

Regional Evidence Base

Appendix A

Economic Connectivity Study

Western Gateway

Sub-national Transport Body





Western Gateway

ECONOMIC CONNECTIVITY STUDY

Final Report





Western Gateway

ECONOMIC CONNECTIVITY STUDY

Final Report

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70052842

DATE: JULY 2019

WSP

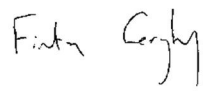
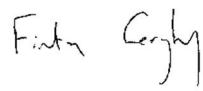
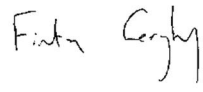
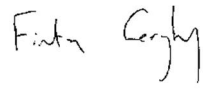
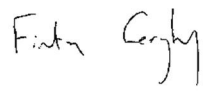
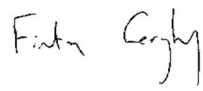
WSP House
70 Chancery Lane
London
WC2A 1AF

Phone: +44 20 7314 5000

Fax: +44 20 7314 5111

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1
Remarks	1 st Draft (of report in 'portrait' format)	Final Report
Date	06/05/2019	05/07/2019
Prepared by	Fintan Geraghty Jay Atwal	Fintan Geraghty Jay Atwal
Signature		
Checked by	Fintan Geraghty	Fintan Geraghty
Signature		
Authorised by	Fintan Geraghty	Fintan Geraghty
Signature		
Project number	70052842-001	70052842-001
Report number	V1	V2
File reference	70052842-001 project folder	70052842-001 project folder

CONTENTS

EXECUTIVE SUMMARY

1	INTRODUCTION	1
1.1	THE WESTERN GATEWAY	1
1.2	OBJECTIVES OF THE WESTERN GATEWAY	2
1.3	ECONOMIC CONNECTIVITY REPORT	2
1.4	STRUCTURE OF THE REPORT	3
2	THE STRATEGIC CORRIDORS	5
2.1	INTRODUCTION	5
2.2	WHY IS CORRIDOR CONNECTIVITY SO IMPORTANT?	6
2.3	THE IMPORTANCE OF CONNECTIVITY FOR THE WESTERN GATEWAY	7
2.4	THE 15 CORRIDORS	7
3	THE ECONOMY OF THE WESTERN GATEWAY	13
3.1	INTRODUCTION	13
3.2	THE MAIN THEMES IN THE WESTERN GATEWAY	15
3.3	KEY THEMES SUMMARISED	19
3.4	THE SECTORAL STRENGTHS OF THE WESTERN GATEWAY'S ECONOMY	25
4	HOW IMPROVED CONNECTIVITY CAN BOOST HOUSING AND THE ECONOMY	31
4.1	INTRODUCTION	31
4.2	ENHANCED PRODUCTIVITY	31
4.3	ADDITIONAL GVA FROM NEW EMPLOYMENT	32
4.4	LAND VALUE GAINS FROM HOUSING	33
4.5	ADDITIONAL NON-QUANTIFIED BENEFITS	34

5	ECONOMIC IMPACTS	38
<hr/>		
5.1	INTRODUCTION	38
5.2	PRODUCTIVITY GAINS	38
5.3	ADDITIONAL GVA FROM NEW EMPLOYMENT SITES	49
5.4	LAND VALUE GAINS FROM NEW HOUSING	55
6	FINDINGS	61
<hr/>		
6.1	CORRIDOR SEQUENCING	61
6.2	SEQUENCING APPROACH	61
7	CONCLUSIONS	66
<hr/>		
7.1	OVERVIEW	66
7.2	THE BENEFITS OF IMPROVED CONNECTIVITY	66
7.3	ECONOMIC IMPACTS	67
7.4	NEXT STEPS AND THE WAY FORWARDS	67

TABLES

Table 5-1 – Productivity (Agglomeration) Improvements Per Corridor	39
Table 5-2 – Ranking of each Corridor for all Sectors	41
Table 5-3 – Ranking of each Corridor: Manufacturing	42
Table 5-4 – Ranking of each Corridor: Construction	44
Table 5-5 - Ranking of each Corridor: Consumer Services	46
Table 5-6 - Ranking of each Corridor for Producer Services	47
Table 5-7 - Total Additional Direct Employment per Corridor	51
Table 5-8 - GVA for all the Corridors over a 10-year period	53
Table 5-9 - Rankings of the Corridors Relating to Housing	58
Table 6-1 - Sequencing Rankings for each Corridor	64

FIGURES

Figure 2-1 - The 15 Strategic Corridors	5
Figure 3-1 - Sub-National Transport Bodies	14
Figure 3-2 - GVA per Head by Local Authority	20
Figure 3-3 - Access to Ports	21
Figure 3-4 - Access to Airports by Road	22
Figure 3-5 - Index of Multiple Deprivation Local Rank	23
Figure 3-6 - Index of Multiple Deprivation National Rank	24
Figure 4-1 - Functional Urban Regions (FURs)	32
Figure 5-1 - Agglomeration Impacts by Sector	40
Figure 5-2 - Breakdown of Manufacturing Benefits by Corridor	42
Figure 5-3 - Breakdown of Construction Benefits by Corridor	44
Figure 5-4 - Breakdown of Consumer Services Benefits by Corridor	45
Figure 5-5 - Breakdown of Producer Services Benefits by Corridor	47
Figure 5-6 - Key Employment Sites	49
Figure 5-7 - GVA by Local Authority	51
Figure 5-8 – Breakdown of New Jobs Supported by Corridor Improvements	53
Figure 5-9 - GVA over a 10-year period, £	55
Figure 5-10 - Major Housing Developments	56
Figure 5-11 - Overall Land Value Gain	57
Figure 5-12 - Land Value Benefits from Different Additionality Rates	59

APPENDICES

APPENDIX A

ECONOMIC IMPACT METHODS

EXECUTIVE SUMMARY

The Western Gateway Sub-national Transport Body (STB) covers a large, diverse geography and contains some of the UK's fastest-growing sectors in a variety of locations. Given the STB's economic potential, it is crucial that its strategic transport corridors are able to provide the best levels of connectivity possible. Enhanced connectivity across all 15 strategic corridors will generate a range of economic benefits, including much-needed productivity gains, employment and Gross Value Added (GVA) gains from new employment sites across the region and land value gains from the new housing that the STB so urgently needs. The STB is also strategically located so that many of the 15 strategic corridors provide connectivity into the South West, the Midlands, South Wales and the Solent / Enterprise M3 areas (the latter two areas being part of the Transport for the South East STB).



The Western Gateway covers some of the country's most prosperous, fastest-growing conurbations with several high-tech and high value sectors now providing a wide range of employment opportunities in the STB. Despite these concentrations of economic activity, the Western Gateway has several areas and communities that experience poor transport connectivity, especially with respect to corridor connectivity.

The STB has therefore put forward 15 strategic transport corridors that span the Western Gateway area whilst also providing essential connectivity into other neighbouring STBs. At the present time, many of these corridors are subject to many constraints, including regular delays and congestion imposed by a lack of capacity. These constraints are common to all modes of transport with several of the region's motorway and trunk road network being severely over capacity at peak times. Similarly, rail connectivity on some key north-south corridors (from the South Coast to Bristol, for example) is poor.

Improvements to these strategic corridors will serve a number of essential economic purposes, including several national strategic objectives. These include:

- Increased levels of productivity due to much improved journey times on the corridors;
- Additional GVA from the jobs created at new employment sites across the Western Gateway area; and
- Additional land value gains from new housing sites unlocked by enhancements on the 15 corridors.

These are not the only economic gains as enhanced connectivity will boost links with the region's international gateways such as its major ports and airports. Corridor improvements will also help to reduce levels of relative deprivation in certain parts of the STB, particularly those areas that are not well connected to the centres of economic activity.



The STB's visitor economy is also important given the large number of attractions throughout the region. By enhancing connectivity on corridors such as the M5 and A303 as well as the links to the south coast, the region's tourism sector will be able to expand and provide a range of employment and other economic benefits.

In headline terms, a series of economic impacts have been calculated for the purposes of the Economic Connectivity study:

- Agglomeration-based productivity improvements: £5.5 billion across the 15 corridors (with labour supply benefits as well);
- Employment at new sites across the Western Gateway: 42,500 jobs;
- GVA impacts from employment at the new sites: £12.3 billion; and
- Total land value gains from unlocked housing: £1.3 billion.

The Western Gateway is important regionally and nationally as it is both a single area containing some of the UK's fastest-growing sectors and a crucial facilitator of improved connectivity to other parts of the country.

By improving corridor connectivity across the Western Gateway, economic activity and productivity levels will increase not only in the STB area itself but also in neighbouring STB areas. The Western Gateway has already established a good working relationship with the Peninsula Transport STB, for example, and there is much commonality and synergy between several of the strategic corridors in both STB areas.

Although the Western Gateway contains some of the UK's fastest growing sectors, several parts of the STB are poorly connected and this is why it is vital that connectivity across the 15 strategic corridors is improved. The improvements will also generate a series of positive impacts that align well with several Government policies and objectives such as:

- Boosting productivity levels: as the UK is experiencing a widespread 'productivity gap' in relation to other countries, enhancements across the Western Gateway can help to redress this;
- Boosting employment in developing, high-tech sectors: the Government's Industrial Strategy White Paper sets out several sectors that need to be developed and several of these are in the Western Gateway (e.g. in the Bristol conurbation); and
- Boosting housing delivery: the UK faces a national shortage of housing units, especially in the affordable sector. By helping to unlock housing sites across the STB area, improvements to the 15 strategic corridors will enable the region to meet its housing targets as well as providing those who work across the STB to find good, affordable homes (and thus remain in the region).

In the future, there will be scope for providers of different modes to work together along each of the corridors. This will enable a more holistic approach to benefit maximisation to be adopted for each corridor.

With the UK Government seeking to "rebalance the economy", the 15 strategic corridors offer an excellent means of generating additional economic activity as well as an ability to improve links between communities and centres of strong growth.

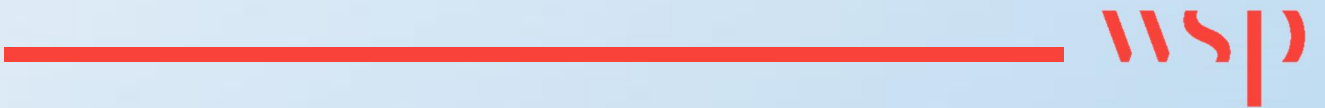
Contact name: Fintan Geraghty

Contact details +44 (0) 7795 121043 | Fintan.Geraghty@wsp.com



1

INTRODUCTION



1 INTRODUCTION

1.1 THE WESTERN GATEWAY

- 1.1.1. The Western Gateway Sub-national Transport Body (STB) comprises an alliance of local authorities that are working closely together to drive innovation, maximise economic growth and improve productivity by enhancing transport connectivity to local, national and international markets.
- 1.1.2. The Gateway covers an area with a population of over 3 million people and is set for a step change in prosperity and productivity through its growth agenda over the next 20 years. The objectives include the delivery of 300,000 new homes as well as 190,000 new jobs.
- 1.1.3. The STB features several distinct characteristics and is a highly desirable destination in its own right as well as being a facilitator of movement through several nationally significant travel corridors. The Gateway's geography clearly shows the strategic links between 1) the South Coast and the Midlands, 2) London and the South East to South Wales and 3) the South West Peninsula to the rest of the UK.
- 1.1.4. The Western Gateway is formed of an alliance of the following Local Authorities:
- Bath and North East Somerset Council;
 - BCP Council (incorporating Bournemouth, Christchurch and Poole);
 - Bristol City Council;
 - Dorset Council;
 - Gloucestershire County Council;
 - North Somerset Council;
 - South Gloucestershire Council;
 - Wiltshire Council; and
 - West of England Combined Authority (WECA).
- 1.1.5. The over-arching aim of the STB is to increase economic activity in the region by delivering housing and by increasing productivity through the improvement of strategic travel corridors. To achieve these connectivity improvements, a total of 15 strategic corridors have been identified in the Gateway area and these are described in more detail in the following chapter.
- 1.1.6. The Western Gateway has further strategic importance as several of the identified corridors provide access to a number of other regions in the UK. These include the following:
- Access to the far South West (via the M5 and A303 corridors and the main rail routes, for example);
 - Access to the West Midlands (again via the M5 corridor and other links between the northern part of the Gateway area and the West Midlands);
 - Access to South Wales; and
 - Access to London and the South East (including access the centres of economic activity in the Solent area).
- 1.1.7. The Gateway has a population of over 3 million people and with the increasing desirability of the region (both as a place to live and work as well as a place to visit), it is important that over the next

20 years new homes and jobs are delivered to match the region's economic potential and objectives.

1.2 OBJECTIVES OF THE WESTERN GATEWAY

- 1.2.1. The Western Gateway's objective is to maximise the capacity and resilience of the strategic transport corridors. By enhancing the existing links to local, national and international markets, the Gateway will achieve its own ambitions of delivering productivity improvements, housing and economic growth as well as helping other regions and STBs achieve their own objectives.
- 1.2.2. There are also several different types of corridors within the Western Gateway and these will serve a number of economic 'market sectors', including the following:
 - Local centres of economic activity – such as the ambitious Metrobus and MetroWest public transport networks in and around the Bristol area;
 - National markets – through the Gateway's strategic highway and railway links; and
 - International markets – through the airports and deep sea ports in the Western Gateway area.
- 1.2.3. The Western Gateway is very much one area of economic activity and economic potential that acts as a collective in its dealings with Government and all other major stakeholders. This collaborative approach will ensure that transport is not a barrier but an accelerator of economic growth.
- 1.2.4. As a collective, the STB has expertise in world renowned industries such as advanced engineering, high-value manufacturing, aerospace, military, financial and professional services, digital information and communications technology, cyber security and defence.
- 1.2.5. With enhancements to corridor connectivity, the Western Gateway has the business environment, people and skills to support growth and productivity. As well as delivering over 300,000 homes and 190,000 jobs, enhanced corridors will also improve productivity, help the tourism sector and improve links to the international gateways in the region.

1.3 ECONOMIC CONNECTIVITY REPORT

- 1.3.1. The Western Gateway is producing a regional evidence base and this Economic Connectivity Study is a central element of this. The Connectivity Study describes the 15 strategic corridors that have been identified, the economic characteristics of the overall area and the economic gains that can be expected by investing in the Gateway area
- 1.3.2. The Study therefore:
 - Sets out the 15 strategic transport corridors together with their main characteristics'
 - Describes the strategic and economic context throughout the Western Gateway area with a focus on the key themes and issues affecting the area, notably productivity gaps in certain areas and the need for new housing;
 - Identifies where the Western Gateway economy requires development so as to close "productivity gaps";
 - Provides a series of metrics covering the main benefits of improved corridor connectivity; and
 - Provides indicative sequencing with respect to improvements for each corridor.
- 1.3.3. The aims of the Connectivity Study are therefore to:

- Take a strategic view and identify the economic priorities for transport investment in the Western Gateway area;
- Make the case for investment in transport to increase productivity in the Gateway area; and
- Be a platform for further discussions with key stakeholders on the ongoing development of the regional evidence base.

1.3.4. The Study makes use of several data sources, including those from the local authorities forming the Western Gateway, the Local Enterprise Partnerships (Dorset, Gloucestershire, West of England and Swindon and Wiltshire), the Office of National Statistics (ONS) and the ONS NOMIS database.

1.3.5. The economic impacts calculated as part of the Connectivity Study reflect the latest guidance on these and cover the following:

- DfT's WebTAG guidance on wider impacts, particularly agglomeration improvements (productivity gains);
- Highways England's guidance on Economic Growth and the methods underpinning this; and
- Ministry of Housing, Communities and Local Government (MHCLG) guidance on land value gains and additionality.

1.3.6. All of this guidance reflects the latest thinking about how improved transport infrastructure and enhanced connectivity can generate a series of wider economic impacts. The guidance has been developed and updated in recent years in large part because there is now widespread recognition of just how important good corridor connectivity is for supporting a range of economic objectives.

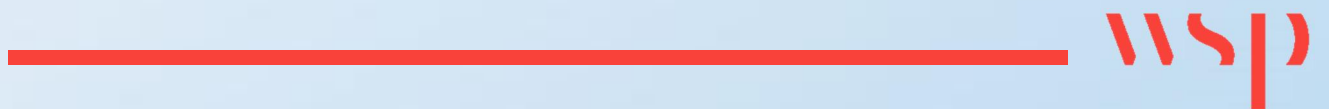
1.4 STRUCTURE OF THE REPORT

1.4.1. The Study comprises the following chapters:

- Chapter 2 contains a description of the strategic corridors;
- Chapter 3 sets out the context of the Western Gateway area and its economy;
- Chapter 4 describes how various economic gains and benefits are linked to improved connectivity – and what are the economic theories behind this;
- Chapter 5 contains all the key economic impact metrics;
- Chapter 6 contains the initial findings with respect to corridor improvement sequencing; and
- Chapter 7 contains an overall summary of the economic connectivity work and potential next steps.

2

THE STRATEGIC CORRIDORS



2 THE STRATEGIC CORRIDORS

2.1 INTRODUCTION

2.1.1. As the Western Gateway STB's Strategic Transport Plan focuses on improvements to strategic travel corridors, 15 strategic travel corridors have been identified. These are shown in Figure 2-1 below.

