Gatwick Growth Board Connectivity Study
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Executive Summary

The Gatwick Growth Board (GGB) was established in August 2016 to examine the wider economic and social impacts of Gatwick Airport’s future growth and expansion plans on the local area, the South East region, and on the economy of the UK as a whole and with particular emphasis on ensuring that the benefits of Gatwick expansion are properly distributed across the region and the rest of the UK. The GGB has a particular objective of ensuring that areas which need economic regeneration benefit appropriately from Gatwick’s expansion. Transport connectivity is seen by the GGB and Gatwick Airport Ltd (GAL) to be a key enabler of achieving these objectives.

Accordingly, the GGB commissioned Arup to complete a Connectivity Study to identify the priorities and case for transport investment in schemes which benefit both Gatwick Airport and the wider region. As part of this study, Arup has also assessed two exemplar schemes to demonstrate how mechanisms could be used to align stakeholders and influence future investment by Government, Network Rail and Highways England. This included identifying where there might be opportunities to deploy alternative funding mechanisms. The study’s analysis and conclusions are based on the assumption of a single runway Gatwick Airport and cover the period until 2025.

The study comprised five phases:

1. The identification of nodes or corridors on which employment growth is focussed in order to provide a basis for identifying and evaluating potential improvements in transport connectivity. This also included a consideration of air passenger demand as an important influencer on improvements to capacity.

2. The identification of the transport connectivity that Gatwick employees consider important in order to establish their needs and the outcomes required from potential road and rail improvements.

3. The assessment of gaps in existing or future transport provision when compared to the outcomes identified (in 2.) in order to identify and prioritise future required road and rail interventions.

4. The development of a strategic narrative documented in this report to present the case for intervention.

5. Using example projects, the identification of how GAL, supported by the GGB, can work with local and regional stakeholders to influence transport investment by the Government, Highways England, Network Rail and local authorities.

In summary, our findings are as follows:

- Gatwick Airport plays an important role as a major employer in the South East. Analysis by Oxford Economics for the GGB forecasts significant employment growth in the period until 2025 related to the airport. This comprises an additional 6,000 jobs in the Coast to Capital LEP area, an additional 5,000 jobs in the Gatwick Diamond and an additional 900 jobs in the South East LEP area.

- Arup’s spatial analysis of the Oxford Economics report shows almost half of this growth concentrated in Crawley (3,800 jobs), Croydon (1,000 jobs) and Brighton, Hove and Lewes (900 jobs). Connectivity to these centres is therefore important.
• Analysis of employees on the Gatwick Airport campus shows that those who live within 15 miles of the airport tend to drive or catch a local bus to work. This area encompasses Crawley, Horsham, Horley, Redhill and East Grinstead and highlights the importance of the road network in distributing the economic benefits of airport employment across the airport’s immediate hinterland.

• Rail is the chosen mode of transport for many employees living further afield and close to stations. It is particularly popular for those living in Brighton and Hove, and Croydon. This reflects the frequent and fast service on the Brighton Main Line. Rail is an attractive mode for employees living close to the East and West Coastway rail routes along the South Coast, notably in Worthing, Lewes and Eastbourne.

• The study identified trains not running when they are needed (for example, for early morning shifts), poor journey times and poor frequency of service as obstacles to greater use of rail by employees. The Brighton Main Line is running close to capacity which impacts on reliability of service as well as journey time. For road, journey time variability both on the motorway network and locally, particularly from towns such as Crawley and Horsham (where many airport employees live) is a barrier to growth.

• As a result, the study made recommendations in terms of schemes that GAL and GGB should actively support:
  o The most transformative intervention and the main priority identified by the study is to upgrade the capacity of the Brighton Main Line. Specifically, this means implementing the scheme to re-design East Croydon station and use flyovers to unblock current capacity constraints at the nearby important Windmill Bridge Junction (where the routes both to London Victoria and London Bridge and the cross London Thameslink route divide). This intervention would enable between six and eight additional trains per hour to operate on the route and would also remove the need for splitting and joining of trains, thereby improving journey times to the South Coast. There is an urgency to this project since the required land next to East Croydon station could be lost in the significant developments planned as part of the regeneration of Croydon.
  o The M23 is the main access route to Gatwick Airport from London and the M25. Increasing capacity and reducing journey time variability is an important outcome. Delivery of Highways England’s scheme to convert the M23 from Junctions 8 to 10 to Smart Motorway (providing an extra lane of capacity at peaks times) should be a key priority for the airport. This should include its extension to Junction 9A, and the encouragement of developer-led improvements at Junctions 10 and 11.
  o Locally, there is an opportunity to reduce journey time variability to Crawley and Horsham through delivery of the Crawley Western Relief Road. This would reduce delays on the A264 linking Horsham and Crawley to Gatwick, as well as the A2011 through Crawley, and would spread improved journey time benefits throughout the local region. This intervention could also facilitate a 24-hour express bus service between Horsham and Gatwick Airport.
• Whilst the schemes above are the main recommendations from the study, there are a number of other important schemes that the study recommends that GAL (supported by the GGB) should continue to support:

  o Changes to the railway timetable (supported by some modifications to the track layout at Gatwick Airport station) to enable more trains to stop at Gatwick from the Arun Valley line through Horsham and from the South Coast towns including Eastbourne and Lewes. Delivering more train services to the Gatwick – Crawley – Horsham corridor would enhance connectivity to this important residential location for employees, especially if combined with delivery of the Crawley Western Relief Road.

  o Enhancements to the railway from Gatwick to Redhill, Guildford and Reading to enable two direct trains to operate hourly from Gatwick to Reading with faster journey times. This will not only make rail more attractive for travel from Reigate and neighbouring stations but it could also encourage employees to live further along the line such as at Guildford where there is planned growth in housing.

  o The Highways England scheme to enhance the connection from the M23 to the M25 at Junction 8 which would reduce journey time variability and improve capacity. Funding has yet to be confirmed.

  o On the A23, north of the M25, Highways England has developed proposals to create dual carriageway through Hooley though construction funding is still to be confirmed.

• Further afield, the study identified the importance of the following schemes for spreading Gatwick’s economic impact across the wider South East region. The study recommends that these should continue to be supported by GAL (and the GGB):

  o Delivery of committed improvements to the M25 between Junctions 10 and 16 to improve wider connectivity and reduce journey time variability.

  o Future improvements to the A27 between Worthing and Lewes, which suffers from delays and for which Highways England is proposing various bypass and junction enhancement schemes.

• At the end of the study, some of the wider connectivity benefits of existing and recommended interventions were considered to provide further context for the GGB. This high level review:

  o Reinforced the case for the Brighton Main Line upgrade as it will provide good connections to HS2 (at Old Oak Common), Crossrail 2 and Southern Rail Access to Heathrow via Clapham Junction.

  o Showed that more and faster direct trains from Gatwick to Reading via Reigate and Guilford will also provide access to a wider catchment for airport suppliers and air passengers.

  o Indicated that changing travel patterns in Kent might require further improvements in connectivity in the future. Existing improvements to the M23 and M25, combined with the Lower Thames Crossing, will provide benefits for this catchment, especially for the growing residential and employment growth around Ebbsfleet.
The study assessed two schemes as examples to show how these could be promoted and funded. The two schemes are the Crawley Western Relief Road and the Brighton Main Line upgrade around the Croydon area and Windmill Bridge Junction. The exemplar schemes have been selected as they offer different levels of local and regional connectivity as outputs, explore both road and rail schemes and have differing levels of scale and complication.

The first part of the assessment relates to how to coalesce stakeholders benefitting from the identified improvements that underpin the case for investment.

- For the Crawley Western Relief Road, the following stakeholders were identified - Crawley Borough Council, Horsham Borough Council, West Sussex County Council, Coast to Capital LEP, local businesses, including Gatwick Airport Ltd and Manor Royal.

- For the Brighton Main Line upgrade at Croydon/Windmill Bridge Junction, the following stakeholders were identified - Croydon Borough Council, Lambeth Borough Council, Greater London Authority, Crawley Borough Council, West Sussex County Council, East Sussex County Council, Brighton and Hove Council, Coast to Capital LEP, local businesses, including Gatwick Airport Ltd, Network Rail, Department for Transport and Govia Thameslink Railway.

The assessment identified that a range of funding opportunities exist, including traditional sources (such as grants from the Department for Transport) and non-traditional sources (such as creating income from capturing the value around nodes to local businesses). Ultimately, a package of investments and funding sources will be required to support Gatwick’s growth and, based on this, the study explored exemplar funding packages for the two selected schemes based on existing frameworks and using benchmarks from elsewhere.

- For the Crawley Western Relief Road, the following funding sources were identified. To cover a potential cost of £50 million, between £7 million and £31 million could be raised from sources such as the Community Infrastructure Levy, Section 106, LEP funding (Local Growth Fund), Business Improvement District funding (Manor Royal Business Park) and additional private sector contributions. The remainder would still need to be covered by the Department for Transport.

- For the Brighton Main Line upgrade at Croydon/Windmill Bridge Junction, the following funding sources were identified. To cover a potential cost of £1.6 billion, between £164 million and £445 million could be raised from sources such as user charges, LEP funding, the Community Infrastructure Levy, resale of land and property, and potentially a Special Purpose Tax: Enterprise Zone, as well as additional private sector contributions. Initially, private sector contributions may be best focused on supporting the scheme’s development. The remainder of the capital costs would still need to be covered by the Department for Transport.

Background and Study Objectives

The Gatwick Growth Board (GGB) was established in August 2016 to examine the wider economic and social impacts of Gatwick Airport’s future growth and
expansion plans on the local area, the South East region, and on the economy of the UK as a whole and with particular emphasis on ensuring that the benefits of Gatwick expansion are properly distributed across the region and the rest of the UK. The GGB has a particular objective of ensuring that areas which need economic regeneration benefit appropriately from Gatwick’s expansion. Transport connectivity is seen to be a key enabler of achieving these objectives.

Accordingly, the GGB commissioned Arup to complete a Connectivity Study to identify the priorities and case for transport investment in schemes which benefit both Gatwick Airport and the wider region. As part of this study, Arup has also assessed two exemplar schemes to demonstrate how mechanisms could be used to align stakeholders and influence future investment by Government, Network Rail and Highways England. This included identifying where there might be opportunities to deploy alternative funding mechanisms. The study’s analysis and conclusions are based on the assumption of a single runway Gatwick Airport and cover the period until 2025.

Significant investment is being delivered today on the Brighton Main Line railway, through the Thameslink Programme’s new infrastructure and trains which will improve capacity and connectivity once complete in December 2018, and on the strategic road network via the various Road Investment Strategy schemes, especially the M23 Junctions 8 – 10 Smart Motorway scheme which will increase capacity on this key motorway link for Gatwick when it opens in 2020. However, significant challenges remain and these risk limiting Gatwick’s wider economic impact across the South East of England and beyond. This study explores those challenges and identifies how they might be overcome.

Study timing and planning context

Figure ES.1 shows the study is well timed to input into the strategic planning processes for rail and the strategic highway network. This report will play an important role in making the case for rail and road investment by helping to demonstrate its value and impact on the wider economy and stakeholders within it.
Figure ES.1: Timeline of rail and road planning process

<table>
<thead>
<tr>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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<td>Winter</td>
<td>Summer</td>
<td>Autumn</td>
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- ORR launches PR18 initial consultation
- ORR publishes conclusions on PR18 initial consultation
- ORR request HLOS and SOFAs from SOS and Scottish Ministers
- SOS and Scottish Ministers submit HLOS and SOFAs
- NR produces Strategic Business Plans (SBPs) for CP6
- ORR scrutinises NR SBPs
- ORR consults on its draft determination
- ORR publishes its final determination
- NR publishes its delivery plan
- Control Period 6 (CP6) begins (January 2020)

- HE to publish Strategic Economic Growth Plan and Route Strategies
- DFT to publish Strategic Studies
- HE publishes strategic road network Initial Report, and starts two-month consultation period
- DFT responds to consultation
- DFT approves business case and draft Road Investment Strategy
- HE to approve draft Strategic Business Plan
- ORR completes efficiency review of HE’s draft Strategic Business Plan
- Cross Govt approval and publication of updated business case and Road Investment Strategy
- HE to approve Strategic Business Plan
- HE to approve Delivery Plan
Study approach

This report presents the outcome of the study as a strategic narrative that sets out the case for connectivity improvements to Gatwick Airport and follows the sequence of the five tasks completed in the study.

It begins by presenting a spatial context to the case for change, making use of economic and employment data generated in the report prepared earlier for the GGB by Oxford Economics.

This spatial analysis provides the context for assessing the required transport connectivity outcomes that would be needed to distribute Gatwick driven employment more widely. These outcomes are then used to identify where gaps may arise on the transport network in the period until 2025 and the solutions required to overcome these gaps.

The study’s conclusions are brought together to discuss how economic, employment and transport evidence supports the case for investment in improving Gatwick’s position on the road and rail network. Recommendations are made with regard to the schemes that Gatwick Airport Ltd (GAL) and GGB should actively support.

The report concludes by exploring two exemplar schemes as examples to show how schemes could be promoted and funded. These schemes are the Crawley Western Relief Road and the Brighton Main Line upgrade around the Croydon area and Windmill Bridge Junction. The exemplar schemes have been selected as they offer different levels of local and regional connectivity as outputs, provide road and rail scheme examples and have differing levels of scale and complication. The two exemplar schemes are used to identify potential mechanisms / institutional structures to bring stakeholders together and potential funding streams for the required investment.

Spatial context – where Gatwick Airport creates employment

Gatwick Airport supports the wider economy by creating employment as follows:

- direct employment on the Gatwick Airport campus; this includes GAL employees and those employed on the airport (e.g. immigration, security, hotel, retail and catering staff), by the airlines and ancillary services that support them;
- indirect employment within Gatwick Airport’s off-campus supply chain; and
- induced employment created by employees spending their incomes.

Figure ES.2 shows the increase in jobs associated with an overall forecast growth of 13,000 Gatwick-related employment between 2016 and 2025 assuming a 52 million annual passenger airport and a single runway. The figure combines all three of the above employment categories and shows the greatest proportion of
these jobs to be located in the South East and largely reflecting existing employment patterns.

Gatwick Airport is already a major employer in the South East with the analysis by Oxford Economics showing employment growth to 2025 related to the airport in the Coast to Capital LEP area (+6,000 jobs), Gatwick Diamond area (+5,000 jobs) and South East LEP area (+900 jobs). Examining this growth spatially shows:

- Almost half of this employment growth to be concentrated in Crawley (+3,800 jobs), which will remain the most important location for the Gatwick-related employment growth as the airport campus is located in the borough.
- The corridor dominated by the M23 – A23 corridor and the Brighton Main Line railway continuing to be the main location for Gatwick-related employment growth. Croydon is shown to gain 1,000 Gatwick-related jobs by 2025 and Brighton, Hove and Lewes an additional 900 jobs.
Those working in direct employment on the airport campus today mostly live in Crawley (26%) in close proximity to the airport or in locations on the M23 – A23 and Brighton Main Line railway corridor. Future growth tends to follow a similar pattern with slightly higher growth in Croydon, reflecting its fast growing working age population.
Without intervention, this analysis shows that existing transport connectivity will reinforce existing residential locations for future airport campus employees and the location of Gatwick-related indirect employment growth. This in turn will concentrate Gatwick induced employment in these locations.

There are opportunities to change this pattern of growth. The proposed Croydon opportunity area provides for significant commercial and residential development which Gatwick could support, as well as providing jobs for the growing workforce in an area targeted for regeneration. The proposed Horley Business Park, if developed, will be in very close proximity to the airport and could create space for up to 20,000 jobs.

**Transport context – how can the transport network support Gatwick’s employment impact**

As already highlighted, Gatwick’s growth largely follows existing transport corridors with a significant impact on neighbouring Crawley. Improved transport connectivity provides the opportunity to better distribute the impact of growth and reduce the housing pressure from direct employment on Crawley.

The fast-growing working age labour force in Croydon presents a particular opportunity to change current employment patterns. Investment in the transport network may also influence where future indirect employment from the Gatwick supply chain is located. Altering the spread of direct employees’ residential location and indirect employment location, will redistribute induced employment and the wider economic benefits of a growing Gatwick Airport. Such changes could create the opportunity for the airport’s growth to support regeneration in Croydon and the South Coast towns.

Interestingly, the recent Gatwick Airport Employee Travel Survey shows that although 61% of airport employees travelled to work by car in 2016, public transport use has increased, with 16% of staff using bus and coach and 12% using rail (this figure is probably suppressed due to the recent industrial action and associated disruption on Govia Thameslink Rail’s Southern services).

The survey also shows that airport campus employees who live within 15 miles of the airport tend to drive or catch a local bus to work. This area encompasses Crawley, Horsham, Horley, Redhill and East Grinstead and highlights the importance of the local road network in terms of distributing the economic benefits of employment in the local region. Therefore, local road access and connectivity (including certainty of journey times) is important for airport campus employees. The strategic road network clearly remains important for supporting indirect employment albeit also being complemented by rail.

Rail is the chosen mode of transport for many employees living further afield and close to railway stations. It is particularly popular for those living in Brighton and Hove, and Croydon. This reflects the frequent and fast service on the Brighton Main Line. Rail use is also relatively strong for employees living close to the East and West Coastway rail routes, notably Worthing, Lewes and Eastbourne. The report’s analysis shows that there is a significant potential to encourage a shift to rail (and public transport more broadly) if:
services become more aligned to employee demand for travel, particularly matching the start and end of shift patterns;

services become faster and more frequent (the splitting and joining of trains on the Brighton Main Line increases journey times from some of the South Coast towns); and

services become more reliable.

Gatwick Airport station, situated in the heart of the airport campus, provides close proximity for campus-based employees using rail. It is also accessible for those working in the airport’s supply chain further afield.

It is also important to remember that the rail and strategic road networks also play a key role in bringing air passengers to the airport. Enhancing the transport network for employees will also benefit air passengers and help to mitigate the impact of Gatwick Airport’s growth to 2025 in a single runway context.

**Improving transport connectivity – filling the gaps**

The report presents a detailed examination of the connectivity gaps. It highlights some important issues that future investment should prioritise.

For rail, the analysis highlighted:

- A lack of early morning train services to Gatwick Airport station. Increasingly, shift patterns are starting earlier as more flights leave early in the morning.

- A slow and infrequent direct rail service to Reigate, a significant residential location for airport campus employees.

- An absence of direct rail services at certain times of day to Crawley and Horsham (and smaller stations serving the Horsham suburbs such as Littlehaven), all important residential locations for airport campus employees.

- Long journey times to the South Coast (especially Worthing and its nearby local stations, and Eastbourne).

Figure ES.3 shows the suggested interventions needed to overcome these gaps.
Figure ES.3: Suggested connectivity improvements by rail to / from Gatwick Airport

Source: Arup analysis of rail interventions

For road, the report’s analysis shows that journey time variability is a significant issue for those travelling from within 15 miles of the airport (for example, from Crawley, Horsham and East Grinstead).

For those travelling on the M23/A23 corridor, journey time variability is also an issue though this will be alleviated by Highways England’s proposed Smart Motorway scheme between Junctions 8 and 10, providing additional capacity for commuters, airport passengers, local businesses and residents. Highways England is also proposing enhancements to the M23 Spur. Analysis shows that three lanes in each direction along this link provide the maximum benefit for Gatwick-related traffic as well as through traffic.

For the M25, Highways England is promoting a package of measures to resolve congestion issues which should be supported by the GGB.

On the A23, north of the M25, Highways England has developed proposals to create dual carriageway through Hooley though construction funding is still to be confirmed.

Along the South Coast, proposed improvements to the A27 will provide greater journey time certainty.

Figure ES.4 shows these interventions in relation to Gatwick Airport.
Improving transport connectivity – the priorities for investment

The study concluded that the following should be the main schemes that the GGB should support and develop to 2025:

**Rail:** The most transformative intervention and the main priority identified by the study is to upgrade the capacity of the Brighton Main Line. The main bottleneck on the route is at East Croydon station and the layout of the important Windmill Bridge Junction where the Thameslink route to London Bridge and the route to Victoria station diverge. Network Rail’s analysis shows that removing this constraint could deliver between 6-8 more trains per hour on the route. This would remove the need to split and join trains from the South Coast reducing journey times and enabling more trains to operate to Reigate; both are current key connectivity gaps for the airport. If this was supported by some more modest changes to the railway track layout at Gatwick Airport station, then this would enable more trains to call there. The significant upgrade requires two additional platforms at East Croydon station and separating tracks using bridges at nearby flat junctions (known as grade separation) to remove conflicts at Windmill Bridge Junction. This is an urgent project since the required land at East Croydon station may be lost in the significant developments planned by the London Borough of Croydon.

**Road:** The M23 is the main access route to Gatwick Airport from London and the M25. Increasing capacity and reducing journey time variability is an important
outcome. Delivery of Highways England’s scheme to convert the M23 from Junctions 8 to 10 to Smart Motorway (providing an extra lane of capacity at peak times) should be a key priority for the airport. This should include its extension to Junction 9A and the encouragement of developer-led improvements at Junctions 10 and 11.

