number of online and offline improvements will be considered as part of the work to develop a viable strategic alternative route to the Midland Motorway hub and to enhance strategic links between the North West and the South East.

We will establish our medium term aspirations for this corridor to feed into the formulation of the next RIS during 2017.

4.14 A46 – South West to the North East

Improvements to the A46 corridor will provide a strategic alternative to the M5 north of Tewkesbury, through Worcestershire up to the Midlands Motorway Hub, therefore relieving congestion and reducing the cost of travel in this vicinity.

Our work to date has concluded that an enhanced, more resilient, route would support the strong manufacturing sector in the Worcestershire and Coventry & Warwickshire, manufacturing in Lincolnshire, a rapidly growing manufacturing base in Leicester and strategic growth sites along the A46 (over 2,500 jobs).

The A46 Link Road recently awarded development funding (to connect Coventry and UK Central) is an important scheme to unlock the growth potential in this area.

Recognising the length of the whole A46 corridor we have prioritised two sections for business case work based on current low levels of reliability, resilience and economic needs. Together they make up the section stretching from the Junction 15 of the M40 to the Hobby Horse junction at Syston (north of Leicester).

With the existing traffic issues and potential scale of development around Coventry, Warwickshire and Leicester these sections have the potential to support the unlocking of this growth. As incremental measures they also start to provide a strategic alternative to the M42/A42 for access from the South West to East Midlands, Humber Ports and the North East.

We strongly support the Newark Northern Bypass being taken forward as this will provide a shorter term benefit on this section alongside the recently announced funding for the Lincoln Eastern bypass.

4.15 A Network for Freight

The main routes for freight are the motorways and expressways radiating from the Leicester-Coventry hub and the Birmingham & the Black Country hub.

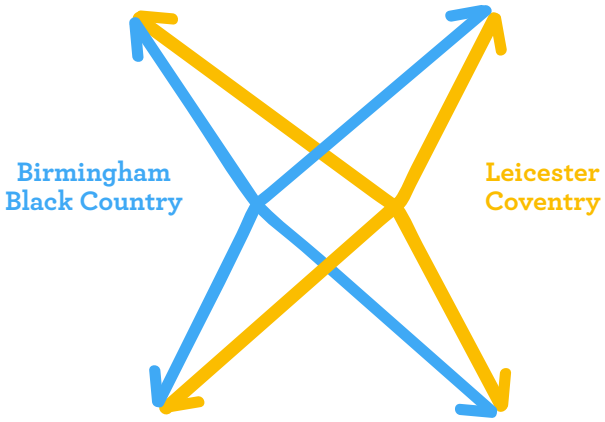


Figure 4-4 Main Freight Routes in the Midlands

Freight operates all day and all through the night, so particularly suffers from off-peak congestion. The approaches to the M5/M6 junction, in the heart of the Black Country, are a particular problem which urgently needs to be addressed. This is included in the scope of the Midlands Motorway Hub study.

A recent publication by the Freight Transport Association (FTA) confirmed this position. Through a survey of its members it identified the M6 north of Birmingham as the worst section of the road network[5]. The organisation sets out that it costs around £1 a minute to run a 44-tonne truck so any hold-ups have a huge financial impact on operations. The FTA has called upon the government to increase its level of investment in essential improvements for the M6.

Peak congestion is more widespread, and all of the issues are picked up by the wider proposals for Midlands Connect. For freight, the A50/A500 route is particularly important as an alternative to the M6, as well as linking the Leicester-Coventry hub to the North West.

[5] Source Highways England HATRIS data 2014/15

4.16 Creating a Resilient Network

From our business research and wider stakeholder engagement, the provision of reliable, predictable journeys from one day to the next is one of the most pressing needs for commuters and business.

Current projections suggest that nationally, the cost of congestion to the freight industry will be £14 billion in 2040. The sector provides 9% of UK Gross Value Added (GVA) directly, and provides essential services to other activities[6].

Unreliable journey times lead to extra 'planned' journey times to ensure agreed time slots are met. The net impact is a less efficient and productive distribution sector than if we could provide 'guaranteed' journey times.

Evidence from work by Highways England and Midlands Connect shows that significant 'planned time' is being added to journeys through the Midlands as a result of the extent of delays and unpredictability of journeys.

Figure 4-5 shows the current locations with the level of delay. With the scale of national traffic growth forecast our priority has to be to focus on these locations but in the context of a wider strategic plan. The Motorway Hub study that we have commenced with Highways England will be critical in providing wider strategic context and framework within which we can prioritise our improvements.

Figure 4-6 shows how our strategy will address these issues providing a resilient road network.

Figure 4-5 Total annual delays to road freight 2014/15

Source: Highways England

[6] DfT. 2013. Action for Roads: A network for the 21st century

Midlands Connect Road Infrastructure: Resilience

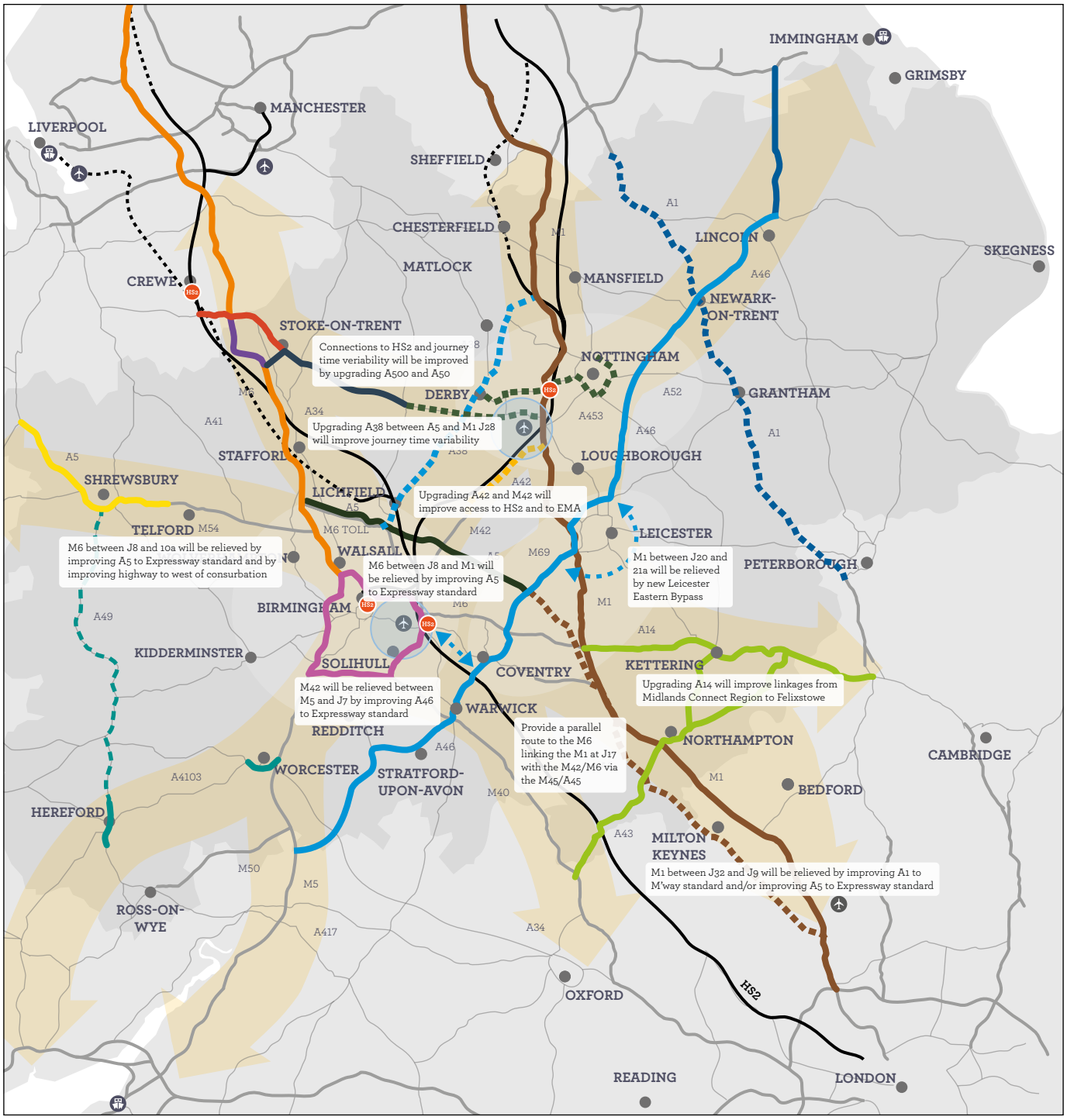


Figure 4-6 How this strategy will provide a resilient road network

UK Connected:

- Midlands Motorway Hub
- Upgrade of A1 to A1(M)

Globally Connected:

- Access to Birmingham and East Midlands Airports
- Access to Immingham
- Access to Felixstowe
- Access to Holyhead

Resiliently Connected:

- Stoke to Crewe
- M6 Smart Motorway Junction 15-16 and Junction 15 upgrade
- M6 long term capacity enhancements (beyond Smart Motorway)
- M1 long term capacity enhancements (beyond Smart Motorway).
  May include enhancement of the parallel A5 corridor
- A46 corridor upgrade (to at least expressway)

Regionally Connected:

- A42 upgrade (to motorway standard)
- A38 upgrade (to expressway)
- Nottingham / Derby measures
- Stoke hub measures
- Worcester, Hereford and the Marches