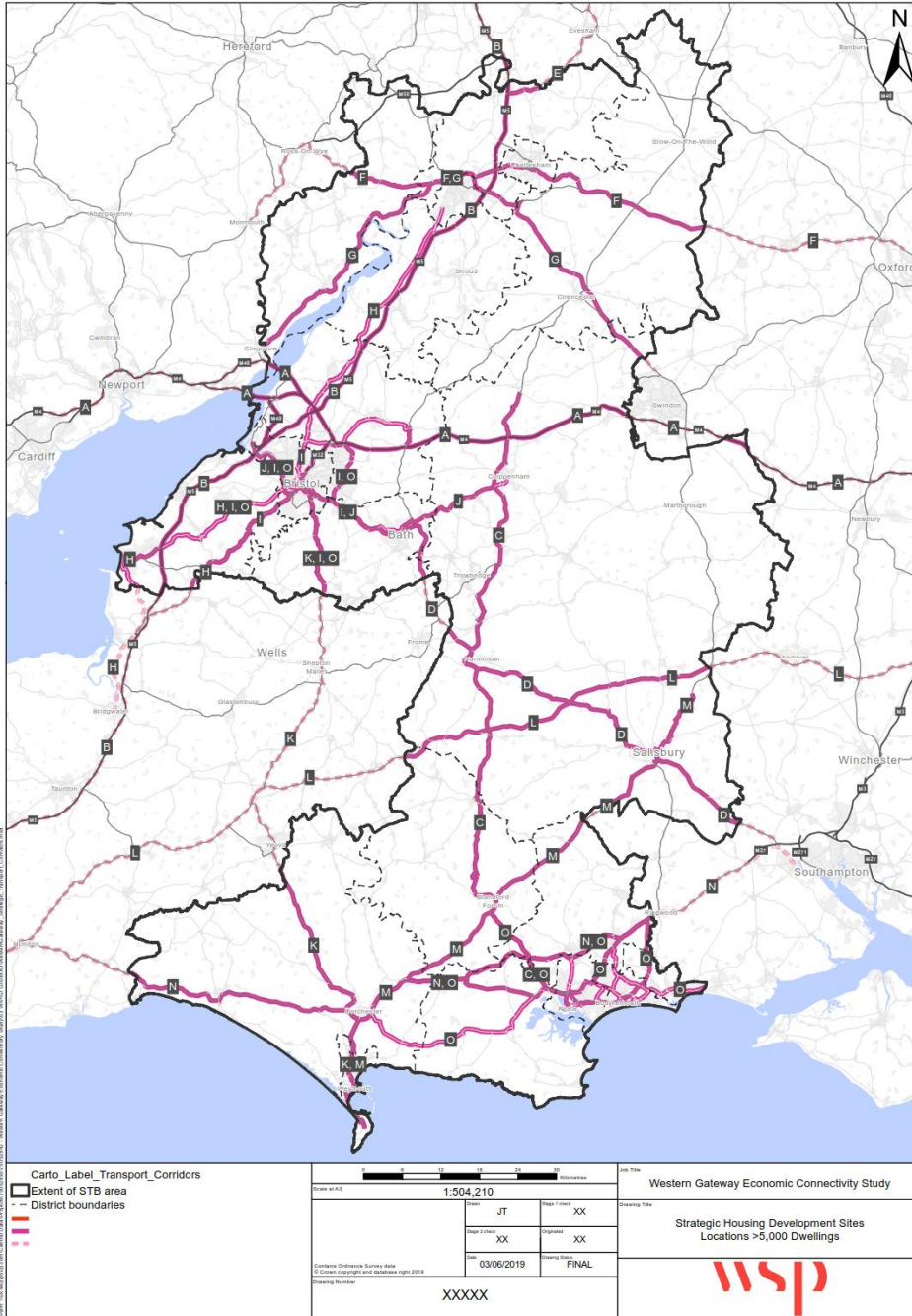


Figure 2-1 - The 15 Strategic Corridors

- 2.1.2. The corridors link strategically important locations across the Western Gateway area, including the main urban centres, ports and airports.
- 2.1.3. The corridors identified either traverse multiple authorities within the Gateway area or provide strategic linkages to neighbouring areas from which the Gateway area will benefit. They are also considered as whole corridors as the reliability, safety and resilience improvements will form the basis of the Strategic Transport Plan.
- 2.1.4. The 15 corridors were identified according to their existing status or function (such as linking the primary urban areas and ports). The corridors are also considered as strategic, high level facilitators of increased economic activity and are therefore not considered mode-specific. This means, for example, that the east to west corridor linking south Wales, Bath and points further east represents both the Great Western Main Line between Bristol and London Paddington and the M4 motorway on the same broad corridor alignment.
- 2.1.5. In other words, the Connectivity Study primarily covers the economic benefits that will arise from improved connectivity rather than the mode of transport responsible (or specific scheme) for this improvement.
- 2.1.6. Following on from this Economic Connectivity Study and completion of the Regional Evidence Base (REB), a Strategic Transport Plan produced. This will include an investment plan for each corridor and an overarching delivery sequencing profile for the Western Gateway area. The Strategic Transport Plan will be agreed by the Western Gateway constituent members and form the basis of a shared long-term investment strategy covering the sub-national area.

2.2 WHY IS CORRIDOR CONNECTIVITY SO IMPORTANT?

- 2.2.1. Transport corridors (and transport in general) are fundamentally important for a number of reasons:
 - They facilitate a range of economic benefits, including the ability to unlock large housing developments and employment sites;
 - When operating without significant delays and congestion, they facilitate improvements in productivity (GDP per worker, GDP per hour worked etc.) by effectively bringing workers and employment opportunities closer together – corridor improvements therefore create a virtuous circle whereby workers having access to a greater range of employment opportunities whilst employers have greater access to a more diverse pool of labour. When this happens due to improved corridor connectivity, for example, workers will be able to produce more GDP per head; and
 - They facilitate additional benefits associated with access to major gateways (such as ports) and enhancements to other sectors of the economy, such as the tourism sector.
- 2.2.2. All of these factors are recognised in economic appraisal guidance and are discussed in more detail from a technical perspective in Chapter 4.

2.3 THE IMPORTANCE OF CONNECTIVITY FOR THE WESTERN GATEWAY

2.3.1. Building on the above, the Western Gateway area will benefit significantly from enhanced connectivity on the 15 strategic corridors as:

- Better connectivity on the long-distance corridors will not only help the STB's economy but will also improve access into and out of other STB areas;
- The STB area contains several major proposed housing and employment sites, all of which are far more likely to go ahead to the full extent (and at accelerated delivery rates) if the corridors are improved; and
- The corridors in and around the more 'urban' areas within the STB will have significant agglomeration improvement impacts (e.g. increased GDP per worker benefits) as workers will have much better access to a wider range of employment opportunities – examples are the urban corridors in the Bristol and Bournemouth / Poole areas.

2.3.2. With its mix of densely populated urban areas and relatively sparsely populated, less well-connected areas, the Western Gateway STB is amongst one of the prime candidates for transport corridor improvements as these will help achieve a wide range of local, regional and national objectives, not least the 'rebalancing of the economy' objectives set out by the UK Government.

2.4 THE 15 CORRIDORS

2.4.1. The 15 corridors and their key characteristics are described below.

STRATEGIC CORRIDOR A: M4 (M48 & M49) - GREAT WESTERN MAINLINE

2.4.2. Corridor A's features are:

- It is part of the Strategic Road Network (SRN);
- It also covers the Great Western Main Line (GWML);
- It links several strategic growth locations;
- The removal of Severn Bridge tolls in December 2019 will impact on vehicle flows;
- Corridor improvements are required to unlock employment land away from urban centres; and
- The corridor also impacts on the Swindon - M4 Growth Zone.

STRATEGIC CORRIDOR B: M5 - CROSS COUNTRY ROUTE

2.4.3. Corridor B's features are:

- It is part of the SRN;
- It is also a core part of the 'Cross Country' rail franchise route;
- It provides north-south connectivity;
- It links several strategic growth locations;
- Removal of Severn Bridge tolls in December 2019 are likely to increase vehicle flows;
- Corridor improvements are required to unlock employment land near to the M5; and
- The corridor forms part of Gloucestershire's M5 Growth Zone (without mitigation, traffic will continue to block back on to the motorway on a regular basis).

STRATEGIC CORRIDOR C: A350 'NORTH SOUTH' LINK

2.4.4. Corridor C's features are:

- It is part of the proposed MRN between the M4 and A36;
- It provides essential north - south connectivity between the South Coast and the M4 corridor;
- From a rail corridor perspective, the TransWilts link between Swindon, Westbury, Salisbury and Southampton is also important for regional corridor connectivity;
- It links several strategic growth locations throughout Dorset and Wiltshire;
- It will resolve poor connectivity on this north - south axis;
- It meets Dorset's objective of improving connectivity to the M4 corridor and Bristol; and
- It will deliver the significant growth planned for the A350 Growth Zone.

STRATEGIC CORRIDOR D: A46 / A36 - WESSEX MAIN LINE

2.4.5. Corridor D's features are:

- This corridor forms part of the SRN;
- The corridor is also part of the 'Wessex Main Line' (linking the Solent area with Salisbury, Wiltshire and Bath/Bristol);
- It provides links from the M4 in the north to the M27 in the south; and
- The corridor links several strategic growth locations and ports on the south coast.

STRATEGIC CORRIDOR E: A46 (IN THE MIDLANDS)

2.4.6. Corridor E's features are:

- The corridor is part of the SRN;
- It provides a link between the M5, M40 and M1 motorways;
- The corridor provides a crucial link to the East Midlands and provides an alternative to the "Birmingham Box"¹
- The corridor is a key route identified by Midlands Connect; and
- A multi-agency partnership has already been established to promote investment in the route.

STRATEGIC CORRIDOR F: A40 – COTSWOLD LINE

2.4.7. Corridor F's features are:

- It is part of the SRN (from the M5 Junction 11 to Herefordshire);
- It is also part of the emerging MRN (from M5 J11 to Oxfordshire and the Oxford-Cambridge Innovation Arc);
- It is also on the Cotswold Line linking Hereford with Oxford on an east-west arc;

¹ e.g. the Birmingham Box Managed Motorway (BBMM) programme was introduced on sections of the M6, M42 and M40 motorways near Birmingham

- There is significant growth planned in this corridor (for Oxford, Cheltenham and Gloucester);
- The corridor forms part of Gloucestershire's M5 Growth Zone (e.g. there is significant employment growth planned in west Cheltenham as part of the “G: First LEP Cyber park”); and
- Congestion is prevalent on this corridor between Cheltenham and Gloucester and this is likely to worsen with new housing and employment sites (e.g. traffic will queue back on to the 'main line' of the M5 motorway on a regular basis).

STRATEGIC CORRIDOR G: A417 / A48 - GOLDEN VALLEY LINE - GLOUCESTER TO NEWPORT LINE

2.4.8. Corridor G's features are:

- The corridor is part of the SRN (from the M4 to the A48 at Highnam, west of Gloucester);
- It is also part of the emerging MRN (i.e. the A48 between Highnam and Chepstow);
- The eastern part of the corridor is on the Golden Valley Line between Swindon, Cheltenham and Gloucester;
- The western part of the corridor is on the main line between Gloucester and Newport in South Wales;
- Similar to Corridor F, Corridor G forms part of Gloucestershire's M5 Growth Zone;
- Congestion is also prevalent on this corridor (and will worsen over time given the new housing and employment developments planned); and
- The corridor also provides an alternative route to the Severn Crossing.

STRATEGIC CORRIDOR H: A38 / A370 – CROSS COUNTRY ROUTE

2.4.9. Corridor H's features are:

- It is part of the emerging MRN linking Gloucester, Filton and the south of Bristol with the M5;
- The corridor is also on the ‘Cross Country’ rail route linking Gloucestershire with Bristol and points further south;
- The corridor provides an alternative to the M5 (especially useful when the M5 is closed due to an incident); and

STRATEGIC CORRIDOR I: “BRISTOL URBAN” (KEY ROUTES THAT SERVE THE WEST OF ENGLAND)

2.4.10. The features of the Bristol Urban ‘corridor’ are:

- The corridors in this urban area cover specific routes that will be agreed with the relevant local authorities;
- The corridors cover a mixture of strategic and major / local transport networks;
- All of the routes will link major employment centres in the West of England (where significant growth is planned) with the wider Western Gateway area;
- The Bristol Urban corridor also covers the Cross Country and Great Western Main Line rail corridors;

- From an urban rail perspective, the MetroWest schemes in Bristol will also enhance urban corridors;
- Additional transport capacity (from strategic public transport corridors) will unlock employment land within this urban environment;
- There is a culture of high car ownership and dependency resulting in acute traffic congestion, particularly during peak periods;
- Network capacity is constrained and very vulnerable to incidents, particularly on the SRN; and
- Growth within Bristol's northern fringe employment area has resulted in dispersed trip patterns and this makes it difficult to serve by public transport.

STRATEGIC CORRIDOR J: A4 – BRISTOL-BATH-CHIPPENHAM MAIN LINE

2.4.11. Corridor J's features are:

- A mixture of strategic, major and local highway networks;
- Significant growth planned is planned in this corridor;
- It provides an alternative to the M4, especially when the motorway is closed or when there has been an incident;
- The corridor is also on the main line between Bristol, Bath and Chippenham (part of the Great Western Main Line); and
- Similar to other corridors in this part of the Western Gateway, there is a culture of high car ownership and dependency resulting in acute traffic congestion, particularly during peak periods.

STRATEGIC CORRIDOR K: A4 / A37 / A354 – HEART OF WESSEX LINE

2.4.12. Corridor K's features are:

- It is part of the emerging MRN;
- Network resilience is a key concern on this corridor;
- It is also on the Heart of Wessex rail link between Weymouth, Wiltshire and Bristol;
- It is an important corridor for Dorset as improved connectivity to Bristol and other points on this north-south link will support the Western Dorset Economic Growth Strategy; and
- Slow, infrequent and overcrowded rail journeys on this strategically important corridor are experienced daily and are hindering the economic potential of the corridor.

STRATEGIC CORRIDOR L: A303 – WEST OF ENGLAND LINE

2.4.13. Corridor L's features are:

- It is part of the SRN;
- It is a strategically important link to the South West peninsula;
- As well as the A303, the West of England line provides rail connectivity in this corridor;
- The corridor has a major influence on the Salisbury A303 Growth Zone's economic base as well as leveraging the opportunities provided by the presence of the military in the region, life sciences and defence technologies specialisms at Porton Down and the important visitor sector in this area.

STRATEGIC CORRIDOR M: A338 / A354 (BETWEEN WEYMOUTH, SALISBURY AND THE A303)

2.4.14. Corridor M's features are:

- It is part of the local road network;
- Network resilience issues are a concern in this corridor given the lack of capacity on the road corridor and the frequent occurrence of delays and congestion (there are highway capacity issues in Salisbury, for example); and
- At the moment, Dorset experiences poor strategic connectivity especially on north-south corridors such as this one.

STRATEGIC CORRIDOR N: A31 / A35 / A354 - SOUTH WESTERN MAIN LINE

2.4.15. Corridor N's features are:

- It is part of the SRN;
- The corridor is also served by the South Western Main Line linking Dorset with the Solent area and London;
- Similar to other corridors in the area, there are low levels of network resilience (e.g. there is localised congestion in South East Dorset and on the Weymouth/Dorchester corridor which impacts on strategic traffic on the A31 and A35 at peak times); and
- Seasonal fluctuations in travel demand due to tourist activity also affects journey time reliability.

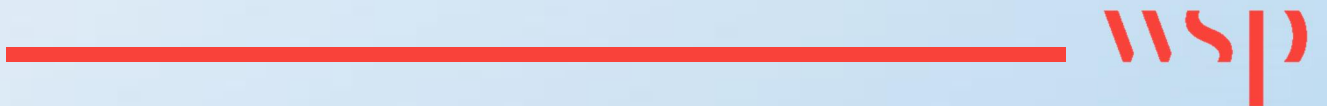
STRATEGIC CORRIDOR O: BOURNEMOUTH / POOLE URBAN AREA

2.4.16. Corridor O's features are:

- It covers the Bournemouth and Poole urban area;
- It is part of the emerging MRN;
- The corridor covers a multi-centred, high car-dependant conurbation with increasing traffic congestion and little opportunity for development of new road routes;
- The inability to transport goods and personnel efficiently due to congestion is having a major detrimental effect on productivity in this area;
- Low traffic speeds and increasing journey times on the main approaches to the conurbation (especially in peak periods) is also having a detrimental impact; and
- Poor connections to the SRN, with unreliable journey times and relatively slow rail journey times to London, is seriously affecting economic performance.

3

THE ECONOMY OF THE WESTERN GATEWAY



3 THE ECONOMY OF THE WESTERN GATEWAY

3.1 INTRODUCTION




- 3.1.1. The Western Gateway covers a large geographical area and has a diverse economy encompassing some of the UK's fastest growing areas together with areas that are relatively rural and experiencing poor connectivity to centres of economic activity. The purpose of this chapter is therefore to present the demographic and economic characteristics of the Western Gateway and to highlight the key sectors that are driving its economy.
- 3.1.2. The Western Gateway area is home to over 3 million people² and is a key area for future economic growth. The Office for National Statistics (ONS) forecast that the population of the area will increase by 448,000 people by 2041, a growth rate of 15%. This is faster than the 12% growth rate forecast for England over the same time period. Bristol, South Gloucestershire and North Somerset are expected to experience the highest levels of growth, at 21%, 21% and 19% respectively.
- 3.1.3. An ambitious agenda has been developed to provide housing and employment to match the needs and the increasing attractiveness of the Western Gateway as a place for inward investment and continued economic development. A target of delivering 300,000 new homes and over 190,000 new jobs has been set across the whole area, for example.
- 3.1.4. Employment in the Western Gateway stands at 1,659,000 people with the two city regions of the West of England and Bournemouth, Christchurch and Poole providing over half of all the jobs available.
- 3.1.5. To achieve the Western Gateway's full potential and the objectives set out in Section 1.2, there is a pressing need to improve connectivity for businesses, employees and the leisure / tourism sector.
- 3.1.6. The Western Gateway area is also important strategically as it links:
- The South Coast to the Midlands;
 - London and the South East to South Wales; and
 - The South West Peninsula to the rest of the UK.
- 3.1.7. Figure 3-1 overleaf shows the Western Gateway area in relation to the other Sub-national Transport Bodies (STBs) in England. Unlike other STBs, the area connects with four other STBs as well connecting to the main economies of South Wales.

²

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandtable2>

- 3.1.8. This connectivity demonstrates the strategic importance of the Western Gateway as not only does it provide an excellent opportunity to enhance connectivity within its own boundaries, it will also help other regions grow and prosper.
- 3.1.9. This means that the Western Gateway has a major national role to play as well as its primary role of enhancing connectivity and economic development within its own area.
- 3.1.10. The area also contains several major international transport hubs, with Bristol Airport being the busiest international gateway in the South West. The airport handles approximately 8.4 million passengers per year with over 100 different destinations served across Europe, the Middle East and North America. The airport has a current capacity of 10 million passengers and this is likely to be reached in the early 2020s, demonstrating a clear capacity constraint in the near future.
- 3.1.11. Additionally, the lack of direct access to the airport is limiting its growth potential. The only access remains the capacity constrained (single carriageway) A38 whilst there are no direct links to the M5 or the national rail network. This is in contrast to other regional airports in the UK that have significantly better transport access (such as Birmingham airport and the various airports in the South East).

Sub-national Transport Bodies in England

-  Transport for the North
-  Midlands Connect
-  England's Economic Heartland
-  Transport for the East
-  Transport for the South East
-  Western Gateway
-  Peninsula Transport

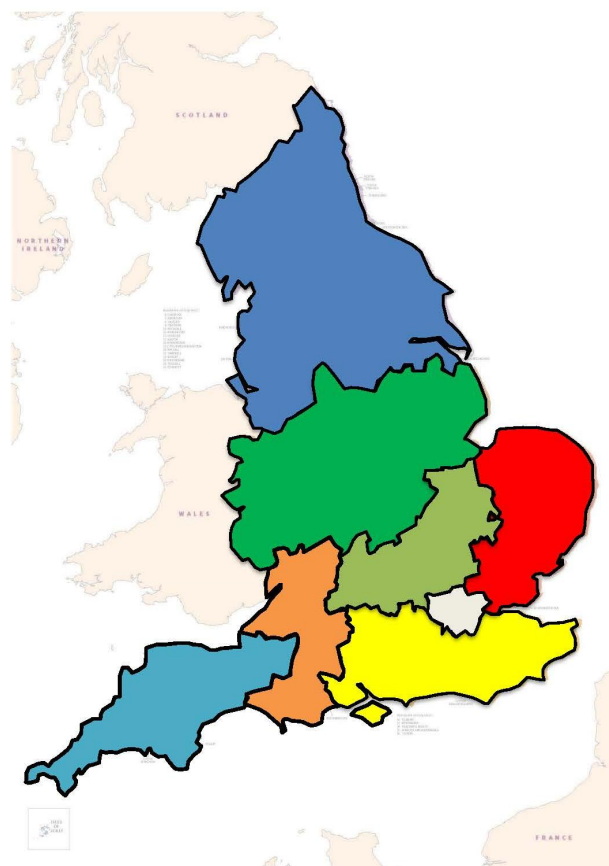


Figure 3-1 - Sub-National Transport Bodies

- 3.1.12. The Western Gateway has four sea ports located within its area. These are at Bristol, Poole, Sharpness and Weymouth and Portland. In 2017, the four Gateway area ports processed 10.5 million tonnes of goods, representing 2% of all goods processed through ports in the UK. To maintain their competitive position and to maximise their potential, it is vitally important that the ports are well connected to the national transport network.

3.2 THE MAIN THEMES IN THE WESTERN GATEWAY

- 3.2.1. The main themes in the Western Gateway STB are addressed here and cover the following:

- Housing;
- Transport; and
- Employment.