**Road**: Locally there is an opportunity to reduce journey time variability to Crawley and Horsham through delivery of the Crawley Western Relief Road. This would reduce delay on the A264 linking Horsham and Crawley to Gatwick, as well as the A2011 through Crawley, and would spread improved journey time benefits throughout the local region. This intervention could also facilitate a 24-hour express bus service between Horsham and Gatwick Airport.

Whilst the schemes above are the main recommendations from the study, there are a number of other important schemes that the study recommends that GAL (supported by the GGB) should continue to support:

**Rail**

- Changes to the railway timetable (supported by some modifications to the track layout at Gatwick Airport station) to enable more trains to stop at Gatwick from the Arun Valley line through Horsham and from the South Coast towns including Eastbourne and Lewes. Delivering more train services to the Gatwick - Crawley - Horsham corridor would enhance connectivity to this important residential location for employees, especially if combined with delivery of the Crawley Western Relief Road.
- Investment in network and station capacity on the North Downs Line to enable two faster direct trains per hour from Reading along the North Downs Line to Gatwick. This will not only make rail more attractive for travel from Reigate and neighbouring stations but it could also encourage employees to live further along the line such as at Guildford where there is planned growth in housing.

**Road**

- The Highways England scheme to enhance the connection from the M23 to the M25 at Junction 8 which would reduce journey time variability and improve capacity. Funding has yet to be confirmed.

Further afield, the study identified the importance of the following schemes for spreading Gatwick’s economic impact across the wider South East region. The study recommends that these should continue to be supported by GAL (and the GGB):

- Delivery of committed improvements to the M25 between Junctions 10 and 16 to improve wider connectivity and reduce journey time variability.
- Improvements to the A27 between Worthing and Lewes which suffers from delays and for which Highways England is proposing various bypass and junction enhancement schemes.
Wider connectivity benefits

The study focussed on the period until 2025 assuming a single runway Gatwick Airport. At the end of the study, some of the wider connectivity benefits of existing and recommended interventions were considered to provide further context for the GGB. This high-level review:

- Reinforced the case for the Brighton Main Line upgrade. In the future, this upgrade will create good connections to HS2 (at Old Oak Common), Crossrail 2 and Southern Rail Access to Heathrow at Clapham Junction with associated economic benefits as well as better air passenger access.
- Showed that more and faster direct trains from Gatwick to Reading via Reigate and Guilford will not only benefit this corridor but provide access to a wider catchment for airport suppliers and air passengers (including to Oxford and the proposed East West Rail link).
- Indicated that changing travel patterns in Kent might require further improvements in connectivity in the future. Existing improvements to the M23 and M25, combined with the Lower Thames Crossing, will provide benefits for this catchment, especially for the growing residential and employment growth around Ebbsfleet.

Delivering investment

The study identified two example schemes – the Crawley Western Relief Road and the Brighton Main Line upgrade around the Croydon area and Windmill Bridge Junction – and explored how these schemes could be delivered.

The exemplar schemes were selected as they offer different levels of local and regional connectivity as outputs, explore both road and rail schemes, and have differing levels of scale and complication.

Identifying stakeholders and beneficiaries

The first part of the assessment relates to how to coalesce stakeholders benefitting from the identified improvements behind the case for investment (including case studies of the East West Rail consortium and West Anglia Taskforce) and the feasibility of forming potential partnerships with local authorities, LEPs, businesses and other stakeholder groups. The consortium model promoted by East West Rail has been highly effective at planning and securing funding and commitment around the project. A similar approach, creating the West Anglia Taskforce, has been effective at developing and securing cross-stakeholder support around the case for significantly enhancing the West Anglia Corridor. A similar model to these is recommended for both improvements, but particularly for the Brighton Main Line.

For the Crawley Western Relief Road (CWRR), a number of stakeholders have been identified (Table ES.1).
Table ES.1: Potential beneficiaries and supporters of a CWRR scheme

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Type</th>
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<tbody>
<tr>
<td>Crawley Borough Council</td>
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<td>Horsham Borough Council</td>
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<td>West Sussex County Council</td>
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<td>Coast to Capital</td>
<td>Local Enterprise Partnership</td>
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<td>Local businesses, including</td>
<td>Businesses</td>
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<td>Gatwick Airport Ltd</td>
<td></td>
</tr>
<tr>
<td>Manor Royal</td>
<td>Business Park and Business Improvement District</td>
</tr>
</tbody>
</table>

Source: Arup analysis

For the Brighton Main Line (BML) upgrade at Croydon/Windmill Bridge Junction, stakeholders have also been identified (Table ES.2).

Table ES.2: Potential beneficiaries and supporters of a BML upgrade scheme

<table>
<thead>
<tr>
<th>Organisation</th>
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<td>Local businesses, including</td>
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<td>Government department and franchising authority</td>
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<tr>
<td>Govia Thameslink Railway</td>
<td>Current operator (to 2019) of Thameslink, Great Northern and Southern franchise</td>
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Source: Arup analysis

**Illustrative funding options**

The study identified that a range of funding opportunities exist, including traditional sources (such as grants from the Department for Transport) and non-traditional sources (such as creating income from capturing the value around nodes to local businesses). Ultimately, a package of investments and funding sources will be beneficial to show the breadth of growth opportunities which support Gatwick and the region’s growth and, based on this, the study explored funding packages for the two selected schemes based on existing frameworks and using benchmarks from elsewhere. The examples are included here as an illustration of what might be possible without substantial changes in law or
responsibilities, or re-appropriation of funds that have already been ring-fenced for other means. In particular, for the BML upgrade, it has been assumed that the Greater London Authority’s Council Tax precept, Mayoral CIL and business rates supplement are “taken” by Crossrail 2, so these have not been included within the scope of this analysis but they could be considered if this changes.

Importantly, only a basic level of analysis has been included at this time, and substantial further work is needed before a preferred funding package can be determined. At this stage, the study has not investigated in detail the transaction costs associated with each funding stream, which might limit the amount of funding available.

Nevertheless, it is apparent from this work that an important third party contribution towards funding could be secured from the beneficiaries of the schemes. There is potential for this to contribute up to one-third of the total of the scheme costs, without changes to current frameworks, and potentially more if other changes are made (such as devolving property taxes). The most valuable individual component - of the examples tested - is the use of tax increment financing through creation of an Enterprise Zone.

For the CWRR, the following funding sources have been identified, as per Table ES.3.

Table ES.3: CWRR illustrative funding package

<table>
<thead>
<tr>
<th>Type of funding</th>
<th>Potential contribution £m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower end contribution</td>
</tr>
<tr>
<td>Community Infrastructure Levy</td>
<td>0</td>
</tr>
<tr>
<td>Section 106</td>
<td>~2</td>
</tr>
<tr>
<td>LEP funding - Local Growth Fund</td>
<td>~3</td>
</tr>
<tr>
<td>Business Improvement District funding (Manor Royal Business Park)</td>
<td>~&lt;1</td>
</tr>
<tr>
<td>Additional private sector contribution</td>
<td>~2</td>
</tr>
<tr>
<td>Remaining (possible Department for Transport grant)</td>
<td>~43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

Note: Discounted figures which exclude financing costs
Source: Arup analysis

For the BML upgrade at Croydon / Windmill Bridge Junction, the following funding sources have been identified, as per Table ES.4. In this example, it is assumed that the main private sector contribution would be to underwrite ongoing scheme development.
Table ES.4: BML upgrade illustrative funding package

<table>
<thead>
<tr>
<th>Type of funding</th>
<th>Potential contribution £m Illustrative only</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower end contribution</td>
<td>Higher end contribution</td>
<td></td>
</tr>
<tr>
<td>User charges</td>
<td>~33</td>
<td>~65</td>
<td></td>
</tr>
<tr>
<td>LEP funding</td>
<td>~17</td>
<td>~26</td>
<td></td>
</tr>
<tr>
<td>Community Infrastructure Levy</td>
<td>~0</td>
<td>~14</td>
<td></td>
</tr>
<tr>
<td>Resale of land and property</td>
<td>~9</td>
<td>~26</td>
<td></td>
</tr>
<tr>
<td>Special Purpose Tax: Enterprise Zone</td>
<td>~105</td>
<td>~314</td>
<td></td>
</tr>
<tr>
<td>Remaining (possible Department for Transport grant)</td>
<td>~1,426</td>
<td>~1,145</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,590</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Discounted figures which exclude financing costs
Source: Arup analysis

The private financing options for infrastructure have become more diverse in recent years, as a wider range of potential investors have widened their portfolios and as constraints on government balance sheets have remained. This means that there are many options for financing the two exemplar schemes as new approaches are developed and as appetite for risk, benefits and return vary from one sponsor organisation (and indeed construction organisation) to another. A number of financing options are explored for both schemes later in the report.
1 Introduction

The Gatwick Growth Board (GGB) commissioned Arup to complete this Connectivity Study to:

- Identify the priorities and case for transport investment which benefit both Gatwick Airport and the region, including the Gatwick Diamond, Coast to Capital Local Enterprise Partnership (LEP) and the wider South East; and
- Identify stakeholders and mechanisms that could influence future investment in transport projects by Government, Network Rail and Highways England.

This introduction provides the context to the study. It introduces the purpose of the GGB before describing the existing rail and road network around Gatwick Airport. Significant investment is being delivered on the Brighton Main Line railway, through the Thameslink Programme’s new infrastructure and trains which will improve capacity and connectivity from the end of 2018, and on the strategic road network via the various Road Investment Strategy schemes, especially the M23 Junctions 8 – 10 Smart Motorway scheme that will increase capacity when it opens in 2020. However, significant challenges remain and these risk limiting Gatwick’s wider economic impact across the South East of England and beyond. This study explores those challenges.

Network Rail will produce its Strategic Business Plan in December 2017 which the Office of Rail and Road (ORR) will then review in the 2018 Periodic Review (PR18) process, publishing its final determination in summer 2018. Highways England is currently delivering the 112 projects identified in RIS1 and planning for RIS2 is underway with Route Strategies being developed which will feed into the Strategic Road Network initial report later this year. This shows how important the timing of this Connectivity Study is in terms of raising the profile of strategic schemes for Gatwick Airport and the wider region.

1.1 Background

The Gatwick Growth Board (GGB) was established in August 2016 to examine the wider economic and social impacts of Gatwick Airport’s future growth and expansion plans on the local area, the South East region, and on the economy of the UK as a whole and with particular emphasis on ensuring that the benefits of Gatwick expansion are properly distributed across the region and the rest of the UK. The GGB has a particular objective of ensuring that areas which need economic regeneration benefit appropriately from Gatwick’s expansion. Transport connectivity is seen to be a key enabler of achieving these objectives.

Accordingly, the GGB commissioned Arup to complete this Connectivity Study to:

- Inform the work of GGB by providing a high-level assessment of the road and rail capacity and connectivity supporting the growth of Gatwick Airport and the wider regional economy in the period to 2025 (assuming a single runway airport).
- Identify options for influencing future surface transport investment in the region (again assuming a single runway airport).
1.2  The Connectivity Study’s Focus

Prior to engaging Arup, the GGB commissioned and published a separate study by Oxford Economics\(^1\) to analyse the economic impact (including the direct and indirect employment impact) of Gatwick Airport out to 2025 in a single runway scenario. This Arup study builds on the Oxford Economics work to identify the transport connectivity improvements needed to ensure these economic impacts are achieved and appropriately distributed across the South East and wider UK economy. In this report, we present a clear economic narrative of the case for transport investment to achieve these objectives.

Our first task in developing the narrative has been to review the Oxford Economics analysis and combine it with other data to provide a spatial framework on which to base our transport assessment. A particular focus of our analysis has been to identify nodes or corridors on which employment growth is focussed in order to overlay and evaluate potential improvements in transport connectivity.

Transport connectivity is a key enabler of future growth both at Gatwick Airport as well as across the region. Accordingly, the study identifies and describes the transport connectivity outcomes required to achieve the growth projections developed by Oxford Economics. These outcomes have been used to confirm where improvements in connectivity are needed to distribute economic growth and in order to identify the “gaps” in existing or future transport provision that need to be filled in order for the regional economy as a whole to benefit from balanced growth in the coming decade, including through growth in traffic and employment at Gatwick.

The final element in developing the connectivity study has been to examine how Gatwick Airport Ltd (GAL, supported by the GGB) can work with local and regional stakeholders to influence transport investment by the Government, Highways England and Network Rail. The study seeks to identify key stakeholders and appropriate partnering mechanisms in order to demonstrate how the most significant interventions identified in the study can be developed and funded.

1.3  The transport context for the study

The rail and road network today set the context for the study and, in this chapter of the report, we briefly describe the relationship between Gatwick Airport and the transport network.

### 1.3.1 The rail network

#### The existing trains services and network

Gatwick Airport is one of the UK’s best connected airports by rail and the best connected in the South East of England. This connectivity provides opportunities to spread the economic and employment benefits of Gatwick Airport more widely.

The airport has a seven platform railway station adjacent to its South Terminal and only a short transit ride from its North Terminal. It has regular, direct daily services from 129 stations. Over 800 stations are already accessible with just one interchange and Gatwick Airport is connected to High Speed One (HS1) services to Paris and Brussels from St Pancras International. In addition to these stopping services, the airport has a dedicated airport express service, Gatwick Express, operating non-stop to London Victoria and Brighton four times per hour.

From the station, it is possible to travel directly to the City of London via the Thameslink route (with easy interchange to Docklands from London Bridge station now and at Farringdon on Crossrail from 2019) and to the West End via London’s Victoria station. These services also directly connect the airport to Croydon. The cross London Thameslink route provides direct services today to stations between London’s St Pancras station and Bedford. Completion of the investment in the Thameslink Programme in 2018 will extend direct services to Peterborough and Cambridge via Welwyn Garden City, Stevenage and Hitchin. Other services provide good connections to a range of towns and cities on the South Coast. There are also a small number of direct services via the North Downs Line to Guildford and Reading.

The high level of existing connectivity is shown by the fact that Gatwick is served today by 24 trains in the morning peak hour, between 8am and 9am. Services originate from a range of towns such as Brighton, Bedford, Horsham, Littlehampton, Hastings, Guildford and Reading as well as London Victoria and London Bridge stations.

The most important rail connection is the Brighton Main Line (BML) which links Brighton and the South Coast with Gatwick Airport, East Croydon, Clapham Junction / London Victoria and London Bridge (and on to the cross London Thameslink route). The BML is managed as part of the Sussex Route by Network Rail within the wider South East Route Management team.
Figure 1.1: Sussex Route – Overview

Source: Network Rail South East Route Sussex Area Route Study (September 2015)

Govia Thameslink Rail (GTR) operates nearly all of the train services through Gatwick Airport on the BML, operating under the operator brands of Gatwick Express, Southern and Thameslink. The main operator on the Brighton Main Line is Southern, which operates services to and from London Victoria and London Bridge as well as Brighton and the South Coast. Thameslink operates the cross London services from the BML via London Bridge and via Tulse Hill.

The Great Western Railway (GWR) franchise operates the small number of services from Gatwick to Reading, via Guildford and Redhill, on the North Downs Line.
In 2015, Network Rail commented in its Sussex Area Route Study that with 24 trains to central London in the morning peak hour (10 to London Bridge and 14 to London Victoria, of which four are Gatwick Express services), “this already exceptional level of connectivity leads the Route Study to conclude that on the Brighton Main Line there is no specific connectivity gap to/from London at Gatwick Airport”². However, further demand growth on the route will necessitate intervention to provide more capacity.

The Route Study recognised the need to improve connectivity via the North Downs Line by reducing journey times between the main stations. There is currently an hourly service between Reading and Gatwick Airport, as well as an hourly stopping service between Reading and Redhill. Existing journey times are slow: 1 hour 16 minutes for a 52 mile journey between Reading and Gatwick. The study identifies that interventions are required to increase the North Downs Line track line capacity and overcome capacity bottlenecks at Guildford and Redhill. These interventions will enable a more frequent service with at least one more hourly train running through to Gatwick and some reduction in journey time too.

² p.52, 3.5.5 Rail connectivity to airports, South East Route: Sussex Area Route Study, 2015
Planned and possible interventions on the rail network

2014 – 2019 (Control Period 5)

Infrastructure spend in 2014 – 2019, known in the rail industry as Control Period 5\(^3\) (CP5), for the Sussex Route, is dominated by the completion of the Thameslink Programme in 2018. This will result in new trains on the cross London Thameslink route and more cross London train services from Gatwick Airport (with the additional trains running to Stevenage, Cambridge and Peterborough). The completion of an additional platform at Redhill station will enable splitting and joining of some 12-car trains to London and more direct services from Gatwick Airport to Guildford and Reading.

Table 1.1 describes the various interventions recommended for CP5 in the Sussex Area Route Study, including the outputs each would deliver and the expected completion date and status. Most of these improvements are being or have been delivered.

Table 1.1: The Outputs and Status of the CP5 Interventions

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Output</th>
<th>Expected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thameslink Programme Key Output 2</td>
<td>Extensive reconstruction of London Bridge station and approaching lines to deliver:</td>
<td>December 2018</td>
</tr>
<tr>
<td></td>
<td>- 4 trains per hour (tph) from Brighton to/from cross - London Thameslink route via London Bridge operating as 12 car long trains in the peak.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Extension of further services from the Brighton Main Line to London Bridge services onwards across London to stations towards Peterborough, Cambridge and Bedford.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Up to 24 trains per hour (tph) operating across London from London Blackfriars to St Pancras International.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The introduction of a new fleet of trains (the Class 700s) to replace the existing fleet, which have been purpose-built for high density loadings on the cross London route.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Introduction of European Train Control System Level 2 and Automatic Train Operation between London Bridge and Kentish Town for reliable, higher capacity operation.</td>
<td></td>
</tr>
<tr>
<td>Train lengthening on the West London Line</td>
<td>Platform lengthening between Clapham Junction and Shepherds Bush will enable 8-car trains to operate on some peak services between South Croydon and Milton Keynes.</td>
<td>Completed in September 2014</td>
</tr>
<tr>
<td>Train lengthening on the Uckfield Line</td>
<td>Platform lengthening on the Uckfield Line has enabled a 50% increase in peak capacity to London with 10-car trains being introduced that will also serve busy stations on the Brighton Main Line north of South Croydon.</td>
<td>Completed in July 2016</td>
</tr>
</tbody>
</table>

\(^3\) Control Periods are 5 year periods used by Network Rail to specify planning and investment in railway infrastructure. Control Period 5 runs from 2014 to 2019, Control Period 6 from 2019 to 2024, and so on.
<table>
<thead>
<tr>
<th>Scheme</th>
<th>Output</th>
<th>Expected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train lengthening from Caterham and Tattenham Corner through Purley</td>
<td>Platform lengthening enabled 10-car trains to operate through Purley to London Bridge and London Victoria from Caterham and Tattenham Corner.</td>
<td>Completed in December 2013</td>
</tr>
<tr>
<td>Redhill Platform 0</td>
<td>An additional platform at Redhill, to aid splitting and joining of 12-car length trains to London, allows some additional trains to operate including from Reading/Guildford to Gatwick Airport.</td>
<td>Planned for December 2018</td>
</tr>
<tr>
<td>Battersea Park – London Victoria line speed improvement</td>
<td>Increase in line speed on Battersea Reversible line to 45 mph to reduce journey time and aid flow of services in and out of London Victoria in the peak periods.</td>
<td>Expected to be completed in 2019 or 2020</td>
</tr>
<tr>
<td>London Overground Capacity Improvement Programme</td>
<td>Lengthening of London Overground Class 378 units from 4- to 5-car. This affects East London Services from West Croydon, Crystal Palace and Clapham Junction, and West and North London Line services from Clapham Junction (via Kensington Olympia).</td>
<td>Completed in December 2015</td>
</tr>
</tbody>
</table>

Source: Network Rail South East Route Sussex Area Route Study (September 2015) and information provided to Arup by Network Rail

Beyond 2019 – Control Period 6 (CP6) and beyond

The Sussex Area Route Study recommends the introduction of further train services on BML to keep seat utilisation at 100% on average in the 3-hour peak.\(^4\) These include:

- An additional four to six trains per hour by the end of 2024 compared to 2018; and
- An additional six to eight trains per hour by 2043 compared to 2018.\(^5\)

These frequency improvements require significant intervention if they are to be delivered. Figure 1.3 shows the schemes for the period from 2019 – 2029 proposed by Network Rail in 2015.

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\(^4\) This means to provide enough seats in the peak period to broadly match demand and avoid systematic passenger standing though, at the height of the peak, standing is likely to still occur.

\(^5\) p.9, The Brighton Main Line (BML): Fast line services, *South East Route: Sussex Area Route Study*, 2015
Since the study was published there is more uncertainty over the availability of funding for schemes in CP6 and beyond. Cost-over runs in CP5 resulted in Sir Peter Hendy’s Review\(^6\) of the delivery plan for schemes for the rest of CP5. Published in November 2015, this deferred a number of schemes to CP6. The updated programme for CP5 was first published in January 2016 and reissued in December 2016.\(^7\) This means the available funding is much more limited for CP6 schemes, given the amount of spend effectively rolled forward to finish late running or deferred schemes from CP5.

Accordingly, this Gatwick Connectivity Study plays a key role in maintaining the visibility and reaffirming the importance of further, necessary enhancement to the Brighton Main Line.

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\(^6\) The Hendy Review, Replanning Network Rail’s investment programme, November 2015.