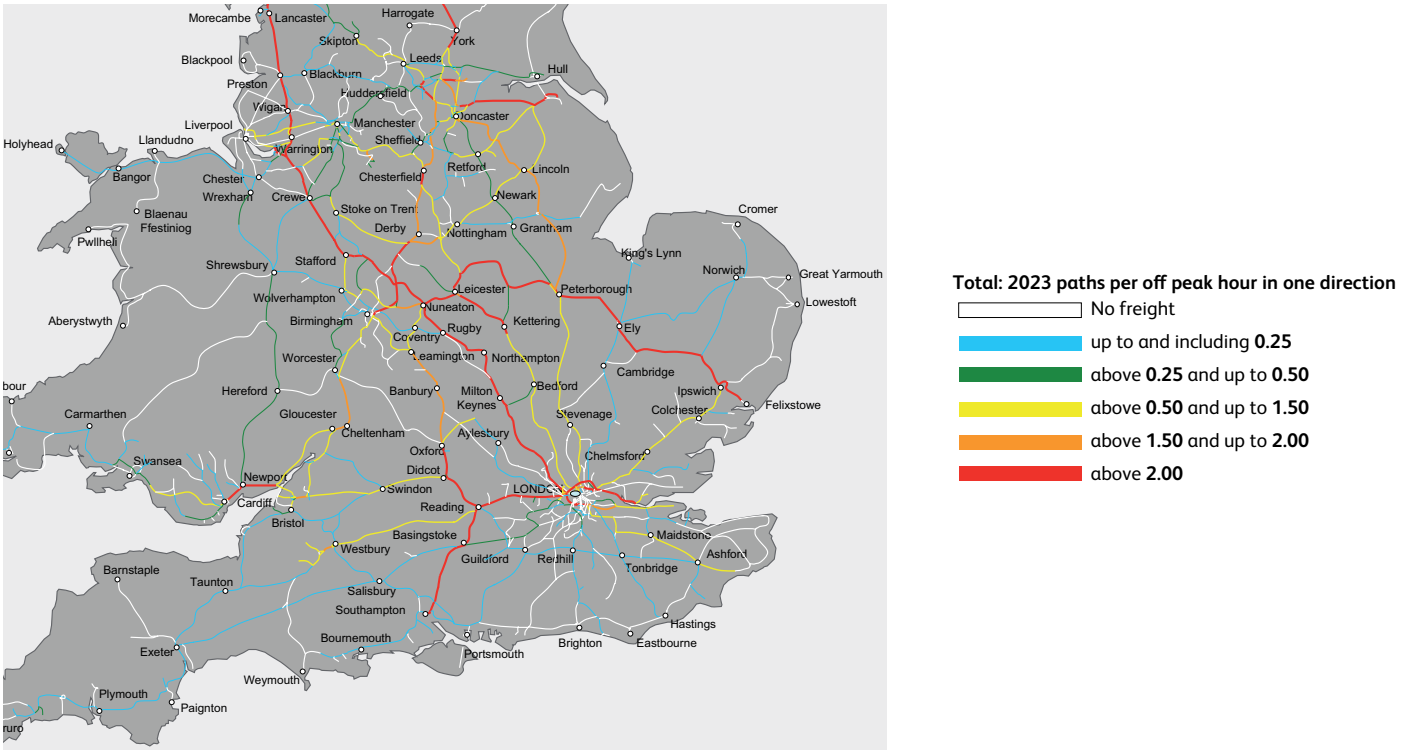


Figure 4-7 Network Rail projections for freight paths to 2023.

4.17 Investment in the Midlands Connect Core Rail Freight Network

The priority for Midlands Connect is to secure investment to ensure high quality, high capacity rail freight core routes between the Midlands and:

- the major deep sea ports (Felixstowe, London Gateway, Southampton, and Liverpool);
- the Channel Tunnel;
- London (via West Coast, East Coast and Midland mainlines); and
- the North West and Scotland (via West Coast and East coast mainlines).

Each route should have identified protected strategic freight capacity to meet Freight Market Study forecasts to 2043. Good quality gauge cleared links should be provided to rail freight interchanges in the Midlands.

4.18 Rail Freight Accessibility

Midlands Connect will support the development of new Strategic Rail Freight Interchange (SRFI) proposals, particularly where rail and road access is good. We will also monitor the development of SRFI proposals to identify potential gaps in provision. Where necessary Midlands Connect will promote locations for potential development as SRFI.

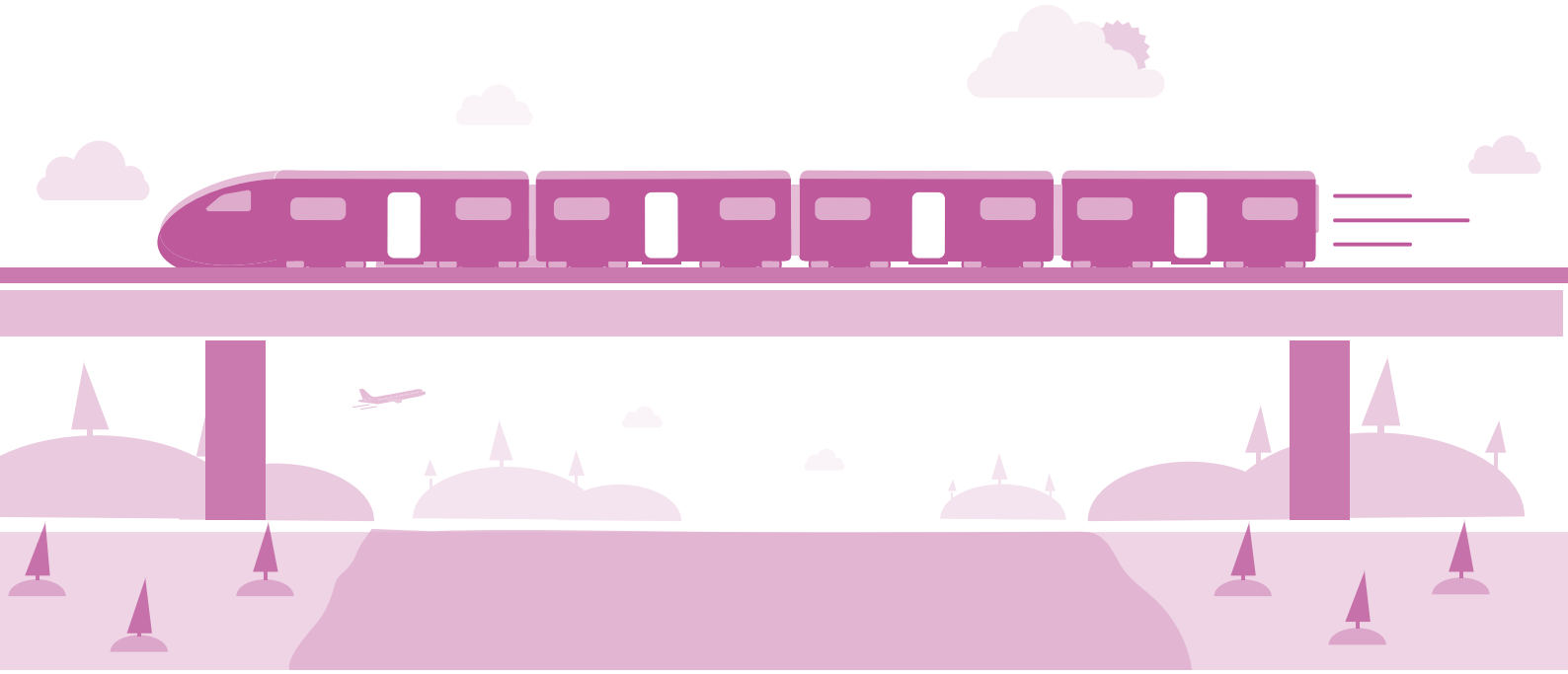
Midlands Connect will support the provision of rail connections to key industrial locations such as car plants, quarries, or aggregates terminals. In locations where strict criteria are met, we will be prepared to invest in addressing barriers to development on certain sites where this would catalyse private sector investment in a SRFI.

4.19 Innovation

There is potential for rail to re-enter the express freight market, possibly by using capacity on passenger trains. There may also be potential to use trains to deliver to city centres from outlying distribution centres, with last mile delivery by zero emission vehicles.

As detailed in section 4.30, making better use of Real Time network perfomance data can also help to deliver a better user experience.

The Motorway Hub study will be critical in providing wider strategic context and framework within which we can prioritise our improvements.



HS2 Connected: Getting the Midlands HS2 Ready

4.20 The Midlands at the Heart of the HS2 network

The Midlands will be at the heart of the HS2 Network. In addition to new stations at Birmingham Curzon Street, Birmingham Interchange and East Midlands Hub at Toton, it is proposed that Chesterfield, Crewe and Stafford will be served by HS2 classic compatible services. We are working with HS2 Ltd, Network Rail and Highways England to maximise the economic benefits of HS2 connectivity to the whole of the Midlands.

4.21 Nottingham-Derby Hub – A52 and access to East Midlands Hub/East Midlands Airport

The D2N2 LEP area has one of the highest proportions of employment in business and professional services, reflecting the importance of Nottingham to this sector. In addition, Derby is forecast to experience growth in manufacturing, driven by developments in the advanced manufacturing sector.

Options for improving the Strategic Road Network in and around the Nottingham/Derby hub will support these sectors and also the strategic growth sites in the two cities, which could be home to 38,000 new jobs.

At present, we are not able to fully understand the complex issues around HS2 access to Toton. In particular growth aspirations and the potential for mass transit solutions to provide highway decongestion and direct access to Toton and East Midlands Airport.

We will work with partners (Highways England, HS2 Ltd, East Midlands Airport, D2N2 Local Enterprise Partnership and the local authorities) to develop a multi-modal study commencing from April 2017. The study should set out our preferred business case for access to Toton from Derby, Nottingham and East Midlands Airport.

It is important we understand highway requirements to feed into the formation of RIS during 2017.

4.22 Crewe Hub and Stafford

The M6 and the A50/A500 corridor will provide crucial access to the HS2 network from Stoke and large parts of Staffordshire. Our early priority is to make the case for Smart Motorway improvements on the M6 between Junction 15 and Junction 16, along with the upgrading of Junction 15, and to progress the A50 Uttoxeter junctions. We will continue to look for opportunities to deliver incremental improvements on the Derby-Stoke-Crewe rail corridor, and over the longer term we will look to develop the business case for upgrading the A50/A500 corridor to 'expressway' standard.

4.23 Birmingham Curzon Street and Birmingham Interchange

The relevant delivery bodies are taking forward detailed connectivity proposals as part of the local Growth Strategy process. From a Midlands Connect perspective, the longer term challenges of access from the strategic road network will be assessed by the Midlands Motorway Hub Study.

4.24 Chesterfield

The proposal to serve Sheffield Midland Station with classic compatible services (in preference to a new station at Meadowhall) raises the exciting opportunity of Chesterfield being served by high speed rail. Plans to use HS2 connectivity to boost economic growth within the town and wider surrounding area are being taken forward through the East Midland HS2 Growth Strategy.

4.25 Making Best Use of Capacity – HS2 classic-compatible services and released capacity

We welcome the approach in the HS2 Command Paper to designing HS2 as fully integrated into the wider transport network. It is important that we now build a 'whole system' view by working with the DfT, HS2 Ltd, Network Rail and emerging Sub-national Transport Bodies. Through working in partnership we can develop the best use of the released capacity that HS2 brings – these outputs can be phased in the franchises as they are renewed.

With long distance services from London to the Midlands and the North transferring to HS2, there is potential for significant recasting of train services on the classic network, opening up new point to point journey opportunities and providing more capacity for freight services.