HOUSING

- 3.2.2. The need for additional housing is one of the most important requirements across the whole of the Western Gateway area. This is why the Gateway aims to deliver 300,000 new homes at various locations over the next 20 years. This will also help address the national requirement for new housing.
- 3.2.3. In several parts of the Western Gateway, house prices are unaffordable for many first-time buyers and this is compounded by the fact that many of those taking up employment opportunities across the STB are on low wages. In some parts of the STB, for example, average home costs are fourteen times the value of average salaries.
- 3.2.4. The requirement for enhanced infrastructure to help facilitate new housing is evident based on the following types of housing delivery that are being targeted:
- Housing *with* planning permission in place but where there are barriers stopping the development from going ahead (such as up-front infrastructure costs); and
 - Housing *without* planning permission due to the scale of the up-front costs for new infrastructure.
- 3.2.5. Across the WECA area, house prices are amongst the highest in the country (outside of London) and again, there is a shortage of affordable homes. The problem is exacerbated by the growing demand for housing whilst house prices increased by 94% between 2001 and 2011 at the same time as wages only increased by 29%. The importance of delivering much-needed new housing is also evident from the Housing Delivery Group set up to help accelerate the delivery of housing with planning permission.
- 3.2.6. High demand for housing is also evident across Wiltshire where a government target has been set to increase the amount of housing delivered. In Wiltshire, Swindon Borough Council and Wiltshire Council are jointly developing Local Plans for the period up to 2036. The Swindon and Wiltshire Strategic Housing Market Assessment (SHMAA) for 2017 has set out an overall housing requirement in the period 2016 to 2036 of 73,000 dwellings.
- 3.2.7. A similar situation is evident in Gloucestershire where there is a target of building 35,175 homes by 2031 (covering Gloucester, Cheltenham and Tewkesbury). Other areas in the county have also developed targets for new housing with the Cotswold, Forest of Dean and

Stroud areas having set housing targets of 8,400, 6,600 and 11,400 respectively. This means that the county requires a total of 61,575 new residential units to be delivered by 2031.

- 3.2.8. The Bournemouth, Christchurch and Poole (BCP) city region is planning for growth of approximately 30,000 homes across the region by 2026. In Dorset, approximately 40,000 new homes are needed by 2033. These will be located around the key towns in the county as well as along the Portland – Weymouth – Dorchester growth corridor.

EMPLOYMENT

- 3.2.9. The provision of new employment opportunities in the Western Gateway area is also important, especially since this will help with the retention of well qualified young people within the area.
- 3.2.10. Attracting and retaining businesses within the STB area is of paramount importance to ensure the number of working age people increases. To demonstrate the scale of this issue, although ONS forecasts indicate that the population of the Western Gateway area is set to increase by 448,000 people by 2041, only 74,000 of this increase will be of working age.
- 3.2.11. This will have a negative impact on the proportion of the population who will be of working age and will reduce the overall percentage of working age population in the Western Gateway area to 52% by 2041. Those areas recording the greatest reductions are Dorset (-8%), Gloucestershire (-7%) and Wiltshire (-7%).
- 3.2.12. Corridor enhancements will therefore play a major role redressing this by providing the improved connectivity and accessibility to attract and retain businesses within the area. The benefits of this will be that the decline in the proportion of working age people will be reversed as the businesses will encourage those of working age to stay in the area.
- 3.2.13. As described Section 4.3, there are several employment sites proposed throughout the Western Gateway area and together, these will generate well over 40,000 additional direct³ jobs if they can be successfully delivered (indirect⁴ jobs in the supply chain and induced jobs supported by the expenditure of the new employees will boost this further). Given the current transport connectivity constraints, however, the full potential of these sites is unlikely to be achieved without investment on the strategic corridors.
- 3.2.14. Transport corridor enhancements will also shorten the timescales for delivery of the new employment sites as developers and investors will have far more inclined to develop the sites quickly when transport access to the sites is so much better.

³ Direct jobs refer to employment on-site at each of the new developments

⁴ Indirect jobs refer to those in the supply chain (e.g. off-site jobs in supply industries). Using standard indirect employment multipliers, indirect employment can represent an additional 50% on top of direct employment (i.e. an indirect employment multiplier of 1.5)

- 3.2.15. In summary, enhanced corridor connectivity will a) help retain (and increase) working age people in the Western Gateway area and b) help deliver the large number of employment sites and c) will increase the productivity of those in employment throughout the area.

TRANSPORT

- 3.2.16. Transport and connectivity issues are also apparent across the Western Gateway area. Travel times to London by rail vary greatly, for example, and it can take between 1 hour and 30 minutes from Bath but over 3 hours from Weymouth. Although road travel times to London are more consistent, it still takes 2 hours and 10 minutes from Bournemouth to London and 2 hours and 50 minutes from Weymouth.
- 3.2.17. Journey times are also much longer than average on several other important corridors. This affects the main north to south routes linking the South Coast with Bristol, the M4 corridor and points further north as well as the east to west corridors such as the A303, M4 and M5 (and their rail corridor counterparts).
- 3.2.18. The A303 is a well-known bottleneck in the region and the congestion experienced on this corridor affects travel to points much further west.
- 3.2.19. Poor connectivity in the Western Gateway area also affects transport access to the major destinations outside the STB. These include the major economic centres in Cardiff, Birmingham, Manchester as well as London. This means that those of working age within the STB are not able to access employment opportunities in these centres as well as could be expected if there was better connectivity.
- 3.2.20. In the more urban areas across the Western Gateway area, transport capacity improvements will unlock a significant number of jobs at a variety of different sites. In the West of England area, for example, these include the Temple Quarter Enterprise Zone, South Bristol, Bath and Weston-super-Mare. Additionally, the Filton, Avonmouth and Severnside Enterprise Areas have significant manufacturing potential as there is capacity for growth in the future. Proposals for strategic highway capacity improvements include:
- Improvements at Junction 21 of the M5;
 - Improvements at Junction 18a of the M4; and
 - Improved access to Bristol Airport.
- 3.2.21. On the South Coast, Dorset needs to have much better transport connectivity to the north, west and east with improvements to existing road links. For its rail connections, Dorset's aim is to improve frequencies, journey times and reliability to London, Bristol, Taunton and Exeter.
- 3.2.22. A good example of this is the current rail service linking Weymouth and Bristol. At the moment, this route is served by infrequent trains that take over 2 hours and 40 minutes to reach Bristol. The line has several single track sections whilst the diesel multiple units serving the route have limited capacity (with over-crowding on certain sections of the route being common).

- 3.2.23. Given the importance of being able to access Bristol and the surrounding area from Dorset and the South Coast, this is a prime example of where enhanced connectivity will benefit the STB's economy.
- 3.2.24. There is also investment sought for projects at Bournemouth Airport, Bournemouth town centre and the Port of Poole. The airport is one of the most important international gateways in the region and operates regular scheduled services to a number of destinations. Bournemouth (and nearby Poole) is also one of the Functional Urban Regions (FURs) defined by DfT and this means that it is a recognised centre of economic activity together with its hinterland. Given that the town is the centre of this activity, the proposals to develop it further and to ensure there are good transport links are of significant importance.
- 3.2.25. The Port of Poole is another major international gateway on the South Coast and provision of good transport links to the port are also important.
- 3.2.26. In conjunction with these improvements, the Dorset Enterprise Zone is also creating major strategic employment opportunities and to help achieve this, a series of transport corridor improvements will be necessary.
- 3.2.27. Although Gloucestershire has good connectivity to highways and rail networks (the main access to the Midlands, north and south west being the M5 motorway), the key priority is to improve access to the M5, including junction improvements and removal of the pinch point on the A417 linking the M5 with the M4.
- 3.2.28. In Wiltshire, transport corridor enhancement will help deliver the following Growth Zones:
- The Swindon - M4 Growth Zone;
 - The A350 Growth Zone; and
 - The Salisbury - A303 Growth Zone.
- 3.2.29. As the names of the Growth Zones indicate, they are all intrinsically linked to some of the most important corridors in the region. To achieve the objectives of these zones, all three corridors will need to be improved.
- 3.2.30. Another transport objective in Wiltshire is to improve connectivity to the Midlands and South Coast ports as well as to Cardiff, Bristol, the Thames Valley, London and the South East.
- 3.2.31. Taking the A350 as an example, improvements to the corridor will ensure that this north-south strategic route is fully upgraded so that the present day long journey times and bottlenecks (the latter associated with the road having to pass through severely capacity constrained villages) can be reduced with the benefits being much improved journey times and reliability.
- 3.2.32. Improving the local rail network will also help maximise economic development and will help improve interchange within and between modes. Currently, however, improved rail connections are being compromised by a lack of key infrastructure.
- 3.2.33. Overall, transport is seen a crucial element to supporting economic growth with previous analysis in the West of England area showing that transport schemes will unlock 20,000 jobs and will generate £1.2 billion in additional GVA per annum by 2030.

3.3 KEY THEMES SUMMARISED

- 3.3.1. To demonstrate some of the key themes and issues relevant to the Western Gateway area, a series of maps of the area are presented. Each theme is discussed below.

PRODUCTIVITY

- 3.3.2. There are several areas in the Western Gateway area, particularly in the less well connected Dorset / coastal area and Wiltshire areas, where productivity is below that in other parts of the STB area as well as being below the national average.
- 3.3.3. This is clearly shown in Figure 3-2 overleaf where productivity is highest in the Bristol area but much lower in the rural and coastal areas.
- 3.3.4. With productivity being such an important indicator of economic activity, this is why enhanced corridor connectivity is so important for the Western Gateway as improved corridors will enable these areas to have much better access to economic centres of activity such as Bristol.
- 3.3.5. ONS data also shows that not only do certain areas in the Western Gateway lag behind other areas with respect to productivity but that also that the 'productivity gap' has been widening over time.
- 3.3.6. Without intervention on the strategic corridors, this gap is likely to widen further over time.

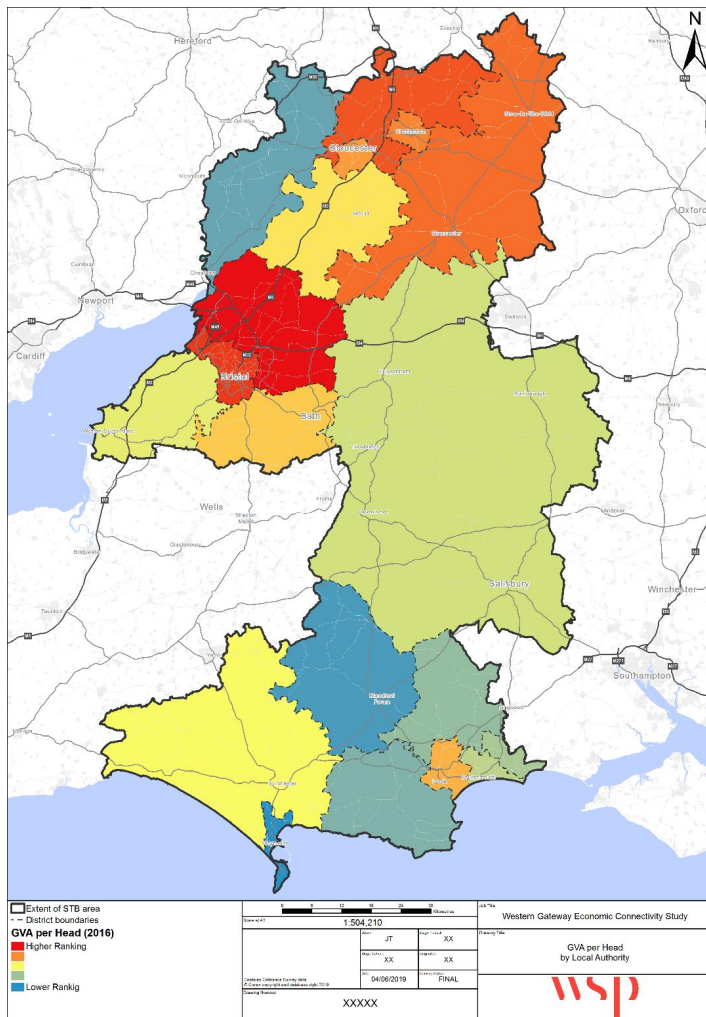


Figure 3-2 - GVA per Head by Local Authority

ACCESS TO PORTS

- 3.3.7. A key theme for the Western Gateway is good access to the major sea ports at key locations.
- 3.3.8. To demonstrate the locations of these major ports and the typical current journey times needed to reach them, the second map below provides a clear indication of these.
- 3.3.9. Figure 3-3 overleaf shows, for example, that poor connectivity at the moment means that it can take over 1 hour to access the ports at Bristol and on the south coast from the centre of the Western Gateway area.
- 3.3.10. This means that all ports will benefit from better corridor access and connectivity. A good example is the A350 corridor through Wiltshire and on to Dorset on the south coast. If this strategic link was improved, freight traffic to / from the Port of Poole could be increased.

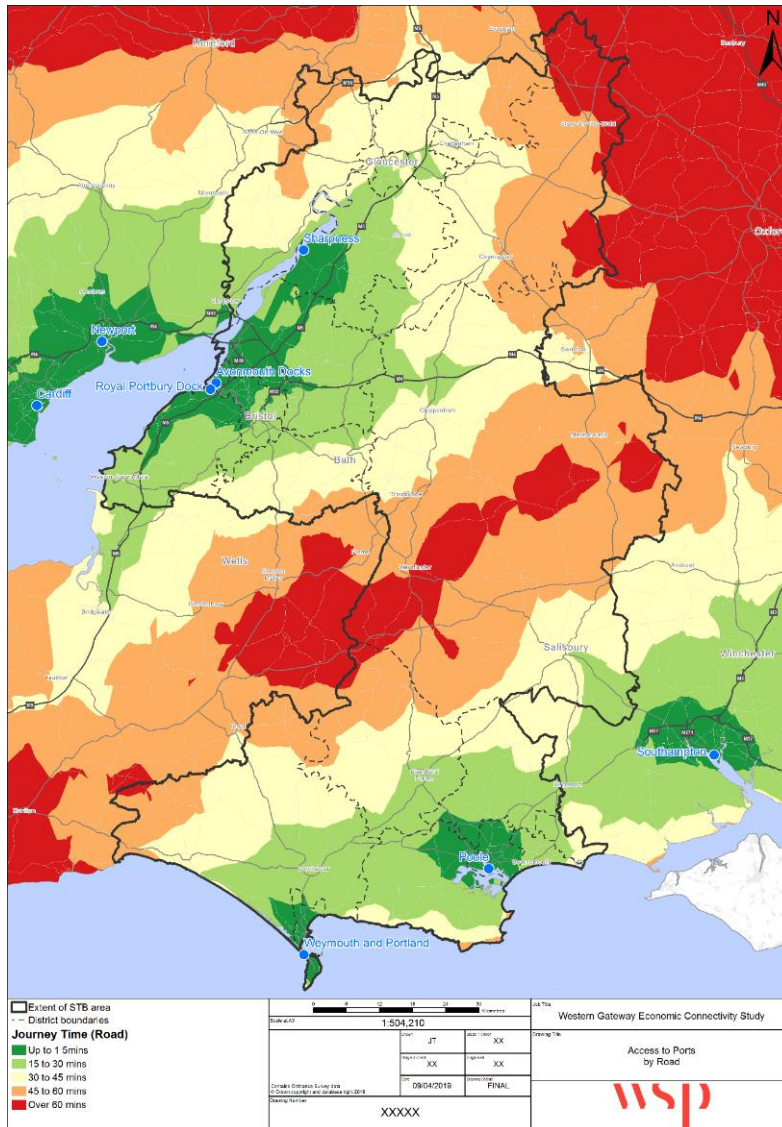


Figure 3-3 - Access to Ports

ACCESS TO AIRPORTS

- 3.3.11. A very similar theme emerges for the airports in the Western Gateway area where a lack of good corridor connectivity means that travel times to the airports is significantly longer than in other parts of the country where airports have much better connectivity.
- 3.3.12. Taking Bristol Airport as an example, the airport has significant development plans to expand and will be a major centre (or hub) of economic activity.
- 3.3.13. If access to the airport can be improved via better corridor connectivity, this will support the airport's development objectives and will help secure additional employment and GVA in this part of the Western Gateway.

3.3.14. Journey times by road to the major airports are shown in Figure 3-4.

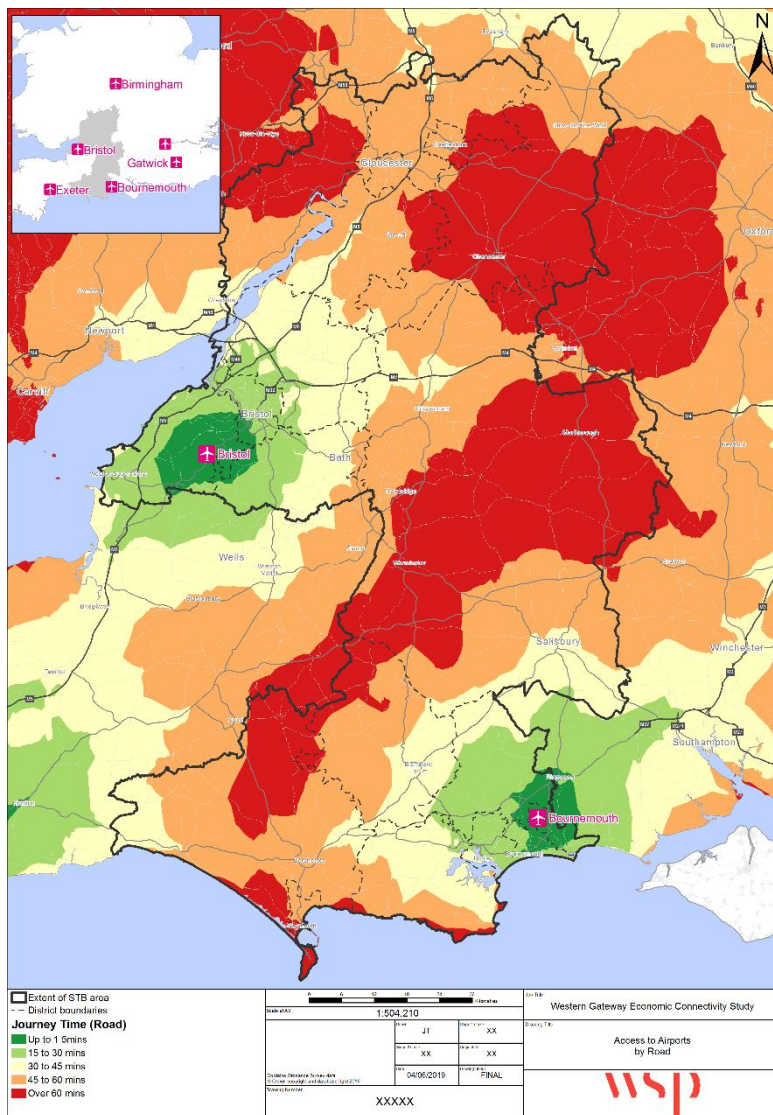


Figure 3-4 - Access to Airports by Road

RELATIVE DEPRIVATION

As Figure 3-5 and

- 3.3.15. Figure 3-6 overleaf show (by 'Local' and 'National' IMD rankings respectively), the Western Gateway area also has several areas where there are relatively high levels of deprivation.
- 3.3.16. These are indicated by the darker (red) areas on both maps and from a local deprivation perspective, there are pockets of deprivation across several areas.
- 3.3.17. Enhanced corridor connectivity will help reduce deprivation by providing communities and workforces in these areas with much better access to the major centres of employment, such

as those in the Solent area, the M4 corridor, Bristol, Gloucester / Cheltenham and the West Midlands conurbation.