\(^7\) Network Rail, Enhancements Delivery Plan, December 2016.
1.3.2 The road network

1.3.2.1 The existing road network

Gatwick Airport benefits from direct access to the national strategic road network via the M23 motorway which runs north-south adjacent to the airport. Junction 9 of the M23 is the main access point with an onward link of dual carriageway motorway to Junction 9a at the airport’s South Terminal roundabout.

The typical journey time from Gatwick Airport to the M25 via the M23 is less than 10 minutes. From the M25, there is access to the wider UK strategic road network.

The A23, which runs parallel to the M23, continues north beyond the M25 into London via Croydon and Brixton to the heart of the West End and the City. The important urban centre of Croydon is between 30 and 40 minutes from the airport by road respectively in the off-peak and peak periods.

Figure 1.4: Highway network serving Gatwick Airport

South of Gatwick, the M23/A23 continues as a strategic highway corridor from London to Brighton on the South Coast. Brighton is between 30 and 45 minutes from the airport by road respectively in the off-peak and peak periods. The A23 connects with the A272 and A27 east - west routes, placing the whole of the South Coast between Southampton and Folkestone within 1 hour and 20 minutes of the

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8 The principal UK highway routes managed by Highways England.
airport. This opens up a large area that could potentially benefit from employment and economic growth arising from Gatwick Airport.

Figure 1.5: Main strategic highway access to Gatwick – M23 Junction 9

The A23 runs north-south parallel to the M23 from South London (and Croydon), through Redhill then Horley and Gatwick Airport. It then bypasses Crawley and provides a connection to the south through Pease Pottage to Brighton.

Figure 1.6: Local highway and road network

The A264 connects Horsham to the south-west with Gatwick via a combination of potential routes including the A23, A2011 or M23 depending on the route chosen. To the east the A264 also connects Gatwick to East Grinstead via the A22.
Whilst Gatwick is committed to encouraging more employees to travel to work by modes other than sole occupancy private car, road access will remain an important consideration in planning the airport’s growth in the future.

1.3.2.2 Planned and possible interventions on the road network

Gatwick Airport has recently benefitted from a number of road improvements, as listed in Table 1.2.

Table 1.2: Completed strategic highway enhancements relevant to Gatwick Airport

<table>
<thead>
<tr>
<th>Road</th>
<th>Improvement</th>
<th>Funding Secured</th>
<th>Complete by</th>
</tr>
</thead>
<tbody>
<tr>
<td>M25</td>
<td>Dartford Free Flow crossing</td>
<td>£70-88m</td>
<td>2014</td>
</tr>
<tr>
<td>M25</td>
<td>Smart Motorways Junctions 5-7</td>
<td>£129m</td>
<td>2014</td>
</tr>
<tr>
<td>A23</td>
<td>Handcross to Warninglid</td>
<td>£77m</td>
<td>2014</td>
</tr>
</tbody>
</table>

Source: GAL, A Second Runway for Gatwick – Appendix A6 Surface Access, May 2014

In addition, a number of significant highway improvement schemes have been committed as part of Road Investment Strategy 1 (RIS1) for the period 2015 to 2020, a selection of which are described below. A fuller list of schemes is discussed in more detail in Chapter 5, based on the engagement with Highways England as part of this study.

Table 1.3: A selection of committed schemes relevant to Gatwick Airport in RIS1

<table>
<thead>
<tr>
<th>Road</th>
<th>Location</th>
<th>Status / Extent of Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23</td>
<td>M23 Junctions 8-10</td>
<td>Committed and fully funded. Additional running lane provided through use of the hard shoulder – open to traffic 2020. Highways England is also proposing enhancements to the M23 Spur between Junction 9 and 9a. Analysis shows that three lanes in each direction along this link provide the maximum benefit for Gatwick-related traffic as well as through traffic. Delivery of full enhancement along the Spur may form part of a separate package of works, potentially as part of RIS2.</td>
</tr>
</tbody>
</table>

Source: Confirmed schemes provided by Highways England for GGB study.

The National Audit Office published its report *Progress with the Road Investment Strategy* on 22nd March 2017. In this report, the National Audit Office has identified that 69 of the 112 enhancement projects identified in RIS1 were at an
early stage of planning when the RIS was initially specified. Accordingly, there is now uncertainty over the “affordability, deliverability and potential benefits relative to costs” of some of the schemes. Indeed, the National Audit Office report states that Highways England has identified up to 16 projects which are at risk as at February 2017 and that 19 projects could be pushed back into the first years of road period 2 [2020 to 2025].

Accordingly, a key component of this study has been to confirm the status of committed schemes in RIS1 with Highways England.

1.4 Planning context and study timing

The timing of this study is important as it aligns with both the rail and road strategic planning process, as shown in Figure 1.7.

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9 p.7, Section 8, National Audit Office, Department for Transport and Highways England Progress with the Road Investment Strategy, March 2017
10 p.8, Section 10, National Audit Office, Department for Transport and Highways England Progress with the Road Investment Strategy, March 2017
Figure 1.7: Timeline of rail and road planning process

<table>
<thead>
<tr>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>Autumn</td>
<td>Winter</td>
<td>Summer</td>
<td>Autumn</td>
</tr>
<tr>
<td>M</td>
<td>J</td>
<td>A</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>J</td>
<td>A</td>
<td>S</td>
<td>O</td>
<td>N</td>
</tr>
</tbody>
</table>

- ORR launches PR18 initial consultation
- ORR publishes conclusions on PR18 initial consultation
- ORR request HQOS and SOFs from HQOS and Scottish Ministers
- HQOS and Scottish Ministers submit HQOS and SOFs
- NR produces Strategic Business Plans (SBPs) for CP6
- ORR scrutinises NR SBPs
- ORR consults on its draft determination
- ORR publishes its final determination
- NR publishes its delivery plan
- Control Period 6 (CP6) begins (January 2020)

- HE to publish Strategic Economic Growth Plan and Route Strategies
- DfT to publish Strategic Studies
- HE publishes strategic road network Initial Report, and starts two-month consultation period
- DfT responds to consultation
- DfT approves business case and draft Road Investment Strategy
- HE to approve draft Strategic Business Plan
- ORR completes efficiency review of HE’s draft Strategic Business Plan
- Cross Gov’t approval and publication of updated business case and Road Investment Strategy
- HE to approve Strategic Business Plan
- HE to approve Delivery Plan
With the Government expected to publish its High Level Output Specification 3 (HLOS3) for CP6 and Statement of Funds Available (SOFA) this summer, Network Rail will respond with its Strategic Business Plan in December 2017 which the Office of Rail and Road (ORR) will then review in the 2018 Periodic Review (PR18) process, publishing its final determination in summer 2018. It should be noted that the degree to which the approval and funding of major enhancement projects will remain tied to the Periodic Review process is unclear. In a Working Paper published in August 2016, the ORR set out various options for the treatment of enhancements in PR18.11 This includes examining enhancements outside of the Periodic Review process.

Sir Peter Hendy, now Network Rail Chairman, has made clear in a number of announcements that the inclusion of private sector and third party contributions to CP6 schemes would help these receive priority consideration by Network Rail. Business Development Directors are being appointed by each Network Rail route to help secure these contributions, including Gatwick’s local South East route management team.

In terms of roads, Highways England is currently delivering the 112 projects identified in RIS1, notwithstanding the 16 at risk projects and 19 projects which may be pushed back into the first years of RIS2, as described in the recent study by the National Audit Office. Planning for RIS2 is underway with route strategies being developed which will feed into the Strategic Road Network initial report later this year. This will then be consulted on before being developed into RIS2 and an accompanying Strategic Business Plan through 2018 and into 2019, with the Delivery Plan optimised through 2019.

This timeline for strategic road and rail planning shows how important the timing of this Connectivity Study is in terms of raising the profile of strategic schemes for Gatwick Airport and the wider region. The report could have a useful role in supporting regional public and private stakeholders to make the case for road and rail investment by demonstrating the value and impact of schemes to the wider economy. It will also identify how investment funding from a range of public and private sources in the region might be brought together to help unlock the timely commitment for primary funding from central Government for nationally significant rail and road investment.

2 Study Approach

Our approach to completing the study involved five tasks:

1. Identifying locations or corridors on which employment growth is focused in order to identify and evaluate potential opportunities for improvements in transport connectivity.

2. Identifying the transport connectivity that Gatwick employees consider important in order to help establish potential road and rail solutions.

3. Assessing proposed transport schemes in order to identify the “gaps” in existing or future transport provision that need to be filled.

4. Synthesising the above into a strategic narrative in this report.

5. Estimating how Gatwick Airport Ltd (GAL), supported by the GGB, can work with local and regional stakeholders to influence transport investment by the Government, Highways England and Network Rail using two exemplar projects as case studies.

This chapter outlines our approach to completing the study, with Figure 2.1 showing the five tasks completed. Each task is briefly described below.

Figure 2.1: Connectivity study approach

<table>
<thead>
<tr>
<th>Task 1</th>
<th>Task 2</th>
<th>Task 3</th>
<th>Task 4</th>
<th>Task 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review the economic and employment case</td>
<td>Identify optimal road and rail outcomes</td>
<td>Identify gaps and solutions to overcome them</td>
<td>Develop strategic case</td>
<td>Identify stakeholders and funding mechanisms</td>
</tr>
</tbody>
</table>

Task 1: Reviewing the Economic and Employment Case

During Task 1, we reviewed the economic and employment opportunities around Gatwick Airport. This review made use of the Oxford Economics report which identified that:
Gatwick’s contribution to the Gatwick Diamond was £2.3 billion and 36,000 jobs in 2016, rising to £2.8 billion and 41,000 jobs by 2025 under a growth scenario in which air traffic grows to around 52 million annual passengers per annum off a single runway by this date; and

Gatwick’s contribution nationally was around £5.3 billion and 85,000 jobs, rising potentially, under the same traffic growth scenario, to £6.5 billion and 98,000 jobs by 2025.

The purpose of Task 1 was to provide a spatial context to the economic and employment data such that areas of future growth could be attributed to specific towns and corridors. This spatial picture provides the context for assessing the transport connectivity improvements that are required in the future, as identified in subsequent tasks.

However, we could not consider transport connectivity improvements without awareness of other demand on the transport network. Therefore, we also briefly analysed air passenger and commuter demand and its distribution, by mode and geography, based on recent CAA data and past traffic modelling work completed by Arup. This is presented in Task 2.

Task 2: Identifying required road and rail connectivity outcomes to support the economic case

Task 2 used the information prepared in Task 1 to establish the improvements in road and rail connectivity required to support growth at Gatwick and to distribute employment growth more widely across the region. This will benefit GAL, other campus employers and employers across the Gatwick Diamond in terms of skills and competitive wages. The aim in this task was to describe the outputs required from the transport network to achieve growth, using the following criteria:

- For rail: through journeys and end to end journey times, frequencies, reliability and performance; and
- For road: journey time variability and network capacity.

Connectivity requirements of air passenger and commuter traffic were also reviewed in Task 2 to ensure alignment with the connectivity requirements identified for Gatwick employees. This analysis also shows that Gatwick-induced traffic is only a relatively small proportion of background commuter traffic across the South East.

Task 3: Identifying the gaps in the required rail and road connectivity and the solutions to overcome them

Task 3 used the defined transport connectivity outcomes established in Task 2 to identify the “gaps” in road and rail provision that might limit Gatwick’s employment and economic benefits being distributed more widely. It considered alignment with transport and growth strategies of local planning authorities. It then identified potential interventions to help narrow and close these gaps.
This analysis drew on a combination of literature review of published documents and engagement with Network Rail and Highways England. This enabled us to identify current investment commitments (which were described in Chapter 1) and potential future interventions (described later in Chapter 5). Through this process, we identified the road and rail interventions which would be most relevant to Gatwick’s future growth and impact on the wider region in the period to 2025 (assuming a single runway).

Task 4: Develop the strategic case

Task 4 developed a coherent strategic narrative to show how economic, employment and transport evidence comes together to support the case for investing in improving Gatwick’s position in the road and rail network. This included identifying the most appropriate transport schemes to be developed further.

Task 5: Partnering and funding mechanisms

Task 5 examined how the identified transport solutions might be implemented using two of the schemes as exemplar case studies. It focused on:

- identifying an appropriate mechanism to bring together stakeholders who benefit from the identified interventions; and
- identifying potential funding streams and institutional structures that can facilitate delivery.
3 Task 1 - Reviewing the economic and employment case

Gatwick Airport is a major employer in the South East with analysis by Oxford Economics for the GGB in a single runway scenario showing significant employment growth to 2025 related to the airport. This comprised an additional 6,000 jobs in the Coast to Capital LEP area, an additional 5,000 jobs in the Gatwick Diamond area and 900 more jobs in the South East LEP area. Examining this growth spatially shows that:

- Almost half is likely to be concentrated in Crawley (3,800 jobs), which reflects the location of the airport within the borough.
- The corridor dominated by the M23 – A23 corridor and the Brighton Main Line railway will continue to be the main location for Gatwick-related employment growth. Croydon is likely to gain 1,000 Gatwick-related jobs by 2025 and Brighton, Hove and Lewes an additional 900 jobs.
- The distribution of growth largely reflects existing patterns of Gatwick-related employment across the region.

Looking at residential locations for employees, those working in direct employment on the airport campus today overwhelmingly live in Crawley (26%) in close proximity to the airport or in locations on the M23 – A23 / Brighton Main Line railway corridor. Future growth tends to follow a similar pattern with slightly higher growth in Croydon reflecting its fast growing working age population.

Without intervention, this analysis shows that existing transport connectivity will reinforce existing residential locations for future airport campus employees and the location of Gatwick-related indirect employment growth. This in turn will concentrate Gatwick induced employment in these locations.

There are opportunities to change this pattern of growth. The proposed Croydon opportunity area provides for significant commercial and residential development which Gatwick could support. The proposed Horley Business Park, if developed, is in very close proximity to the airport and could create space for 20,000 jobs.

3.1 Introduction

Task 1 entailed review and analysis of a number of datasets, including the Oxford Economics study, Gatwick’s Employer and Travel to Work Survey 2016, Office of National Statistics population forecasts and various Local Plans, Infrastructure Plans and planning applications in order to generate the spatial analysis of where Gatwick Airport employees live (explored in Chapter 3.2) and where Gatwick Airport supports employment both currently and out to 2025 (Chapter 3.3). This provided the context for the rest of the study in terms of identifying the main locations and corridors on which growth is centred in order to provide a context for assessing the transport connectivity improvements that are required in the future. This analysis was augmented by examination of current and forecast air passenger and commuter traffic on the transport corridors in Task 2.
3.2 Where Gatwick Airport campus staff live

3.2.1 Overview

The Oxford Economics study forecasts that the number of staff working at the Gatwick Airport campus will increase by 13% between 2016 and 2025, from 23,800 employees to 26,800. Table 3.1 provides a regional distribution of their overall home locations by area as presented to the GGB by Oxford Economics. The Arup analysis in this chapter refines this further down to Local Authority areas.

Table 3.1: Where Gatwick Airport campus staff will live in 2016 and 2025 (single runway)

<table>
<thead>
<tr>
<th>Geography</th>
<th>2016</th>
<th>2025</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Coast to Capital LEP</td>
<td>14,800</td>
<td>16,800</td>
<td>2,000</td>
</tr>
<tr>
<td>In Gatwick Diamond</td>
<td>11,500</td>
<td>13,100</td>
<td>1,600</td>
</tr>
<tr>
<td>In South East LEP</td>
<td>2,450</td>
<td>2,750</td>
<td>300</td>
</tr>
<tr>
<td>All Geographies</td>
<td>23,800</td>
<td>26,800</td>
<td>3,000</td>
</tr>
</tbody>
</table>

Source: Oxford Economics, Gatwick Employer Survey. Note geographies overlap and accordingly “Changes” cannot be summed to generate the “All Geographies” data.

Understanding where airport campus employees may choose to live is important as this has implications for the use of the road and rail networks to and from the airport. The rest of this part of the chapter examines in more detail where staff live today and where they might live in the future.

3.2.2 Where Gatwick staff live today

Currently 23,800 people work at Gatwick Airport, as per the Gatwick Airport, Employer and Travel to Work Survey 2016. This includes employees of some 250 firms that are based on the airport campus. Using postcode data, it is possible to map and analyse where staff who work on the Gatwick campus live.

As can be seen from Table 3.2, Crawley is by far the most popular local authority for Gatwick Airport employees owing to its proximity to the airport. Reigate and Banstead, Mid Sussex and Horsham are also popular areas.

Table 3.2: Most popular Local Authorities for Gatwick Airport campus employees to live in 2016

<table>
<thead>
<tr>
<th>Rank</th>
<th>Local Authority</th>
<th>Number of Gatwick Airport campus employees living in LA in 2016</th>
<th>Percentage of Gatwick employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Crawley</td>
<td>6,150</td>
<td>26%</td>
</tr>
<tr>
<td>2</td>
<td>Reigate and Banstead</td>
<td>1,700</td>
<td>7%</td>
</tr>
<tr>
<td>3</td>
<td>Mid Sussex</td>
<td>1,550</td>
<td>7%</td>
</tr>
<tr>
<td>4</td>
<td>Horsham</td>
<td>1,350</td>
<td>6%</td>
</tr>
<tr>
<td>5</td>
<td>Brighton and Hove</td>
<td>1,050</td>
<td>4%</td>
</tr>
<tr>
<td>6</td>
<td>Croydon</td>
<td>950</td>
<td>4%</td>
</tr>
<tr>
<td>Rank</td>
<td>Local Authority</td>
<td>Number of Gatwick Airport campus employees living in LA in 2016</td>
<td>Percentage of Gatwick employees</td>
</tr>
<tr>
<td>------</td>
<td>-----------------</td>
<td>--------------------------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Wealden</td>
<td>450</td>
<td>2%</td>
</tr>
<tr>
<td>8</td>
<td>Tandridge</td>
<td>410</td>
<td>2%</td>
</tr>
<tr>
<td>9</td>
<td>Worthing</td>
<td>320</td>
<td>1%</td>
</tr>
<tr>
<td>10</td>
<td>Lewes</td>
<td>310</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td><strong>All geographies</strong></td>
<td><strong>23,800</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Arup analysis, Gatwick Airport, Employer and Travel to Work Survey 2016

Figure 3.1 uses this data to illustrate that Gatwick Airport campus employees tend to live in locations concentrated around the airport. The figure also shows that staff tend to live to the south of the airport with the pattern of residences broadly matching the Gatwick Diamond geography, which is outlined on Figure 3.1.

Beyond the main clustering of home locations around the airport, there are notable clusters of staff living in Croydon, around Heathrow, in Brighton and Hove and along the South Coast. Croydon is an attractive place for staff to live because it is a densely populated urban area with a good rail service to the airport. The area around Heathrow is popular with airline staff, who split their time working at both Gatwick and Heathrow Airports. For many of the towns along the coast, Gatwick Airport is one of the few major employers within a reasonable commuting range by road or rail. Accordingly, expansion at Gatwick Airport can provide important economic benefit for these towns.
Figure 3.1: Where Gatwick campus employees live by Lower Layer Super Output Area (LSOA\textsuperscript{12}), 2016

\textbf{Legend}

- 5 - 12
- 12 - 40
- 40 - 70
- 70 - 100
- 100 - 130
- 130 - 200

\textbf{Source: Arup analysis, Gatwick Employee Survey}

\textsuperscript{12} A Lower Layer Super Output Area (LSOA) is a geographic area. There is a Lower Layer Super Output Area for each postcode in England and Wales.
3.2.3 Where housing growth might come from

In forecasting future growth, consideration has been given to changes in working age population, housing targets and major developments. These will all be important influences on where employees on the Gatwick campus might live in the future and therefore how the economic impact of the airport might be distributed. This dataset shows that the South London Boroughs of Bromley and Croydon along with Crawley and Reigate and Banstead have the highest projected growth in working age population (between 7% and 9%) over the next decade. This provides a ready labour market for Gatwick and will influence growth in the number of potential employees residing in these locations. In addition, Croydon is identified as an area with both high working age population growth and significant housing targets to meet. A full table of this analysis is provided in Appendix A.

A review of Local Plans, data on Opportunity Areas and planning portals indicates a number of major housing developments (where major is considered to be over 600 units on one site) are planned, which may also impact where new Gatwick Airport campus employees chose to live. Although the status and size varies significantly, Figure 3.2 shows that the majority of these developments near Gatwick are clustered along the Brighton Main Line / M23-A23 corridor.

Figure 3.2: Sample of potential single–site major housing developments near Gatwick Airport

- **Croydon regeneration.** A number of major developments currently being constructed. The Croydon Opportunity Area could potentially deliver up to 7,500 new homes.
- **Guildford.** Potential 1,100 in Flexford and 1,800 in Blackwell Farm, very early stage of development.
- **Redhill Aerodrome New Garden Community.** Potentially 4,500 new homes, very early stage of development.
- **New Horley neighbourhood.** Ground broken on 1,570 new homes on the north west corner of Horley.
- **Forge Wood/Pound Hill.** Outline planning permission granted for 1,900 new homes on the north east corner of Crawley.
- **North Horsham.** The Local Authority has made provision for 2750 new homes in North Horsham.
- **Burgess Hill Arc.** Provision for up to 3,500 homes, only 135 with outline planning permission.