Proposals already being taken forward, considered by Department for Transport or examined in this strategy include:

- **East Coast Mainline**
  - an hourly service from Lincoln to London Kings Cross; and
  - improved services between Newark and Leeds.
- **Midland Mainline**
  - providing a direct service from London St Pancras via Luton Airport, Bedford, Wellingborough and Kettering to Nuneaton and Birmingham New Street; and
  - providing a direct service from London St Pancras to Toton Hub and on to Manchester.
- **West Coast Mainline**

There are various options for using freed-up paths on the WCML for passenger and freight and these include:

- more local services between Milton Keynes, Northampton, Coventry and Birmingham;
- more local services from Leamington Spa, new station at Kenilworth and Coventry onto Birmingham;
- new services from East and West Midlands via Coventry and Leamington to Thames Valley;
- new semi-fast services from West Midlands via Northampton to London; and
- new services linking east of the Birmingham conurbation to Birmingham Interchange for connections on to HS2.

Similarly the significant new capacity that HS2 provides offers the potential, with infrastructure connections, to run new faster national connections through the Midlands making use of both HS2 and the classic rail network. Our work to date has identified a number of options for released capacity detailed in Figure 5-3. We will be undertaking further work throughout 2017 to develop the business cases and ensure we inform and secure necessary passive provision with the HS2 hybrid bill for our priorities.

4.26 Bringing forward East Midlands Hub to 2030

The delivery of Toton and the associated enhancements to the transport network is a critical part of our plan to transform rail connectivity between the east and west of our region and would release local economic benefits far sooner.

Toton is currently planned to open in 2033. Given the planning timeframe for major projects and our aspiration to see Toton delivered earlier it is important that we understand the solutions required to start to take forward the business cases and identify/secure the necessary funding.

Globally Connected: Leading the UK in the Global Market

Our region is one of the fastest-growing regions in Europe, attracting more inward investment and creating more start-up businesses than anywhere outside the capital.

We will ensure the Midlands is globally connected to lead the UK in the global export market through increasing international transport links.

Business travellers have a strong preference for airports close to home. We will encourage and support both East Midlands Airport and Birmingham Airport to increase their range of business destinations served, particularly in mainland Europe, but also direct and indirect longhaul connections.

4.27 Airport surface access

We are considering measures that could improve surface access to the airports for passengers and freight including:

- improve public transport connections between the hubs and Birmingham/East Midlands airports;
- an additional Cross Country train from the Thames Valley serving Birmingham Airport as part of the Coventry to Leamington Spa improvements;
- maximising the opportunity of HS2 to reduce travel times by rail to the airports;
- improvements in the road and rail networks between the Midlands hubs and the airport;
- improving junction access and/or direct highways links to East Midlands Airport from A50/A453/M1 as part of Multi-Modal study; and
- improving public transport access to East Midlands Airport as part of the Toton access study.

Intelligently Connected: Leading the Technology Revolution

Our strategy will maximise the potential of technology to get the best of our existing networks and enhance the travelling experience. This will be important to realise benefits sooner and to reduce the potential scale of future capital investment.

We can further enhance the user experience by:

- utilising the technology we have to make the most of our current networks;
- providing the right travel information with regular updates, meaning users will be better placed to make informed decisions;
- enhancing connectivity, leading to less time wasted and more productive journeys; and
- decreasing road journey times through reducing road congestion and making public transport a more attractive mobility option.

4.28 Intelligent Mobility and 'Mobility as a Service' opportunities

Mobility as a service (MaaS), an important component of Intelligent Mobility, is a growing area of interest for all of our partners.

MaaS is being developed as a comprehensive, integrated digital connectivity offering to deliver an improved journey experience through increased choice, easier journey planning and seamless ticketing and payment.

Examples are emerging. The West Midlands Combined Authority have recently declared their intentions to launch a MaaS initiative with similarities to a scheme launched in Finland which brings all modes of transport together into a single intuitive mobile app. It seamlessly combines transport options from different providers, handling everything from travel planning to payments.

Whether you prefer to buy journeys on demand or subscribe to an affordable monthly package, MaaS manages your travel needs in the smartest way possible.

Midlands Connect can unify the region and make headway in creating the infrastructure needed to collect data on travel behaviour, parking patterns and infrastructure weaknesses that will result in a more personalised and flexible travel experience being offered to users.

Our work so far has highlighted four key areas of smart connectivity in public transport that could form the foundations of a MaaS offer across the Midlands and the wider country, namely:

- smart and integrated ticketing solutions;
- journey and transport planning solutions;
- internet connectivity solutions; and
- open data and external data source integration.

In our highly competitive and demanding working environment where people can be travelling between offices and meetings, the extent to which people and businesses are able to plan on a weekly, monthly or even annual basis is very difficult. The government has recognised this through their manifesto commitments to commuters and people requiring more flexible travel.

4.29 Ticketing Solutions

We welcome the establishment of a national working group to drive the roll out of smart ticketing for rail. Our Smart Ticketing Strategic Outline Business Case (SOBC) contained a number of wider initiatives using existing technologies to develop multi-operator, multi-modal smart connected corridors between Derby, Nottingham and Leicester and Birmingham thus creating connectivity on rail, bus and tram across the Midlands. These initiatives yielded high benefit to cost ratios in their business case and we have already started the process of working in partnership with the recently established joint DfT and Rail Delivery Group team to support and assist in taking forward the wider opportunities in rail/bus/tram smart ticketing, journey planning and open data integration.

Midlands Connect can be a leading influence in the transformation of existing schemes, infrastructure and systems towards the future MaaS offer in the UK so that we truly transform the whole travelling experience.

4.30 Travel Information

Working alongside partners from across the region, Midlands Connect has identified a range of travel information that could be made available to improve the quality of information that passengers use to plan journeys and react to real-time travel issues. The information provided by Midlanders can be piecemeal, with limited co-ordination across modes or between different areas. There is an opportunity to expand:

- the coverage of information services by helping companies that offer travel information apps and services to increase their Midland coverage;
- the scope of information services, by enabling suppliers to develop better solutions between conurbations, particularly those that are located close together, like many in the Midlands; and
- the depth of information sources, by making valuable information (particularly locally managed information like local parking data, cycle hire and disabled accessibility information) available.

To do this Midlands Connect proposes making travel data available, via an open source data platform to any organisation that wishes to use it, stimulating a competitive solution and fostering innovation that improves services to people travelling in, and through, the region.

4.31 Internet Connectivity Solutions

Data connectivity while travelling enables passengers to better use their time for work or leisure. It also has other uses that tie into the other strands of smart connectivity, in particular it enables mobile smart tickets to be 'drawn down' from the cloud and allows people to access travel information on the move.

Future developments in travel are likely to require more data connectivity. MaaS will allow people to make dynamic choices and purchases, using mobile data connectivity, and Connected and Autonomous Vehicles will, almost certainly, demand connectivity and significant data transmission capability. The availability of data connectivity is currently inconsistent, with different services between different parts of the road network, in rail stations and in-transit rail journeys.

Midlands Connect intends to continue to work with organisations who are pushing for better data connectivity on trains to a minimum service level across the Midlands. These include Network Rail and the Association of Train Operating Companies, who have identified data connectivity as a problem in their 'industry advice to government' and reflects operators' desire for the benefits that better data connectivity provides for their businesses.

4.32 Connected, Assisted and Autonomous Vehicles

Whilst the timescale for mass adoption of Connected and Autonomous Vehicles (CAVs) is uncertain, the future potential to support reliability and resilience is clear. The outcomes of our work to date shows that:

- there is a real threat that congestion and network demand cannot draw upon innovative solutions in digital connectivity transformations to address these growing pressures; and
- there is now a real opportunity in that existing and new technologies opens the potential to achieve far more effective use of our networks through for example, controlled connected vehicles running in convoys to reducing unnecessary travel and reducing running of empty freight and logistics vehicles.

Midlands Connect will play its role in encouraging a market for innovation and smart connectivity. In particular an operating environment for connected and autonomous vehicles, where the region has an input into the conditions required to implement these initiatives including, infrastructure, regulation, operating models and insurance risks. There is now a real opportunity for our region and the UK to become a globally recognised development and test bed for HGV convoying (using driver assisted automated mode) and platooning (fully automated/controlled mode) and to lead the way in demonstrating the benefits and how this could be rolled out across the country.

The opportunities for personal and business intelligent mobility are upon us now and we must, together with our stakeholders in academia, industry and government, shape the future of our transport and communications networks to support our region's growth and thereby the growth of the national economy.

4.33 The Role of Midlands Connect

In terms of quick wins, there is an immediate need over the next two to three years for Midlands Connect to provide support to the government's 'Smart Ticketing for National Rail' programme. This is to ensure that the national programme integrates fully with our regional aspirations and needs so that we can improve access to the transport network for people and goods and encourage greater use of public transport to regular, irregular and flexible commuters and those who need to be able to seek work further afield. This role will be more clearly defined as we work closely with DfT on the programme.

For the medium to longer term, whilst there are currently many projects underway that are looking at aspects of future travel, led by a range of organisations there is little evidence of coordination between these projects.

Midlands Connect is harnessing expertise from regional universities, the Midlands Engine Innovations Group, and Transport Systems Catapult to maximise the value we can bring as a coordinated and integrated collective.

In this respect Midlands Connect's role is one of coordination, facilitation, promotion and enablement: to understand the impact of future developments, consider the blockers and play our part in enabling their earliest delivery. For example, as CAVs become a reality on the roads in the Midlands, the implications for the region must be understood in terms that are wider than technology, and include social, legal, planning and regulatory change.

It is expected that the areas where Midlands Connect can have the largest impact for private travellers, freight and logistics firms and transport operators are:

- the operating environment for connected and autonomous vehicles, where the region must have an input into the conditions required to implement these initiatives including, infrastructure, regulation, operating models, insurance, risks, liability on various parties, insurance, etc. (this may include the facilitation of trials on our transport network to validate conclusions of research and development activities);
- Helping to shape and define supporting information and data requirements for these initiatives, including data created by vehicles and necessary control systems; and
- Driving greater intelligent mobility, which encompasses multiple smart and digital initiatives, such as transport information availability to support better customer decisions and easier forms of payment.

5 Our Strategic Programme

5.1 Our Strategic Programme

This chapter sets out the main components of our strategy. Further detail on the individual elements is provided in Chapter 4. The investment in our intensive growth corridors and economic hubs is set out against thematic outcomes spanning rail, road and digital infrastructure.