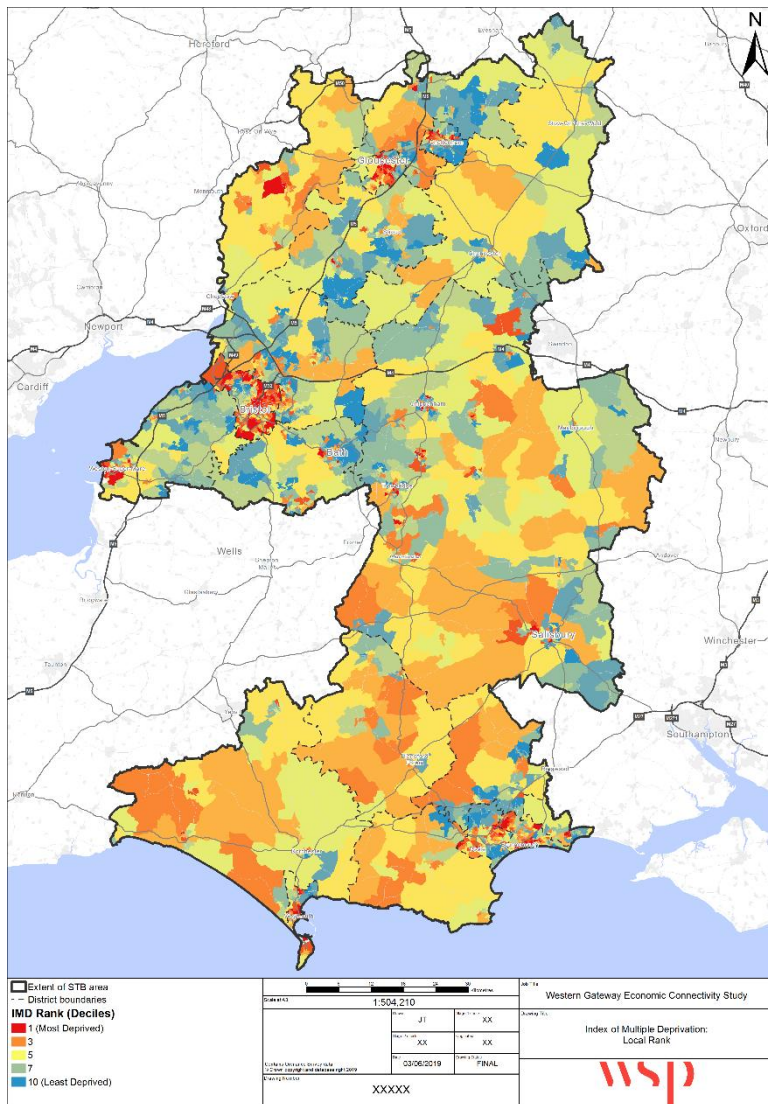


Figure 3-5 - Index of Multiple Deprivation Local Rank

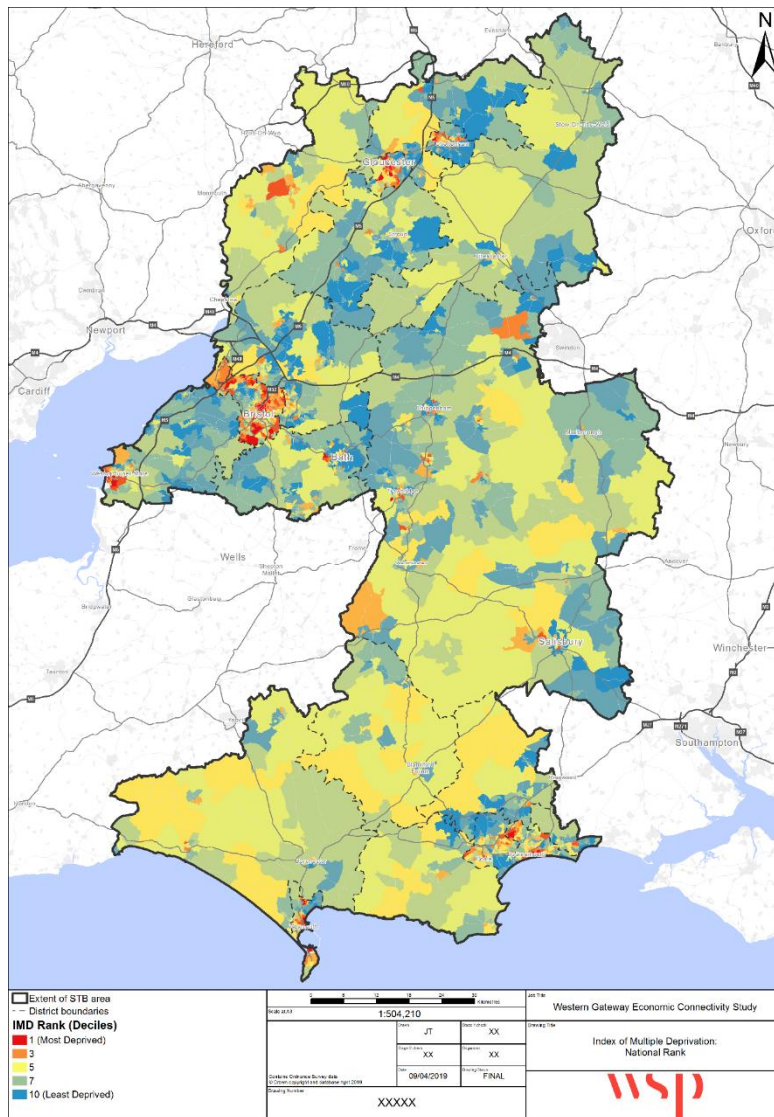


Figure 3-6 - Index of Multiple Deprivation National Rank

3.4 THE SECTORAL STRENGTHS OF THE WESTERN GATEWAY'S ECONOMY

3.4.1. The Western Gateway's economy comprises several important sectors that will benefit from enhanced connectivity if they are to continue their growth trajectories and provide a critical source of high value jobs in the region (at a time of economic uncertainty and a need to 'rebalance the economy' away from the South East).

3.4.2. From the perspective of the different sectors that are captured by the productivity gains (agglomeration) calculations reported in Chapter 5, it is also important to understand how the sectors in the STB 'map' to the four sectors in the guidance, namely:

- Agglomeration sector = Manufacturing (maps to the manufacturing sector in the Western Gateway);
- Agglomeration sector = Construction (the Western Gateway retains an extensive construction sector);
- Agglomeration sector = Consumer Services (includes accommodation, telecommunications and travel activities – all applicable to the Western Gateway); and
- Agglomeration sector = Producer Services (covers computer programming, information services, financial services and research and development – all applicable to the specialist, fastest developing sectors in the STB).

3.4.3. The main sectors in the STB's economy are described below

Digital, Creative and Information Services

3.4.4. This sector is one of the most important and fastest growing throughout the STB area and in Dorset, for example, employs 7,900 people and contributes £349 million to the county's economy. At the UK's leading animation school at Bournemouth University, research and pioneering computer-animated simulation programmes are being undertaken and developed.

3.4.5. The West of England has many businesses within this sector who provide a range of services including broadcasting activities, media services, motion picture production and advertising. As one of the UNESCO Global Creative Cities Network, Bristol has had particular success in the creative industries, as shown by BBC relocating its food and farming teams to Bristol and Channel 4's recent choice of Bristol's Finzels Reach as the home of its new Creative Hub.

3.4.6. Companies and organisations in this sector include the BBC, ITV, Aardman Animations, Future Publishing, Yogscast and Silverback Films.

3.4.7. When combined with the high tech sector (see below), total employment in this sector in the West of England area is over 43,700 (7% of the total) whilst there are over 6,500 businesses in the region (representing 14% of the total).

3.4.8. In Wiltshire, the Information Communication Technology (ICT) and digital, creative, professional and financial, support services support 16,000 businesses and employ 99,500 people.

Advanced Manufacturing, Engineering and Marine Engineering

- 3.4.9. Given its location and strong advanced engineering history (associated to a large extent with military activities in the region), Dorset has one of the leading aerospace industries in the UK and employs 15,400 people and £800 million to the local economy.
- 3.4.10. Companies in this sector are engaged in Research and Development (R&D), design and manufacturing. Some of the most well-known companies in this sector in Dorset include BAE Systems and QinetiQ.
- 3.4.11. In the Bristol and WECA area, advanced engineering and aerospace is recognised by the government as a key sector for the West of England economy and one that is important for increasing future exports. The region boasts the UK's largest aerospace/defence cluster, giving it one of the largest concentrations of such businesses in Europe. In recent years, Airbus opened a new engineering HQ at Filton in 2014 and the National Composites Centre opened in 2011 as part of the High Value Manufacturing Catapult.
- 3.4.12. The main metrics for this sector in the WECA area are:
- Employment: approximately 28,710 people in the region (5% of total employment); and
 - Number of businesses: approximately 1,960 businesses in the region (4% of all businesses).
- 3.4.13. Key companies include Airbus, GKN Aerospace, Rolls Royce, BAE Systems and Honeywell.
- 3.4.14. Advanced manufacturing is also a key sector throughout Wiltshire and activities in this sector accounted for 13% of all GVA in the county during 2017. Advanced manufacturing is also seen as the sector with the most growth potential in Wiltshire.
- 3.4.15. There are over 1,850 businesses employing over 43,750 people with 28,450 directly employed in manufacturing and 15,300 employed in advanced manufacturing. To illustrate just how important these sectors are in Wiltshire, the proportion of employment in advanced manufacturing is 50% higher than the national average whilst the proportion employed in manufacturing is 20% higher than the national average.
- 3.4.16. The key companies in Wiltshire are as follows:
- Dyson Technologies: 2,900 employees;
 - Honda: 3,700 employees; and
 - BMW, Intel and Zircon.
- 3.4.17. Although Honda is a major employer in the county, the company's recent decision to close its plant here will have a very large impact on both direct employment in the area as well as employment in the supply chain. Enhanced corridor connectivity can play a major role alleviating the impacts of this closure as inward investors and businesses are far more likely to look at the area as a potential area to invest if there is good transport access from all points within the Western Gateway and beyond.

Professional and Legal Services

- 3.4.18. In the West of England area, professional and legal services include financial services, insurance, legal, accounting and market research. Together these account for a large amount of employment in the region.
- 3.4.19. Bristol and Bath have been recognised as well-established centres for the sector as it has evolved quickly (due to technological change and service innovation). As an example of this, Bristol is home to the UK headquarters of Triodos Bank, a leading sustainable bank.
- 3.4.20. The sector accounts for 58,000 people in the region (10% of total employment) whilst there are 5,975 businesses in the region (13% of all businesses).
- 3.4.21. The major companies in the region include Ernst & Young, PwC, Deloitte, Burges Salmon, Osborne Clarke, Hargreaves Lansdown and DAS.

The Energy Sector

- 3.4.22. Dorset's location on the South Coast of the Western Gateway area means that it is in an ideal environment for the renewable energy sector. A total of 3,500 people are employed whilst the sector contributes £172 million to Dorset's economy.
- 3.4.23. The types of renewable energy that have seen the fastest growth include wave and tidal power and solar radiation.
- 3.4.24. Given the level of demand, the energy sector continues to grow in this part of the STB and there is also the potential for wind energy to be developed at the Navitus Bay wind park.
- 3.4.25. In Gloucestershire, the energy industry (including nuclear and renewables) is another high growth sector identified in the Strategic Economic Plan (SEP). The sector currently provides approximately 2,300 jobs within 65 local businesses, the majority of which are located in Cheltenham and Gloucester. The energy companies in Gloucestershire are almost entirely engaged in electricity generation, transmission and distribution.
- 3.4.26. Gloucestershire boasts nationally significant businesses and projects in the energy sector. Examples include EDF Energy and Horizon Nuclear Power. Both have head offices in Gloucester as well as proposed nationally significant developments that have the potential to transform the energy industry in the west of England.
- 3.4.27. In respect of the renewable energy sector, EcoTricity specialises in green energy and is based in Stroud. As well as the economic benefits associated with job creation and infrastructure investment, the company's green credentials and roots in the local community demonstrate a strong commitment to this growing sector.
- 3.4.28. With the number of electric vehicles steadily rising and given central Government's ambition to ban the sale of petrol and diesel vehicles by 2040, innovative ways of generating renewable energy to service a transformed private vehicle fleet are becoming a key national priority. This is why the growing energy sector in Gloucestershire is so important and why the provision of good corridor connectivity in the county can help support growth in the sector.

The High Tech Sector

- 3.4.29. This sector covers technology, communications, financial and professional services and software companies. In the high tech sector, the West of England region is notable as a leader in silicon design outside of the US and there are over 4,000 companies, universities and research institutes in this sector. In total, 16,400 people are employed in the high tech sector and it contributes £162.5 million in GVA (with a 212% increase in productivity since 1998).
- 3.4.30. The Bristol and WECA area is also one of six European “Science Cities” in the UK and is responsible for the manufacture of technology, computer consultancy and software publishing. Key companies include Hewlett Packard, IBM, Toshiba Research Europe, Graphcore. Ultrahaptics and Five AI.

Manufacturing

- 3.4.31. Manufacturing continues to be an important sector in the STB area and in the WECA area, manufacturing output is approximately 20% higher than it is nationally (and 30% higher than the West of England economy as a whole). There are also 1,500 construction companies in this part of the STB.
- 3.4.32. Gloucestershire’s manufacturing sector is also substantial and is the second largest employment sector after health, employing 36,000 people in 2013. This employment level is expected to stay the same over the next decade. The sector also contributed over £2 billion in GVA across Gloucestershire’s economy and is worth almost 20% in terms of economic output in the county. The ratio of output to employment is high, this demonstrating high levels of productivity.

The Health Sector

- 3.4.33. The health sector is particularly important in Gloucestershire and contributed £865 million in GVA whilst providing employment for 37,800 people in 2013. The sector is becoming increasingly important in the county with an additional 11,400 jobs due to be created by 2025.

Public Administration, Defence, Health and Education

- 3.4.34. These public sector industries remain important throughout the Western Gateway with public administration activities in Gloucestershire contributing over £1 billion in GVA and generating over 19,000 jobs in the sector.
- 3.4.35. Employers in the county include GCHQ as well as the new National Cyber Innovation Centre in Cheltenham. The latter will generate over 7,500 jobs and will require 1,100 in the first phase (with the potential for further homes in the longer term).
- 3.4.36. In Wiltshire, public administration and other public sector activities are an important sector for the local economy. Military investment has driven economic development and growth in Porton, Corsham and Lyneham whilst the Ministry of Defence (MoD) has invested over £1 billion in the region.

3.4.37. This sector accounts for 18% of Wiltshire's GVA and according to UK Business Count data, there are over 76,900 people employed in the sector. Growth has also been strong in recent years with employee numbers increasing by 9% between 2011 and 2016. In addition, the sector has grown by 80% between 2012 and 2017 with the education sector growing at 203% over this period.

Specific Military-Related Industries

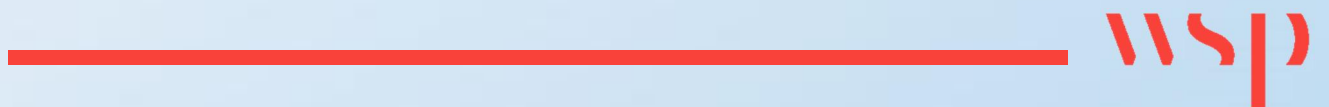
3.4.38. A unique ICT infrastructure has developed near Corsham where the Ministry of Defence (MoD) and the private sector have invested heavily in secure communications and data storage.

3.4.39. Corsham is home to a growing cluster of digital industries as well as the most secure cloud data and electrical supply centres in the country.

3.4.40. There are also strong links with the "100,000 Whole Genome Project" and secure Government communications. The economic potential of this infrastructure to create a leading digital economy cluster is evident within the area and is one of the key growth sectors that can be supported by enhanced corridor connectivity.

4

HOW IMPROVED CONNECTIVITY CAN BOOST HOUSING AND THE ECONOMY



4 HOW IMPROVED CONNECTIVITY CAN BOOST HOUSING AND THE ECONOMY

4.1 INTRODUCTION

4.1.1. In this chapter, the mechanisms by which enhanced corridor connectivity will boost economic activity and housing are described. There are three key Impacts that are covered here:

- Enhanced productivity – e.g. transformative change on the corridors will enable existing workers to produce more GDP;
- Additional GVA and jobs – e.g. from the new employment sites across the Western Gateway that will be ‘unlocked’ (in part) by enhanced corridors; and
- Land value gains – e.g. from new housing sites ‘unlocked’ by the enhanced corridors.

4.1.2. Although transformative change on the strategic corridors will generate a wide range of positive impacts, the three impact types above can be quantified / monetised using recognised economic impact guidance and are therefore very much in scope for this Economic Connectivity study.

4.1.3. The rationale behind each of these impact types and how they can be quantified is discussed below. A more comprehensive description of the methods used are provided in Technical Appendix 1.

4.2 ENHANCED PRODUCTIVITY

4.2.1. With productivity levels being a concern both at a national level and within many parts of the Western Gateway area, the ability of enhanced corridor connectivity to boost productivity is an important factor.

4.2.2. Enhanced connectivity generates economic benefits by increasing workers’ mobility and by enabling businesses to draw on a wider pool of labour (especially if this larger pool of labour also has higher skills levels and higher qualifications).

4.2.3. This is the theory that underpins agglomeration – e.g. in areas where there is good connectivity between workers and jobs, higher levels of GDP per worker arise as workers are more productive when they have good access to a wide range of jobs.

4.2.4. Based on DfT WebTAG guidance on agglomeration improvements, transformative changes in generalised travel costs on each corridor will improve GDP per worker. As an example of how this process works in several parts of the Western Gateway, those living in relatively sparsely populated areas will gain much better access to a range of employment opportunities in centres of economic activity once key corridors are improved.

4.2.5. In addition, corridor improvements in the more urbanised areas (such as the Bristol conurbation) will also generate agglomeration benefits given that the potential to improve GDP per worker in these areas is high.

- 4.2.6. The Western Gateway area is also ideally suited to agglomeration improvements given that several Functional Urban Regions (FURs) are located in the area. The FURs consist of 'core' centres of economic activity and together with the 'hinterlands' surrounding these core areas, there are several across the Western Gateway area.
- 4.2.7. The FURs cover both the Bristol and Bournemouth / Poole conurbations. The strategic corridors also provide important connectivity to other FURs in the UK, including those in South Wales, Berkshire, the West Midlands, Oxfordshire and those in the South West (such as the FURs centred around Exeter and Plymouth).
- 4.2.8. The extract from WebTAG Unit A2.4 (in) summarises this well and shows the FURs within the Western Gateway area and those outside the STB that will be better connected once the corridors have been improved.