*Source: Arup review of various Local Plans and Opportunity Area data*
3.2.4 Where Gatwick employees might choose to live in 2025

Oxford Economics anticipate a 13% increase in Gatwick Airport campus employees between 2016 and 2025 from 23,800 to 26,800 (in a single runway scenario).

Using data on current employees’ residential patterns and changes in the working age population, it is possible to generate a spatial distribution of where employees may live in 2025. The methodology for projecting where staff might live in the future is explained in more detail in Appendix B.

The analysis shows that areas which have high concentrations of Gatwick Airport campus employees today will continue to do so in the future but rates of change will differ based on projected demographic changes. Table 3.3 shows growth to 2025 for the most popular Local Authorities (LAs) and where the analysis shows the most change in absolute terms.

Table 3.3: Most popular Local Authorities for Gatwick Airport campus employees to live, 2025

<table>
<thead>
<tr>
<th>Rank</th>
<th>Local Authority</th>
<th>Estimate of Gatwick campus employees living in geography, 2025</th>
<th>Change between 2025 and 2016</th>
<th>Percentage change between 2016 and 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Crawley</td>
<td>7,050</td>
<td>+900</td>
<td>+15%</td>
</tr>
<tr>
<td>2</td>
<td>Reigate and Banstead</td>
<td>1,950</td>
<td>+250</td>
<td>+15%</td>
</tr>
<tr>
<td>3</td>
<td>Mid Sussex</td>
<td>1,700</td>
<td>+150</td>
<td>+10%</td>
</tr>
<tr>
<td>4</td>
<td>Horsham</td>
<td>1,450</td>
<td>+100</td>
<td>+7%</td>
</tr>
<tr>
<td>5</td>
<td>Brighton and Hove</td>
<td>1,150</td>
<td>+100</td>
<td>+10%</td>
</tr>
<tr>
<td>6</td>
<td>Croydon</td>
<td>1,100</td>
<td>+150</td>
<td>+16%</td>
</tr>
<tr>
<td>7</td>
<td>Wealden</td>
<td>500</td>
<td>+50</td>
<td>+11%</td>
</tr>
<tr>
<td>8</td>
<td>Tandridge</td>
<td>470</td>
<td>+60</td>
<td>+15%</td>
</tr>
<tr>
<td>9</td>
<td>Worthing</td>
<td>360</td>
<td>+40</td>
<td>+13%</td>
</tr>
<tr>
<td>10</td>
<td>Lewes</td>
<td>350</td>
<td>+40</td>
<td>+13%</td>
</tr>
<tr>
<td></td>
<td>All geographies</td>
<td><strong>26,800</strong></td>
<td><strong>+3,000</strong></td>
<td><strong>+13%</strong></td>
</tr>
</tbody>
</table>

Source: Arup analysis, ONS, Oxford Economics, Gatwick Employer Survey

The analysis shows Crawley accommodating the most residential growth related to Gatwick Airport in the future. However, it is Croydon which will proportionally have the most significant percentage increase in the number of staff choosing to live there when compared with 2016. This slightly higher percentage increase is a reflection of Croydon’s strong projected growth in working age population. Crawley continues to be an important catchment given its proximity to the airport, making it a convenient and obvious place for staff to live. Reigate and Banstead, Mid Sussex, Horsham and Brighton and Hove are also important residential locations for Gatwick Airport campus staff to 2025.

This analysis assumes the existing transport network and no improvements to transport connectivity which might distribute this population differently.
Figure 3.3: Anticipated increase in Gatwick Airport campus employees living in specific Local Authority (LA) areas by 2025 as compared with 2016

Source: Arup analysis, ONS, Oxford Economics, Gatwick Employer Survey
3.3 Where Gatwick Airport creates employment

3.3.1 Overview of total employment

Gatwick Airport supports over 85,000 jobs today through direct, indirect and induced employment, where:

- **direct employment** is defined as jobs on the Gatwick Airport campus;
- **indirect employment** is defined as jobs created by Gatwick Airport's off-campus suppliers; and
- **induced employment** is employment created by direct and indirect Gatwick Airport employees spending their incomes.

These employment types are defined in more detail in Appendix C. All of these sources of employment create economic benefits by creating (or inducing) employment at the locations where employees live and spend their earnings; for example, in local retail and leisure establishments. The Oxford Economics report forecast that Gatwick Airport could support 98,000 jobs (assuming 52 million annual passengers) by 2025, with a single runway, when induced employment is included.

Figure 3.4: Employment supported by Gatwick Airport in 2016 and 2025.

Source: Arup analysis, Oxford Economics, Gatwick Airport.

3.3.2 Where Gatwick Airport supports employment today

Figure 3.5 shows the spatial distribution of employment supported by Gatwick Airport using data from GAL’s procurement spending, the Gatwick Airport Employer Survey and Oxford Economics’ analysis of future Gatwick employment. A description of the method for allocating employment spatially can be found in Appendix D.
Figure 3.5: Where the airport supports employment currently in London and the South East (direct, indirect, and induced)

Source: Arup analysis, Gatwick Airport’s procurement spending, the Gatwick Airport Employer Survey and Oxford Economics

The centre of employment is Gatwick Airport itself, which is home to around 250 firms and approximately 23,800 employees in 2016. In addition, between November 2015 and October 2016, Gatwick Airport used around 800 off-campus suppliers, supporting 37,000 indirect jobs. Approximately half of the off-campus suppliers were based in the South East of England, with 20% in London and 30% in the rest of the UK or overseas.
The key findings from the analysis are as follows:

Gatwick Airport is located in Crawley, which as a result is by far the largest employment zone accommodating ~34,300\(^{13}\) direct, indirect and induced jobs.

Other places along the Brighton-London corridor are important employment zones that benefit from Gatwick Airport's procurement spending. These include Central London, Croydon, Lewes and Brighton and Hove. These locations have higher concentrations of suppliers creating indirect employment and associated economic benefits.

Gatwick Airport also creates wider employment across the rest of the Gatwick Diamond and Coast to Capital LEP area.

The area around Heathrow, including West London and Woking, also supports Gatwick-related indirect employment, as many airlines and logistics companies (which serve both airports) are based there.

### 3.3.3 Where Gatwick Airport may support employment in 2025

The Oxford Economics 2025 projection of direct, indirect and induced employment generated by a single runway Gatwick Airport has then been allocated spatially to the Gatwick Diamond, rest of Coast to Capital LEP and rest of England. This analysis has assumed a “business as usual” scenario without any substantial changes to the distribution of employment, which means that the growth in employment continues to be concentrated in existing employment centres.

**Figure 3.6: Direct, indirect and induced employment by geography in 2016**

<table>
<thead>
<tr>
<th>Geography</th>
<th>Estimate of Direct, indirect and induced employment</th>
<th>Change between 2016 and 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016</td>
<td>2025</td>
</tr>
<tr>
<td>Total</td>
<td>85,000</td>
<td>98,000</td>
</tr>
<tr>
<td>In Coast to Capital LEP</td>
<td>43,000</td>
<td>49,000</td>
</tr>
<tr>
<td>In Gatwick Diamond</td>
<td>36,000</td>
<td>41,000</td>
</tr>
<tr>
<td>In South East LEP</td>
<td>5,500</td>
<td>6,400</td>
</tr>
</tbody>
</table>

Source: Arup analysis, Gatwick Airport’s procurement spending, the Gatwick Airport Employer Survey and Oxford Economics

The business as usual assumption was used because significant changes to employment patterns in 2025 resulting from Gatwick’s growth will only be achieved with transformational interventions changing transport connectivity or creating new locations for business and housing growth. Existing planned investment on the Brighton Main Line and M23/A23 corridor tends to reinforce current patterns and therefore employment and housing centres.

\(^{13}\)~23,800 direct (on-campus), ~7,600 indirect and ~2,900 induced jobs.
By 2025, it is estimated that the number of Gatwick Airport supported jobs in Crawley will increase by 3,800, in Croydon by 1,000 and in Brighton, Hove and Lewes by a combined total of 900.

A number of planned commercial developments could alter this distribution as they may lead to suppliers to Gatwick Airport relocating by 2025. We have identified the following as particularly important in this regard:
- **Horley Business Park** – a proposed office-based business park on the outskirts of Horley, which could be an attractive location in close proximity to the airport. This development is a public private partnership between Reigate and Banstead District Council and Millville Properties and could potentially lead to 20,000 jobs on Gatwick Airport’s doorstep. However, the development is still at an early stage of development and has yet to receive planning permission.

![Figure 3.8: Location of Horley Business Park relative to Gatwick Airport](http://horleybusinesspark.co.uk/)

- **Croydon regeneration** – Croydon Opportunity Area is a 194 hectare designated area in the current London Plan for substantial commercial and residential development. Multiple large-scale developments are set to significantly increase floor space and the general attractiveness of Croydon as a business centre. Opportunities for approximately 23 hectares of employment land are identified within the Borough as part of its Local Plan, this could further concentrate employment at Croydon in the future. Good transport connectivity to Gatwick Airport will be important if this is to become an attractive location for airport-related indirect and induced employment as well as housing direct employees from the airport campus.

15 The Croydon Opportunity Area Planning Framework (COAPF) was prepared jointly by the Greater London Authority (GLA) and London Borough of Croydon (LBC) in partnership with Transport for London (TfL) and was adopted by Croydon Council in 2013.
3.4 Conclusions

This chapter has presented a spatial distribution of Gatwick-related residential and employment growth to 2025 based on the earlier Oxford Economics study’s projections. The key findings from this are as follows:

- Growth of direct and indirect employment linked to a single runway Gatwick Airport and the wider employment it creates could support 13,000 new jobs by 2025, as identified in the Oxford Economics study.

- Even when analysing the total employment impact of the airport (direct, indirect and induced employment), most of the new jobs generated by growth at Gatwick will be based in Crawley (3,800 new jobs by 2025). Croydon will gain 1,000 employees by 2025 and Brighton, Hove and Lewes a combined 900 employees.

- Crawley will likely accommodate the most growth in homes related to Gatwick Airport campus employment in the future with almost a third of employees choosing to live there. However, it is Croydon which could proportionally have the most significant percentage increase in residential growth. Reigate and Banstead, Mid Sussex, Horsham and Brighton and Hove should also continue to be important residential locations for Gatwick Airport campus employees.

- Existing patterns of employment and housing will be reinforced if existing transport connectivity remains. Growth will continue to be concentrated in employment hubs along the Brighton Main Line and M23/A23 corridors, as well as Crawley.

- Major developments and investment in improving or altering transport connectivity could change these patterns.
4 Task 2 - Identifying required road and rail capacity and connectivity outcomes to support the economic case

The last chapter identified that the impact of Gatwick’s growth on employment and the wider economy largely follows existing transport corridors. There is a significant impact on Crawley. Improved transport connectivity provides the opportunity to better distribute this impact and reduce the housing pressure from direct employment on Crawley at a growing single runway Gatwick Airport.

The fast-growing working age labour force in Croydon presents a particular opportunity to change current travel patterns. Investment in the transport network may also influence where future indirect employment from the Gatwick supply chain is located. Altering the pattern of direct employees’ residential location and indirect employment location, will redistribute induced employment and the wider economic benefits of a growing single runway Gatwick Airport. Changes to transport connectivity from Gatwick could help support regeneration in Croydon and the South Coast towns.

Interestingly, our analysis shows although 61% of airport employees travelled to work by car in 2016, public transport has increased with 16% of staff using bus and coach and 12% using rail (albeit this may have been suppressed by the ongoing industrial action on Southern).

Airport campus employees who live within 15 miles of the airport tend to drive or catch a local bus to work. This area encompasses Crawley, Horsham, Horley, Redhill and East Grinstead, and highlights the importance of the local road network in terms of distributing the economic benefits of employment at the airport in the local region. Therefore, local road access and connectivity (including journey time reliability) is important for airport campus employees. The strategic road network clearly remains important for supporting indirect employment albeit also being complemented by rail.

Rail is the chosen mode of transport for many employees living further afield and close to railway stations. It is particularly popular for those living in Brighton and Hove and Croydon which reflects the frequent and fast service on the Brighton Main Line. Rail use is also relatively strong for employees living close to the East and West Coastway rail routes, notably Worthing, Lewes and Eastbourne. There is a significant potential to encourage a shift to rail (and public transport more broadly) by focussing on achieving the following transport connectivity outcomes:

- Delivering the frequency and availability of service that airport campus employees require (for example, providing public transport options aligned to shift patterns);
- Providing attractive journey times by road and rail and ensuring they can be delivered reliably); and
- Ensuring ease of access to public transport and the road network.

The key transport corridors on which the study will need to focus are reaffirmed by analysis of air passenger and commuter traffic. Airport passengers living in close proximity to the airport are more likely to drive or take local bus services than use rail services. The Horsham – Crawley – Gatwick corridor is important in this regard. As distance increases, rail becomes a more likely consideration for airport passengers, with trips from London, Croydon and Brighton being comparable or even higher than car use from these areas. Hence the Brighton Main Line and M23/A23 corridor becomes a priority for the airport (albeit noting that commuter traffic far
outweighs Gatwick air passenger and employee use of the corridor in the peak direction of travel).

4.1 Purpose

This chapter builds on the description of Gatwick Airport related employment and growth (with a single runway) presented in the last chapter. It examines the transport provision and level of connectivity that employees would like to and from the Gatwick Airport campus. The chapter draws on the Gatwick Employer and Travel to Work Survey 2016.

The main forecast centres identified for Gatwick-related employment growth are shown in orange in Figure 4.1. These centres are concentrated along the London to Brighton corridor but there is also potential for growth westwards through Redhill and Reigate as well as along the South Coast. These centres will require improvements to transport connectivity if the economic benefits from Gatwick’s growth are to be maximised. The transport outcomes required to support this growth are considered as a basis for more detailed analysis presented in the next chapter.
This chapter also examines travel patterns and forecast growth of air passenger and commuter traffic and seeks to align it with the connectivity requirements identified for Gatwick employees. This analysis also shows that Gatwick-induced traffic is only a proportion of a much higher background commuter traffic across the South East.

4.2 Transport supporting employment

The majority of airport staff, 61%, travel to work by car, of which 50% are single occupancy (i.e. driver only) journeys. This represents a reduction of around 9% from 2012, indicating a greater uptake of public transport over that time.

Bus and coach usage is 16%, which is up 4% on 2012, and rail usage is 12%, up from 11% in 2012, though the rail data may well have been affected by the industrial action and service disruption at the time of the survey in 2016.
Figure 4.2 shows that for those driving to the airport just over half (55%) drive 15 miles or less. The figure also shows that, despite the reduction in car use for commuting to the airport, the distribution of journeys has remained broadly constant since 2012. This is no surprise given the high proportion of employees that live close to the airport. A 15 mile radius includes Crawley, Horsham, Horley, Redhill, Reigate and East Grinstead. This shows that, for those driving, good local road access is an important consideration for employees’ choice of home location.

Figure 4.2: Estimated Distance to Work by Road (in miles)

Source: Gatwick Airport, Graph 21, Gatwick Employer and Travel to Work Survey 2016

Figure 4.3 shows the pattern of public transport use covering rail, bus and coach for airport campus employees. This indicates a similar pattern of local bus use to car use close to the airport with a high proportion of employees travelling to the airport from Crawley, Horsham, Horley and East Grinstead, with longer distance buses and coaches accounting for additional employees from Brighton, South and Central London.

Rail usage is more distributed but is still focussed around key nodes along rail corridors in particular the Brighton Main Line (including Greater London), Horsham-Crawley-Gatwick on the Arun Valley line to Chichester as well as along the South Coast. This shows the importance of the Brighton Main Line and the Arun Valley Line for providing commuting access by rail. The North Downs Line remains underutilised which must reflect, in part, the low frequency and relatively long journey times of this service from Gatwick Airport.
Figure 4.3: Postcodes for staff who commute to work by train, bus/coach or company transport

Source: Gatwick Employer and Travel to Work Survey 2016, Figure 6: Postcodes for staff who commute to work by train, bus/coach or company transport.

The 2016 employee survey did not specifically explore public transport connectivity requirements for existing users but rather asked car users what would make them switch to public transport as an alternative to car. By taking responses to these questions and by reviewing postcode data and mapping from the Gatwick Journey to Work Survey 2016, it is possible to infer the following connectivity outcomes as being of importance for public transport use:

- Connectivity as measured by frequency and availability of service (such as earlier and later public transport options to match shift patterns);
- Connectivity as measured by journey time (and its reliability); and
- Proximity of the mode of transport and ease of access to workplace. 17

These outcomes are explored in more detail in the next chapter.

In order to achieve the projected increases in levels of direct employment at the airport campus, there needs to be a sufficiently attractive combination of job

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17 p.36, Table 27, Gatwick Airport, Gatwick Employer and Travel to Work Survey 2016 - Summary of Results. In addition to the connectivity measures, cost of travel and safety are also described.
opportunity, wages and ease of access for the workforce travelling to Gatwick. Enhancements to road and rail connectivity in the coming decade are likely to play an increasingly important role in enabling Gatwick growth, particularly as background road traffic and rail demand is expected to continue to grow.

4.3 Gatwick Diamond Businesses

A recent survey of Gatwick Diamond businesses asked questions related to transport infrastructure in the region and the impact that transport has on their businesses. They were asked to rate six statements. For road, the following three statements were rated as follows:

- Traffic congestion within the local area has a negative impact on our business, with 56% agreeing and 26% disagreeing.
- Unreliable journey times on the major road network locally have a negative impact on our business, with 66% agreeing and 18% disagreeing.
- Improvements to road networks around the Gatwick Diamond would have a positive impact on our business, with 74% agreeing and 12% disagreeing.

This finding is reinforced by the 2016 Gatwick Airport Employee Survey which showed that journey time variability related to congestion has an impact on staff and that local road and highway enhancements will provide a positive impact to growth in the region.

For rail and public transport, the following two statements were rated as follows:

- Lack of public transport options and/or unhelpful timetabling affects our ability to attract employees/customers, with 43% agreeing and 37% disagreeing.
- Improving public transport options would have a positive impact on our business, with 66% agreeing and 16% disagreeing.

The spatial distribution of businesses within the Gatwick Diamond has not been provided but this will impact on answers to the first question in terms of options and timetabling. A number of businesses within the Diamond will be heavily influenced by Gatwick Airport aircraft scheduling and operations, such as Manor Royal Business Improvement District, with some early and late shift patterns very similar to those on the airport campus. These businesses are likely to have agreed with timetable constraints in a similar way to Gatwick Airport employees. The majority of business agree that improved public transport connectivity will have a positive impact on the Gatwick Diamond region.

For active modes, the following statement was rated as follows:

- Improving local walking and cycling routes would have a positive impact on our business, with 48% agreeing and 18% disagreeing.

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18 Verbatim Comments from Gatwick Diamond Businesses, 27th April 2017
Gatwick Airport supports improved access by active modes which is reflected in the Airport Surface Access Strategy and through other recent studies including Gatwick Airport Limited, Pedestrian Study - Analysis and Findings as produced by Arup and issued on 23rd January 2017.

### 4.4 Passenger Demand

By 2025 and assuming typical shift patterns, employee trips are estimated to be around 12 million trips per year to and from a single runway Gatwick Airport.\(^{19}\) Whilst a significant number of trips, this will represent only one fifth of the passenger travel associated with a 52 million annual passenger single runway Gatwick Airport. Accordingly, whilst the focus of this connectivity study is on employees, it is important to acknowledge and consider passenger requirements alongside staff requirements.

Figure 4.4 shows that air passenger travel patterns and use of different transport modes is very similar to airport campus employees. Passengers living in close proximity to the airport such as in Crawley and Horley, Horsham, Redhill, Reigate, Dorking and Oxted are more likely to drive or take local bus services than use rail services. This reconfirms that road access is an important consideration for those living within a 15 mile radius of the airport.

As distance increases, rail is more likely to be used by air passengers, with trips from London, Croydon and Brighton being comparable or even higher than car use from these areas. Using 2011 CAA data and adjusting to the forecast 52 million annual passengers in 2025, our analysis shows over 20 million Gatwick Airport passengers travelling to or from London with around 60% of these passengers travelling by rail. This proportion is likely to increase with completion of the Thameslink Programme with its improvement to rail connectivity and capacity.

\(^{19}\) 26,800 employees on the Gatwick Airport campus by 2025 of which 60% are working at the airport on a specific day multiplied by 365 days.
Source: Arup analysis, 2011 CAA Data, uplifted to 52 million annual passengers

4.5 Background Commuter Traffic

In the peak periods of travel on the network, total demand generated by Gatwick Airport (both air passengers and employees) represents only a small proportion of overall demand on the transport network. This is particularly the case in the direction of peak travel (for example, to London in the morning peak period) with
the majority of traffic related to background commuting flows across the South East.

Figure 4.5 shows overall forecast demand in the three-hour morning peak in 2025. It assumes 52 million air passengers and a single runway, using earlier Arup traffic modelling prepared for GAL. It presents this for both the rail (green) and motorway (blue) network, showing total demand and Gatwick’s share (orange), with arrows showing the direction to which the demand applies.