Midlands Connect Strategy - Our Early Priorities

Regionally Connected

- Delivery of the A45 Stanwick to Thrapston upgrade (Northamptonshire)
- Development of Birmingham to Nottingham (including HS2 Hub Station) and Birmingham to Leicester rail services
- Development of Coventry to Leicester and Coventry to Leamington rail enhancement business cases
- Development of a business case for enhanced capacity on Derby-Stoke-Crewe rail services
- Work with partners to develop schemes including Hereford bypass to improve connectivity to the South West and Wales

UK Connected

- Delivery of Midland Mainline upgrade & electrification
- Development of a business case for the Midlands Rail Hub - creating capacity for an additional 10 train paths per hour into Birmingham from across the Midlands; improving east - west connectivity
- Development of a business case for the Midlands Motorway Hub - developing a long term plan for the nation's motorway crossroads
- Development of a business case for upgrading the A1(M)

Resiliently Connected

- Delivery of M1(Junction 19 to 23a) and Birmingham Box (M5-M42) Smart Motorway Schemes
- Delivery of A46 Newark Northern Bypass
- Development of A46 (M40 to Syston) upgrade business case
- Strategic study for potential expressway route on A46 between M5 and M40
- Development of business cases for the M6 Junction 15 to 16 Smart Motorway scheme and Junction 15 upgrade
- Development of a business case for Phase 1 of upgrading the A5 between the A38 and the M1

HS2 Connected

- Development of business cases for use of HS2 released capacity and classic compatible services
- A52 Corridor Multi-Modal Study (Derby, Nottingham, HS2 Hub Station and East Midlands Airport)
- Development of a business case to upgrade the A50 at Uttoxeter

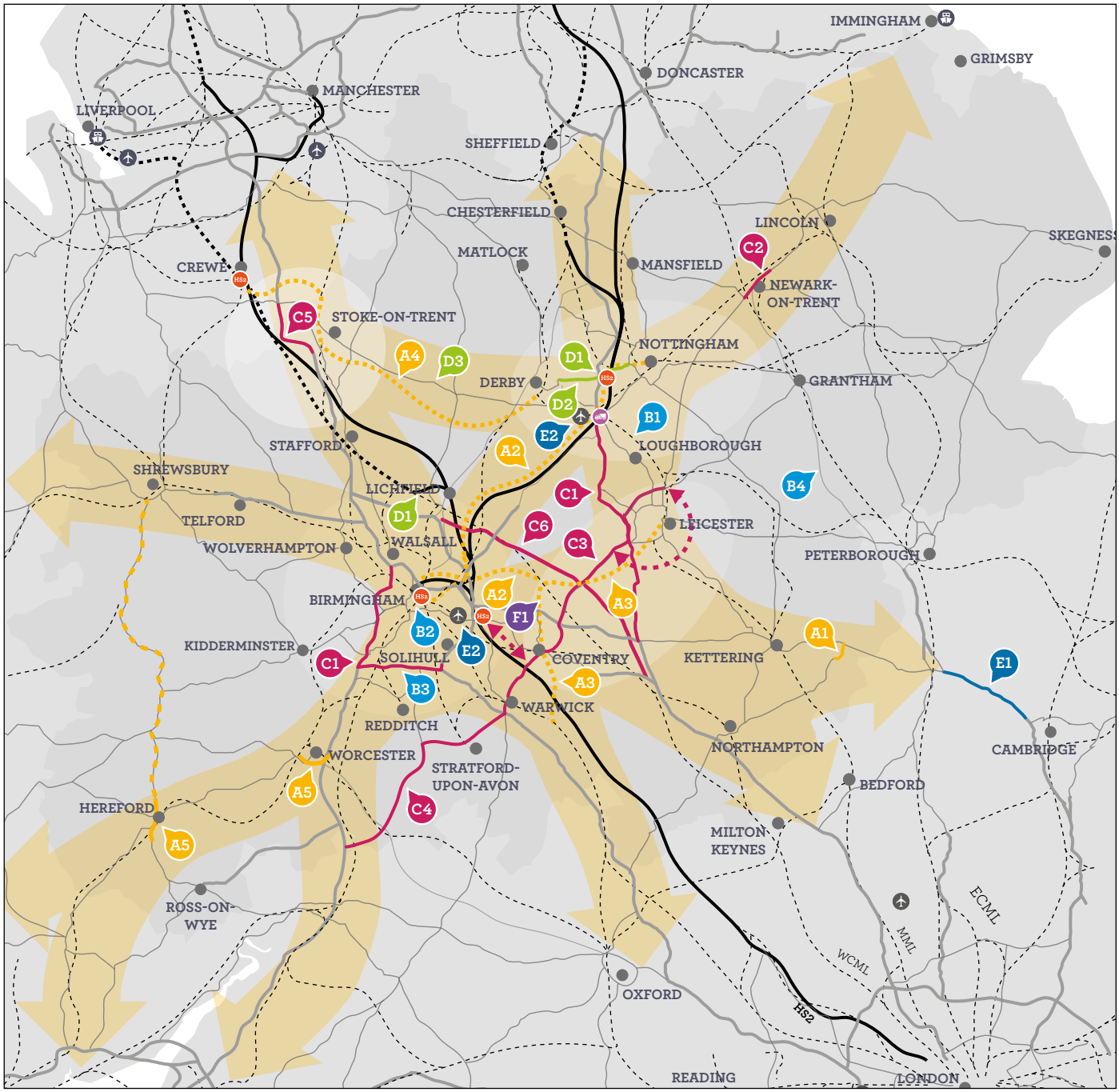
Globally Connected

- Delivery of the A14 Cambridge to Huntingdon improvement scheme to improve connectivity to the Haven Ports from the Midlands
- Development of business cases for improving connectivity to Birmingham International Airport and East Midlands Airport (through A52 Corridor Multi-Modal Study)

Intelligently Connected

- Active participation in national rail smart ticketing initiative led by the Department for Transport and Rail Delivery Group in order to ensure regional needs and integration with multi-modal travel
- Further development of multi-modal smart ticketing and information options within the Midlands'

Midlands Connect - Early Investment Priorities



5-1 Map of our Early Investment Priorities

Regionally Connected

- **A1** Delivery of the A45 Stanwick to Thrapston upgrade (Northamptonshire)
- **A2** Development of Birmingham to Nottingham (including HS2 Hub Station) and Birmingham to Leicester rail services
- **A3** Development of Coventry to Leicester and Coventry to Leamington rail enhancement business cases
- **A4** Development of a business case for enhanced Derby-Stoke-Crewe rail services
- **A5** Work with partners to develop schemes including Hereford bypass to improve connectivity within the Marches to the South West and Wales

UK Connected

- **B1** Delivery of Midland Mainline upgrade & electrification
- **B2** Development of a business case for the Midlands Rail Hub - creating capacity for an extra 10 train paths though Birmingham to improve east-west connectivity
- **B3** Development of a business case for the Midlands Motorway Hub - developing a long term plan for the nation's motorway crossroads
- **B4** Development of a business case for upgrading the A1(M)

Resiliently Connected

- **C1** Delivery of M1(Junction 19 to 23a) and Birmingham Box (M5-M42) Smart Motorway Schemes
- **C2** Delivery of A46 Newark Northern Bypass
- **C3** Development of A46 (M40 to Syston) upgrade business case
- **C4** Strategic study for potential expressway route on A46 between M5 and M40
- **C5** Development of business cases for the M6 Junction 15 to 16 Smart Motorway scheme and Junction 15 upgrade
- **C6** Development of a business case for Phase 1 of upgrading the A5 between the A38 and the M1

HS2 Connected

- **D1** Development of business cases for use of HS2 released capacity and classic compatible services
- **D2** A52 Corridor Multi-Modal Study (Derby, Nottingham, HS2 Hub Station and East Midlands Airport)
- **D3** Development of a business case to upgrade the A50 at Uttoxeter

Globally Connected

- **E1** Delivery of the A14 Cambridge to Huntingdon improvement scheme to improve connectivity to the Haven Ports from the Midlands
- **E2** Development of business cases for improving connectivity to Birmingham International Airport and East Midlands Airport (through A52 Corridor Multi-Modal Study)

Intelligently Connected

- **F1** Active participation in national rail smart ticketing initiative led by the Department for Transport and Rail Delivery Group in order to to ensure regional needs and integration with multi-modal travel
- **F1** Development of multi-modal smart ticketing and information business cases within the Midlands

*Solid lines denote the highway network, dotted lines denote the railway network, and not all routes are shown

Summary of Midlands Connect Strategy - Longer Term Needs

Regionally Connected

- Develop a business case for an increase in service frequency between Shrewsbury to Wolverhampton
- Develop a business case for Derby to Stoke phase 2 frequency and journey time improvements
- Develop a business case for further rail enhancements between Nottingham and Lincoln

UK Connected

- Develop a business case for improved access from the East Midlands to the North West – A50/A500 Corridor
- Develop a business case for upgrading the A1(M)
- Develop a business case for improved rail connections from the Midlands to Bristol/ South West
- Develop a business case for improved rail connections to Worcester, Hereford and South Wales

Resiliently Connected

- Midlands Motorway Hub Study recommendations delivered (reports late 2017)
- Develop a business case for the A46 Phase 2 – M5 to M40 and Syston to A15
- Develop a business case for upgrading A42/ A38
- Develop a business case for further measures on M6

HS2 Connected

- Commence released capacity and classic compatible rail services

Globally Connected

- Develop a business case for an A15 Expressway (A46 to M180) to complete A46 route to Immingham
- Develop a business case for further highway measures to support access to Holyhead and Felixstowe

Intelligently Connected

- Research and Development of the regulatory and operating environment of CAVs
- Trials for smart and digital travel applications moving towards MaaS
- Trials for connected passenger and freight autonomous vehicles