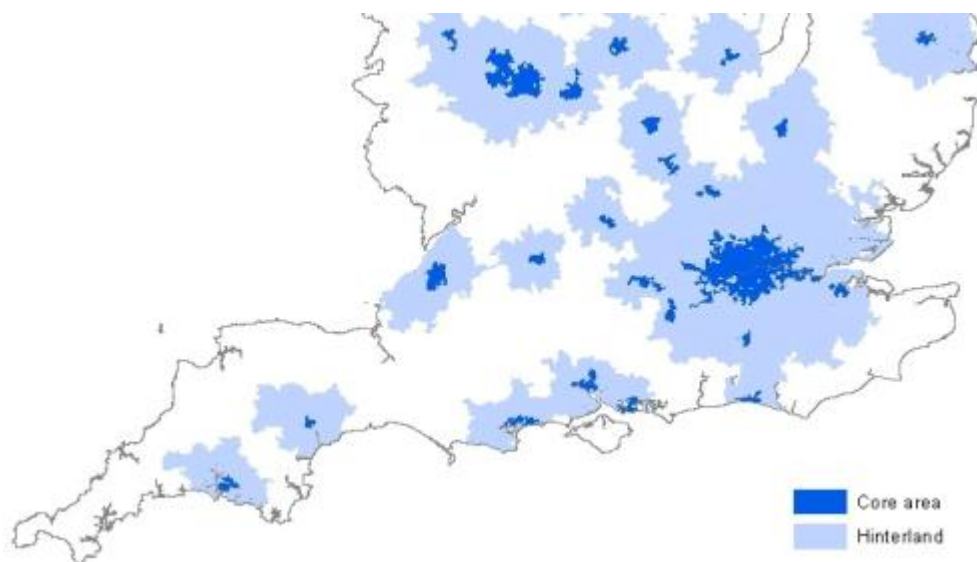


Figure 4-1 - Functional Urban Regions (FURs)

4.3 ADDITIONAL GVA FROM NEW EMPLOYMENT

- 4.3.1. There are many employment sites that are proposed throughout the Western Gateway area. These range from strategic sites comprising in excess of 20 hectares of land through to a large number of smaller sites with areas greater than 5 hectares but less than 20.
- 4.3.2. Assuming an even distribution across different types of employment (e.g. office-based, industrial / business park and warehousing / distribution), this will support over 170,000 new jobs. Based on GVA per employee across all of the Western Gateway area, this is equivalent to additional GVA of £8.7 billion.
- 4.3.3. Even before the impact of improved strategic corridors is taken into account, this illustrates the potential gain that could be achieved across the Western Gateway area at a time when many parts of the STB are seeking new employment opportunities.

- 4.3.4. Enhancement of the 15 strategic corridors in the Western Gateway will increase the viability of these new employment sites as investors and businesses are far more likely to create new employment opportunities if each site has improved connectivity.
- 4.3.5. To provide an estimate of how much additional GVA will be generated at each of the employment sites, a series of calculations were undertaken based on standard 'additionality' guidance⁵. These are described in more detail in Technical Annex 1.
- 4.3.6. Additionality refers to the proportion of an overall impact that can be attributed to a particular intervention. In the case of improvements to the strategic corridors, for example, additionality covers the proportion of GVA (and new jobs) that are attributable to the improvements. For the remainder of the impacts, these are likely to take place anyway and are therefore not attributable to corridor enhancements.
- 4.3.7. Based on the HCA's (now Homes England) Additionality Guide, a typical 'Low' level of additionality is 25%⁶. Even when this relatively low proportion of new jobs at each site is attributed to enhanced corridor connectivity, this still generates a large amount of additional GVA across the new employment sites.
- 4.3.8. If the Western Gateway is to achieve its full potential with respect to the new employment sites, much improved corridor connectivity (across all 15 corridors) is essential if this is to be achieved - and also achieved within accelerated timescales.
- 4.3.9. The additional GVA analysis also contributes to the 'ranking' of the 15 different strategic corridors and as an important economic impact metric in its own right, sits alongside the productivity gains from the existing workforce as well as the land value gains from unlocked housing developments.

4.4 LAND VALUE GAINS FROM HOUSING

- 4.4.1. The need for new housing across the Western Gateway area is important for the following reasons:
- It will enable workers to live and work in the STB area rather than consider re-locating to other regions (and thus depriving the STB area of crucial economic activity and growth);
 - Where affordable housing is provided, this will enable people to afford suitable property, remain in the Western Gateway area and access employment in the main economic centres (e.g. Bristol, Cheltenham, Gloucester, Salisbury and Bournemouth / Poole); and
- 4.4.2. As an economic metric covering this potential, land value uplift can be used. Land value uplift is permitted within scheme Economic Cases and is recognised across a range of

⁵ Additionality is covered in 'The DCLG Appraisal Guide' of December 2016 and HCA's 'Additionality Guide (Fourth Edition 2014)' (note that DCLG is now MHCLG and HCA is now Homes England).

⁶ For example, see Page 18 of the Additionality Guide (Fourth Edition).

Government departments and agencies, including the DfT, Highways England, MHCLG and Homes England.

- 4.4.3. Enhanced connectivity will help to unlock new housing sites (due to transport constraints being lifted) and as stated in Local Plans across the STB. many new housing developments have been allocated but are unlikely to be developed without the transport constraints being removed.
- 4.4.4. The scale of the proposed housing developments across the Western Gateway area is illustrated by the large number of new units that are planned.
- 4.4.5. These total over 136,000 units comprising over 59,000 units at 10 strategic locations across the STB area and over 77,000 units across 41 smaller sites distributed throughout the Gateway.
- 4.4.6. Both MHCLG and DfT guidance states that land value gains from housing unlocked by new or improved infrastructure can be considered as an economic benefit.
- 4.4.7. Taking the Government's current Housing Infrastructure Fund (HIF) bidding process, for example, this is relevant to housing requirements throughout the Western Gateway area as:
 - Several locations throughout the STB have submitted bids to Homes England for funds to provide infrastructure to unlock new housing units; and
 - The evaluation process set up for HIF can also be adopted for the purposes of the Economic Connectivity assessment.
- 4.4.8. Similar to the employment and GVA analysis reported in Section 4.3, the proportion of land value uplift attributed to each strategic corridor is based on the principle of additionality as described in both the DCLG (MHCLG) and HCA (Homes England) guidance.
- 4.4.9. Similar to the assessment of jobs and GVA assessment from the new employment sites, the evaluation of land value gain has assumed relatively low additionality across all sites to demonstrate that even under this assumption, significant land value gains will accrue.

4.5 ADDITIONAL NON-QUANTIFIED BENEFITS

- 4.5.1. As well as the quantifiable, monetised impacts described above, there will be other impacts that may not be readily quantified but are nevertheless just as relevant here. These themes are addressed below.

HELPING TO “REBALANCE THE ECONOMY”

- 4.5.2. In November 2017, the Government published its Industrial Strategy White Paper where it set out its objective to 'rebalance the economy' with transport being a key facilitator of this.
- 4.5.3. The DfT published its Rebalancing Toolkit' in December 2017 and this sets out a range of topics that need to be addressed so that the overall UK economy can be 'rebalanced' away from reliance on the dominant London and South East economy.
- 4.5.4. The Western Gateway STB has a major role to play in this rebalancing as it offers a unique set of economic opportunities that if sufficiently exploited, can help achieve the Government's objectives.

- 4.5.5. In the context of the 15 strategic corridors, these are as follows:
- Enabling better access to all of the economic hubs across the Western Gateway area;
 - Providing better connectivity for freight flows (both road and rail borne) to the major sea ports in the Western Gateway, including the ports at Poole and Bristol; and
 - Providing better connectivity to the airports in the region, including those at Bournemouth and Bristol (so that the airports can continue becoming economic hubs in their own right).
- 4.5.6. With major economic hubs in Bristol, Gloucestershire and on the south coast in the Poole / Bournemouth conurbations, there is huge potential for the Western Gateway to help rebalance the economy by 'linking up' communities throughout the area with these hubs.
- 4.5.7. The outcomes of this process will therefore cover improved access for workers, businesses (the including freight sector) as well as other benefits such as lower levels of relative deprivation in certain areas and social impacts.

ACCESS TO INTERNATIONAL GATEWAYS

- 4.5.8. With very large volumes of freight traffic to and from the sea ports in the region (and with the ports looking to expand), several of the strategic corridors have an important role to play reducing journey times, delays and the costs of freight movements.
- 4.5.9. Access to the south coast ports (such as the Port of Poole) is currently subject to constraints imposed by poor connectivity on the north-south A350 corridor.
- 4.5.10. If the A350 was improved and upgraded, for example, freight traffic to / from Poole would be subject to fewer delays, shorter journey times and hence lower transport costs overall.
- 4.5.11. A similar situation applies at Bristol Port where transport access and corridor connectivity to this major international gateway is constrained. By improving the strategic corridors that connect into Bristol as well as improvements to the corridors within the Bristol conurbation, the full potential of the port will be realised.
- 4.5.12. From a business perspective, a lowering of transport costs will have several positive impacts as the savings can feed back through the cost of production process and ultimately give rise to savings for both producers and consumers.

THE TOURISM SECTOR

- 4.5.13. With the Western Gateway having one of the largest, most diverse tourism sectors in the UK. Its contribution to the STB's overall economy is highly significant.
- 4.5.14. Based on 2017 data from the Visit Britain database, for example, the total number of trips in the Bristol UA area, Wiltshire, Gloucestershire and Dorset was 1.59 million (an increase of almost 4% compared to 2016).
- 4.5.15. Total visitor expenditure in the same year was £651.7 million, a significant increase from the £473.2 million total in 2010 (the 'low point' immediately after the last recession).
- 4.5.16. With so many major tourist attractions across the Western Gateway and a large number of these directly reliant on good transport connectivity (not least on the M4 and M5 corridors as



well as the links to the south), the potential gains from improving these corridors will be significant and will boost the numbers of visitor and visitor expenditure further.

- 4.5.17. The Western Gateway will also gain from more employment in the visitor economy, including both direct and indirect employment.

5

ECONOMIC IMPACTS



5 ECONOMIC IMPACTS

5.1 INTRODUCTION

5.1.1. There are three main types of quantifiable impacts associated with the 15 strategic corridors:

- Increased productivity due to better connectivity on each corridor;
- Increased GVA from employment at the new employment sites planned across the Western Gateway area; and
- Land value gains from unlocked housing at new housing sites across the area.

5.1.2. Each of these are covered separately below.

5.2 PRODUCTIVITY GAINS

5.2.1. By transforming connectivity on each of the 15 strategic corridors, there will be significant productivity gains as existing workers will be able to produce more GDP per person. These gains are important given the extent of productivity gaps across the Western Gateway area as well the national target of improving productivity across the UK.

5.2.2. Based on the process of calculating agglomeration improvements, a series of economic impacts covering both agglomeration and labour supply impacts have been calculated for each corridor.

5.2.3. The main features of this process are as follows:

- Although Highways England's South West Regional Transport Model (RTM) was used as the basis of the calculations, the impacts for each corridor are not mode-specific and reflect high level productivity gains (improved agglomeration) for each corridor;
- The analysis is also not scheme-specific and reflects the benefits that could be achieved based on transformational improvements on each corridor – i.e. this has been represented by being able to achieve free-flow speeds;
- The economic impacts are spread across the Local Authority Districts (LADs) within the Western Gateway area as well as those representing districts that are external to the STB;
- The agglomeration calculations incorporate a forecast of transport demand into the future so that the impacts cover a 60-year appraisal period;
- As per DfT guidance, four sectors are covered:
 - Manufacturing
 - Construction
 - Consumer Services
 - Producer Services
- As well as the main agglomeration impacts (increased GDP per worker), labour supply impacts are also calculated.

5.2.4. The results for each corridor are presented below.

SUMMARY OF PRODUCTIVITY IMPROVEMENTS ACROSS ALL CORRIDORS

5.2.5. Table 5-1 shows the total agglomeration (enhanced productivity or GDP per worker) gains for each of the 15 corridors. The right-hand column shows the labour supply impacts resulting from more employees coming back into active work following the corridor improvements.

Table 5-1 – Productivity (Agglomeration) Improvements Per Corridor

Corridor	Agglomeration Improvements	Labour Supply Impacts
M4 / Great Western Main Line	£614 million	£2.4 million
M5 / Cross Country Rail Route	£772 million	£4.1 million
A350	£351 million	£3.9 million
A46 A36 / Wessex Main Line	£302 million	£1.9 million
A46 (Midlands)	£72 million	£0.6 million
A40 / Cotswolds Line	N/A ⁷	N/A
A417 A48 / Gloucester to Newport Line	£330 million	£1.8 million
A38 A370 / Cross Country Rail Route	£586 million	£4.3 million
Bristol Urban	£1.1 billion	£6.8 million
A4 / Great Western Main Line (Bristol – Bath – Chippenham)	£139 million	£1.1 million
A37 A354 / Heart of Wessex Line	£234 million	£2.5 million
A303 / West of England Line	£353 million	£1.4 million
A338 A354	£181 million	£2.3 million
A31 A35 A354 / South Western Main Line	£226 million	£2.5 million

⁷ N/A shown here as even with an enhanced corridor, the likely levels of demand in the future are unlikely to be accommodated (and thus the agglomeration calculations return negative uplifts)

Bournemouth and Poole Urban	£291 million	£3.4 million
-----------------------------	--------------	--------------

- 5.2.6. The results shown in Table 5-1 indicate that the corridors linking with the major centres of economic activity (such as Bristol) return the highest increases in agglomeration. This is to be expected as productivity levels will increase the most for those corridors best able to access economic centres.
- 5.2.7. Across all four sectors (manufacturing, construction, consumer services and producer services), total agglomeration impacts are £5.5 billion. Figure 5-1 shows this total is broken down across the four sectors.

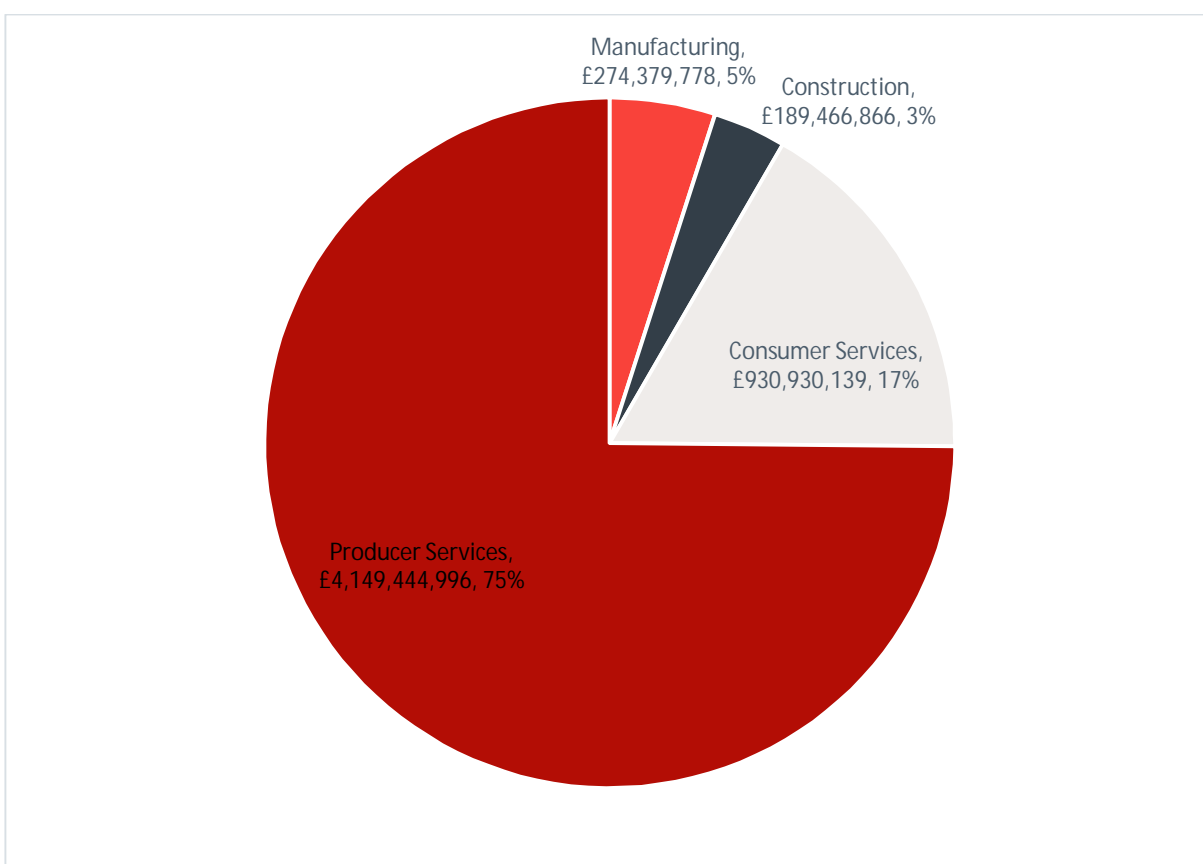


Figure 5-1 - Agglomeration Impacts by Sector

- 5.2.8. Figure 5-1 shows that producer services are the largest contributor of productivity gains and account for £4.5 billion (or 74.8%) of all impacts. Consumer services are the second highest at £930.9 million (16.8%), followed by manufacturing and construction at £274.4 million (4.9%) and £189.5 million (3.4%) respectively.
- 5.2.9. All the corridors will benefit from improved (apart from the A40 where even an enhanced corridor is unlikely to be able to accommodate the forecast increase in travel demand). Figure 5-1 shows the ranking of each corridor according to productivity enhancements.

Table 5-2 – Ranking of each Corridor for all Sectors

Corridor	Ranking
Bristol Urban	1
M5 - Cross Country	2
M4 (M48 & M49) - Great Western Mainline	3
A38/A370 – Cross Country Route	4
A303 - West of England Line	5
A350	6
A417/A48 - Golden Valley Line /Gloucester to Newport Line	7
A46 / A36 - Wessex Main Line	8
Bournemouth / Poole urban area	9
A37 / A354 – Heart of Wessex Line	10
A31 / A35 /A354 - South Western Mainline	11
A338/A354	12
A4 – Great Western Mainline	13
A46 (Midlands)	14
A40 - Cotswold Line	15

5.2.10. The analysis covering each of the four individual sectors is provided below.

Sector 1: Manufacturing

5.2.11. Manufacturing accounted for agglomeration improvements of £274.4 million. Figure 5-2 provides a summary of these impact for each corridor.

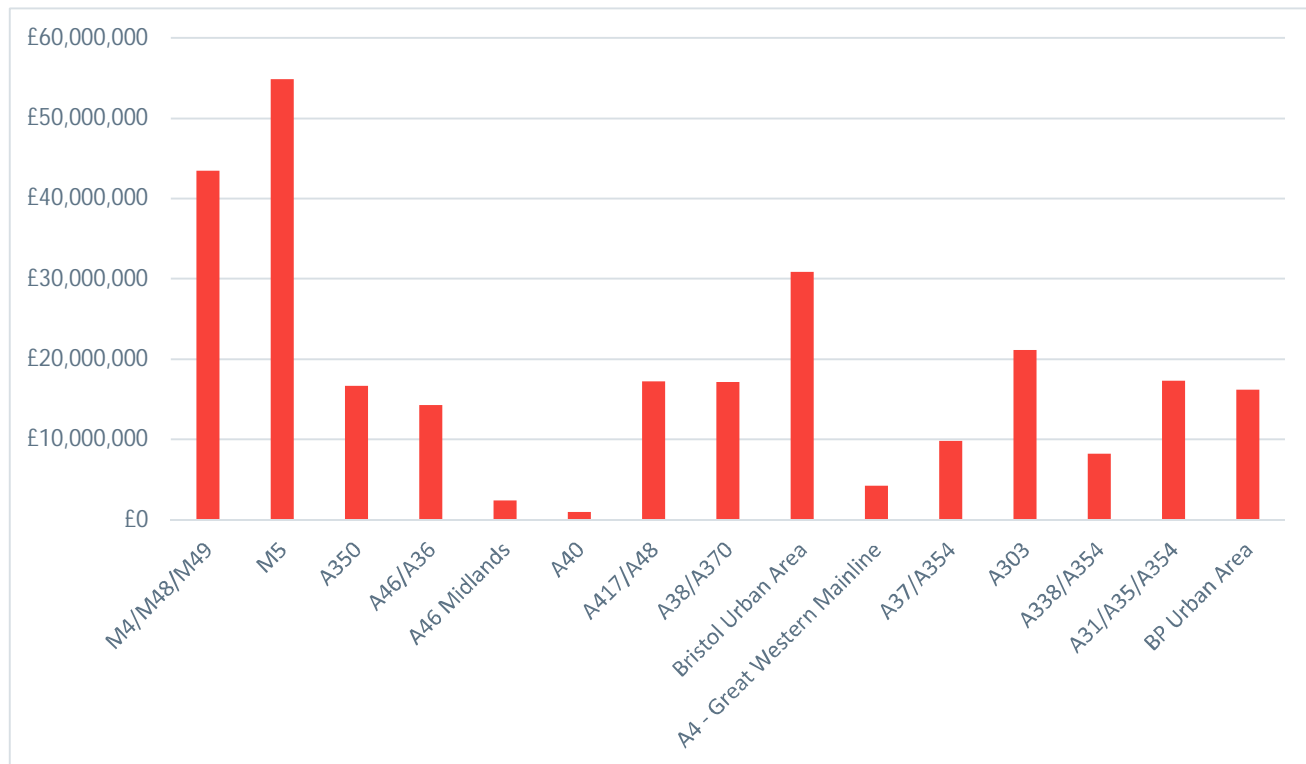


Figure 5-2 - Breakdown of Manufacturing Benefits by Corridor

5.2.12. Both the M4 and M5 corridors generated the largest improvements in the manufacturing sector, representing £43.4 million and £54.9 million respectively. Together with the 'Bristol Urban' corridor, this accounted for 47.1% of the total impact in this sector. Table 5-3 ranks the corridors with respect to the manufacturing sector.