Figure 4.5: 2025 Gatwick demand as a proportion of total demand (peak period trips 07:00 – 10:00)

Source: Arup analysis from PLANET South and SATURN rail and road models uplifted to reflect Gatwick Airport at 52mppa from a single runway by 2025.
Figure 4.5 shows that Gatwick demand is projected to be just over 15% of demand north of Gatwick Airport station on northbound rail services in the morning peak period. North of East Croydon, Gatwick demand represents less than 10% of all rail demand into each of London Victoria and London Bridge stations, reducing to less than 5% north of Clapham Junction on the route to Victoria. In the southbound direction from London, Gatwick Airport generates nearly 60% of contra-peak trips to Gatwick Airport station, which uses otherwise spare capacity so improving the value for money of these rail services.

On the highway network, Gatwick traffic is equivalent to 20% and 25% of demand on the M23 between Junctions 8 and 9 in the morning peak period. However, by the time traffic reaches the M25, Gatwick demand represents only around 10% or less of total traffic for the AM peak period. Even on the M23 spur between Junction 9 and Junction 9a at South Terminal roundabout, Gatwick-related demand is only around 50% of demand.

It can be seen that commuters form the majority of rail trips on the Brighton Main Line and road trips along the M23 and M25. Whilst these corridors are important for Gatwick employee and air passenger travel, Gatwick represents only a small share of overall demand. Whilst there is clear alignment between Gatwick’s connectivity needs and the rest of the region, investment in improved transport connectivity needs to be considered in that context.

4.6 Conclusions on the Key Transport Corridors and Required Outcomes

This chapter has confirmed that the main transport corridors that the Connectivity Study needs to focus on are:

- the Brighton Main Line and M23/A23 corridor unlocking growth opportunities in Croydon, Redhill and Reigate, Brighton and Lewes; and
- the more local transport corridor to Crawley and Horsham where rail, road and bus all play an important role.

- Other corridors that needs to be considered but which are less important are:
  - The North Downs Line from Gatwick via Redhill, Reigate and Guildford to Reading and the Thames Valley; and
  - The South Coast – both the A27 and the coastal railway line.

The chapter has also identified three key outcomes that should drive the selection of transport improvements:

- Connectivity as measured by frequency and availability of service (such as earlier and later public transport options to match shift patterns);
- Connectivity as measured by journey time (and its reliability); and
- Proximity of the mode of transport and ease of access to workplace.
5 Task 3 - Identifying the gaps in the required rail and road capacity and solutions required to overcome them

This chapter identified a series of interventions needed to support future growth. For rail these include:

- Earlier morning trains on all routes to Gatwick Airport station to reflect earlier shift starting times and flights. This intervention does not require additional capital expenditure but may require additional operational expenditure (for additional train crew or to complete night-time maintenance quicker). Subject to a detailed diagramming exercise, existing units could start operation sooner. As well as providing services for workers, they would presumably also benefit air travellers catching the first departing flights of the day.

- Additional services on the Brighton Main Line to both Reigate, an important residential location for airport campus employees, and to the South Coast towns (which would remove the need to split and join trains and provide faster journey times to Gatwick Airport station). Some modification to the track layout at the station would also be required. This intervention would help better distribute the employment and economic impacts of the airport, as well as benefitting air passengers using these services. This requires significant infrastructure intervention at East Croydon station and the nearby Windmill Bridge Junction to remove a known constraint to increasing capacity on the corridor. The contribution this scheme could make to capacity and connectivity on the route by releasing between 6 and 8 additional train paths per hour indicates this should be a priority for the GGB.

- Additional Horsham – Crawley services stopping at Gatwick, partly delivered by the Thameslink Programme but also by the track layout modifications at Gatwick Airport station. This would benefit the main employees living closer to the airport on this corridor.

- Additional and faster direct services to Gatwick from Guildford and Reading, via Reigate and Redhill. This would require completion of the planned additional platform at Redhill. This would enable Guildford and possibly Reading to benefit more from the growth of Gatwick as well as improving air passenger access by rail to the airport from these locations.

- Improved punctuality delivered by the intervention at Croydon and Windmill Bridge but also potentially by the delivery of some aspects of the Digital Railway project (automatic train control and traffic management) on the cross London Thameslink route by the Thameslink Programme.

The following road interventions are needed to support growth:

- M23 Smart Motorway between Junction 8 and 10 and M23 Junction 9 to 9a widening to 3 lanes – these schemes should be supported by the GGB as they will improve capacity and reduce journey time variability on this key corridor. Smart Motorways will provide wider benefits between Junction 8 and 10 in terms of enhanced connectivity and capacity for commuters, airport passengers and local businesses and residents. This intervention is the most important for Gatwick’s strategic connectivity by road.
Horsham – Crawley – Gatwick improved local connectivity – given the growth associated with Gatwick in Crawley and west to Horsham, a package of measures will provide enhanced connectivity and reduced variability in journey times (in conjunction with enhancements to the parallel rail line described above).

M25 Southwest Quadrant – ongoing journey time variability is an issue which has been recognised by Highways England. The M25 is of strategic importance to the country and Highways England is promoting a package of measures to resolve congestion issues which should be supported by the GGB. These are being developed by Highways England.

On the A23, north of the M25, Highways England has developed proposals to create dual carriageway through Hooley as the single carriageway section is capacity constrained. Construction funding is still to be confirmed.

A27 enhancements – a number of committed schemes will improve journey time reliability along the A27 corridor and GGB should be supportive of these measures to improve connectivity to the South Coast.

Task 3 uses the connectivity considerations identified in Task 2 to assess “gaps” in current and future rail and road connectivity that might prevent Gatwick’s employment and economic benefits being maximised and distributed more widely. The second element of Task 3 is to identify solutions for overcoming these gaps in terms of additional services or new infrastructure.

### 5.1 Rail

#### 5.1.1 Key Connectivity Issues

The 2016 Gatwick Airport Employee Survey showed that 12% of current employees at Gatwick campus travel to work by rail. If the same proportion continue to use rail in 2025, then this would result in a nominal increase of 420 employees using the train. However, the survey showed that 38% of employees using a car to get to work could feasibly switch to rail which amounts to a substantial number of potential additional rail users (5,700 in 2016 and 6,400 in 2025). These users could switch to rail if the train service offer became more suited to their needs.

Table 5.1 shows the home locations of employees who indicated that they could switch to rail from road.
Table 5.1: Home locations of Gatwick employees with potential to shift to rail

<table>
<thead>
<tr>
<th>Local Area</th>
<th>Gatwick employees resident in geography</th>
<th>Estimate of % of employees who took the train to work</th>
<th>Estimate of % of employees who took the car to work</th>
<th>number of employees who drove to work (=B*D)</th>
<th>% of employees who drove to work alone that said they could have realistically taken a train (=E*F)</th>
<th>potential mode switch from car to rail (=E*F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crawley</td>
<td>6,150</td>
<td>3%</td>
<td>56%</td>
<td>3,450</td>
<td>34%</td>
<td>1,200</td>
</tr>
<tr>
<td>Reigate and Banstead</td>
<td>1,700</td>
<td>10%</td>
<td>57%</td>
<td>950</td>
<td>38%</td>
<td>360</td>
</tr>
<tr>
<td>Mid Sussex</td>
<td>1,550</td>
<td>12%</td>
<td>81%</td>
<td>1,250</td>
<td>31%</td>
<td>390</td>
</tr>
<tr>
<td>Horsham</td>
<td>1,350</td>
<td>7%</td>
<td>88%</td>
<td>1,200</td>
<td>40%</td>
<td>480</td>
</tr>
<tr>
<td>Brighton and Hove</td>
<td>1,050</td>
<td>28%</td>
<td>58%</td>
<td>600</td>
<td>59%</td>
<td>360</td>
</tr>
<tr>
<td>Croydon</td>
<td>950</td>
<td>66%</td>
<td>31%</td>
<td>300</td>
<td>69%</td>
<td>210</td>
</tr>
<tr>
<td>Wealden</td>
<td>450</td>
<td>11%</td>
<td>86%</td>
<td>390</td>
<td>12%</td>
<td>50</td>
</tr>
<tr>
<td>Tandridge</td>
<td>410</td>
<td>3%</td>
<td>90%</td>
<td>370</td>
<td>20%</td>
<td>70</td>
</tr>
<tr>
<td>Worthing</td>
<td>320</td>
<td>20%</td>
<td>79%</td>
<td>250</td>
<td>53%</td>
<td>130</td>
</tr>
<tr>
<td>Lewes</td>
<td>310</td>
<td>15%</td>
<td>82%</td>
<td>260</td>
<td>54%</td>
<td>140</td>
</tr>
<tr>
<td>Arun</td>
<td>300</td>
<td>16%</td>
<td>76%</td>
<td>230</td>
<td>46%</td>
<td>110</td>
</tr>
<tr>
<td>Mole Valley</td>
<td>280</td>
<td>2%</td>
<td>86%</td>
<td>240</td>
<td>18%</td>
<td>40</td>
</tr>
<tr>
<td>Adur</td>
<td>250</td>
<td>11%</td>
<td>88%</td>
<td>220</td>
<td>56%</td>
<td>120</td>
</tr>
<tr>
<td>Eastbourne</td>
<td>200</td>
<td>28%</td>
<td>72%</td>
<td>140</td>
<td>90%</td>
<td>130</td>
</tr>
</tbody>
</table>

Numbers have been rounded. Proportions represent respondents to the mode shift survey applied to total staff numbers. Source: Arup analysis of data in Gatwick Employer and Travel to Work Survey 2016.

It is important to note that this potential shift represents a fraction of the 400,000 daily passengers through Victoria, London Bridge, East Croydon and Brighton on Southern services alone.\(^{20}\) This small proportion of total trips means that employee trips on existing rail services are unlikely to trigger the need for capacity enhancements in their own right. However, the need for improved connectivity certainly supports the case for additional investment to support wider growth.

Table 5.1 shows that the main corridors for airport campus employees likely to shift to rail are Horsham – Crawley, the Brighton Main Line (Croydon, Brighton & Hove, Mid Sussex and the South Coast towns), and Reigate & Banstead. These were identified as areas of growth for Gatwick employees in Chapter 3.

\(^{20}\) Data from Southern website - http://www.southernrailway.com/southern/media-centre/useful-information/
The Employee Survey also asked workers what barriers prevented them from using rail. The outcomes from both the 2012 and 2016 surveys are summarised in Table 5.2 below.

Table 5.2: Reasons for not travelling to work at Gatwick campus by train

<table>
<thead>
<tr>
<th>REASONS FOR NOT TRAVELING BY TRAIN</th>
<th>2012</th>
<th>2016</th>
<th>% Change 2016 vs. 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train station too far away from home</td>
<td>37%</td>
<td>43%</td>
<td>6%</td>
</tr>
<tr>
<td>Journey takes longer by train</td>
<td>36%</td>
<td>39%</td>
<td>3%</td>
</tr>
<tr>
<td>Trains more expensive than going by car</td>
<td>35%</td>
<td>39%</td>
<td>4%</td>
</tr>
<tr>
<td>Trains not running when I start or finish</td>
<td>32%</td>
<td>37%</td>
<td>5%</td>
</tr>
<tr>
<td>Train service unreliable</td>
<td>16%</td>
<td>34%</td>
<td>18%</td>
</tr>
<tr>
<td>Have to change trains too many times</td>
<td>15%</td>
<td>12%</td>
<td>-3%</td>
</tr>
<tr>
<td>Trains overcrowded</td>
<td>7%</td>
<td>12%</td>
<td>5%</td>
</tr>
<tr>
<td>Train station too far away from workplace</td>
<td>11%</td>
<td>6%</td>
<td>-5%</td>
</tr>
<tr>
<td>Don’t know train times or how often they run</td>
<td>7%</td>
<td>5%</td>
<td>-2%</td>
</tr>
<tr>
<td>Have to drop-off/pickup other people</td>
<td>2%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Do not feel safe on trains</td>
<td>4%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>No service to Gatwick/no direct service</td>
<td>4%</td>
<td>2%</td>
<td>-2%</td>
</tr>
<tr>
<td>Comfort/Have luggage/work equipment</td>
<td>2%</td>
<td>1%</td>
<td>-1%</td>
</tr>
<tr>
<td>Other</td>
<td>12%</td>
<td>5%</td>
<td>-7%</td>
</tr>
</tbody>
</table>

Source: Gatwick Employer and Travel to Work Survey 2016

Two barriers that could be addressed by changes to the rail service are journey time (39% stating it takes too long) and trains not running when employees start or finish their shift (37%). These two barriers have been explored further below.

Concern over train service reliability has significantly grown since the previous survey in 2012, but this is likely to have been affected by the industrial action on Southern that was taking place at the time of the 2016 survey.

5.1.2 When do Gatwick employees want to travel to work?

Figure 5.1 and Figure 5.2 are taken from the Travel Survey but we have superimposed on them the time when the first trains of the day arrive at Gatwick (for Figure 5.1 – hour start work) and the last trains of the day depart Gatwick (for Figure 5.2 – hour finish work). The trains are colour coded by route.

It can be seen that shift patterns have changed markedly between 2012 and 2016. With more early morning flights, a greater proportion of operational staff have been starting work earlier. Many employees now start work before the first train of the day departs, even on the Brighton Main Line. This likely explains the 5% increase in respondents stating “Trains not running when I start or finish” as an important reason for not using rail.
In contrast, the last trains departing Gatwick fit well with the end of working shifts.

Figure 5.2: Hour finished work and time of last train departing Gatwick Airport

5.1.3 Journey time: rail versus road

We have assessed indicative journey times between key locations and Gatwick Airport to determine how rail compares with road. One aspect of journey time for using rail is the frequency of service, as waiting time for the train is also a consideration in overall journey time. We have therefore included a frequency measure in our assessment.
Table 5.3 presents typical journey times during the morning and evening weekday peak periods. Journey times for road, in the form of a range of expected times, have been taken from Arup analysis of highway journey times. The rail journey times and frequencies have been taken from the December 2016 timetable. The table highlights the comparison using a Red Amber Green (RAG) indicator where we have judged:

- **Red** – rail performs worse than road
- **Amber** – rail performs similarly to road
- **Green** – rail performs better than road

Generally, rail performs better than road for Crawley, Brighton and Croydon, similarly to road for Horsham, Hove, Worthing, Lewes and Eastbourne, and worse for Reigate. To attract workers to using rail the following connectivity improvements would be needed:

- Reigate: more direct services which would deliver similar journey times to those on road.
- Crawley / Horsham: direct rail journey times are fairly competitive but a higher frequency would make rail more competitive with road (there are gaps in direct services to Gatwick at certain times of day).
- Hove / Worthing: the fastest rail journeys are competitive but they do suffer from gaps in the provision of direct trains in the timetable, with passengers having to change at Brighton. In addition, other than during the morning peak to and evening peak from London Victoria, the half hourly direct trains split and join with Lewes / Eastbourne trains at Hayward’s Heath which adds 4-6 minutes to journey time.
- Lewes / Eastbourne: rail appears to perform a little better against road than Hove / Worthing. Interestingly, these trains arrive 4-6 minutes earlier than the Hove trains for joining at Hayward’s Heath so their journey time to Gatwick is that much slower. In the opposite direction they split first and so are delayed less than the Hove-bound trains.
Table 5.3: Comparison of road and rail journey times to/from Gatwick

<table>
<thead>
<tr>
<th>To / from</th>
<th>Location</th>
<th>Road jny time (mins)** AM / PM median</th>
<th>Road jny time (mins)** AM / PM 95th percentile</th>
<th>Rail – frequency &amp; jny time*</th>
<th>Notes on peak services</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>Crawley (A23/A2011 between M23 J11 and J10)</td>
<td>11 / 11 17 / 17 4tph, 8-23 mins</td>
<td>3tph are direct</td>
<td>4tph, 23-36 mins</td>
<td>3ph are direct in peak (4-5thph direct in off peak)</td>
</tr>
<tr>
<td>To</td>
<td>11 / 14 14 / 20 3tph, 9-14 mins</td>
<td>2tph are direct in peak (4-5tph direct in off peak)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>Horsham 20 / 19 26 / 20 4tph, 22-35 mins</td>
<td>3tph are direct</td>
<td>2tph are direct in peak (4-5tph direct in off peak)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To</td>
<td>20 / 19 24 / 21 3tph, 23-27 mins</td>
<td>2tph are direct in peak (4-5tph direct in off peak)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>Reigate 12 / 13 14 / 18 4tph, 16-30 mins</td>
<td>1tph is direct</td>
<td>4tph, 15-29 mins</td>
<td>1tph is direct</td>
<td></td>
</tr>
<tr>
<td>To</td>
<td>15 / 14 18 / 19 4tph, 15-29 mins</td>
<td>No direct service between 0710 &amp; 0842 arrivals, then 2tph direct</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>Hove 35-50 4tph, 34-40 mins</td>
<td>No direct service between 0710 &amp; 0842 arrivals, then 2tph direct</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To</td>
<td>35-60 4tph, 31-38 mins</td>
<td>2tph are direct, but gap in direct services 1820-1922</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>Worthing 40 / 39 53 / 47 4tph, 52-58 mins</td>
<td>1tph is direct; no direct service 0710 to 0842 arrivals, then 2tph direct</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To</td>
<td>44 / 46 49 / 57 4tph, 49-56 mins</td>
<td>2tph are direct, but gap in direct services 1820-1922</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>Lewes 36 / 35 45 / 43 3tph, 39-44 mins</td>
<td>No direct service (gap 0729-0856 arrival at Gatwick, then 2tph direct)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To</td>
<td>37 / 37 41 / 48 4tph, 32-59 mins</td>
<td>2tph are direct</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>Eastbourne 70-100 3tph, 66-67 mins</td>
<td>No direct service (gap 0729-0856 arrival at Gatwick, then 2tph direct)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To</td>
<td>60-100 4tph, 59-82 mins</td>
<td>2tph are through journeys</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>East Croydon 27 / 27 39 / 37 6tph, 15-23 mins</td>
<td>Only 5tph departing Gatwick from 1645 – 1745</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To</td>
<td>28 / 28 38 / 38 11tph, 14-23 mins</td>
<td>Only 5tph departing Gatwick from 1645 – 1745</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From</td>
<td>Brighton 34 / 34 42 / 45 7tph, 31-43 mins</td>
<td>5tph are direct</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To</td>
<td>37 / 36 41 / 42 5tph, 32-39 mins</td>
<td>4tph are direct</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*rail journeys arrive at Gatwick between 0745 and 0845, to location depart Gatwick 1745 – 1845

**road journey times from the analysis of 2016 mobile phone data for journeys to/from Gatwick during peak times (07:00-10:00 and 16:00-19:00); where insufficient data is available, a range of journey times are taken from Google Maps to arrive at Gatwick at 0830, depart at 1730. Source: realtimetrains.co.uk (accessed March 2017), Google Maps, Arup calculations.
In summary, the following connectivity gaps have been identified:

- Limited availability of early morning trains to Gatwick for increasingly early shift patterns;
- Infrequent direct rail service to Reigate (and further west along the North Downs Line);
- Lack of direct services to/from Crawley and Horsham at certain times of the day; and
- Long journey times to stations on the coastal railway lines to Worthing and Eastbourne partly because of the half hourly split and joining of services at Hayward’s Heath.

In addition, train punctuality has been raised as a concern although that may in part be exacerbated by recent industrial action.

The suggested connectivity improvements which would address these gaps are summarised below in Figure 5.3.

Figure 5.3: Suggested connectivity improvements by rail to/from Gatwick Airport

Source: Arup analysis of rail interventions
5.1.4 Major Schemes

5.1.4.1 Thameslink Programme

The Thameslink Programme will deliver additional rail capacity in Sussex and Kent, and improved cross London connectivity, particularly direct rail services to Cambridge and Peterborough. It is due to commence in December 2018. Most Thameslink services on the Brighton Main Line will be operated by 12-car trains, providing additional capacity, and some connections will become more frequent.

Figure 5.4: Proposed Thameslink service patterns from 2018

Source: GTR 2018 Timetable Consultation, 15 September 2016
One of the issues with the existing timetable is the number of trains (especially in the peaks) that cannot stop at Gatwick Airport station due to its track layout and the overall Brighton Main Line timetable pattern. The proposed December 2018 timetable shows some limited improvements:

- The half hourly Littlehampton – Worthing – Hove - Bedford via London Bridge service will continue to not stop at Gatwick.

- The half hourly Horsham – Crawley – Peterborough via London Bridge service will stop at Gatwick during the peaks and off peaks. This service will replace the current half hourly Southern service running between Horsham and London Bridge which does not stop at Gatwick in the peak hours. Therefore, this proposed Thameslink service will provide additional peak stops.

- We understand that there is a proposal to run one or two additional Littlehampton – Worthing – Hove – London Victoria services in the morning peak to fill a gap between 0659 and 0827 of trains from this corridor arriving in London, but no details on stopping patterns have been given. Currently the 0827 and 0853 arrivals do not stop at Gatwick which may reflect the constraints of platform working at Gatwick (because the current layout forces all London bound trains running on the ‘Fast’ line to use Platform 4). This may similarly restrict any new trains from stopping.

- There may be some changes to the half hourly Southampton, Portsmouth, Bognor Regis to London Victoria services (which do not stop at Gatwick in the peak hours) but no details have been provided.

- GTR are also proposing to increase the number of trains running between Brighton and Lewes from five to six trains per hour and with faster journey times to Eastbourne and Hastings.