Midlands Connect - Longer Term Needs

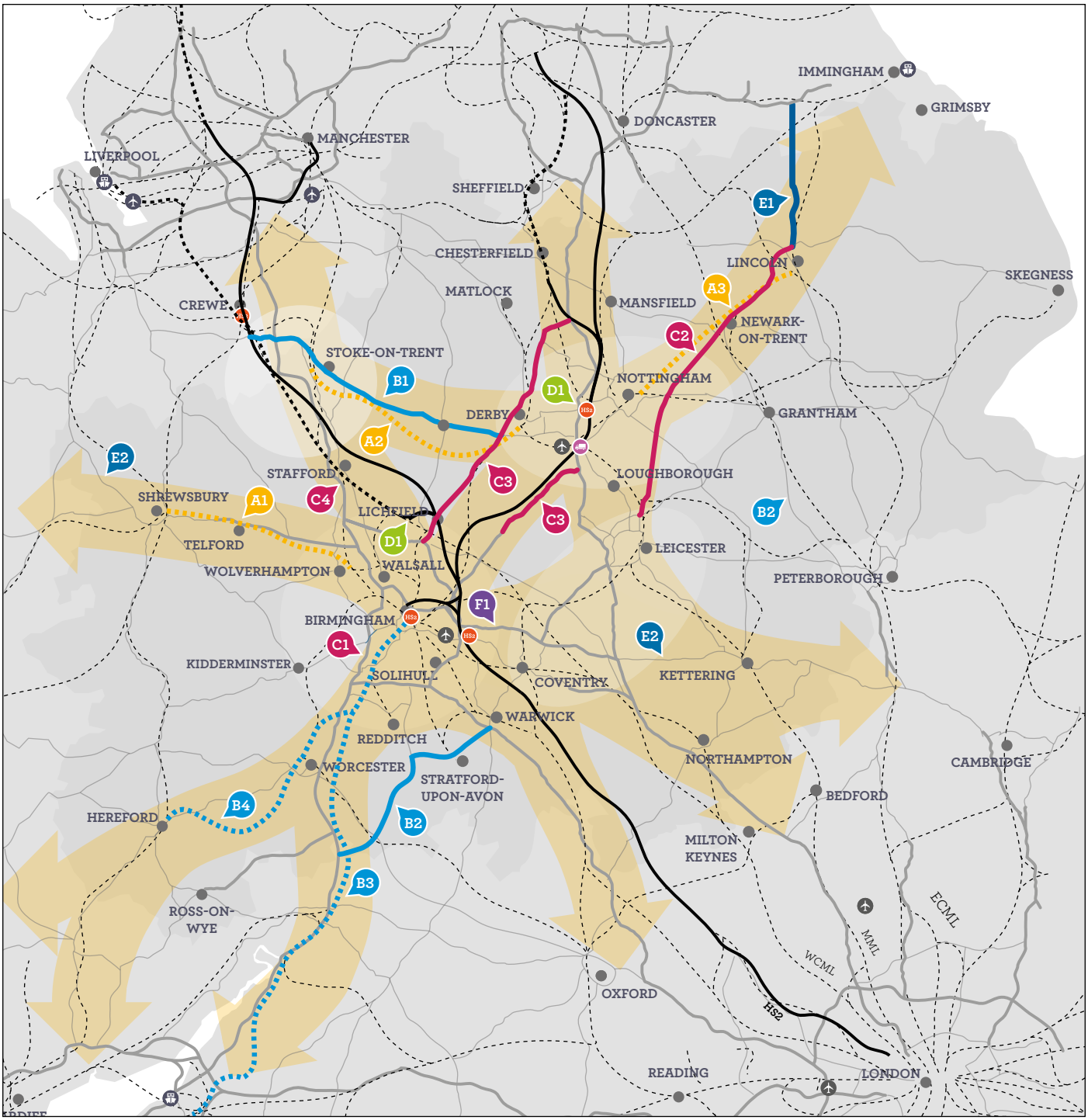


Figure 5-2 Map of our Longer Term Needs

Regionally Connected

- A1 Develop a business case for an increase in service frequency between Shrewsbury to Wolverhampton
- A2 Develop a business case for Derby to Stoke phase 2 frequency and journey time improvements
- A3 Develop a business case for further rail enhancements between Nottingham and Lincoln

UK Connected

- B1 Develop a business case for improved access from the East Midlands to the North West – A50/A500 Corridor
- B2 Development of a business case for upgrading the A1(M)
- B3 Develop a business case for improved rail connections from the Midlands to Bristol/South West
- B4 Develop a business case for improved rail connections to Worcester, Hereford and South Wales

Resiliently Connected

- C1 Midlands Motorway Hub Study recommendations delivered (reports late 2017)
- C2 Develop a business case for the A46 Phase 2 – M5 to M40 and Syston to A15
- C3 Develop a business case for upgrading A42/A38
- C4 Develop a business case for further measures on M6

HS2 Connected

- D1 Commence released capacity and classic compatible rail services

Globally Connected

- E1 Develop a business case for an A15 Expressway (A46 to M180) to complete A46 route to Immingham
- E2 Develop a business case for further highway measures to support access to Holyhead and Felixstowe

Intelligently Connected

- F1 Research and Development of the regulatory and operating environment of CAVs
- F1 Trials for smart and digital travel applications moving towards MaaS
- F1 Trials for Connected passenger and freight autonomous vehicles

*Solid lines denote the highway network, dotted lines denote the railway network, and not all routes are shown

5.2 Getting the Midlands HS2 Ready

HS2 will transform and improve journey times both within the Midlands and to key economic centres across the country as well as providing considerable additional new capacity. For example, journey times between Curzon Street and Manchester will reduce by over half from 88 to 40 minutes and Nottingham to London will be 69 minutes compared to 100 today.

HS2 is expected to result in a significant boost to the Midlands economy[7]:

- in the Derby/Nottingham area would be in the order of £1.1 to £2.2 billion a year or an uplift of 2.2 to 4.3% in regional output; and
- in the West Midlands the productivity gains would be between £1.5 and £3.1 billion a year equivalent to an uplift in output of 2.1 to 4.2% in local GVA.

An estimated 21% of all HS2 benefits will accrue to the Midlands.[8]

HS2 will be a catalyst for development around the stations it serves. Masterplans have already been developed for a number of stations and the scale of potential development is significant. HS2 will support the Midlands Engine and the Northern Powerhouse to re-balance the UK economy so that national economic growth is distributed more evenly across the country, bringing together cities in a critical mass to compete globally.

By 2030, growth in 'highly sensitive' HS2 sectors is expected to be widespread across the Midlands, including a corridor of growth from Staffordshire through the West Midlands conurbation to Warwickshire, growth throughout Derbyshire, Nottinghamshire and south to Milton Keynes and Central Bedfordshire, and parts of Lincolnshire, Shropshire and Hertfordshire. If we build on HS2 and better connect them to the intercity rail network then the combined impact will spread the economic benefits even further across our region – putting money in people's pockets.

[7] HS2 Regional Economic Impact Study September 2013
[8] Economic Case for HS2: Updated appraisal of transport user benefits and wider economic benefits January 2012 - All figures are for 2037 and are in 2013 prices

HS2 Hub Measures, Released Capacity and Classic Compatible

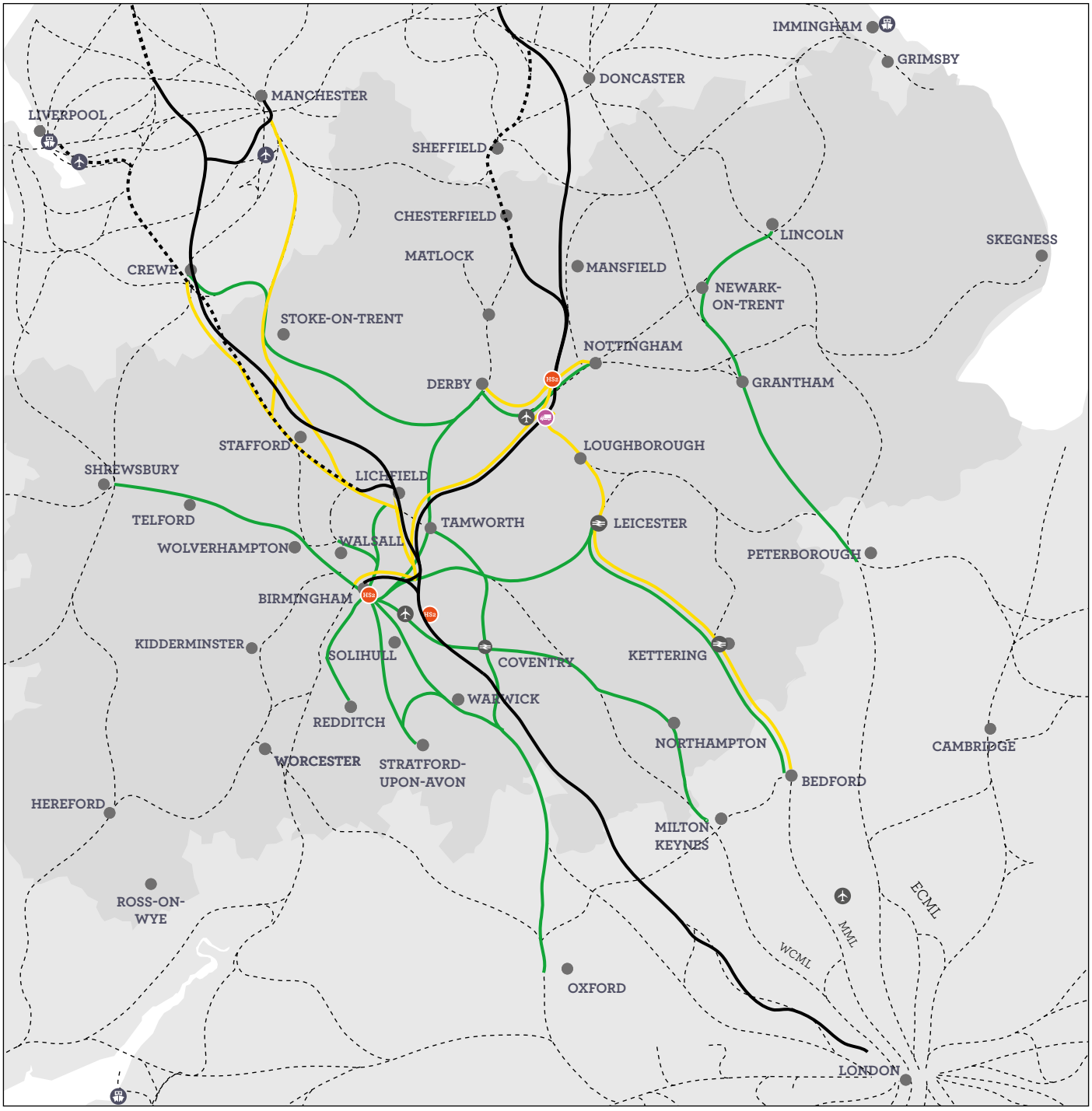


Figure 5-3 HS2 ready services and enabling infrastructure

Birmingham Curzon Street

- Midlands Rail Hub
- Shrewsbury, Telford to Wolverhampton and Birmingham rail corridor
- M42, M40 A452/ A4177 expressway

Crewe Hub and Stoke

- A500 corridor improvements
- Manchester Piccadilly/Manchester Airport to Crewe, Stoke, Derby, Toton Hub, Nottingham and Leicester rail corridor
- Classic compatible services between London Stafford and Stoke.