Table 5-3 – Ranking of each Corridor: Manufacturing

Corridor	Ranking
M5 - Cross Country	1
M4 (M48 & M49) - Great Western Mainline	2
Bristol Urban	3
A303 - West of England Line	4

A31 / A35 / A354 - South Western Mainline	5
A417/A48 - Golden Valley Line /Gloucester to Newport Line	6
A38/A370 – Cross Country Route	7
A350	8
Bournemouth / Poole urban area	9
A46 / A36 - Wessex Main Line	10
A37 / A354 – Heart of Wessex Line	11
A338/A354	12
A4 – Great Western Mainline	13
A46 (Midlands)	14
A40 - Cotswold Line	15

Sector 2: Construction

5.2.13. Of the four sectors, construction accounted for the lowest proportion of agglomeration improvements. The total was £189.5 million with the M4, M5 and ‘Bristol Urban’ corridors contributing over 41% of the gains in this sector. The results across all 15 corridors are shown in Figure 5-3 below.

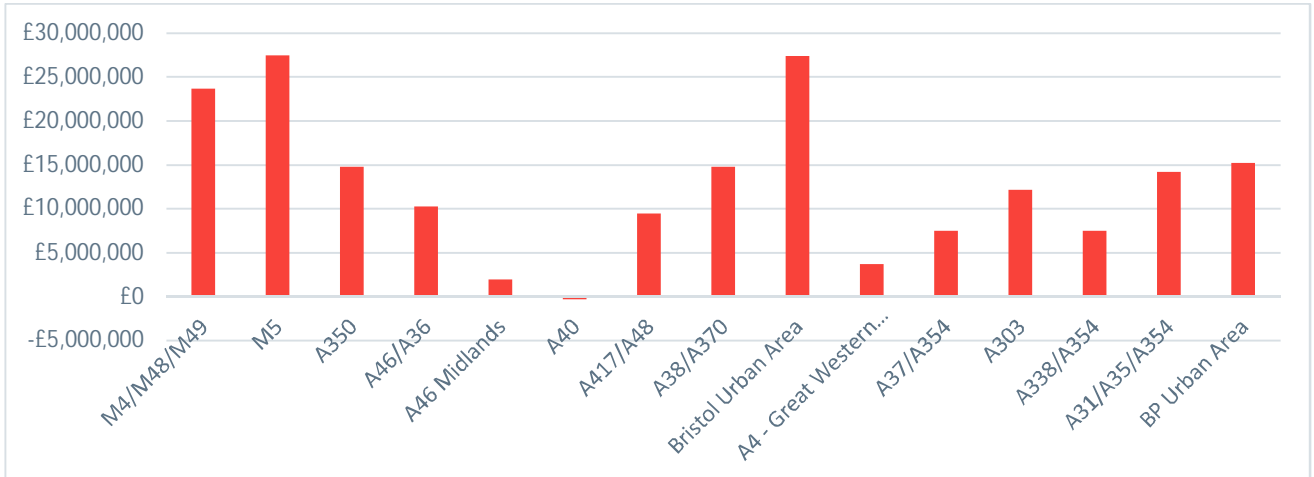


Figure 5-3 - Breakdown of Construction Benefits by Corridor

5.2.14. Table 5-4 shows the ranking of the corridors with respect to the Construction sector.

Table 5-4 – Ranking of each Corridor: Construction

Corridor	Ranking
M5 - Cross Country	1
Bristol Urban	2
M4 (M48 & M49) - Great Western Mainline	3
Bournemouth / Poole urban area	4
A38/A370 – Cross Country Route	5
A350	6
A31 / A35 / A354 - South Western Mainline	7
A303 - West of England Line	8
A46 / A36 - Wessex Main Line	9

A417/A48 - Golden Valley Line /Gloucester to Newport Line	10
A37 / A354 – Heart of Wessex Line	11
A338/A354	12
A4 – Great Western Mainline	13
A46 (Midlands)	14
A40 - Cotswold Line	15

Sector 3: Consumer Services

5.2.15. Consumer services account for £930.9 million (or 16.8%) of the overall productivity gains across all corridors. The ‘Bristol Urban’ corridor generated the most agglomeration improvements in this sector (at 18.9%), followed by the M5 and the A38/A370 corridors (generating 13.9% and 10.7% respectively).

5.2.16. The amounts for each corridor are shown in Figure 5-4 below.

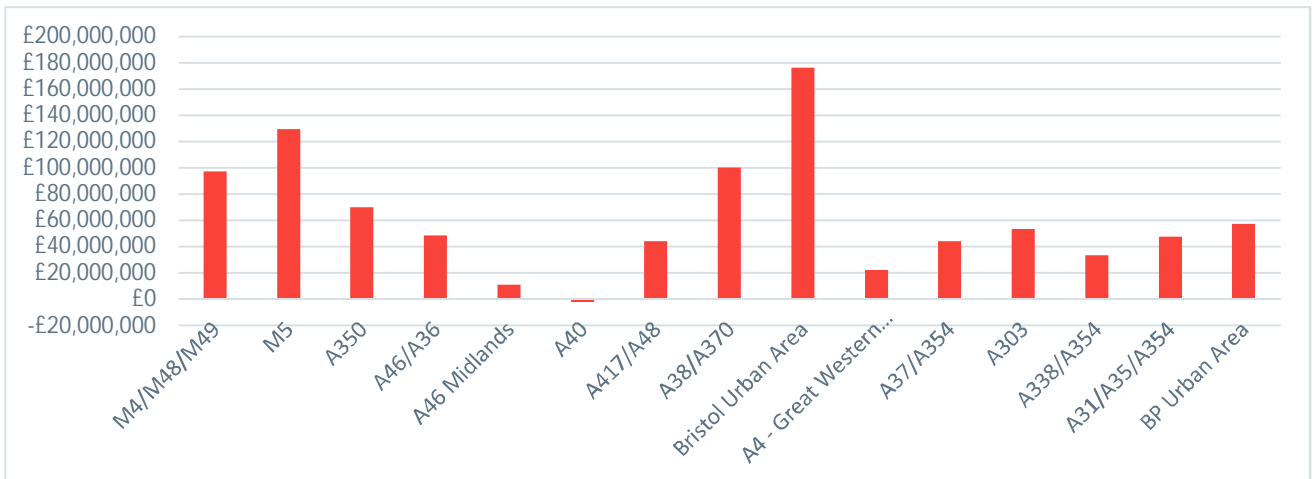


Figure 5-4 - Breakdown of Consumer Services Benefits by Corridor

5.2.17. Table 5-5 shows the ranking for each corridor. The top four corridors contributed to 54% of the overall whilst the bottom four contributing only 6.9% of the productivity gains.

Table 5-5 - Ranking of each Corridor: Consumer Services

Corridor	Ranking
Bristol Urban	1
M5 - Cross Country	2
A38/A370 – Cross Country Route	3
M4 (M48 & M49) - Great Western Mainline	4
A350	5
Bournemouth / Poole urban area	6
A303 - West of England Line	7
A46 / A36 - Wessex Main Line	8
A31 / A35 / A354 - South Western Mainline	9
A417/A48 - Golden Valley Line /Gloucester to Newport Line	10
A37 / A354 – Heart of Wessex Line	11
A338/A354	12
A4 – Great Western Mainline	13
A46 (Midlands)	14
A40 - Cotswold Line	15

Sector 4: Producer Services

5.2.18. The producer services sector generated the largest agglomeration improvements (worth £4.1 billion over all 15 corridors or 74.8% of total agglomeration improvements). The ‘Bristol Urban’ corridor generated the most impacts across all corridors (20.7%), followed by the M5 and the A38/A370 corridors. The results across all 15 corridors are presented in Figure 5-5.

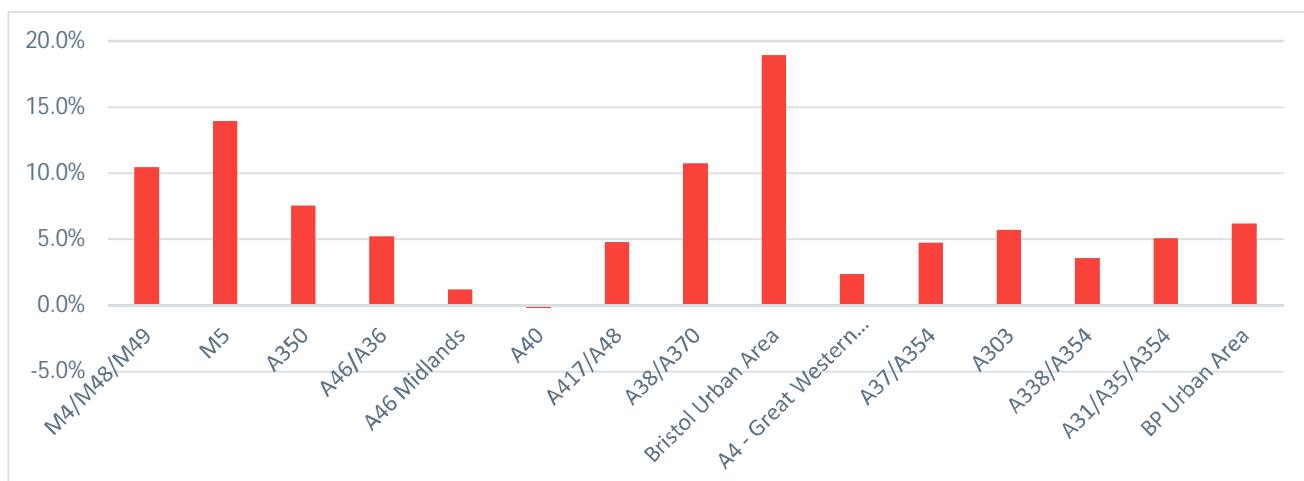


Figure 5-5 - Breakdown of Producer Services Benefits by Corridor

5.2.19. Table 5-6 shows the ranking for each corridor. The top four corridors contributed to 54% of the overall whilst the bottom four contributing only 6.9% of the productivity gains.

Table 5-6 - Ranking of each Corridor for Producer Services

Corridor	Ranking
Bristol Urban	1
M5 - Cross Country	2
A38/A370 – Cross Country Route	3
M4 (M48 & M49) - Great Western Mainline	4
A303 - West of England Line	5
A417/A48 - Golden Valley Line /Gloucester to Newport Line	6
A350	7

A46 / A36 - Wessex Main Line	8
Bournemouth / Poole urban area	9
A37 / A354 – Heart of Wessex Line	10
A31 / A35 / A354 - South Western Mainline	11
A338/A354	12
A4 – Great Western Mainline	13
A46 (Midlands)	14
A40 - Cotswold Line	15

CONCLUSIONS FROM THE PRODUCTIVITY ANALYSIS

- 5.2.20. Based on the analysis reported above, each of the corridors demonstrate different levels of potential productivity gains with those corridors serving the main centres of economic activity (such as Bristol) returning the highest gains in GDP.
- 5.2.21. This is to be expected as agglomeration improvement benefits will be highest where corridors link directly to economic hubs. This is particularly important for the Western Gateway where many of the strategic corridors provide direct access to economic centres and act as generators of additional productivity by enabling workers to access a much larger number of employment opportunities (especially in higher end jobs).
- 5.2.22. This is demonstrated by the ‘Bristol Urban’, M4 and M5 corridors accounting for the largest gains in productivity. These three corridors alone contributed 44.7% or £2.5 billion of the overall gains in productivity.

5.3 ADDITIONAL GVA FROM NEW EMPLOYMENT SITES

- 5.3.1. With 49 new employment sites allocated across the Western Gateway area, the strategic corridors will play a major role supporting the development of these sites.
- 5.3.2. There are 11 employment sites identified as large (i.e. greater than 20 hectares) and 38 sites identified as small (between 5 and 20 hectares). The development of these sites will support both additional jobs and additional GVA.
- 5.3.3. The location of these sites is shown in Figure 5-6.



Figure 5-6 - Key Employment Sites

- 5.3.4. Based on the approach described in Chapter 4, a series of employment and GVA impacts have been calculated for each corridor. This is based on the number of employment sites that will be directly affected by the corridor.
- 5.3.5. As the employment sites will feature a range of different uses (from office space and business parks to warehousing and distribution centres), the number of square metres supporting one Full Time Equivalent (FTE) position will depend on the type of employment:
- Office (B1): 11 square metres per FTE;
 - Industrial / business parks (B2): 42 square metres per FTE; and
 - Warehousing / distribution (B8): 75 square metres per FTE.
- 5.3.6. With the number of hectares per employment site converted to square metres for calculation purposes, the sites have been allocated to the respective corridors that will have the most impact on their development.
- 5.3.7. Based on the geography of the Western Gateway, there can be up to three corridors having a direct impact on each site.
- 5.3.8. As well as employment impacts, there will be substantial GVA impacts and these are based on the following ONS and ONS NOMIS data:
- Poole and Bournemouth: £49,718 per employee;
 - Dorset CC: £45,037 per employee;
 - Wiltshire: £45,342 per employee;
 - Gloucestershire: £51,375 per employee;
 - Bath and North East Somerset, North Somerset and South Gloucestershire: £55,446 per employee; and
 - City of Bristol: £59,246.
- 5.3.9. The range of GVA per employee data across the Western Gateway area are also represented in Figure 5-7 below.

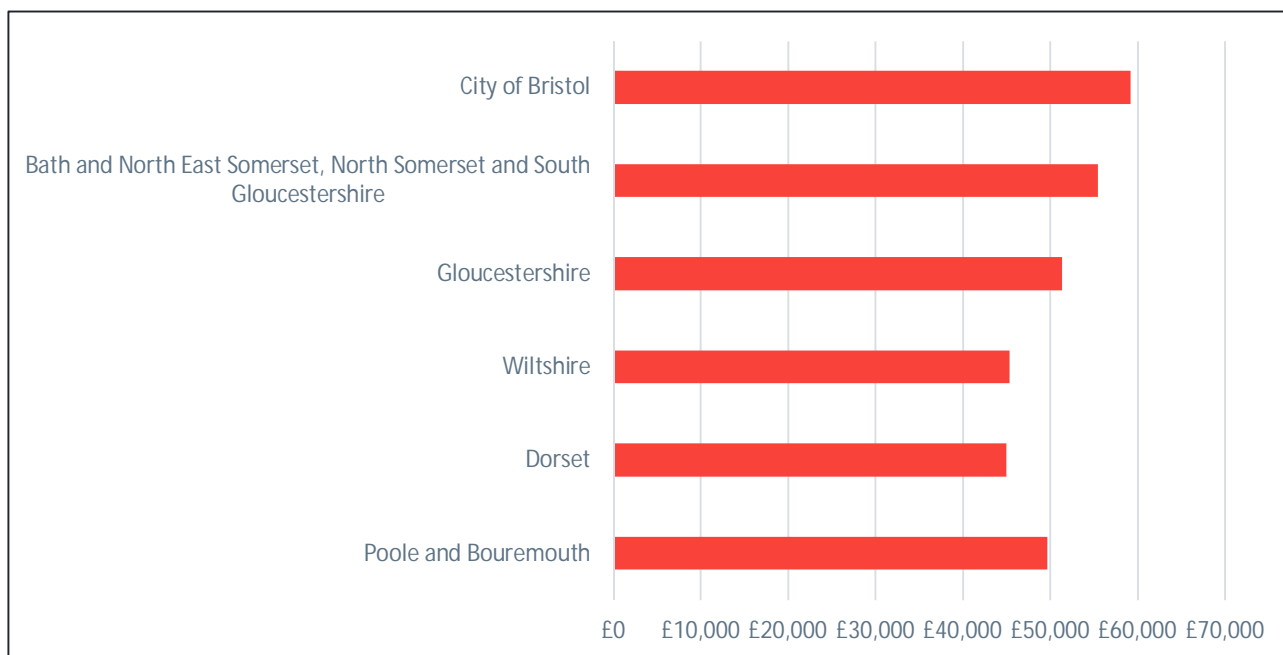


Figure 5-7 - GVA by Local Authority

- 5.3.10. Even with the conservative assumption that 25% of the new employment sites will be dependent on improvements to the strategic corridors, there will be a substantial impact on both employment and GVA. If the attributable corridor employment increases we would expect there to be an increase in the amount of employment and GVA.
- 5.3.11. Total additional direct employment under these assumptions will exceed 42,500 new jobs. When indirect jobs in the supply chain are added in (as well as induced employment supported by the expenditure of new employees), the final total will be much larger.
- 5.3.12. Table 5-7 shows the total additional direct employment for each of the 15 strategic corridors. As there are a large number of new employment sites located near to Corridor C (the A350 corridor), this will unlock a large number of new jobs and will account for one fifth of all new jobs created.

Table 5-7 - Total Additional Direct Employment per Corridor

Corridor	Number of Jobs
A350	8,639
A417/A48 - Golden Valley Line /Gloucester to Newport Line	5,356
M5 - Cross Country	4,193

A31 / A35 / A354 - South Western Mainline	3,839
Bournemouth / Poole urban area	3,387
A46 / A36 - Wessex Main Line	3,200
A40 - Cotswold Line	2,440
A38/A370 – Cross Country Route	1,934
Bristol Urban	1,881
A4 – Great Western Mainline	1,857
A338/A354	1,528
A303 - West of England Line	1,320
A37 / A354 – Heart of Wessex Line	1,236
M4/M48/M49 - Great Western Mainline	1,034
A46 (Midlands)	833

5.3.13. A more detailed breakdown of new jobs created is shown in Figure 5-7 (with the number of new jobs at the ‘small’ and ‘large’ sites shown separately).