It therefore appears that from December 2018, there will be a few more peak trains stopping at Gatwick from Horsham and Crawley that will help to address the connectivity gap on that route. However, the other gaps are likely to remain. It is important to note that this situation may change as the 2018 timetable is still to be finalised and will be subject to a second phase of consultation starting in June 2017.

5.1.4.2 Digital Railway

Network Rail’s Digital Railway programme will deliver technological improvements to traffic management on the Brighton Main Line by December 2018, in time for the Thameslink Programme. A new Traffic Management System installed as part of the programme will:

- take full control of train regulation through the core cross London route via Blackfriars, Farringdon and St Pancras International as described below;

- will greatly assist train regulation on the most intensively used parts of the Brighton Main Line, where the system will highlight issues of late train
running and advise the signaller of a solution (which they can accept or reject); and

- be partial for some other parts of the network, again suggesting solutions to the signaller but not fully integrated with their control panel.

This will automate some traffic regulation and provide improved real-time information to signallers so they have time to take more oversight and strategic decisions across the network. It is understood that train drivers will also receive real-time advice to drive to a modified train service plan. The cross London Thameslink route via Farringdon will be fitted with an automatic train operation system whereby Traffic Management algorithms automatically update the signalling to regulate the service optimally. These Digital Railway improvements will be vital to maintain and improve punctuality under a more intensive and complicated train service delivered by the Thameslink Programme.

5.1.4.3 Brighton Main Line upgrade (Croydon / Windmill Bridge)

This is the significant scheme to transform Brighton Main Line capacity. The main bottleneck on the route is at East Croydon station and the layout of the important Windmill Bridge Junction where the Thameslink route to London Bridge and the route to Victoria station diverge. Network Rail’s analysis shows that removing this constraint could deliver between 6 and 8 additional trains per hour as well as improving punctuality (2 are likely to come from Reigate and operate over Thameslink and up to a further 6 south of Gatwick).

This additional capacity would remove the need to split and join trains from the South Coast, reducing journey times, and enable more trains to operate to Reigate; both are current connectivity gaps for the airport. If this was supported by some more modest changes to the railway track layout at Gatwick Airport station, then this would enable more trains to call there too. The significant upgrade requires two additional platforms at East Croydon station and separating tracks using bridges at nearby flat junctions (known as grade separation) to remove conflicts at Windmill Bridge Junction.
There is some urgency because of planned land use developments at Croydon on non-railway land that would need to be acquired for this scheme and could otherwise be used as part of the Croydon regeneration scheme. Network Rail is continuing design work and it is understood that the DfT has funded the development team for the next few months (costing £0.75m). No funding is yet in place for the major development phase over the next 18 to 24 months which is currently estimated at a cost of £12-15m. Construction work is then planned over the period up to 2030.

The accompanying changes to the layout at Gatwick Airport are shown below.

**Figure 5.5: Brighton Main Line upgrade, Croydon area**

Source: Network Rail

**Figure 5.6: Proposed Gatwick Airport Station track layout enhancements**

Source: Network Rail South East Area Route Study (September 2015)
5.1.4.4 Redhill and the North Downs Line

The planned work to bring into use a new platform at Redhill will provide additional capacity to turn trains round from the North Downs Line and run through to Gatwick. This work is planned to take place in December 2017 and Great Western Railway are planning to operate a second direct train per hour to Gatwick as a result. This would improve train services for employees commuting from Reigate.

However, Network Rail have advised that they have not yet secured funding for upgrading some level crossings on the North Downs Line which would otherwise cause unacceptable delays for road and footpath users with a more frequent rail service. The level crossings in question are mostly between Reigate and Shalford. This could delay the improvements being implemented.

5.1.4.5 Gatwick Airport Station

Gatwick Airport station currently acts as an interchange, primarily for passengers connecting to air services via the terminals but also for staff, commuters and local residents. The railway station, located adjacent to South Terminal, handles over 18 million airport passengers per annum – over 40% of all passengers through the airport. Of these, around 1 million people use the station for commuter journeys into London or to transfer between rail services to access employment locally around Gatwick.

Opened in 1958, the current station is capacity constrained despite a number of upgrades, including a £53 million improvement programme in 2014, which provided an additional platform (Platform 7) and improved circulation for passengers.

Accordingly, proposals exist to increase the size of the station concourse by infilling between the two pedestrian connectors between South Terminal and South Terminal forecourt. This will increase area for passenger circulation, allow for improved ticketing facilities, as well as provide for additional vertical circulation in the form of escalators, stairs and lifts down to platforms to enable those boarding and alighting at Gatwick to make full use of the new 12 car rolling stock provided on Thameslink services. This will improve platform conditions, enable faster boarding and alighting and allow passengers to find available seats more quickly and easily.

In December 2013, the Government announced in its 2013 National Infrastructure Statement that it would provide £50m, subject to the rest of the funding being secured from other stakeholders. At the end of 2014, Gatwick Airport and Network Rail each announced that they would contribute £30m to the project. Gatwick Airport has accordingly shown its commitment to improving rail access through this funding package. With design work still underway on the new

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21 Data collected by the Office of Rail and Road showed that the station had 18 million total entries and exits in 2015/16. This aligns with a throughput of 44 million passengers through Gatwick Airport between April 2016 to March 2017 and a rail mode share as recorded by the CAA of ~40%.
concourse scheme, there is potential for the track layout enhancements to be brought forward and constructed alongside the station concourse project.

5.1.5 Emerging Interventions

From the above analysis, the following rail interventions are needed to support local economic growth.

- Earlier morning trains on all routes to Gatwick Airport station to reflect earlier shift starting times and flights. This intervention does not require additional capital expenditure but may require additional operational expenditure for additional traincrew. Subject to a detailed diagramming exercise, existing units could start operation sooner. These earlier services well provide better connectivity both for employees on early shifts as well as air passengers catching the first departing flights of the day. As well as providing services for workers, they would presumably also benefit air travellers catching the first departing flights of the day. Track signalling upgrades could allow services to continue to run in parallel with overnight maintenance, which might otherwise restrict the ability to operate earlier services.

- Additional services on the Brighton Main Line to both Reigate, an important residential location for airport campus employees, and to the South Coast towns (which would remove the need to split and join trains and provide faster journey times to Gatwick Airport station). Some modification to the track layout at the station would also be required. This intervention would help better distribute the employment and economic impacts of the airport, as well as benefit air passengers using these services. This requires significant infrastructure intervention at East Croydon station and the nearby Windmill Bridge Junction to remove a known constraint to increasing capacity on the corridor. The contribution this scheme could make to capacity and connectivity on the route by releasing between 6 and 8 additional train paths per hour indicates this should be a priority for the GGB.

- Additional Horsham – Crawley services stopping at Gatwick, partly delivered by the Thameslink Programme but also by the track layout modifications at Gatwick Airport station. This would benefit the main employees living closer to the airport on this corridor.

- Additional and faster direct services to Gatwick from Guildford and Reading, via Reigate and Redhill. This would require completion of the planned additional platform at Redhill. This would enable Guildford and possibly Reading to benefit more from the growth of Gatwick as well as improving air passenger access by rail to the airport from these locations.

- Improved punctuality delivered by the intervention at Croydon and Windmill Bridge but also potentially by the delivery of some aspects of the Digital Railway project (automatic train control and traffic management) on the cross-London Thameslink route by the Thameslink Programme.
5.2 Road

5.2.1 Key Connectivity Issues

As outlined in Chapter 4, travel by car to Gatwick plays an important role for employees. Key employee home locations include Crawley, Reigate & Banstead, Mid Sussex, Horsham and Brighton and Hove. These locations need to be served by a road network providing reasonable and reliable journey times at peak times of day.

The main roads serving Gatwick consist of a combination of the Strategic Road Network (SRN), operated by Highways England, and primary roads operated by West Sussex or Surrey County Councils. In the context of the key employee home locations listed above, the key routes serving Gatwick which have been considered as part of this study are:

- M23 / A23 linking Brighton and the South Coast with Gatwick;
- The A27 corridor along the South Coast, in particular between Worthing, Brighton and Lewes;
- M25 London orbital providing wider strategic connectivity between Gatwick, the South East, London, and the rest of UK;
- A264 linking Horsham, Crawley and East Grinstead (via the A22); and
- A2011 Crawley Avenue linking Junction 10 and Junction 11 of the M23 through central Crawley.

Analysis of journey times on the road network identified that during peak commuting times (07:00-10:00 and 16:00-19:00), significant journey time variability exists illustrating the traffic congestion faced by commuters.

For example, a journey from Croydon to Gatwick would typically take about 20 minutes during off peak periods but can take closer to 30 minutes on average for journeys in peak periods, with maximum journey times up to 100 minutes (see Figure 5.6).
Figure 5.7: Example Journey Time Variability - Croydon to Gatwick

![Graph showing journey time variability](image)

Source: Arup analysis of 2016 GPS journey time data for journeys by road to/from Gatwick.

Figure 5.8 shows the variability of journey times by the key routes into Gatwick Airport. The data is presented to show the journey times observed across a range of typical commuting days (outside of school holidays) and what proportion of the days operate at different journey times. We have excluded the slowest 5% of days to account for incidents that may occur in the network that are not the result of capacity-related congestion.

We have evaluated journey time reliability using a recognised planning measure known as the **buffer index**, represented as the percentage difference of the 95th percentile journey time (i.e. where on 95 days out of 100 the journey time is lower) and the average time. Typically, drivers perceive an index of 20% to be acceptable during peak times, i.e. they expect to take 20% longer than average conditions to complete their journeys.

Each route is described as follows:

**M23 / A23 linking Croydon (and Greater London to the North) to Gatwick**

For journeys between Croydon and Gatwick there is **poor journey time reliability** as the buffer index is 44% during the morning peak inbound direction and 36% during the afternoon peak outbound direction.

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22 The figure shows minimum and maximum journey times as dashes and the full range of journey times will occur between these points. The 25th percentile and 75th percentile are represented by the white rectangle and show typical journey times. The 50th percentile or median journey time is shown as black line within the white rectangle. Where the white rectangle and black dash overlap, this indicates greater journey time reliability as journey times are broadly the same.
M23 / A23 linking Brighton and the south to Gatwick

The journey times by road observed from Brighton to Gatwick during the morning peak hour show reasonable reliability as the buffer index is around 24% into GAL in the morning and 17% outbound in the evening peak.

Figure 5.8: Journey Time Variability by Route

Source: Arup analysis of GPS journey time data for working days outside of public holidays for the period (1st April 2016 to 30th June 2016).

M25 London orbital providing wider strategic connectivity between Gatwick, the south east, London, and the rest of UK

The journey times by road observed from the M25 in the west (from Junction 10) into Gatwick show poor reliability with a buffer index of 58% inbound in the morning peak and 61% outbound in the evening peak. For the M25 east of the M23 (from Junction 5) into Gatwick there is poor reliability with a buffer index of 143% inbound during the morning peak and 45% outbound in the evening peak.

A264 linking Horsham, Crawley to Gatwick

Journey time reliability via the A264 to Gatwick is considered poor during the morning peak with a buffer index of 30%.
A22 and A264 from East Grinstead to Gatwick

Journey time reliability between East Grinstead and Gatwick is considered poor inbound during the morning peak with a buffer index of 47% and 37% outbound during the evening peak.

A2011 through Crawley

Along the A2011 within Crawley to Gatwick, inbound journey time reliability is poor with a buffer index of 55% during the morning peak and 43% outbound during the evening peak.

South Coast via the A27

The South Coast routes to Gatwick via the A27 / A23 from Worthing and Lewes show moderate journey time reliability issues with a buffer index of 33% observed from Worthing during the morning peak. The route to Lewes indicates an index of 30% during the PM peak. This is likely to be driven by good reliability along the A23 but poor reliability along the A27.  

Summary

In summary, connectivity issues have been identified on the following routes:

- Croydon to Gatwick corridor along the A23 / M23.
- M25 east and west of the M23 junction particularly between Junction 5 and 10.
- A264 between Horsham and East Grinstead.
- A2011 through Crawley.
- A27 corridor along the South Coast.

5.2.2 Committed schemes

5.2.2.1 Strategic Road Network

There are a number of schemes currently under development within the study area that respond to a number of the issues identified in the previous section. Highways England maintain a pipeline of schemes under their Road Investment Programme (RIP) which includes schemes identified for progression under the DfT’s Road Investment Strategy (RIS) 1 covering the period 2015 - 2020. In addition, a number of local schemes are also planned that deliver improvements to junction capacity / traffic flow supporting development or safety enhancements. Relevant schemes, and their status, are outlined below in Table 5.4.

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23 Note, the GPS journey time data analysed does not extend further east than Lewes and accordingly journey time variance to Eastbourne or Hastings cannot be estimated.
### Table 5.4: Proposed schemes on the SRN

<table>
<thead>
<tr>
<th>Road</th>
<th>Scheme</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M23</strong></td>
<td>M23 Junctions 8-10 Smart Motorways (additional running lane provided through using the hard shoulder) – open to traffic 2020. This includes improvements to the M23 Junction 9 and spur to Junction 9a at South Terminal roundabout.</td>
<td>Committed, fully funded. Note that the extent of the improvements made between Junction 9 and 9a are still being discussed between Highways England and GAL. Delivery of three lanes in each direction along the Spur is likely to form part of a separate package of works, potentially as part of RIS2.</td>
</tr>
<tr>
<td></td>
<td>M23 Junction 10 improvements – include increased capacity at end of slip roads at Junction 10</td>
<td>Committed, fully funded. The M23 J10 works that support the housing development ‘Forge Wood’ are due to go on site later in 2017.</td>
</tr>
<tr>
<td></td>
<td>M23 Junction 11 improvements – details have not been provided though it is understood that the scheme may require traffic signals and additional traffic lanes on certain approaches to the roundabout.</td>
<td>The M23 Junction 11 scheme is programmed to start in May 2017 (junction with A264). In addition, planned works are in design to support a large development at Pease Pottage that needs to be complete early 2019; this will improve Junction 11 as appropriate.</td>
</tr>
<tr>
<td></td>
<td>Redhill Garden Community housing development (4500 units) – new M23 junction between Junctions 8 and 9.</td>
<td>Planning application yet to be submitted, earliest scheme would be implemented would be 2022. Scheme not committed and will be subject to developer contributions.</td>
</tr>
<tr>
<td><strong>A23</strong></td>
<td>Hooley – Convert the short single lane section of carriageway on the A23 from Star Lane to Netherdene Drive in Hooley to two lanes. This will also include upgrading the traffic signals at the Star Lane Junction to improve their efficiency.</td>
<td>Highways England scheme, construction expected by end 2019, funding provided through to detailed design. Construction funding still to be confirmed.</td>
</tr>
<tr>
<td><strong>M25</strong></td>
<td>M25 Junction 8 - increase capacity at the junction. This will include widening the carriageway, new traffic signals and increasing stacking capacity at the top of Reigate Hill to reduce queuing back onto the M25.</td>
<td>This scheme is funded for preliminary and detailed design and waiting confirmation of construction funding.</td>
</tr>
<tr>
<td></td>
<td>M25 Junctions 10-16 - hard shoulder running and 4-lane through-junction running</td>
<td>Committed. Start of works in March 2020 and open to traffic in 2023.</td>
</tr>
<tr>
<td></td>
<td>M25 South West Quadrant – enhancing capacity from Junctions 7 - 16 of M25.</td>
<td>No scheme committed, under review by the ongoing strategic study.</td>
</tr>
<tr>
<td><strong>A27</strong></td>
<td>A27 Chichester Bypass – provision of grade separation of six junctions along the A27 corridor to reduce delays.</td>
<td>Committed</td>
</tr>
<tr>
<td></td>
<td>A27 Arundel Bypass – provision of new dual carriageway bypass around Arundel to reduce delays.</td>
<td>Committed</td>
</tr>
<tr>
<td></td>
<td>A27 Worthing &amp; Lancing improvements – localised widening to provide a continuous dual carriageway.</td>
<td>Committed</td>
</tr>
<tr>
<td></td>
<td>A27 East of Lewes – includes options for Selhurst bypass and various junction improvements.</td>
<td>Committed</td>
</tr>
</tbody>
</table>

Source: Schemes confirmed with Highways England though this study
As can be seen from Table 5.4, there are a number of planned interventions that are likely to address a number of connectivity issues identified earlier. All of the schemes listed will provide a benefit for Gatwick Airport employees, as well as air passengers, and should be supported by the GGB. Those schemes subject to decisions to secure construction funding that are most relevant are:

- A23 Hooley Improvements.
- M25 Junction 8 Improvements.

In March 2017, Highways England published its Stage 3 report for the M25 South West Quadrant (M25SWQ). This followed a formal announcement in December 2014 where a series of “strategic studies” were announced under the DfT’s RIS1 (period 2015-2020), covering a series of locations requiring specific review given their strategic importance.

The report recognises the significance of this section of the M25 providing important connections both at a local and national level. A key issue with the route is the lack of viable alternative routes (unlike other sections of the M25) making this an extremely busy section of motorway (220k vehicles per day). Severe congestion is noted as a regular occurrence with a 12 hour ‘peak period’ lasting from 6am to 6pm.

The report proposes that a single capacity enhancement to the M25 is not the best solution and an integrated package of measures for the corridor should be developed. Additional capacity for the M25 is not specifically defined but a capacity improvement of around 20-25% is mentioned which would relate to the provision of an additional lane around this section. Notwithstanding the lack of detail in the report on specific proposals, there is clear intent and justification for significant enhancements in capacity through this corridor. The timescales for delivery are unclear but given the extent of journey time reliability issues described above, and the likely complexity of stakeholder engagement, it is important that Highways England identify a preferred option and implement as soon as possible.

5.2.2.2 Local authority road network

As already highlighted there are significant issues with journey time variability on the A264 from the Horsham and Crawley to the west of the airport and East Grinstead to the east. The A264 between the M23 Junction 11 and the A24 provides access to the wider strategic road network and Gatwick from Horsham (including the new housing proposed at North Horsham). Therefore, there is a need to seek to reduce journey time variability on this corridor for employees living in Horsham travelling to Gatwick.

No single scheme along this corridor was identified as part of this study although a number of local improvement schemes have been identified in local Strategic Infrastructure Plans (SIP). These included:

- A24 / A264 Great Daux Roundabout junction improvements (£4.4m funded from developer contributions);
- A264 / B2195 Moorhead Roundabout improvements (£0.1m funded from developer contributions);
- A264 / Rusper Road improvements (funded from developer contributions); and
- A264 / Tower Road / Faygate Lane junction improvements (£0.4m funded from developer contributions).

All of these schemes are identified in the approved Horsham 2016 Infrastructure Delivery Plan and are scheduled for delivery between now and 2025. These schemes are particularly important for unlocking land for the North Horsham development adjacent to the A264.

Similarly, no single scheme was identified on the A264 to East Grinstead from the M23. Again, a number of SIP schemes for Mid Sussex District Council were identified and included:

- A22 London Road / A264 Copthorne Road junction improvements (£0.5m to be funded by Surrey County Council to limit additional congestion and improve safety, along with HGV route diversion to avoid junction); and
- A22 London Road / Lingfield Road junction improvements (described in the draft Infrastructure Plan though not explicitly in the approved Mid-Sussex Infrastructure Package).

Both of these schemes are subject to funding from a combination of Community Infrastructure Levy (CIL)\(^{24}\), WSCC and local growth funding sources.

These improvements will provide capacity improvements but it should be noted that new development will add its own traffic to roads around Gatwick.

### 5.2.3 Schemes within Crawley

A new Crawley Western Relief Road (CWRR) has been identified by earlier studies examining potential additional housing development within Crawley. The new road would be on the western side of Crawley providing a new connection from the A264 at Bewbush bypassing Ifield and Langley Green before joining the A23 north of Fleming Way. It would provide access to new development and help reduce traffic congestion along the A23 Crawley Avenue and through Crawley itself. This scheme is not currently funded or committed for implementation.

\(^{24}\) CIL is a compulsory charge that local planning authorities can levy upon new development as a condition of granting planning consent. A full description is provided in Appendix F.
Figure 5.9: Preliminary Alignment for Crawley Western Relief Road

Source: Preliminary alignment of CWRR as produced by West Sussex and Halcrow, November 2005

Smaller but complementary schemes are identified in the Crawley Infrastructure Delivery Schedule as shown in Table 5.5. These schemes will enhance connectivity through the centre of Crawley, though are unlikely to provide the transformational benefit that the CWRR would provide for town centre congestion.