East Midlands Hub

- Early delivery by 2030 is our priority
- Multi-modal study to determine best mix of access measures including links to East Midlands Airport
- Shuttle services from Derby and Nottingham to Toton
- Classic Compatible link at East Midlands Hub to facilitate direct services between Leicester and Northern Powerhouse Rail

Hs2

Released Capacity – New services on existing network

Classic Compatible – Services capable of operating on high-speed line and existing network

6 What we can Achieve

6.1 The Midlands' Transport Future

Our strategy focusses on exploiting the locational and economic advantages of our hubs and corridors to enable and support economic growth in those locations where conditions are already most favourable.

6.2 Outcomes

In order to demonstrate the economic impact of our strategy we describe below the expected economic outcomes of the strategy against each of the themes.

Further details on the components of the strategy are included in Chapters 4 (Our Early Priorities) and Chapter 5 (Investment Priorities).

Regionally Connected: Powering the Midlands Engine

- The Midlands Engine will lead the way in supporting the Government in delivering its Industrial Strategy and in rebalancing the British economy – stimulating growth in both large and small businesses - and above all ensure a better quality of life for Midlanders.
- Transforming connectivity will widen access to markets, supply chains and labour markets releasing the full potential across our whole region – from Shropshire to Lincoln.

UK Connected: The Midlands transport network powers the UK economy

- We are 16% of the UK economy with our economic reach through customer and supply chains across the country. The Midlands connects Wales, the North Scotland and the South of England to each other.
- We will deliver a Midlands network that works bringing our economic regions closer together boosting productivity, access to markets and international gateways.

Resiliently Connected: We move the nation's freight

- We will boost productivity and growth by providing more reliable road and rail networks – reducing costs to businesses.

HS2 Connected: Getting the Midlands HS2 Ready

- Seizing this once in a lifetime opportunity to drive UK growth.
- Investing in further complementary connectivity will spread the growth across the Midlands and the country as a whole.

Globally Connected: Leading the UK trading in the global market

- Our region is one of the fastest growing regions in Europe, attracting more inward investment and creating more start-up businesses than anywhere outside the capital.
- We will continue to lead the UK in the global export market through increasing international transport links – securing the UK's long term economic prosperity.

Intelligently Connected: Leading the Technology Revolution

- Through the Midlands Engine Innovation Group, we have created a world-class research and innovation partnership. In the automotive manufacturing sector the Midlands is the leading the research in to new technologies and intelligent mobility.
- Through applying innovation and technology, from ticketing through to driverless cars, we can enhance journeys and reduce the need for expensive infrastructure.

6.2 How our strategy will boost the economy

- A £1 billion a year investment programme will deliver benefits in excess of £2 for each pound invested
- Up to £5bn more GVA per annum by 2040 in the Midlands of which;
- Agglomeration Benefits of around £800m a year
- Facilitates the Midlands Engine ambition of 300,000 additional jobs

6.2.1 The Business Case for Investment

The interventions within this strategy represent the transport needs to support our ambitions for growth.

The potential costs of all the elements, both our early priorities and longer term ambitions, is around £1 billion a year for 30 years.

In terms of conventional user benefits, (representing the travel time savings for vehicles), our assessment of this strategy suggests benefits in excess of £2 for every pound invested putting it in the high value for money category.

The assessments at this stage excludes:

- full representation of decongestion benefits due to strategic nature of the modelling;
- accident savings;
- greenhouse gases;
- reliability impacts; and
- construction (negative) and maintenance impacts.

The strategic business cases for each of our early priorities provide further detail on their benefits and costs at this early stage of development. We expect that the value for money for each schemes to strengthen further as they are taken forward through development work to delivery.

Our approach has been to place the economy at the centre of our decision making. In terms of wider economic benefits, covered in more detail in the next section, this strategy will grow the region's GVA by in excess of £5 billion per annum (including agglomeration) based on 2040 forecasts.

Our work confirms that our early priorities have proportionately the highest impact in terms of agglomeration benefits, jobs creation and GVA.

It is important to place these headline numbers in the context of the benefits that we set out in this report:

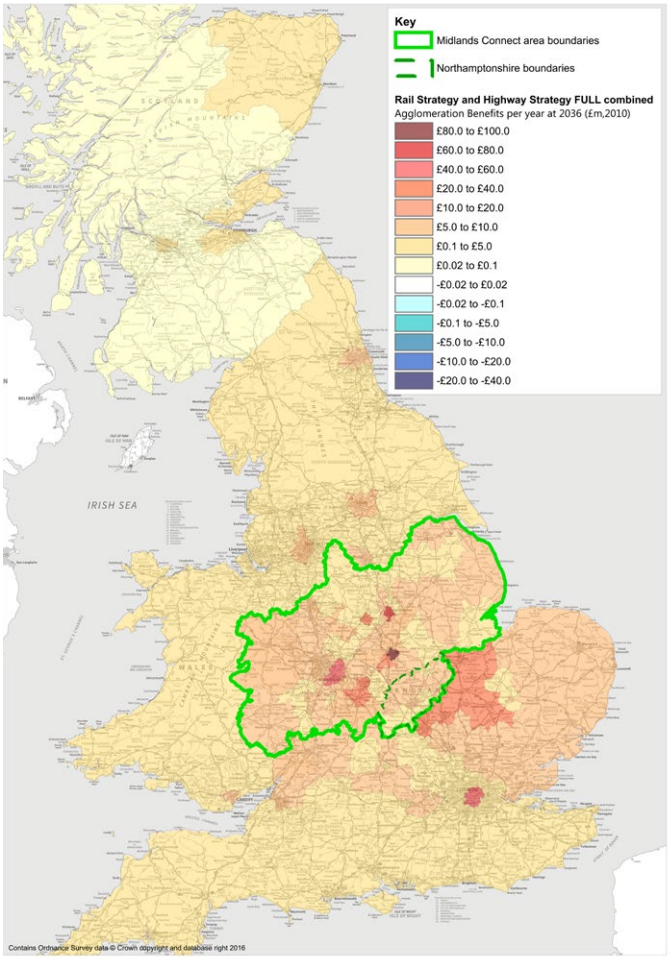
- building on the already strong business case of HS2 to secure even more benefits for UK;
- boosting productivity and growing new jobs; and
- the importance of our national transport hubs to the UK economy - both domestically and globally for trading and inward investment.

6.2.2 Agglomeration Benefits

We have forecast the potential static agglomeration benefits (i.e. the benefits to existing businesses) of key elements of our strategy. However, some elements of the more complicated rail options have not been assessed at this stage so the picture presented below does not capture all potential agglomeration benefits.

Our analysis shows that our highway package and core rail elements have the potential to provide static agglomeration benefits across the Midlands of around £800 million per year. Including the wider benefits to the rest of the UK raises this to in excess of £1.5 billion per annum.

The distribution of total forecast agglomeration benefits is shown in Figure 6-1. Whilst, in absolute terms, the largest increases are in urban areas, there are benefits across the whole Midlands.



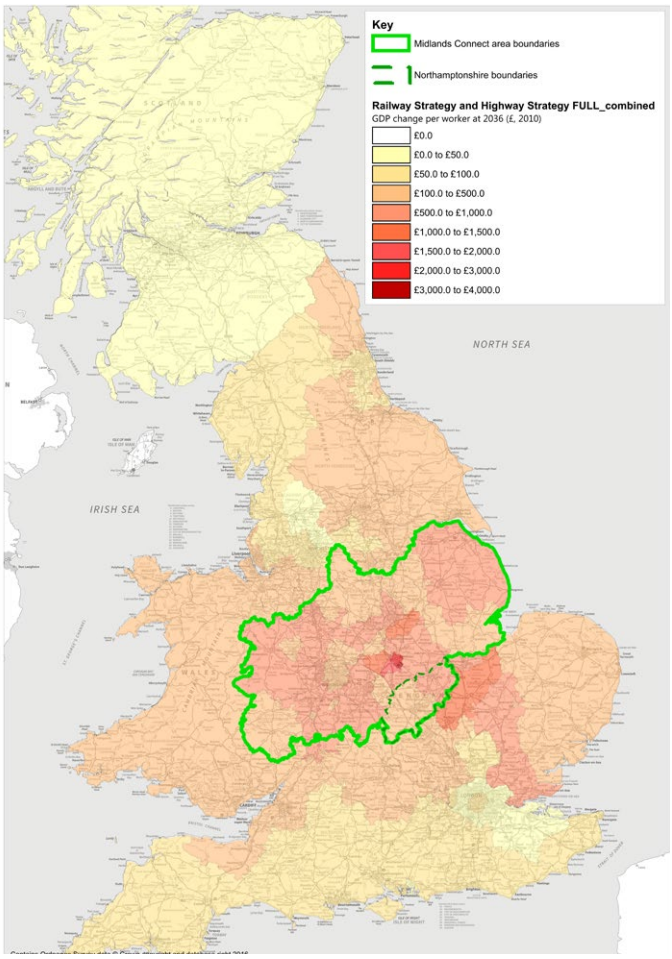


Figure 6-1 (left) Total annual agglomeration benefits from Midlands Connect Strategy, 2036

Figure 6-2 (right) Annual agglomeration benefits per worker from Midlands Connect Strategy, 2036

Figure 6-2 shows the increase in agglomeration benefits per worker. Areas outside of the main urban centres generally experience higher increases than those in the main centres.

As the map shows, the importance of the Midlands' strategic transport networks means that the benefits generated by our strategy are not just benefits for the Midlands, but for the whole UK, in particular the Northern Powerhouse, East and South East, including London. In fact, half of the benefits are achieved outside the Midlands. As such, the Midlands Engine is uniquely placed to support the UK government in maximising the benefits of the unprecedented investment in HS2, and in securing the benefits of its emerging Industrial Strategy.

Focussing in on the Midlands, Figure 6-3 (overleaf) shows the top twenty locations in the Midlands in terms of agglomeration benefit increase per worker as a result of our strategy.

By improving travel conditions in the Midlands, we will support UK businesses to become more productive; and make the Midlands a more attractive place to do business, to live and play.

Through better mobility solutions and propositions, people will be able to find better paid work further afield and businesses will, through better transport networks, be able to locate in more financially efficient areas without compromising their access to suitably skilled workers.

As our strategy is delivered, these benefits will begin to be realised, boosting job opportunities, access to leisure and new homes, and putting money in the pockets of Midlanders.