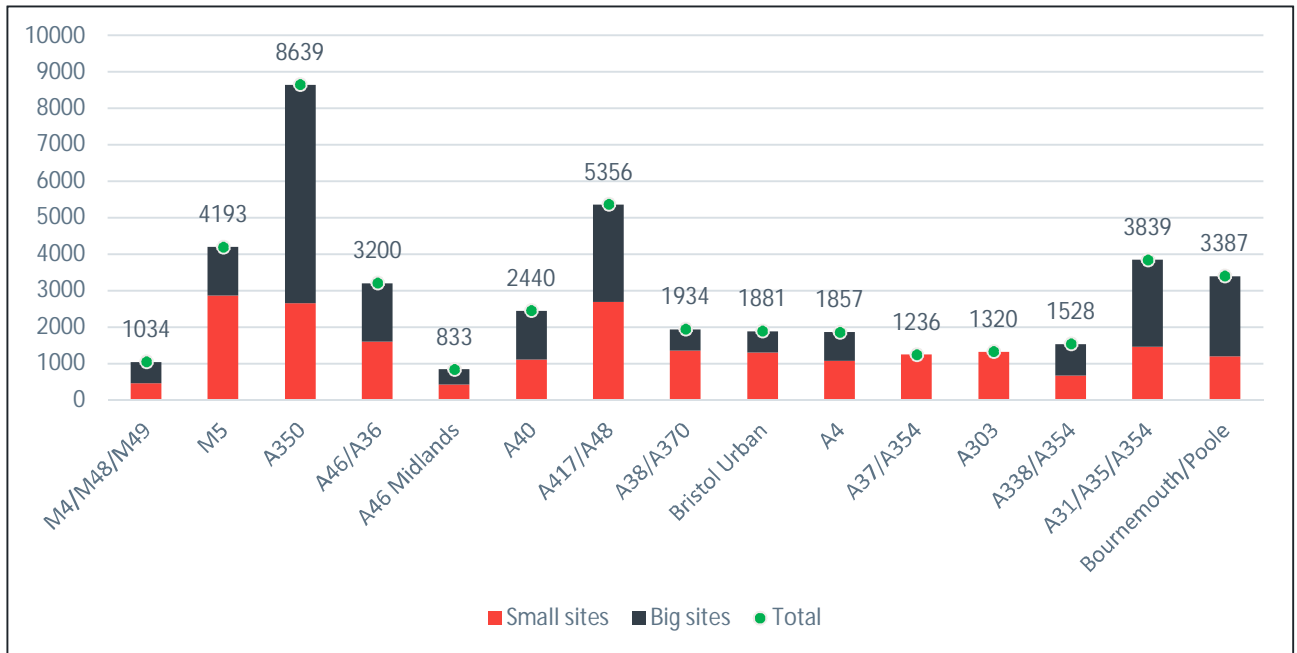


Figure 5-8 – Breakdown of New Jobs Supported by Corridor Improvements

5.3.14. To calculate the GVA impacts, GVA per worker has been applied based on the ONS and ONS NOMIS data. The GVA impacts represents those over 10 years as additional guidance suggests that these impacts are likely to be captured over this timeframe. Table 5-8 shows how the total additional GVA of £12.3 billion is distributed across the 15 strategic corridors.

Table 5-8 - GVA for all the Corridors over a 10-year period

Corridor	Value, £
A350	£2.3 billion
A417/A48 - Golden Valley Line / Gloucester to Newport Line	£1.6 billion
M5 - Cross Country	£1.3 billion
A31 / A35 /A354 - South Western Mainline	£1.03 billion
Bournemouth / Poole urban area	£982 million
A46 / A36 - Wessex Main Line	£876 million
A40 - Cotswold Line	£739 million

A38/A370 – Cross Country Route	£625 million
Bristol Urban	£615 million
A4 – Great Western Mainline	£518 million
A338/A354	£408 million
A303 - West of England Line	£351 million
A37 / A354 – Heart of Wessex Line	£328 million
M4 (M48 & M49) - Great Western Mainline	£311 million
A46 (Midlands)	£252 million

- 5.3.15. The strategic corridors will therefore play a major role supporting the development of several employment sites throughout the Western Gateway area.
- 5.3.16. Without intervention on the corridors, the full potential of the sites is unlikely to be achieved.
- 5.3.17. Figure 5-9 overleaf shows these GVA impacts for each corridor in graphical form.

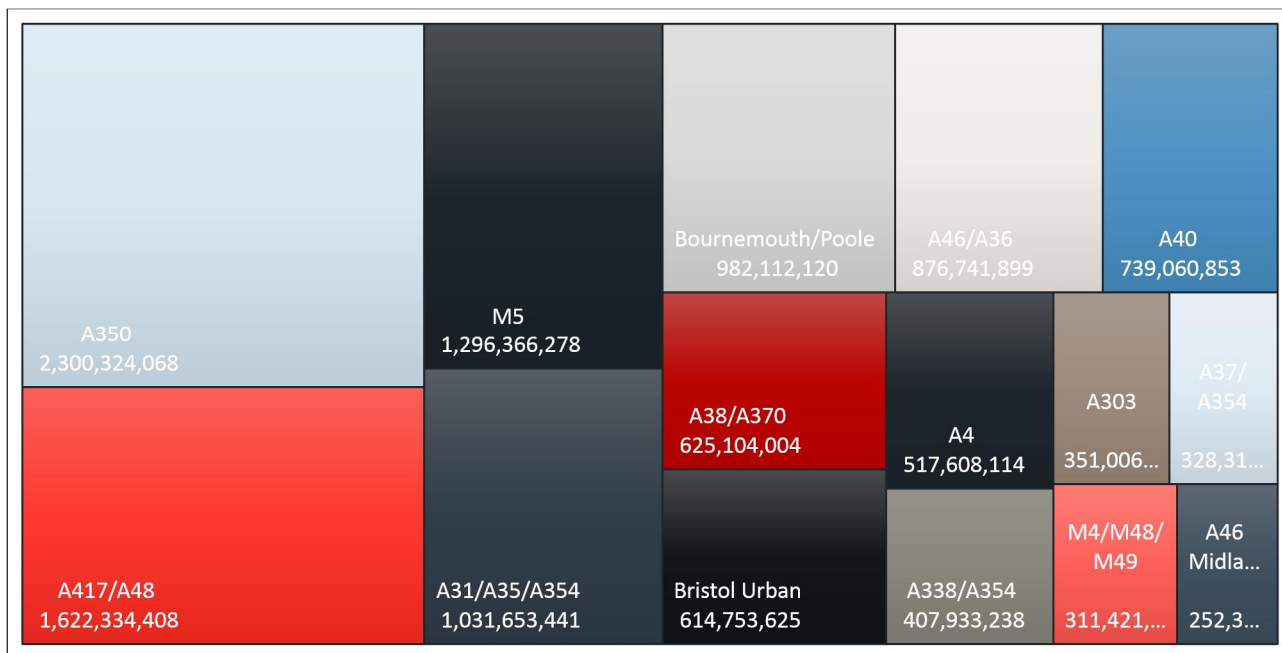


Figure 5-9 - GVA over a 10-year period, £

5.4 LAND VALUE GAINS FROM NEW HOUSING

- 5.4.1. Improvements to the 15 strategic transport corridors will help unlock housing at the various sites located across the Western Gateway area. The housing data used in the analysis has been informed by the Local Plans developed by the local authorities across the Western Gateway. As these plans are updated, the land value impacts for each corridor can be updated.
- 5.4.2. The land value uplifts calculated here are based on Ministry of Housing, Communities & Local Government (MHCLG) guidance prepared at the EoI stage for Housing Infrastructure Fund (HIF) bids. The approach used is based on MHCLG's additionality guidance where assumptions relating to deadweight and displacement are incorporated within the overall additionality assumptions for each corridor.
- 5.4.3. The additionality approach means that a realistic level of new housing development (and hence land value gain) can be attributed to improvements on each corridor.
- 5.4.4. Two categories of housing sites have been taken into consideration:
 - Sites with greater than 5,000 dwellings (large sites), representing 59,368 new housing sites in total; and
 - Sites with between 1,000 and 5,000 dwellings (small sites), representing 77,105 new units in total.
- 5.4.5. The sites with the major housing developments (greater than 5,000 dwellings) are shown in

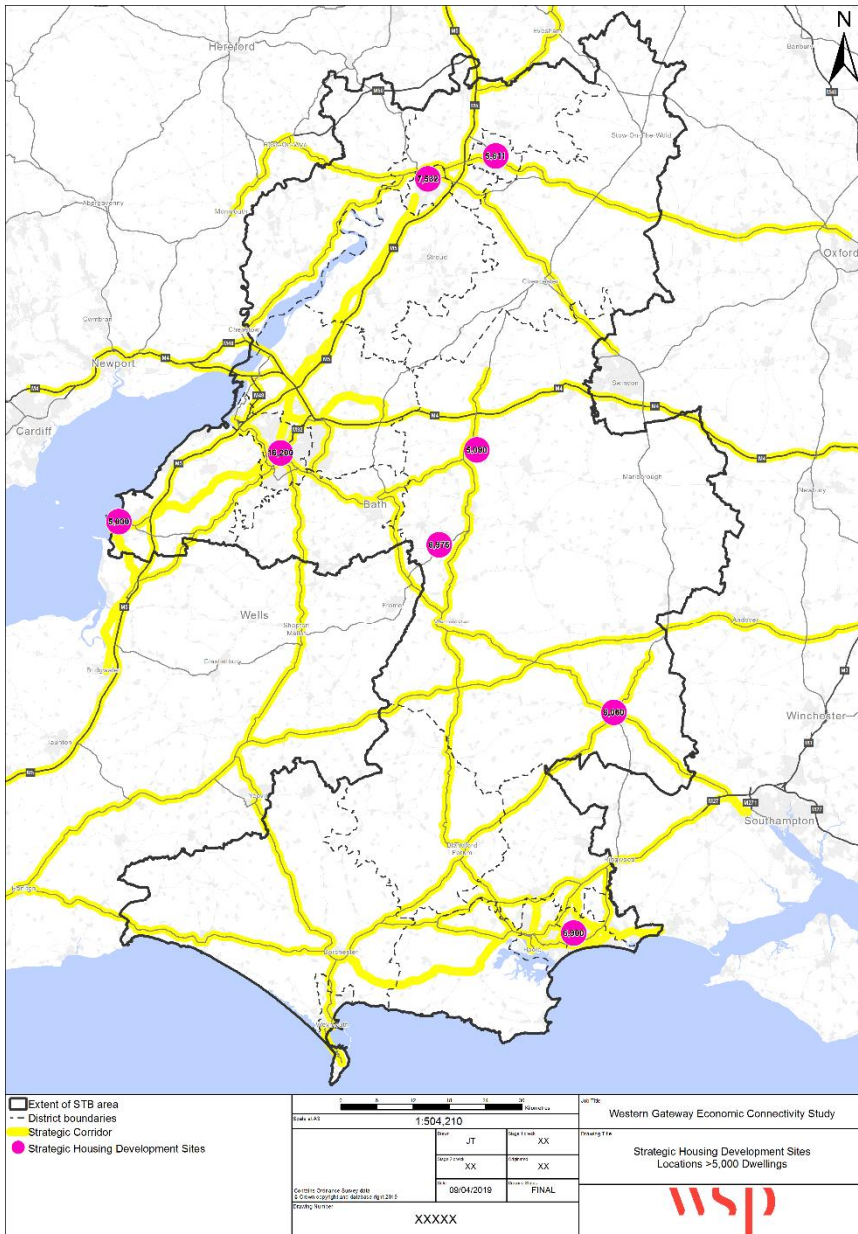


Figure 5-10 - Major Housing Developments

TOTAL LAND VALUE GAINS

- 5.4.6. Based on the land value uplift analysis at the larger and smaller new housing sites, the overall gain will be over £1.3 billion (comprising £585.3 million at the larger sites and £724.4 million at the smaller sites).
- 5.4.7. These potential land value gains are substantial and can be attributed to the 15 strategic corridors based on the extent each corridor supports the housing sites. The extent of land value gains attributable each corridor is shown graphically in Figure 5-11.

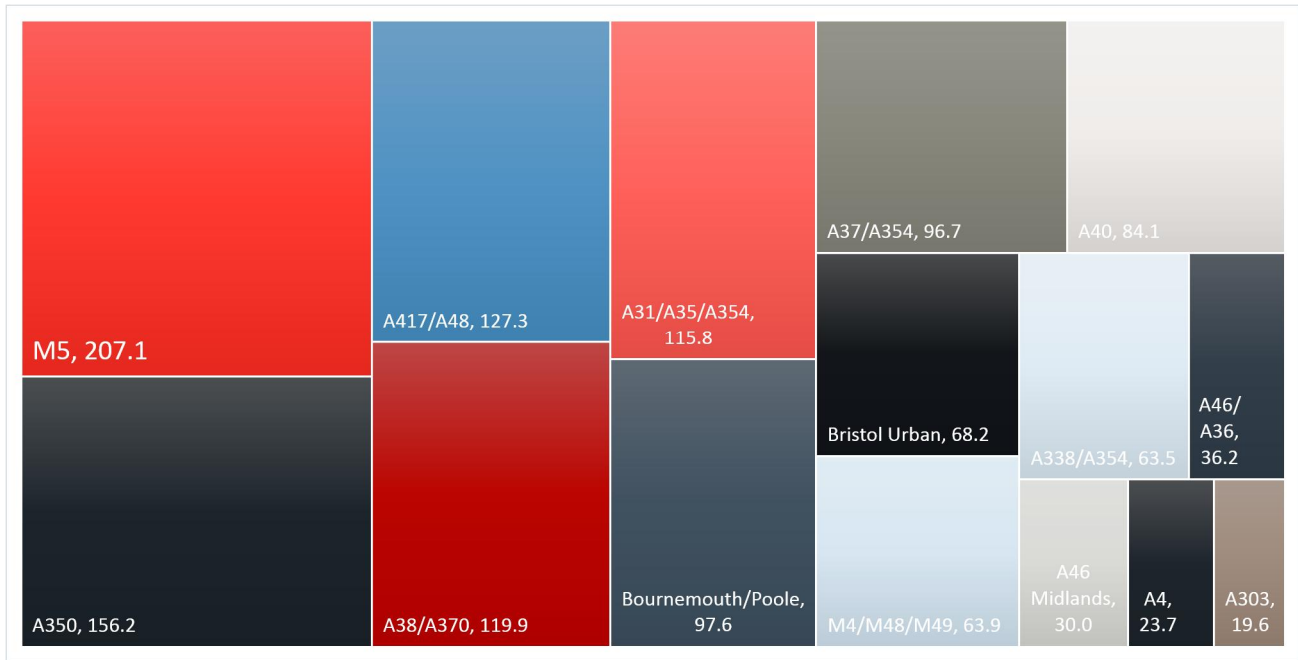


Figure 5-11 - Overall Land Value Gain

- 5.4.8. Based on the values shown in Figure 5-11, the M5 / Cross Country rail corridor has the most potential with respect to unlocking new housing and generating land value gains. The A350 corridor also has significant potential to unlock new housing. This reflects the large number of new housing sites that are on, adjacent, or near to this strategic north-south corridor.
- 5.4.9. In summary, the 15 strategic corridors have a major role to play with respect to unlocking new housing and generating land value gains throughout the Western Gateway area. Taking all the HIF bids that have been submitted across the area, for example, it is clear that improved transport infrastructure is a major requirement for meeting the region’s housing objectives.
- 5.4.10. Based on the analysis, it has been possible to rank the corridors according to the potential land values they can generate. This is shown in Table 5-9 overleaf.

Table 5-9 - Rankings of the Corridors Relating to Housing

Area	Ranking
M5 - Cross Country	1
A350	2
A417/A48 - Golden Valley Line /Gloucester to Newport Line	3
A38/A370 – Cross Country Route	4
A31/A35/A354 - South Western Mainline	5
Bournemouth / Poole urban area	6
A37 / A354 – Heart of Wessex Line	7
A40 - Cotswold Line	8
Bristol Urban	9
M4 (M48 & M49) - Great Western Mainline	10
A338/A354	11
A46 / A36 - Wessex Main Line	12
A46 (Midlands)	13
A4 – Great Western Mainline	14
A303 - West of England Line	15

5.4.11. Although a default additionality assumption of 25% had been adopted for these calculations, a range of different additionality assumptions have also been tested. These cover a range of proportions between 20% and 100%. DCLG’s (now MHCLG) Appraisal Guide gives the following range, for example:

- ‘High’ additionality: 75 to 100%;
- ‘Medium’ to ‘High’ additionality: 50 to 75%;

- 'Low' to 'Medium' additionality: 25% to 50%; and
- 'Low' additionality: 0 to 25%.

5.4.12. Based on a range of additionality assumptions, Figure 5-12 shows the results of these scenario tests. The results indicate the potential total land value gains under different additionality assumptions. With a 40% additionality assumption, for example, total land value gains would exceed £2 billion (i.e. 40% of development of the new housing sites will be dependent on enhanced corridor connectivity).

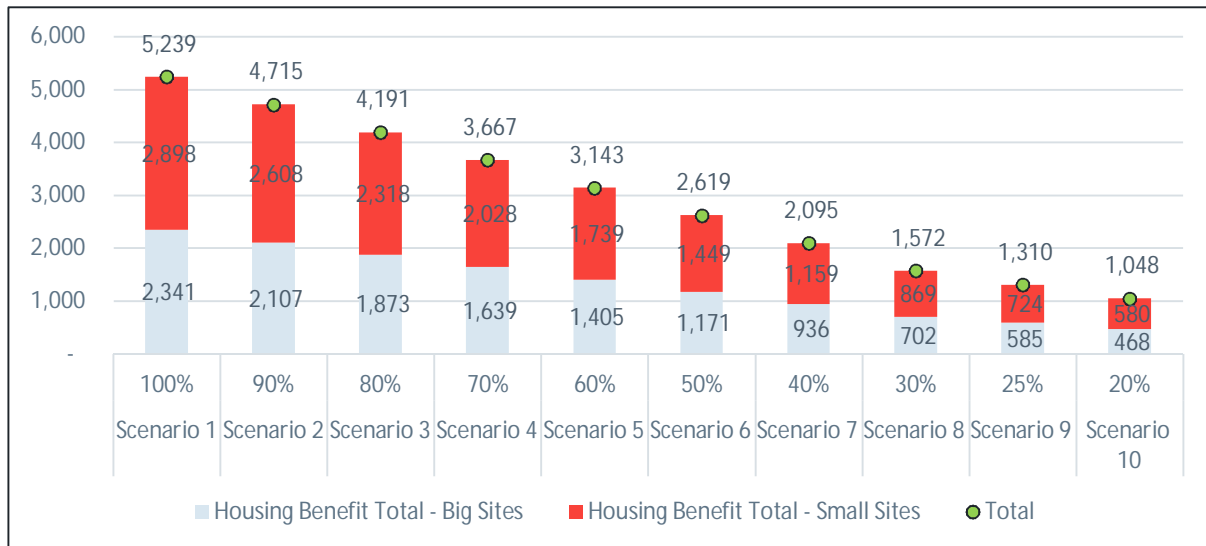
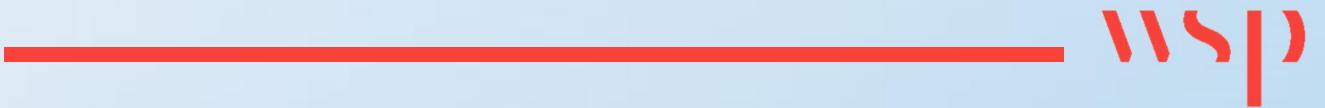


Figure 5-12 - Land Value Benefits from Different Additionality Rates

6

FINDINGS



6 FINDINGS

6.1 CORRIDOR SEQUENCING

- 6.1.1. Following assessment of each corridor and the potential economic benefits associated with improving each of them, the possible sequencing of corridors can be considered. Sequencing will reflect several factors, including the prioritisation of those corridors that maximise enhanced productivity (through better links to and within Bristol, for example).
- 6.1.2. Certain corridors could also be sequenced on the basis that they may not necessarily return the largest economic impacts but are nevertheless easier to upgrade in terms of costs, timescales, physical and environmental disruption as well as general public acceptability.
- 6.1.3. There are several practicalities that need to be considered when putting together a sequencing programme and these cover:
- What is the trade off between scale of economic benefits and the timescales within which the corridors can be realistically upgraded?;
 - Are there relative short term, 'quick win' schemes that can be put in place relatively early on?;
 - Are there corridors that help achieve specific strategic objectives but do not necessarily return the largest economic benefits?;
 - Rather than individual corridor upgrades, are there corridors that should be sequenced and upgraded together to achieve the maximum impacts?;
 - What are the potential environmental issues and constraints affecting corridor improvements?; and
 - Related to the above, what is the likely level of public support for what are likely to be major (and often intrusive) infrastructure upgrades?.
- 6.1.4. Experience from other major infrastructure schemes suggests that corridor sequencing proposals should reflect this range of practical issues that need to be considered.