Table 5.5: Schemes for Crawley as identified in draft West Sussex Infrastructure Plan

<table>
<thead>
<tr>
<th>Infrastructure Project</th>
<th>Reason for Improvement</th>
<th>Cost Estimate</th>
<th>Funding Source</th>
<th>Lead Delivery Party(ies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Network Improvement - The Boulevard, Crawley, design to enable opportunity areas identified in the Crawley Local Plan to be brought forward.</td>
<td>Mitigation &amp; Improvement</td>
<td>£4.7m</td>
<td>West Sussex County Council (WSCC) and Coast to Capital (C2C) Local Enterprise Zone (LEP)</td>
<td>WSCC and Crawley Borough Council (CBC)</td>
</tr>
<tr>
<td>Road Network Improvement – Station Way</td>
<td>Mitigation &amp; Improvement</td>
<td>£5.2m</td>
<td>WSCC + C2C LEP</td>
<td>WSCC + CBC</td>
</tr>
<tr>
<td>Road Network Improvement - Peglar Way, Crawley, design to enable opportunity areas</td>
<td>Mitigation &amp; Improvement</td>
<td>£5.1m</td>
<td>WSCC + C2C LEP</td>
<td>WSCC + CBC</td>
</tr>
<tr>
<td>Infrastructure Project</td>
<td>Reason for Improvement</td>
<td>Cost Estimate</td>
<td>Funding Source</td>
<td>Lead Delivery Party(ies)</td>
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<tr>
<td>------------------------</td>
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<tr>
<td>identified in the Crawley Local Plan to be brought forward.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Road Network Improvement - Northgate Avenue Roundabout and College Road, Crawley, design to enable opportunity areas identified in the Crawley Local Plan to be brought forward.</td>
<td>Mitigation &amp; Improvement</td>
<td>£4.8m</td>
<td>WSCC + C2C LEP</td>
<td>WSCC + CBC</td>
</tr>
</tbody>
</table>

Source: Crawley Borough Council, Infrastructure Delivery Schedule 2015

### 5.2.4 Emerging Interventions

The study identified that the following road interventions are needed to overcome journey time variability and enhance connectivity on the road network enabling Gatwick’s economic impact to be maximised:

- The M23 Smart Motorways scheme that would widen the motorway to effectively 4 lanes in each direction at peak times between Junctions 8 and 10. This scheme also proposes widening the M23 Junction 9 to 9a link. Analysis by GAL shows maximum benefit being provided by 3 lanes in each direction. However, delivery of full enhancement along the Spur may form part of a separate package of works, potentially as part of RIS2.

  These interventions will improve journey time reliability along the M23 and the M23 Junction 9 to Junction 9a link to the South Terminal roundabout. The study recommends that the GGB should support these interventions, noting the wider benefits that enhanced connectivity and capacity here would provide to other commuters, airport passengers and local businesses and residents.

- The Horsham – Crawley – Gatwick corridor will continue to be an important residential location for airport campus employees, especially with new developments such as North Horsham. Given the high journey time variability on the A264 and the A2011 through Crawley, this study identified that measures to improve local connectivity should be a high priority to support additional commuting, housing and other development along the Horsham-Gatwick axis. The improvements to the rail service on this corridor will undoubtedly help, but the close proximity to Gatwick means road based commuting by private car or bus will remain important.

  The study identified the CWRR as a key scheme for providing more capacity, relieving congestion and improving journey time variability. It would also provide additional opportunities for development and Section 106 contributions25.

- Ongoing journey time variability on the M25 Southwest Quadrant – is an issue which has been recognised by Highways England in their Stage 3 report for the M25 South West Quadrant (SWQ). The M25 is of strategic importance…

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25 Planning obligations under Section 106 (S106) are a mechanism which make a development proposal (that would not be acceptable otherwise) acceptable in planning terms through infrastructure investment provided by the developer. A full description is provided in Appendix F.
importance to the country and Highways England is promoting a package of measures to resolve congestion issues, which should be supported by the GGB.

- On the A23, north of the M25, Highways England has developed proposals to create dual carriageway through Hooley though construction funding is still to be confirmed.

- A number of committed schemes have been identified on the A27 to improve reliability along the corridor. As some airport campus employees live along this corridor the study recommends that the GGB should be supportive of these measures to improve connectivity to the South Coast (alongside the benefits of improvements to rail connectivity too).

Key connectivity outcomes for road are shown in Figure 5.10.

Figure 5.10: Connectivity interventions for road identified through GGB study

Source: Arup analysis of journey time variability and reliability
6 Task 4 - Developing the strategic case

This chapter identifies the main schemes that the GGB should support and develop:

**Rail:** A significant upgrade to capacity on the Brighton Main Line in the East Croydon area supported by changes to the railway track layout at Gatwick Airport station to enable more trains to call there. The significant upgrade requires additional platforms at East Croydon station and separating tracks using bridges at nearby flat junctions (known as grade separation) to remove conflicts, especially at Windmill Bridge Junction where the Thameslink route to London Bridge and the route to Victoria station diverge. This would deliver somewhere between 6-8 more trains per hour. It would remove the need to split and join trains from the South Coast too. It therefore addresses many of the connectivity gaps identified. This is an urgent project since the required land may be lost in the significant developments planned in the Croydon Opportunity Area mentioned earlier.

**Road:** The M23 is the main access route to Gatwick Airport from London and the M25. Increasing capacity and reducing journey time variability is an important outcome. Delivery of Highways England’s scheme to convert the M23 from Junctions 8 to 10 to Smart Motorway (providing an extra lane of capacity at peaks times) should be a key priority for the GGB. This should include its extension to Junction 9A and the encouragement of developer-led improvements at Junctions 10 and 11.

The proposed, but not yet funded, Crawley Western Relief Road would reduce delay on the A264 linking Horsham and Crawley to Gatwick, as well as the A2011 through Crawley. This scheme could also support a 24-hour express bus service between Horsham and Gatwick Airport.

Whilst the schemes above are the main recommendations from the study, there are a number of other important schemes that the study recommends that GAL (supported by the GGB) should continue to support:

- Changes to the railway timetable (supported by some modifications to the track layout at Gatwick Airport station) to enable more trains to stop at Gatwick from the Arun Valley line through Horsham and from the South Coast towns including Eastbourne and Lewes. Delivering more train services to the Gatwick – Crawley – Horsham corridor would enhance connectivity to this important residential location for employees, especially if combined with delivery of the Crawley Western Relief Road.

- Enhancements to the railway from Gatwick to Redhill, Guildford and Reading to enable two direct trains to operate hourly from Gatwick to Reading with faster journey times. This will not only make rail more attractive for travel from Reigate and neighbouring stations, but it could also encourage employees to live further along the line such as at Guildford where there is planned growth in housing.

- On the A23, north of the M25, Highways England has developed proposals to create dual carriageway through Hooley though construction funding is still to be confirmed.

- The Highways England scheme to enhance the connection from the M23 to the M25 at Junction 8 which would reduce journey time variability and improve capacity. Funding has yet to be confirmed.

Further afield, the study identified the importance of the following schemes for spreading Gatwick’s economic impact across the wider South East region. The study recommends that these should continue to be supported by GAL (and the GGB):
- Delivery of committed improvements to the M25 between Junctions 10 and 16 to improve wider connectivity and reduce journey time variability.

- Future improvements to the A27 between Worthing and Lewes, which suffers from delays and for which Highways England is proposing various bypass and junction enhancement schemes.

Task 4 focusses on developing a coherent strategic narrative to show how economic, employment and transport evidence comes together to support the case for investing in improving regional connectivity as well as Gatwick’s position in the road and rail network. This includes identifying the most appropriate transport schemes to be developed further – as described per below.

### 6.1 Context

Between 2016 and 2025, employment activity at Gatwick Airport is projected to grow by 13,000 jobs with these jobs spread throughout the UK. Analysis has shown that, since 2016, the growth in jobs will be focussed in the South East, specifically in the Coast to Capital LEP (+6,000), Gatwick Diamond (+5,000) and South East LEP (+900). Within these areas, almost half of this growth is likely to be concentrated at Crawley (+3,800 jobs), Croydon (+1,000) and Brighton, Hove and Lewes (+900). Connectivity to these centres is therefore important. Moreover, the transport and connectivity requirements of air passenger and commuter traffic across the South East broadly align with the requirements identified for Gatwick employees and, whilst employment growth at Gatwick is important, Gatwick-related traffic by 2025 is only a proportion of a much higher background commuter traffic across the South East.

Not surprisingly, a large employment area of growth is Gatwick campus itself with a forecast growth of 3,000 jobs. An analysis of the current employees at the campus shows that those who live within 15 miles of the airport tend to drive or catch a local bus to work. This area encompasses Crawley, Horsham, Horley, Redhill and East Grinstead, and highlights the importance of the local road network in terms of distributing the economic benefits of employment in the local region.

Rail is the chosen mode of transport for many employees living further afield and close to stations. Rail is also an important mode for passengers with a mode share of greater than 40%. It is particularly popular for those living in Brighton and Hove, and Croydon which reflects the frequent and fast service on the Brighton Main Line. Bus and coach is also attractive to some employees living in the Brighton area. Moreover, rail is also relatively strong for employees living close to the East and West Coastway rail routes, notably Worthing, Lewes and Eastbourne.

### The trouble with rail

The Gatwick Airport employee survey highlighted two key obstacles to greater use of rail by employees currently driving to work. One is that trains do not run at all times they are needed and our analysis shows that a significant proportion of
employees now start work before the first trains arrive at Gatwick Airport. Running earlier trains might be attractive to some of these workers as well as providing earlier services for passengers departing on early morning flights.

The second obstacle is journey times and frequency of service. The Brighton Main Line is running close to capacity and this means that trains from the East and West Coastways have to join and split at Haywards Heath every half hour, resulting in longer journey times to and from towns on the coast. In addition, the layout at Gatwick Airport makes it difficult to stop all trains there in the peak periods. Journey time comparison shows Croydon and Brighton having faster journey times by rail when compared to road but other towns showing comparable or inferior journey times when taking the train as compared to driving.

One area where many Gatwick employees work but which is served poorly by rail is Reigate & Banstead. To attract greater use of rail, this service would need to be significantly improved as this area is within 15 miles of the airport, which is a distance which favours use of road. Today it is served by only one hourly direct train from Reigate to Gatwick, which is relatively slow as it has to reverse at Redhill.

### 6.2 Committed and possible rail schemes

The delivery of the final stage of the Thameslink Programme by December 2018, will result in a transformed timetable to Gatwick Airport station. This should result in more trains to more cross London connections stopping at Gatwick from the Arun Valley line during the peak periods. Delivering more train services to the Gatwick – Crawley – Horsham corridor would enhance connectivity significantly to this important residential location for employees, especially if combined with delivery of other road and public transport measures – as described in Chapter 6.3 below. There is also the possibility of one or two additional trains from Eastbourne to London to fill gaps in the current timetable. This should be welcomed by employees living on these two routes but in itself will not be transformational in improving rail connectivity.

The planned new platform at Redhill in December 2017 will provide the capacity to run two direct trains per hour on the North Downs Line from Gatwick to Redhill, Guildford and Reading. Not only will it be more attractive for Reigate and neighbouring stations, it could also encourage growth in rail commuting by employees living further along the line such as at Guildford where there is planned growth in housing. However, this scheme has yet to secure the necessary £10-15m funding for upgrading level crossings across the North Downs Line.

However, to significantly improve connectivity to the main centres of employment growth, more and faster trains are needed on the Brighton Main Line. This is the key rail artery supporting growth in and around Gatwick as well as connecting the South Coast to London and supporting other business located in the region that need rail connectivity for staff, customers and suppliers. The main line will be operating close to capacity when the Thameslink Programme is operational, primarily due to the flat junctions in what is termed the “Selhurst Triangle” just north of East Croydon station. Here the route to Norwood Junction and London Bridge diverges from the route to Selhurst and London Victoria and
constrains the number of trains that can operate through East Croydon. To unblock the current capacity constraints, at least some of these flat junctions at Croydon need to be grade-separated along with re-designing the layout at Croydon station and other smaller enhancements along the Brighton Main Line, including the layout at Gatwick Airport station.

Network Rail has developed a scheme to Strategic Outline Business Case which will deliver 6-8 additional trains per hour to London, with a reportedly positive business case. This scheme has recently been endorsed in a study by WSP Parsons Brinckerhoff for the DfT which concluded: “The key strategic priority for this corridor is to pursue Network Rail’s upgrade proposals for the existing Brighton Main Line. Our analysis has shown that no other proposals would deliver a similar level of improvements in similar timescales.” However, this is an urgent project since the required land may be lost in the significant developments planned in the Croydon area. Network Rail state a requirement for £12-15m development funding to be ready to deposit the Transport and Works Act (TWA) application for the project.

An alternative to investment in the Brighton Main Line that has been suggested is reinstating the Lewes – Uckfield line, as proposed in the East Sussex Local Transport Plan. This could be used as a diversionary route to the Brighton Main Line. However, Network Rail assessed it as having no business case in 2009 and only of limited use as a diversionary route in times of disruption. It is therefore not supported as a core scheme for improving connectivity. In addition, the recent study by WSP Parsons Brinckerhoff mentioned above identified that there was no business case for reopening this link.

So, given its strategic importance to improving connectivity and the urgency to progress it, we have chosen to explore possible funding mechanisms to support the development of the Brighton Main Line Upgrade Programme and specifically the remodelling of Croydon and Windmill Bridge Junction. This is because of the impact in supporting the highest employment growth with almost half of this concentrated in Crawley, Croydon, Brighton, Hove and Lewes. In addition, these improvements will play an important role in supporting commuter growth between the region and London as well as air passenger growth to and from Gatwick.

Crossrail 2 will provide transformational connectivity benefits between Surrey and Hertfordshire through Central London, in particular through Clapham Junction which provides connectivity to Gatwick Airport. In addition, Gatwick Airport will be connected to HS2 Phase 1 at Old Oak Common from the West London Line through Clapham Junction from 2026. These schemes are transformational and GAL and the GGB should acknowledge their support for these in terms of the longer term and longer range connectivity they will provide. In terms of employment growth to 2025, the impact of these schemes will be minimal with potential redistribution longer-term beyond the timeframe of this study. A high-level review of wider and longer term connectivity is provided in Chapter 8.

26 London and South Coast Rail Corridor Study, WSP Parsons Brinckerhoff, April 2016
6.3 The road network

The M23 is the main access route to Gatwick Airport from London and the M25. Increasing capacity and reducing journey time variability is an important outcome. Delivery of Highways England’s scheme to convert the M23 from Junctions 8 to 10 to Smart Motorway (providing an extra lane of capacity at peaks times) should be a key priority for the GGB. This should include its extension to Junction 9A and the encouragement of developer-led improvements at Junctions 10 and 11.

Analysis of journeys by car suggests that the local road network round Gatwick and Crawley suffers from congestion. These include the A264 linking Horsham and Crawley to Gatwick, as well as the A2011 through Crawley which suffer particular delays. With Crawley being the main centre for employment and residential growth related to Gatwick and with bus and car being the dominant local transport mode, this congestion will need to be addressed. Bus priority on Fastway has been implemented to help mitigate this. In addition, a number of schemes have been identified in the Mid Sussex and Crawley Infrastructure Plans but these focus on enabling opportunity areas rather than addressing congestion.

The proposed, but not yet funded, Crawley Western Relief Road would reduce delay on the A264 linking Horsham and Crawley to Gatwick, as well as the A2011 through Crawley. This scheme could also support a 24-hour express bus service between Horsham and Gatwick Airport. This improved public transport connectivity would be in addition to more frequent services on the Arun Valley rail line from Horsham as described in Chapter 6.2 above. Accordingly, we have chosen to explore possible funding mechanisms to support the Crawley Western Relief Road, as part of an overall package of schemes which provide a local connectivity benefit.

In addition to this local corridor, GAL and the GGB should continue to acknowledge and support a range of committed and proposed schemes which provide benefits across the Gatwick Diamond and the Coast to Capital LEP. These include schemes on the A264 which have been identified in the Horsham 2016 Infrastructure Delivery Plan and are key to connecting major housing developments in that corridor. In addition, there are junction improvement schemes identified on the A22 / A264 route to East Grinstead which should be supported, particularly as there is no east – west rail connection in Mid Sussex.

Our analysis also identified some delays to the M25. The scheme to widen the connection to the M25 at Junction 8 should also provide benefits for Gatwick employees and air passengers, but also background commuter traffic in terms of improved access to the M23 and M25, and should be supported. However, construction funding has not yet been secured. Committed improvements to M25 Junctions 10 to 16 will improve wider connectivity, planned to be open to traffic in March 2023.

Longer term, Highways England have identified the M25 South West Quadrant as requiring an additional 20-25% capacity for both local and national connectivity. In many ways, it could be viewed in the same light as the Brighton Main Line.
upgrade for rail as a scheme of similar scale and national importance. Local stakeholders should support improvement to the M25 in this area.

Journeys to the south of Gatwick on the A23 to Brighton are more reliable. However, towards London, there is a short single lane section at Hooley that causes delays and there is a scheme currently being designed by Highways England to widen the section to two lanes. Construction funding has not been confirmed.

Our analysis shows that the A27 between Worthing and Lewes suffers from some delays. Highways England have a number of committed schemes to add bypasses, improve junctions and widen to dual carriageway at Worthing and Lancing which should all help alleviate congestion. These should be supported to help avoid potential slippage from the RIS1 programme (2015-2020).
Figure 6.1: The future Gatwick employment context (new jobs by 2025)
6.4 Summary tables

The above schemes have then been reviewed based on a Red-Amber-Green (RAG) analysis, building on Task 1 to 3 and as provided in Appendix E.
7 Task 5 - Identifying stakeholders and funding mechanisms

In this chapter, we have assessed two schemes as examples to show how schemes could be promoted and funded. The two schemes are the Crawley Western Relief Road and the Brighton Main Line upgrade around the Croydon area and Windmill Bridge Junction. The exemplar schemes have been selected as they offer different levels of local and regional connectivity, explore both road and rail schemes and have differing levels of scale and complication. These schemes offer a reasonable sample of the types of investment that are required over the period to 2025.

The first part of the assessment relates to how to coalesce stakeholders benefitting from the identified improvements behind the case for investment.

- For the Crawley Western Relief Road (CWRR), the following stakeholders have been identified - Crawley Borough Council, Horsham Borough Council, West Sussex County Council, Coast to Capital LEP, local businesses, including Gatwick Airport Ltd and Manor Royal.

- For the Brighton Main Line upgrade at Croydon/Windmill Bridge Junction, the following stakeholders have been identified - Croydon Borough Council, Lambeth Borough Council, Greater London Authority, Crawley Borough Council, West Sussex County Council, East Sussex County Council, Brighton and Hove Council, Coast to Capital LEP, local businesses, including Gatwick Airport Ltd, Network Rail, Department for Transport and Govia Thameslink Railway.

A range of funding opportunities exist, including traditional (such as grants from the Department for Transport) and non-traditional sources (such as creating income from capturing the value around nodes to local businesses). We recognise that a package of investments and funding sources will be required to support Gatwick’s growth and based on this we have determined exemplar funding packages for our two schemes based on existing frameworks that exist and using benchmarks from elsewhere.

- For the Crawley Western Relief Road, the following funding sources have been identified. To cover a potential cost of £50 million, between £7 million and £31 million could be raised from sources such as the Community Infrastructure Levy, Section 106, LEP funding (Local Growth Fund), Business Improvement District Funding (Manor Royal Business Park) and additional private sector contributions. The remainder would still need to be covered by the Department for Transport.

- For the Brighton Main Line upgrade at Croydon/Windmill Bridge Junction, the following funding sources have been identified. To cover a potential cost of £1.6 billion, between £164 million and £445 million could be raised from sources such as user charges, LEP funding, the Community Infrastructure Levy, resale of land and property, potentially a Special Purpose Tax: Enterprise Zone as well as additional private sector contributions (which we recommend support the project’s development). The remainder would still need to be covered by the Department for Transport.
7.1 Introduction

For Task 5, we have selected two example schemes for further investigations into funding and financing arrangements. We describe mechanisms to coalesce stakeholders benefitting from the identified improvements behind the case for investment (including case studies of the East West Rail consortium and West Anglia Taskforce) and the feasibility of forming potential partnerships with local authorities, LEPs, businesses and other stakeholder groups. The consortium model promoted by East West Rail has been highly effective at planning and securing funding and commitment around the project. A similar approach, creating the West Anglia Taskforce, has been effective at developing and securing cross-stakeholder support around the case for significantly enhancing the West Anglia Corridor.

The exemplar schemes have been selected as they offer different levels of local and regional connectivity as outputs, explore both road and rail schemes and have differing levels of scale and complication. The selected schemes are:

- The Crawley Western Relief Road (CWRR) proposal for a new road around the north-western side of Crawley from the A264 to the A23. This improves connectivity, opens up local land for development in Gatwick’s major employee hub and improves access between Horsham and the airport site. The scheme is being developed by West Sussex County Council. The capital cost of the scheme is estimated to be around £50m.

Figure 7.1: Crawley Western Relief Road route around Crawley town centre

- The proposed Brighton Main Line upgrade, which includes reshaping the Croydon area and Windmill Bridge Junction. This large project would...
result in 6 additional trains per hour to London from south of Gatwick (and 2 trains per hour on the Reigate Thameslink service), faster journey times, and more trains stopping at Gatwick in the morning peak. In turn, this would be expected to stimulate rail revenue growth, housing and business growth (most notably in Croydon but also closer to Gatwick Airport and towards the South Coast). The scheme is being developed by Network Rail and has an indicative capital cost of £1.59bn.

Figure 7.2: Brighton Main Line upgrade, Croydon area

7.2 Funding and financing

The terms financing and funding are sometimes used interchangeably, although there are important differences:

- Funding refers to the eventual payer of the costs that are incurred in building and operating the scheme. That is, the sources of revenue for a project that will be used to satisfy the capital and operating costs. The funders are those that pay for the asset in the end, and unlike financiers, do not expect their money back. Instead they receive a service, or some kind of benefit, in exchange for their contribution. Traditional funders of transport infrastructure include grant-making central government bodies (or, perhaps more appropriately, taxpayers) and end-users, as well as locally generated taxes, often channelled through local government.