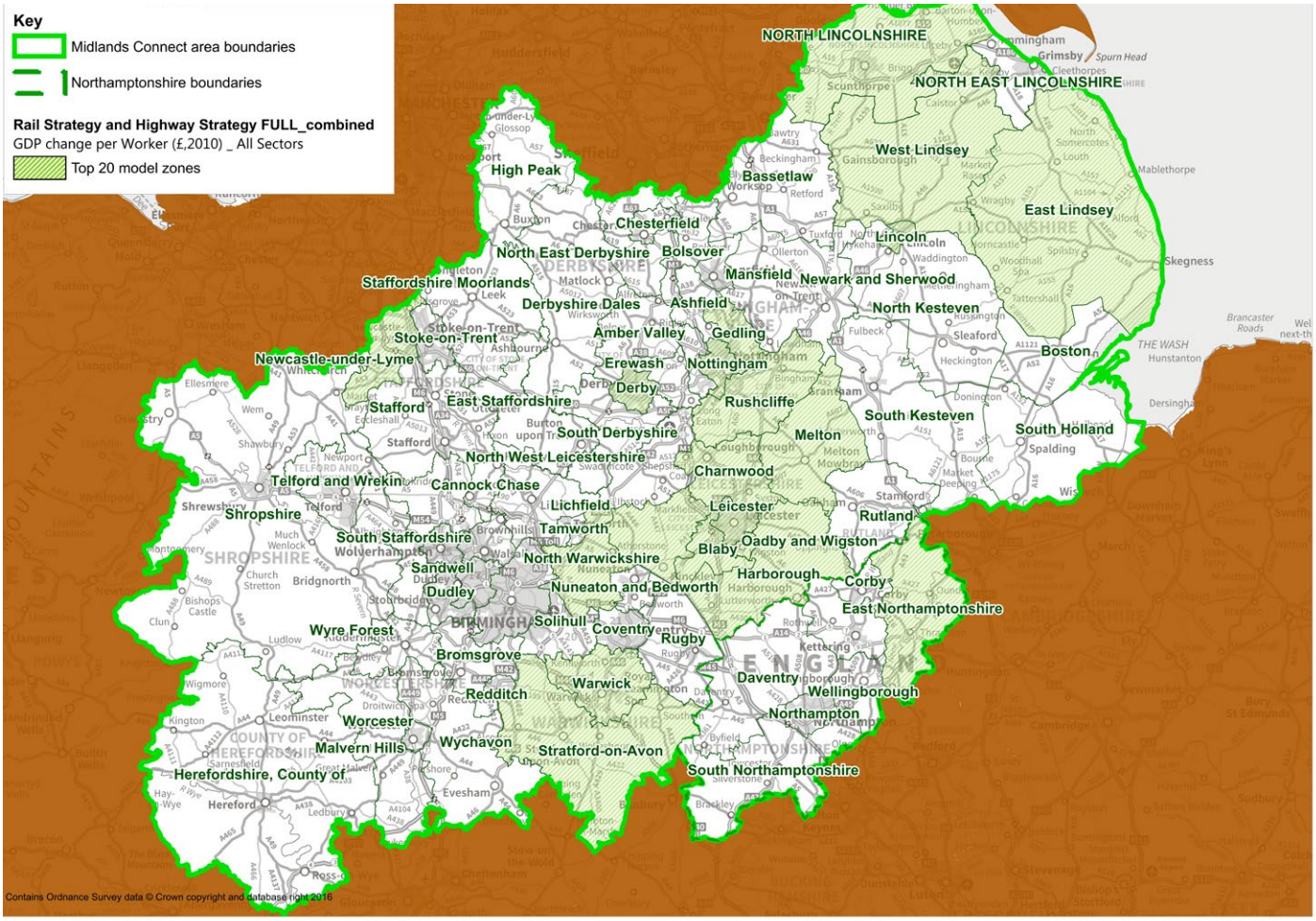


Figure 6-3 Top twenty areas for GVA per worker growth as a results of our strategy

6.2.3 Supporting Housing Growth and Creating New Jobs

Our strategy is aligned with the with the growth aspirations across our Local Enterprise Partnerships and Local Authorities. The combined local and strategic digital, rail, local public transport and road interventions will maximise the viability and rate of housing growth through both the quality of and ease of travel connections and the effective increase in journey to work catchment areas.

We have tested our strategy using a Land Use Transport Interaction (LUTI) model to estimate how our strategy will deliver growth in jobs (and associated economic production), as well as additional GVA through boosted productivity (agglomeration). Our initial forecasts are of the effects of just those highway and rail schemes which we have analysed in detail at this stage; and exclude the effects of proposed HS2 classic compatible services, released capacity, intelligent mobility interventions and some of our longer term aspirations.

The LUTI modelling provides an initial estimate of the new jobs that could be created by our strategy. Based on improvements to Generalised Journey Times alone (so excluding wider Midlands Engine measures) we expect our strategy to directly contribute around 75,000 more jobs in the Midlands by 2040. It will provide the transport networks required to support the Midlands Engine ambition of 300,000 additional jobs in total.

6.2.4 Total Increase in Economic Output

The results from our testing show that there is potential for our strategy to achieve a total increase in economic production (GVA) in the region of around £5 billion per annum by 2040. This is the combined effect of increased productivity amongst existing workers and economic output from new jobs.

End note - all the analysis in this chapter is based on the make-up of the Midlands Connect partnership at November 2016.

7 Delivering Our Strategy

7.1 Capital Programme for 2017-2020: Influencing Rail, Road and HS2 Investment Decisions

During 2017, Highways England and Network Rail will set out their priorities for the next funding periods in the Strategic Road Network Initial Report and the Rail Investment Strategy. Consultation and preliminary design on HS2 Phase 2b will also occur during 2017, and the final opportunity to influence the Phase 2b Hybrid Bill will be mid-2018.

As set out in this strategy, the Midlands has specific challenges around overall skills levels, the proportion of knowledge intensive business, the level of investment made by SMEs in innovation, and some poor strategic connectivity following a period of underinvestment.

This strategy seeks to transform these challenges into opportunities by unlocking the creation of new jobs, and enabling existing businesses to operate more efficiently, transforming the productivity of our economy.

The overall number of jobs, and rate of employment in the Midlands is accelerating, but many locations still face the ongoing challenge of pockets of entrenched high unemployment. Furthermore, whilst the Midlands accounts for 17.4% of the UK's jobs, it only delivers 15.6% of the total economic output. Productivity (average GVA per worker) is £37,700, 10% below the UK average.

Raising productivity to the national average would in itself grow the Midlands' economy by £25 billion per annum.

Midlands Connect provides a multi-modal perspective to the development of national programmes setting out how we can best drive economic growth.

The Government's confidence in Midlands Connect was recently demonstrated with the award of £12 million of funding to further develop our proposals over the next three years. The key focus of our work in the short-term is therefore to further strengthen the case for the capital investment and integrated smart ticketing as identified by Midlands Connect as being vital to economic success; and for these projects to be included in these initial investment plans and enabling legislation as shown in Figure 7-1.

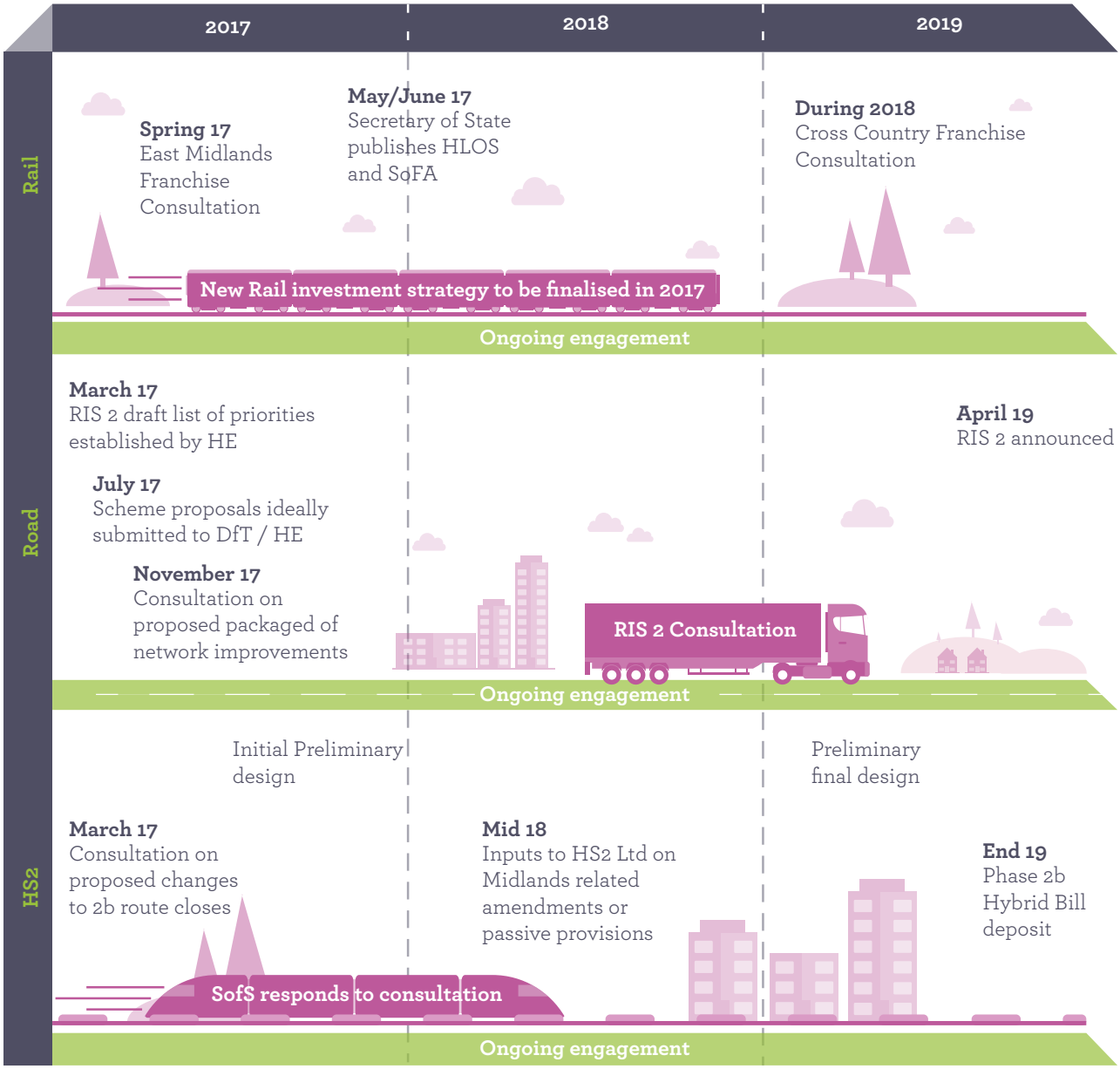


Figure 7-1 Forward Planning with Highways England, HS2 Ltd and Network Rail

Specific areas of focus include:

- In partnership with Highways England, undertake a study of the Midlands Motorway Hub (including the A5 corridor from Cannock to Rugby);
- Develop options to improve the capacity on the A5 from the A38 to the M1;
- Demonstrate the case for M6 Junctions 15-16 smart motorway and Junction 15 upgrade;
- Engage with Highways England to understand plans for upgrades to the A1/A1(M) corridor following the recent Strategic Study;
- Begin detailed examination of an expressway standard route on the A46 corridor from Tewksbury to the Humber ports. Our first priority will be on the section between the M40 and Hobby Horse junction to the north-east of Leicester, including a potential new route to the south and east of Leicester;
- Undertake a joint multi-modal study with the D2N2 LEP, local authorities, East Midlands Airport, Highways England and HS2 Ltd into the A52 corridor between Derby and Nottingham. The study will examine the complex issues about access to the HS2 station at Toton and East Midlands Airport including the potential for mass transit solutions. The study findings will inform Highways England's Initial Report and the HS2 Phase 2B Hybrid bill during 2017/18;
- Support our partners in making the case for the Worcester Southern Ring Road and Hereford Bypass (alongside the South Wye Transport Package);
- Secure the business case for the full grade separated junctions at Uttoxeter currently identified as "under review";

- Progress the business case work undertaken by Network Rail on the Midlands Rail Hub package, using the recent £5 million award from the DfT;
- Develop the business case for incremental rail improvements to the Leicester – Birmingham service which will increase journey times and service frequency;
- Further work to agree the preferred option for improved centre to centre rail services between Birmingham and Nottingham ahead of the HS2 Phase 2b Hybrid Bill;
- Develop a clear outcome specification and business case for direct rail services between Coventry and Leicester with a view to securing development funding in the next Rail Investment Strategy;
- Confirm the preferred option and develop a business case for classic or HS2 classic compatible rail services between the East Midlands and North West. Work during 2017 and early 2018 will inform the HS2 Hybrid Bill and inform the "system wide" approach to HS2 recently advocated by the Government for development next year;
- We will continue to actively participate in the national rail smart ticketing initiative led by the Department for Transport and Rail Delivery Group in order to ensure regional needs and integration with multi-modal travel; and
- We will continue to actively engage on Research and Design with the DfT. Network Rail, Highways England and Transport Systems Catapult to actively influence the outcomes for Smart Ticketing, MaaS and CAVs.

We intend to establish working groups to take responsibility for each of these activities and engage with delivery partners and the DfT. Membership of each working group will be determined based on geography, scope and desired outcomes; Midlands Connect will provide strategic oversight, accountability, governance and funding. We will encourage strong and collaborative working within and between these groups.

7.2 Midlands Connect Strategic Programme

Working with our partners, Midlands Connect has identified our priorities for capital investment over the next 25 years; the projects which are vital to ensure that there is a powerful Midlands at the heart of the UK's economy, and to enable a step-change in the standard of living of Midlanders.

Over the last year we have been working closely with the DfT, Network Rail and Highways England to ensure that our work to develop these priorities is compatible with the requirements of these organisations; and, critically, that we feed into decisions about subsequent funding periods, for example through the Highways England Strategic Road Network Initial Report.

Our local authority, LEP and airport partners have also been intrinsic in identifying and shaping these pan-Midlands priorities and identifying how they will unlock or generate economic growth. Our work to date has focussed on the strategic networks; the strategic road network and rail network in particular. However we recognise that to achieve our ambitions of high quality end-to-end journeys requires action on the local and sub-regional networks too; we need public transport services to link city centre stations to their hinterlands, and we need to coordinate planning of local and strategic road networks, including the use of park & ride.

The Midlands Connect strategic investment programme is shown in Figure 7-2, showing periods of development and delivery of each project. It is divided into 'blocks' commensurate with expected Road Investment Periods. This programme will be kept continually under review.

The projects are generally at an early stage of development, meaning that delivery of the first schemes is perhaps five years away. This is not to say there will be no delivery before this date; both Network Rail and Highways England are committed to complete or begin construction of at least 20 projects in the Midlands in the intervening period and begin development of others which Midlands Connect has previously supported. These include electrification of the Midland Mainline to Sheffield, M6 Junctions 13 to 15 smart motorway, and A38 Derby junction improvements.

Intervention/Area	Intervention Category	2017-2020	2021-2025	2026-2030	2031-2035	2035 and beyond
East to West Midlands Rail Corridors						
Leicester to Birmingham	Regionally Connected					
Birmingham to Nottingham	Regionally Connected		Delivery programme to be determined following further scoping work			
Thames Valley to East Midlands and the North Rail Corridor						
Coventry to Leicester	Regionally Connected					
Access to Birmingham Airport	Globally Connected					
Wider Thames Valley-Midlands-the north enhancements	UK Connected					
Derby-Stoke-Crewe Classic Rail Network improvements	Regionally Connected					
Rail access to the South West (Bristol) Rail	Regionally Connected					
Rail access to Worcester, Hereford and South Wales	Regionally Connected					
Lincoln to Nottingham Rail Corridor	Regionally Connected					
Shrewsbury to Wolverhampton Rail Corridor	Regionally Connected					
Midlands Rail Hub	UK Connected					
Rail Refranchising - Midlands Connect requirements	UK Connected					
Midland Motorway Hub Study						
Midlands Motorway Hub Study	UK Connected					
Schemes from Motorway Hub Study	UK Connected					
M1 Motorway						
Longer term capacity improvements	UK Connected					
A1 (M) Motorway						
Upgrade to motorway standard Road Delivery programme to determined	UK Connected		Delivery programme to be determined			
A50/A500 Road Corridor						
A500 - Stoke to M6	UK & HS2 Connected					
A50 Uttoxeter junction	UK & HS2 Connected					
A50/A500 expressway	UK & HS2 Connected					
Road Access to South West and Wales						
Worcester Southern Ring Road	UK Connected					
Hereford Bypass including South Wye Transport Package	UK Connected					
M6 Motorway						
Smart Motorway J15-16 and J15 upgrade	Resiliently Connected					
Longer term capacity improvements	Resiliently Connected					
A46 Road Corridor - South West-Midlands-North East						
M40 to Syston	Resiliently Connected					
M5 to M40 Road Delivery programme to determined	Resiliently Connected				Delivery programme to be determined	
Syston to Immingham	Resiliently Connected					
A5 Road Corridor						
M6 to A38	Resiliently Connected					
A38 to M1	Resiliently Connected					
A42/A38 Road Corridor						
A38 Upgrade to expressway	Resiliently Connected					
A42 upgrade to motorway standard	Resiliently Connected					
A52 Corridor (HS2 Hub Station and East Midlands Airport)						
Multi-Modal Study Multi-modal	HS2 Connected					
Interventions identified in Multi-Modal Study Multi-modal To be determined by the Multi-Modal Study	HS2 Connected	To be determined by the Multi-Modal Study				
Hs2 Ready - Further Work						
Classic Compatible Options and Business Case	HS2 Connected					
Released Capacity Business Case	HS2 Connected					
Access to Felixstowe and Holyhead						
Business case for further interventions	Globally Connected					
Multi-Modal Smart & Digital/ Intelligent Mobility programme	Intelligently Connected					

Figure 7-2 Midlands Connect forward programme

Scheme Development

Scheme Delivery

7.3 Leading Research and Innovation

Throughout this strategy we have emphasised the importance of exploiting innovation and technology. Our Smart Ticketing SOBC clearly set the strategic case for this, and we welcome the Government's commitment to taking this forward at a national level.

We will continue to actively engage with the DfT. Network Rail, Highways England and Transport Systems Catapult to actively influence the outcomes for Smart Ticketing, MaaS and CAVs.

We have identified a number of areas where Midlands Connect can lead further research and potential piloting of smart connectivity measures that will lead the way for wider application across the country.

7.4 Governance of Midlands Connect

Midlands Connect is a voluntary partnership representing the views of our constituent members. Leadership and accountability is provided by the Strategic Board comprising an independent chair, Sir John Peace, elected members from six local authorities, four LEP chairs and representatives of HS2 Ltd, Network Rail and Highways England. Our governance structure also includes a Partnership Advisory Board with representatives of all member organisations; a Programme Steering Group and a Technical Advisory Group.

Since the Cities & Local Government Devolution Act received Royal Assent in January 2016, Midlands Connect has been exploring options for, and benefits of, formation of a Sub-National Transport Body. This work is ongoing and no formal decision has yet been taken.

However, through our current voluntary arrangements we have already established strong governance, trust, and collaborative working amongst all partners, culminating in this strategy.

7.5 Complementary Local Transport

If HS2 represents a response to a national transport demand, then the Midlands Connect strategy will be the sub-national contribution that the UK requires to stimulate growth and to meet social need. The strategy is designed to ensure a coherent regional transport network. It will serve businesses and people within the Midlands and beyond it; and provide strategic links to the national transport systems.

In a similar way, the prosperity of the Midlands also depends on effective local transport. Midlands Connect will encourage the development of key local transport routes and local transport schemes (and operational maintenance) across the region that will complement the strategy. Some schemes will connect directly into the strategic corridors; others are discrete projects that will be vital improvements to the immediate local area. However, the value of these schemes to the broad economic aims of the Midlands Engine should not be underestimated. Local Authorities and Local Enterprise Partnerships will identify these projects and work with the Government, developers and commercial businesses to bring them to fruition.

The cost of some of these schemes ranges from a few million pounds with a few over £100 million. Local projects will not appear in the Midlands Connect strategy, but the partners in Midlands Connect do recognise their significance and urge the Government to maintain a significant flow of funding for local transport schemes.

7.6 Next Steps

The completion of this strategy sets a clear and robust focus for the Midlands. Our 'Picking Up the Pace' report set out a case for accelerating the planning and design stages of key transport projects in the Midlands so they can be built during the first half of the 2020s.

In autumn 2016 the government announced a further £12 million of funding to continue development of our programme and to further build our capability and influence; and a further £5 million specifically to develop the Midlands Rail Hub concept.

As we move forward we will engage closely with all our members, but particularly the delivery bodies, to seek opportunities to share resources and jointly fund our activities. The recent award of a jointly-funded study into the Midlands Motorway Hub with Highways England is an early example.

At the heart of our work over the next three years will be a focus on demonstrating the value of investing in Midlands transport infrastructure and of Midlands Connect in coordinating that investment.

Our aspiration is clear, to unlock our economic potential. This strategy shows how we can accomplish this and paves the way for our future.

Midlands Connect
Powering the Midlands Engine

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