6.2 SEQUENCING APPROACH

- 6.2.1. To guide the sequencing of the corridors, a scoring system has been used and this is accompanied by colour coding to assist understanding of the scoring process.
- 6.2.2. The scoring is on the basis of 1 to 15 with "1" being the highest (best outcome) score and "15" being the lowest (worst outcome) score.
- 6.2.3. The categories covered are:
- Productivity impact;
 - New employment GVA impact;
 - Housing (land value gain) impact; and
 - Final score / ranking.

- 6.2.4. The final score or ranking on the right-hand side of the table informs the proposed sequencing of the corridor upgrades and can be taken forward as part of the more detailed appraisals of each corridor scheme.
- 6.2.5. There are various outcomes from this exercise that need to be taken into consideration before the corridor proposals are examined in more detail:
- Although this connectivity analysis does not focus on any particular mode per corridor, the sequencing of the corridors will need to reflect the most appropriate mode (with road schemes having different dependencies compared to rail schemes);
 - The sequencing of corridors will also be dependent on whether the upgrades comprise a series of relatively small, incremental schemes or whether the improvement is envisaged to be a much larger stand-alone scheme;
 - The sequencing will also be thought of in terms of a well thought-on programme of improvements that will reflect several considerations, including funding, capacity of the construction industry in different parts of the Western Gateway and various environmental mitigations.
- 6.2.6. Each corridor has been ranked under the following criteria:
- **Green** = 'Top Performer';
 - **Amber** = 'Middle Performer'; and
 - **Red** = 'Lowest Performer'.
- 6.2.7. The results of the sequencing exercise are presented in **Error! Reference source not found.** overleaf). The 'highest scoring' corridors are grouped towards the top of **Error! Reference source not found.** with some corridors demonstrating high rankings across a number of factors.
- 6.2.8. As the sequencing of the corridors is taken forward and assessed in more detail, further factors and considerations can be taken into account.
- 6.2.9. With respect to the rankings in **Error! Reference source not found.**, the housing scores are based on the rankings in

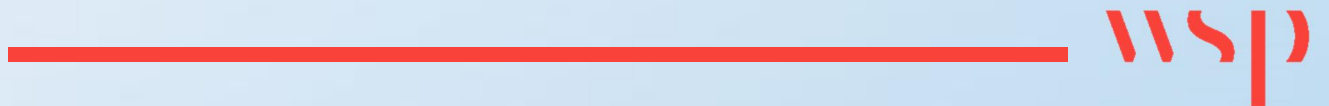
- 6.2.10. Table 5-9, the productivity scores are based on those in Table 5-2 and the employment rankings are based on those in Table 5-8.
- 6.2.11. The 'Total' score in the right-hand column in Table 6-1- Sequencing Rankings for each Corridor has been calculated by summing across the three different criteria. After this summation, a ranking was applied to each corridor.
- 6.2.12. The M5 / Cross Country rail corridor the 'top performer' across all of the different criteria. This reflects several factors, notably the productivity gains associated with the corridor (and its links to Bristol), the large number of new housing sites proposed near to the corridor and the number of new employment sites being put forward.
- 6.2.13. The sequencing analysis also indicates that it is the longer distance, inter-urban (or "inter-city") corridors that generate some of the largest economic gains.
- 6.2.14. This is evident for the M5 / Cross Country, A350 and A417 / A48 / Golden Valley Line corridors whereby cross-country links across the Western Gateway are important for connecting communities with major economic centres. Improvements on these corridors will allow help unlock several new housing and employment sites (and thus help achieve many regional and national objectives).

Table 6-1 - Sequencing Rankings for each Corridor

Corridor	Productivity	GVA	Housing	Total
M5 / Cross Country	2	3	1	1
A350	6	1	2	2
A417/A48 - Golden Valley Line /Gloucester to Newport Line	7	2	3	3
A38/A370 – Cross Country Route	4	8	4	4
Bristol Urban	1	9	9	5
A31 / A35 /A354 - South Western Mainline	11	4	5	6
Bournemouth / Poole urban area	9	5	6	6
A46 / A36 - Wessex Main Line	8	6	12	8
M4 (M48 & M49) - Great Western Mainline	3	14	10	9
A37 / A354 – Heart of Wessex Line	10	13	7	10
A40 - Cotswold Line	15	7	8	10
A303 - West of England Line	5	12	15	12
A338/A354	12	11	11	13
A4 – Great Western Mainline	13	10	14	14
A46 (Midlands)	14	15	13	15

7

CONCLUSIONS



7 CONCLUSIONS

7.1 OVERVIEW

- 7.1.1. The Western Gateway area covers some of the country's most prosperous, fast-growing conurbations, most noticeably the conurbation centred around Bristol as well as Cheltenham and Gloucester whilst the south coast urban centres in Poole and Bournemouth are benefitting from their own growth and close proximity to the Solent conurbation.
- 7.1.2. Although the STB contains these centres of economic activity, the Western Gateway has several areas and communities that experience poor transport connectivity, especially with respect to corridor connectivity.
- 7.1.3. Many of the 15 strategic corridors in this Connectivity Study are subject to a variety of constraints, such as regular delays and congestion (particularly at busy times) and constraints imposed by a lack of capacity due to lane and lane restrictions.
- 7.1.4. This is why the Western Gateway area needs improvements to these strategic corridors as this will enable:
- Enhanced east – west connectivity (such as the M4 and A303 corridors);
 - Enhanced north – south connectivity (such as the links between the south coast and the economic centres further north); and
 - Enhanced connectivity in and around urban areas such as Bristol, Bournemouth and Poole as well as links between Gloucestershire, South Wales and the West Midlands.

7.2 THE BENEFITS OF IMPROVED CONNECTIVITY

- 7.2.1. Given the economic issues facing the Western Gateway, the following are the impact types that are most relevant and will arise from enhanced connectivity:
1. Greater productivity from the existing workforce due to much improved journey times on the corridors;
 2. Additional GVA from those employed at new employment sites across the Western Gateway area (and can be realistically attributed to enhanced connectivity on each corridor); and
 3. Additional land value gain from new housing units unlocked by each of the improved corridors.
- 7.2.2. As well as these quantifiable impacts, the improved corridors will also generate a series of other vital benefits, including:
- Enhanced connectivity to the international gateways, e.g. the major ports as well as the airports in the area;
 - Reducing levels of relative deprivation in certain parts of the STB area (as measured by IMD data), e.g. opening up access to more employment and other activities will benefit communities currently experiencing poor links to these opportunities; and

- Generating tourism benefits as improved connectivity will help enhance the Western Gateway's important visitor economy (corridors such as the M5 and A303 as well as the links to the south coast provide important links for tourists and visitors, for example).

7.3 ECONOMIC IMPACTS

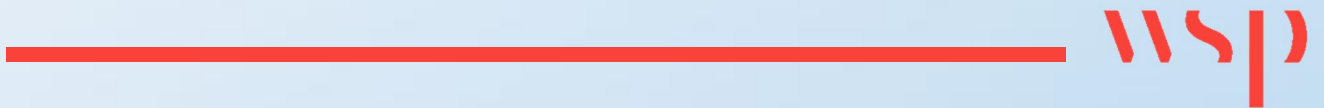
- 7.3.1. The economic connectivity analysis has shown the extent to which each corridor generates a range of benefits. These are summarised as follows:
- Agglomeration-based productivity improvements, e.g. Strategic Corridor A (M4 / GWML) will generate benefits of £250 million;
 - Employment-based GVA impacts from the new sites near to the strategic corridors, e.g. the impacts over 10 years range from £300 million plus for some of the corridors up to £2.3 billion for corridors such as Strategic Corridor C (A350 North-South Link) where total additional GVA is almost £2.4 billion; and
 - Housing-based land value gains where the corridors will unlock new housing, e.g. under the additionality assumptions adopted, the total housing benefits will exceed £1.3 billion.

7.4 NEXT STEPS AND THE WAY FORWARDS

- 7.4.1. This Economic Connectivity analysis has shown that the Western Gateway area should be viewed as both a single area containing some of the UK's fastest-growing local economies as well as being a crucial facilitator of improved connectivity to other parts of the country, including the South West, the Solent area, South Wales and the West Midlands.
- 7.4.2. Enhanced corridor connectivity across the Western Gateway area will therefore boost economic activity and productivity within the STB area whilst also greatly assisting growth across other neighbouring STBs.
- 7.4.3. At the moment, the Western Gateway boasts some of the UK's fastest growing areas yet at the same time, several parts of the STB are relatively isolated and it takes those living in parts of Dorset and Wiltshire (for example) a relatively long time to travel to centres of economic activity.
- 7.4.4. This is why it is so important that connectivity across the 15 strategic corridors is enhanced so that a range of positive outcomes – that align well with Government objectives – can be achieved. As this Connectivity analysis has shown, productivity levels, housing provision and employment at key sites can be increased as a result of improved connectivity.
- 7.4.5. Moving forwards, there will also be scope for providers of different modes to work together along each of the corridors. This will enable a more wholistic approach to economic benefit maximisation to be adopted on each of the corridors. Examples could include collaboration between public transport modes (both road and rail) across some of the 'urban' corridors.
- 7.4.6. With the UK facing a degree of economic uncertainty and given the need to rebalance the economy away from reliance on London and the South East, the strategic corridors throughout the Western Gateway area offer an excellent means of generating additional activity as well as an ability to improve links between communities and centres of economic activity.

Appendix A

ECONOMIC IMPACT METHODS



INTRODUCTION

In this chapter, the mechanisms by which enhanced corridor connectivity will boost economic activity and housing are described. There are three key Impacts that are covered here:

- Enhanced productivity – e.g. transformative change on the corridors will enable existing workers to produce more GDP;
- Additional GVA and jobs – e.g. from the new employment sites across the Western Gateway that will be ‘unlocked’ (in part) by enhanced corridors; and
- Land value gains – e.g. from new housing sites ‘unlocked’ by the enhanced corridors.

Although transformative change on the strategic corridors will generate a wide range of positive impacts, the three impact types above can be quantified / monetised using recognised economic impact guidance and are therefore very much in scope for this Economic Connectivity study.

The rationale behind each of these impact types and how they can be quantified is discussed below.

ENHANCED PRODUCTIVITY

With productivity levels being a concern both at a national level and within many parts of the Western Gateway area, the ability of enhanced corridor connectivity to boost productivity is an important factor.

Enhanced connectivity generates economic benefits by increasing workers’ mobility and by enabling businesses to draw on a wider pool of labour (especially if this larger pool of labour also has higher skills levels and higher qualifications).

This is the theory that underpins agglomeration – e.g. in areas where there is good connectivity between workers and jobs, higher levels of GDP per worker arise as workers are more productive when they have good access to a wide range of jobs.

Corridor connectivity improvements will boost productivity and reduce transport costs because of improvements in journey times.

Based on accepted DfT WebTAG guidance on agglomeration improvements (part of “wider impacts” guidance), a reduction in generalised travel costs will improve GDP per worker based on a series of steps and calculations.

Improvements in accessibility, for example, are measured by the changes in generalised travel costs (GTCs). These reductions in GTCs will affect the following:

- Trip frequency;
- Distribution;
- Time period;
- Mode choice;

Taking improvements on the north – south A350 corridor, for example, the resulting journey time improvements for those travelling between the south coast and points to the north (through Wiltshire and on to the M4 corridor) will generate a range of productivity improvements in the local authority areas in this corridor.

Again, taking the A350 as an example, this is because those living in relatively remote areas in Dorset and Wiltshire will now have much better access to a range of employment opportunities in centres of economic activity;

To quantify the productivity enhancements associated with improvements on all 15 corridors, the following process was undertaken:

- The South West Regional Transport Model (RTM) was obtained from Highways England (this is the latest version made available in March 2019) – although this is a highways-based model, for the purposes of this exercise it was used to demonstrate the impacts of corridor improvements across all modes; and
- For each corridor, two sets of data were required;
 - The ‘base’ position with respect to current journey times on the corridors (this is what is currently modelled in the ‘Base’ RTM)
 - The ‘transformative’ position with respect to journey times on each corridor (to achieve this, free flow speeds were coded for each link in each corridor)

The outputs from the RTM were linked to WSP’s “WITA Emulator” tool – this is explained in more detail below

Based on the standard processes and calculations as set out in DfT WebTAG, a series of productivity improvements were derived

These show enhanced GDP per worker across four different sectors in the economy: manufacturing, construction, consumer services and producer services

The WITA Emulator is a tool developed to calculate productivity (agglomeration) improvements based on changes in travel costs. The tool has been shared with DfT on a number of occasions and closely replicates DfT’s WITA Tool that is currently being updated.

The WITA Emulator is an appropriate tool to use here as it enables high level calculations of productivity improvements to be undertaken.

ADDITIONAL GROSS VALUE ADDED (GVA) FROM NEW EMPLOYMENT

There are many employment sites that are proposed throughout the Western Gateway area. These range from strategic sites in excess of 20 hectares of land allocated for employment to a large number of small sites with areas greater than 5 hectares but less than 20. 720 hectares have been identified as areas of potential employment within the Western Gateway.

Assuming an even distribution across B1 (office), B2 (industrial / business park) and B8 (warehousing / distribution) uses, this will support over 170,000 new jobs at these sites. By taking an approximate GVA per employee across all the Western Gateway area, this is equivalent to total additional GVA of over £8.7 billion.

Even before the impact of improved strategic corridors is taken into account, this clearly illustrates the potential gain that could be achieved across the Western Gateway area at a time when many parts of the STB are seeking new employment opportunities.

Enhancement of the 15 strategic corridors in the Western Gateway will increase the viability of these new employment sites as the investors and businesses are far more likely to create new employment opportunities if each site has much improved connectivity.

To provide an estimate of how much additional GVA will be generated at each of the employment sites (due to enhanced corridor connectivity), the following has been undertaken:

- All 49 employment sites across the Western Gateway have been considered;
- Employment estimates for each site are based on the “Employment Densities Guide” (prepared by Drivers Jonas Deloitte on behalf of Homes England);
- The employment density data represents the amount of square metres that support 1 Full Time Equivalent (FTE) position for each employment category;
- The employment categories are B1 (office), B2 (industrial / business park) and B8 (warehousing / distribution) – for the purposes of the economic impact estimate, an even split in these uses across all 49 sites has been assumed;
- Each employment site has been ‘allocated’ to the corridor(s) that will most affect its development (as an example, the 50 acre Dorset Innovation Park will be well served by enhanced connectivity on both the north – south A350 and A31 / A35 / A354 corridors, so the site’s “corridor dependency” is split 50:50 across these two corridors);
- To estimate the GVA impacts, the latest ONS and ONS NOMIS data has been used (e.g. for each NUTS3 area within the ONS database, total GVA in 2017 has been used. This is then combined with ONS NOMIS employment data in each area to give ‘GVA per worker’);
- Based on all input assumptions, a ‘single year’ impact of additional GVA per site is calculated;
- Finally, to represent the impact over time, the additional GVA generated by enhanced corridor connectivity over a period of 10 years has been calculated;

10 years has been adopted as the timeframe for these impacts as guidance by Government agencies such as the Ministry for Housing, Communities and Local Government (MHCLG) suggests that these additional impacts will start to be absorbed by other impacts within this relatively short timeframe (and therefore cannot be assessed on the same basis – e.g. 30 years or 60 years – as traditional scheme journey time benefits).

Even when a relatively low proportion of the new jobs at each site can be attributed to enhanced corridor connectivity (25% attributability is the working assumptions for the results reported later), a large amount of additional jobs and GVA will be generated.

There is no doubt that if the Western Gateway is to achieve its full potential with respect to the new employment sites, much improved corridor connectivity (across all 15 corridors) is essential if this is to be achieved - and also achieved within accelerated timescales.

The additional GVA analysis also contributes to the ‘ranking’ of the 15 different strategic corridors and as an important economic impact metric, sits alongside the productivity gains from the existing workforce as well as the land value gains from unlocked housing developments.

LAND VALUE GAINS FROM HOUSING

The need for new housing across the Western Gateway area is important for a number of reasons:

- It will enable workers (together with their families) to live within the area and to be able to access jobs within the Western Gateway rather than consider re-locating to other parts of the UK (and thus depriving the STB area of crucial economic activity and growth)
- Where affordable housing is provided (likely to be a significant proportion at each new housing site), this will also enable people to get on to the ‘property ladder’ and thus be in a position to

remain in the Western Gateway and gain access to employment in the main economic hubs (e.g. Bristol, Cheltenham, Gloucester, Salisbury and Bournemouth / Poole)

- As an economic measure of this potential, land value uplift can be used.

Enhanced connectivity can unlock new housing sites due to transport constraints being minimised. As stated in Local Plans many new housing developments may have been allocated but are unlikely to go be developed without the transport constraints being minimised.

Not only this, but delivery of new housing is also likely to be deferred over far longer timescales when transport access cannot be improved.

This sub-optimal outcome means that the much-needed requirement for new homes throughout the Western Gateway will not be achieved when they are required due to current connectivity constraints.

The scale of the proposed housing developments across the Western Gateway area is illustrated by the large number of new units that are planned.

These total over 136,000 units comprising over 59,000 units at 10 strategic locations across the STB area and over 77,000 units across 41 smaller sites distributed throughout the Gateway.

Both MHCLG and DfT guidance states that where justified, land value gains from housing unlocked by new or improved infrastructure can be considered as an additional economic benefit.

The economic theory behind this covers 'market failure' whereby in a perfectly functioning market (with optimal transport corridors and connectivity), the market would supply the required number of new housing units to meet demand for housing. Market failure occurs, however, when this optimal level of supply cannot be achieved due to 'failures' such as poor transport accessibility and connectivity.

Where market failure is occurring and this can be resolved by improving infrastructure, the unlocked number of housing units can be represented economically by the land value gains at these sites.

The need for new housing is a very much a national issue and this is why the Government (through Homes England) set up the Housing Infrastructure Fund (HIF) bidding process in 2017.

The HIF process is relevant to housing requirements throughout the Western Gateway area as:

- Several locations throughout the STB have submitted bids to Homes England (for funds to provide infrastructure to unlock new housing units); and
- The evaluation process set up for HIF – e.g. land value gains based on additionality (reflecting deadweight and displacement assumptions) can also be adopted for this economic connectivity assessment.

The method used here to quantify land value gains is based on the Homes England 'ready reckoner' model that was prepared for use by all bidders at the Expression of Interest (EoI) stage in 2017.

The model is considered in scope for the purposes here as it:

- Covers each local authority throughout the UK (i.e. can be set up for each local authority in the Western Gateway area)
- Can be programmed for each new housing development (covering the number of housing units proposed and annual delivery schedule)

The model also allows the additionality proportion to be entered as part of the calculation process.



Additionality is an important parameter as it represents the extent of new housing that is attributable to improved corridor connectivity – i.e. a high level of additionality (e.g. 75%) will indicate high dependency on enhanced infrastructure and vice versa.

Similar to the assessment of jobs and GVA assessment from the new employment sites, the evaluation of land value gain has assumed relatively low additionality across all sites to demonstrate that even under this assumption, significant land value gains will accrue.



WSP House
70 Chancery Lane
London
WC2A 1AF

wsp.com

PUBLIC