- Financing refers to the financial arrangements put in place to provide the capital and operating costs. This can be in the form of debt (e.g. bank loans), or through more complicated structures such as equity investment in SPVs. The cost of financing will need to be met from funding sources. In this way, financiers are distinct from funders as they expect their money back, often with a risk and/or an interest premium. For these reasons, sources of finance are often easier to locate than sources of funding.

Financing is often accessible for local authorities in the UK through loans from the Public Works Loan Board (PWLB) and (for the time being) through the
European Investment Bank (EIB). It is possible to marry traditional funding sources (central government), with non-traditional financing sources. An example of this is the Public Private Partnership or Private Finance Initiative approach.

Nevertheless, every type of financing arrangement will require funding from one source or another. The individuals, businesses and local authorities that benefit from a project are likely to be the most willing funders and identifying the key beneficiaries for the project and aligning their contribution broadly to the extent to which they benefit, is also perhaps the fairest approach to funding major infrastructure investments. To that end, Sir Peter Hendy, now Network Rail Chairman, has made a number of announcements related to private sector and third party contributions to CP6 schemes which would help these receive priority consideration by Network Rail. This approach is being continued though the Hansford Review to encourage third-party investment and infrastructure delivery on the national railway.

7.3 Identifying stakeholders and beneficiaries

7.3.1 Crawley Western Relief Road (CWRR)

The CWRR may be necessary in order to safeguard the long term development of Crawley as a key employment hub for Gatwick. Crawley Borough Council identified in 2005 that “in the absence of such a road, any development on the western side of Crawley is likely to create significant transportation problems within Crawley.”27 In 2014, West Sussex County Council identified that the CWRR had previously been identified as helping facilitate “large-scale, mixed-use development to the west of Crawley”.28 Journeys between Horsham and Gatwick Airport would also be likely to benefit from a new road, providing better access to employment and business opportunities offered around the airport site. As such, Crawley Borough Council, Horsham Borough Council and West Sussex County Councils are likely to be supporters of the building of the road, on behalf of their constituent residents and businesses that would benefit. Environmental and other considerations would all need to be considered however.

In the same way, the CWRR could play a role in freeing up new housing and business sites nearby. New (as yet unknown) developers may well benefit from the new road as it would allow them to site housing and new business parks on adjacent sites. This includes the Homes and Communities Agency which has a significant land interest in the area. In some cases, planning permission for development may be entirely dependent on the building of the new road. The voice of local companies and the driver for local economic growth and job creation is represented through the Local Enterprise Partnership (Coast to Capital LEP), which provides a go-between between local authorities and businesses and

28 Available from http://www2.westsussex.gov.uk/ds/cttee/cc/cc171014i11d.pdf
helps prioritise transport investments in the area. Indeed, the area spanning Horsham and the Gatwick Diamond is one of Coast to Capital’s spatial priorities.

The CWRR scheme would bring benefits to local businesses, including those located on Manor Royal, and at the Gatwick Airport campus, through widening access to the pool of labour and providing improved airport access for leisure and work-related passengers.

Most specifically, the eastern end of CWRR would pass close to the existing Manor Royal Business Park (which is a designated business improvement district, or BID). Manor Royal currently provides 77% of all Crawley's employment land, (and 22% of all such land in the Gatwick Diamond). The Manor Royal BID has previously stated that improving local infrastructure is one of its key aims.

The potential beneficiaries and supporters of the CWRR scheme thus include a range of public sector bodies (at the local and county authority and including the Local Enterprise Partnership), and private businesses (including Gatwick Airport Ltd). They are summarised in the table below.

Table 7.1: Potential beneficiaries and supporters of a CWRR scheme

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crawley Borough Council</td>
<td>Local Authority District</td>
</tr>
<tr>
<td>Horsham Borough Council</td>
<td>Local Authority District</td>
</tr>
<tr>
<td>West Sussex County Council</td>
<td>Local Authority County</td>
</tr>
<tr>
<td>Coast to Capital</td>
<td>Local Enterprise Partnership</td>
</tr>
<tr>
<td>Local businesses, including Gatwick Airport Ltd</td>
<td>Businesses</td>
</tr>
<tr>
<td>Manor Royal</td>
<td>Business Park and Business Improvement District</td>
</tr>
</tbody>
</table>

Source: Arup analysis

7.3.2 Brighton Main Line Upgrade

The proposed upgrade to the Brighton Main Line would offer a step-change in terms of connectivity on the densely populated corridor between London and the South Coast. As such, the benefits would be transformational and wide-ranging, typical of a nationally important transport scheme and would be expected to provide growth up and down the corridor between central London, Clapham, Croydon and the South Coast. The impact will be felt far beyond Gatwick Airport though the benefits for its passenger, employment and supplier catchment will be important. For these reasons, many of the impacts would be managed by the Department for Transport and Network Rail and, especially given the high capital costs of the scheme, inclusion of these organisations within a future family of supporters would be key.

30 See Manor Royal Business District Business Improvement District Business Plan Proposal 2013 - 2018
The Brighton Main Line corridor is where most Gatwick campus employees and supplier businesses are concentrated. An upgrade to the line would bring benefits to local businesses, including Gatwick Airport, through improving access to local and regional labour pools, as well as offering improved links to clients and suppliers around the airport campus. It would also facilitate improved links to Croydon, central London and the South Coast, facilitating further growth in the commuter flows that service London’s economy.

A key strategic priority for the Coast to Capital LEP is to enable investment in growth locations and opportunity areas. Croydon and the Gatwick Diamond are listed among those spatial priorities, and Coast to Capital is currently campaigning for the new investment in rail infrastructure and rail services along the corridor.

Figure 7.3: Coast to Capital LEP spatial priorities

Much of the day-to-day expertise along the railway corridor is currently placed with the franchisee, Govia Thameslink Railway (GTR). Whilst the franchisee is only in-post until 2021 (and as such, many of the impacts are likely to be facilitated by their successor), they are best equipped to advise on performance and other operational issues, and could also advise on the likely revenue and patronage uplift from additional services.

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31 Coast to Capital – Strategic Economic Plan
32 See for example the letter from Coast to Capital to the Secretary of State for Transport calling for investment in the line, available from http://www.coast2capital.org.uk/media-centre/press-releases/letter-to-transport-minister.html
Finally, the major investment in the Brighton Main Line is likely to be supported by a wide range of other organisations, with a large geographical spread. This includes councils, private sector organisations and central government bodies. Whilst the number of interested parties suggests that alignment of objectives could be a challenge, the diverse range of stakeholders implies a greater chance of political support and (potentially) a wider funding pool to draw on. The beneficiaries and funders are listed in the table below.

Table 7.2: Potential beneficiaries and supporters of a BML upgrade scheme

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local businesses, including Gatwick Airport Ltd</td>
<td>Businesses</td>
</tr>
<tr>
<td>Croydon Borough</td>
<td>London borough</td>
</tr>
<tr>
<td>Lambeth Borough</td>
<td>London borough</td>
</tr>
<tr>
<td>Greater London Authority</td>
<td>Mayoral authority and Local Enterprise Partnership</td>
</tr>
<tr>
<td>Crawley Borough Council</td>
<td>Local Authority District</td>
</tr>
<tr>
<td>West Sussex County Council</td>
<td>Local Authority County</td>
</tr>
<tr>
<td>East Sussex County Council</td>
<td>Local Authority County</td>
</tr>
<tr>
<td>Brighton and Hove Council</td>
<td>Unitary authority</td>
</tr>
<tr>
<td>Coast to Capital</td>
<td>Local Enterprise Partnership</td>
</tr>
<tr>
<td>Network Rail</td>
<td>Rail infrastructure owner</td>
</tr>
<tr>
<td>Department for Transport</td>
<td>Government department and franchising authority</td>
</tr>
<tr>
<td>Govia Thameslink Railway</td>
<td>Current operator (to 2019) of Thameslink, Great Northern and Southern franchise</td>
</tr>
</tbody>
</table>

Source: Arup analysis

On the following pages, we review the East West Rail Consortium and the West Anglia Taskforce, which provide case studies of how the supporters of major infrastructure investment can join forces and collaborate to advocate for the scheme whilst developing the technical solution and business case. The West Anglia Taskforce example is particularly relevant as the route has similar challenges in terms of airport and other user traffic mix and the need to secure agreement around the need for significant capacity enhancing improvements.

Consideration of similar approaches for the larger projects around Gatwick Airport – particularly the Brighton Main Line upgrade and potentially the CWRR as well – is one of our key recommendations. This could make use of existing organisational structures and working relationships. Membership might also be extended beyond the scope of the East West rail consortium – which included local authorities only - to include the relevant LEPs and major businesses.
The East-West Rail Consortium was created in 1995 to support the re-opening of the rail link between East Anglia, Oxford, Milton Keynes and Cambridge. The proposed East West rail line has many parallels with the area around Gatwick Airport: it is a similar distance from central London and has experienced similar rapid levels of recent economic growth and the consequent strains on transport networks and on local housing affordability. The reopening of the rail line aims to build on the area’s previous success, whilst facilitating further sustainable growth by connecting areas of strong population and housing demand to new employment and business opportunities.

The Consortium’s board consists of elected members from the unitary, district and county-level local authorities that support the re-opening of the route. Businesses and others are represented through those local authorities. The chair of the Consortium currently sits with Cambridgeshire County Council and overall responsibilities (e.g. for communications, project management, etc.) are divided between consortium members through a Works in Kind agreement. Although Local Enterprise Partnerships are formally not part of the Consortium (which pre-dates their creation), SEMLEP (South East Midlands LEP) is represented through attendance at meetings. Separately, the Department for Transport and Network Rail are represented as strategic partners. The Consortium includes supplementary delivery bodies for each of the route sections (western, central and - in due course - eastern), which include the relevant sub-groups of members.

The Works in Kind agreement facilitates provision of communications, project management, highway, planning and environmental resources from the Consortium members and from Network Rail, and has helped to secure significant additional resources when compared with a traditional promoter / local authority / infrastructure provider relationship. This has allowed the project to be developed more quickly and in an a more integrated manner than would otherwise have been the case. The committed Works in Kind was valued at £45m+ in February 2016. The close working has also helped deliver other policy outcomes such as employment and training opportunities for local residents.

In 2012, the Government announced funding of the western section of the route and in 2016, a further funding contribution of £110m to the central section was announced. The central section of the scheme is now included in the UK National Infrastructure Plan and is perhaps the centrepiece of the National Infrastructure Commission’s recent transport study into the Oxford – Cambridge corridor.

In December 2016, the Government announced that a new organisation called East West Rail would be created to deliver the new infrastructure. This Government-owned company would be separate to both the East West Rail Consortium and, importantly, to Network Rail. This effectively takes control of the delivery of the project away from Network Rail – a model similar to that employed for High Speed 1 and High Speed 2 – and with greater degrees of vertical integration between the management of infrastructure and the operation of train services that is uncommon in the rail industry.

Government support for a project of this scale that was not promoted by either DfT or Network Rail has been described as “unique” (by ADEPT) and is no doubt due in part to the joined up, articulate and effective nature of the East West Rail Consortium and the Works in Kind agreement that has facilitated it.

Source: Arup analysis, www.eastwestrail.org.uk, ADEPT, Department for Transport

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33 ADEPT is the voice of Local Authority county, unitary and metropolitan Strategic Place Directors across England with responsibility for the key place based services, including transport, environment, planning, economic development, housing and waste.
7.4 Illustrative funding options

A range of funding opportunities exist, including traditional sources (such as grants from the Department for Transport) and non-traditional sources (such as creating income from capturing the value around nodes to local businesses). We recognise that a package of investments and funding sources will be required to support Gatwick’s growth and, based on this, we have determined exemplar funding packages for our two schemes based on existing frameworks that exist and using benchmarks from elsewhere. The examples are included here as an illustration of what might be possible without substantial changes in law or responsibilities, or re-appropriation of funds that have already been ring-fenced for other means. In particular, for the BML upgrade, we have assumed that the Greater London Authority’s Council Tax precept, Mayoral CIL and business rates supplement are “taken” by Crossrail 2, so have not included them within the scope of this analysis.
Importantly, only a basic level of analysis has been included at this time, and substantial further work is needed before a funding package can be determined. At this stage we have not investigated in detail the transaction costs associated with each funding stream, which might limit the amount of funding available.

Nevertheless, it is apparent from this work that a sizeable third party contribution towards funding could be secured from the beneficiaries of the schemes. There is potential for this to contribute up to one-third of the total of the scheme costs without changes to current frameworks and potentially more if other changes are made (such as devolving property taxes). The most valuable individual component - of the ones that we tested - is the use of tax increment financing through creation of an Enterprise Zone.

7.4.1 Crawley Western Relief Road

Table 7.3: CWRR illustrative funding package

<table>
<thead>
<tr>
<th>Type of funding</th>
<th>Potential contribution £m</th>
<th>Lower end contribution</th>
<th>Higher end contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Infrastructure Levy</td>
<td></td>
<td>0</td>
<td>~1</td>
</tr>
<tr>
<td>Section 106</td>
<td></td>
<td>~2</td>
<td>~5</td>
</tr>
<tr>
<td>LEP Funding - Local Growth Fund</td>
<td></td>
<td>~3</td>
<td>~17</td>
</tr>
<tr>
<td>Business Improvement District Funding (Manor Royal Business Park)</td>
<td>~&lt;1</td>
<td>~1</td>
<td></td>
</tr>
<tr>
<td>Additional private sector contribution</td>
<td></td>
<td>~2</td>
<td>~7</td>
</tr>
<tr>
<td>Remaining (possible Department for Transport grant)</td>
<td>~43</td>
<td>~19</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>50</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Discounted figures which exclude financing costs*

*Source: Arup analysis*

**Community Infrastructure Levy**

Money from CIL can be used to fund a wide range of infrastructure that is needed as a result of general development; including road and rail schemes and as such, works best when linked to specific housing or business developments. Charging authorities will need to strike an appropriate balance between the desirability of funding infrastructure from the levy and the potential effects of the imposition of the levy upon the economic viability of development across their area. Evidence should be prepared about the effect of the levy on economic viability in the area to demonstrate to an independent examiner that their proposed rates, for the levy, strike an appropriate balance.

The Crawley Borough Council Infrastructure Delivery Schedule identifies a range of infrastructure requirements that are considered necessary to deliver the Crawley Local Plan 2015/30 and which justify the imposition of a CIL. Schemes that are not on this list – which include the CWRR - may find it harder to be eligible for
CIL funding. Because of this, we suggest that a reasonable lower estimate for a CIL contribution to CWRR is zero.

Nevertheless, up to £1 million could be raised via CIL from residential and retail developments in Crawley to fund the CWRR. This upper estimate assumes current plans are built out and 20% of CIL revenue in Crawley is used to fund transport infrastructure (in line with the Crawley Infrastructure Development Schedule 2015); and of which around 30% could be retained for the Crawley Western Relief Road (broadly equivalent to the proportion of developments that are adjacent to the road). This is based on around 5,000 new homes in the Crawley area and 2,500 homes near the scheme location north of Horsham, as well as 4,300 m² of eligible retail development in areas close to the CWRR in the period to 2030, taking account of the affordable housing target of 40%.

Section 106

Section 106 can only be used to fund infrastructure that is required in order for a development to achieve planning permission. For the West of Ifield development, for example, West Sussex County Council has previously identified that “developers should be required to make a significant contribution to the CWRR to enable its delivery at the earliest opportunity”. We note that average S106 contribution to projects with similar characteristics in the local area (but with lower capital costs), was £3m. As such, for the purpose of this analysis we have assumed a one-off contribution of between £2m and £5m could be possible for the CWRR through S106 funding.

LEP Funding

The CWRR may attract funding from the Coast to Capital LEP. Based on comparisons with other transport schemes that the LEP has partly funded, it has been assumed in this analysis that the scheme could attract between £3 to £17m of LEP funding. This range is equal to the minimum and maximum LEP funding committed to twelve other transport projects in the Coast to Capital Area. A one-off contribution in 2017/18 has been assumed.

Business Improvement District Funding (Manor Royal Business Park)

The Manor Royal BID includes a levy set at 1% of rateable value, which constitutes a five yearly budget to improve local infrastructure of approximately £1.2m. Assuming that a 5% to 15% share of this annual budget was allocated to

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34 Crawley Borough Council – Strategic Housing Land Availability Assessment
35 Horsham District Council – Land West of Crawley Strategic Location
36 Crawley Borough Council Whole Plan & Community Infrastructure Levy Viability Assessment
37 Housing Land Supply for the Crawley Borough Local Plan 2015-2030
38 West Sussex County Council meeting 17 October 2014, available from http://www2.westsussex.gov.uk/ds/cttee/cc/cc171014i11d.pdf
39 The ‘A259 Corridor Improvement’, for example, is expected to gather £3.3 million of S106 contributions as described in A259 Corridor Improvements Transport Business Case. The ‘A284 Lymminster bypass’ is another comparable project in the area that has benefited from £3.2 million of S106 contributions over three years
40 £2m to £5m range represents + or - 50% on the average £3m contribution recently observed.
41 Manor Royal BID plan
the CWRR, over a 30-year period, the Manor Royal BID could potentially contribute between £<1m to £1m towards the CWRR.

**Additional private sector contribution**

Private sector contributions are often made to infrastructure, especially where the organisation in question benefits from the investment. Potential contributions could come from the c.3,700\(^{42}\) businesses based in Crawley (including GAL) and the ~250 firms based on the airport campus. As such, we have included an illustrative private sector contribution of between 5% and 15%, or £2m and £7m, to the CWRR.

Any remaining amount would have to be funded in the form of a grant from the Department for Transport (central government), or, following further devolution or a change in law, from other sources as described in section 7.5.

### 7.4.2 Brighton Main Line Upgrade

Table 7.4: BML upgrade illustrative funding package

<table>
<thead>
<tr>
<th>Type of funding</th>
<th>Potential contribution £m Illustrative only</th>
<th>Lower end contribution</th>
<th>Higher end contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>User charges</td>
<td></td>
<td>~33</td>
<td>~65</td>
</tr>
<tr>
<td>LEP funding</td>
<td></td>
<td>~17</td>
<td>~26</td>
</tr>
<tr>
<td>Community Infrastructure Levy</td>
<td></td>
<td>~0</td>
<td>~14</td>
</tr>
<tr>
<td>Resale of land and property</td>
<td></td>
<td>~9</td>
<td>~26</td>
</tr>
<tr>
<td>Special Purpose Tax: Enterprise Zone</td>
<td></td>
<td>~105</td>
<td>~314</td>
</tr>
<tr>
<td>Remaining (possible Department for Transport grant)</td>
<td>~1,426</td>
<td>~1,145</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1,590</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Discounted figures which exclude financing costs*

*Source: Arup analysis*

We have assumed that the Greater London Authority’s Council Tax precept, Mayoral CIL and business rates supplement are “taken” by Crossrail 2 so have not included them within the scope of the funding package analysis for the BML upgrade.

**User charges**

For rail, under a franchised system increased user charges would flow through the train operator and through DfT, and support from these bodies would need to be secured so that net surplus income could be retained to provide an additional

\(^{42}\) Crawley Borough Council: Companies & Key Sectors - http://www.crawley.gov.uk/pw/Business/Business_in_Crawley/INT009794
source of funding. Here, we suggest that 5% to 10% of the additional income from the new services resulting from the BML upgrade programme could be retained to provide a source of funding (assuming that the bulk of the revenue from the new services would be required for operational expenditure, including new rolling stock). Considering Southern’s 2014 turnover of £741 million\textsuperscript{43}, this generates approximately £33-£65 million between 2030 and 2047.

The figure could be much higher if a higher percentage was retained, if the upgrade is delivered earlier, or if additional levies are placed on passengers (such as fares increases), although it is noted that political appetite for the latter is likely to be low given the recent publicity surrounding the reliability and industrial action on Southern services.

\textit{LEP Funding}

Of the 12 recent transport projects for which the C2C LEP contributed funding in the Local Growth Fund 2016/17 round, the highest contribution was £17m\textsuperscript{44}. Whilst the Brighton Main Line upgrade is a step-change larger than these schemes, we have assumed a one-off contribution in 2017/18 between £17 million and £26 million (i.e. the upper end is 50% more than the largest LEP contribution to date). Again, there is potential for this to be even higher.

\textit{Community Infrastructure Levy}

The BML upgrade is dependent on critical land requirements in rapidly developing central Croydon. Securing the land required for stage 1 of the BML upgrade programme is therefore an urgent concern. The upside of this is that at the upper limit, approximately £14 million could be raised via CIL from residential and business developments over the period of Croydon’s opportunity area planning framework to 2031. This is based on a net potential gain of almost 12,000 homes outside the Croydon opportunity area and 182,000 square meters of potential non-residential development\textsuperscript{45}, taking account of the affordable housing target of 25%\textsuperscript{46}. Croydon’s Development Infrastructure Funding Study indicates that transport infrastructure represents 84% of all the infrastructure spending schedule in Croydon up to 2031\textsuperscript{47,48}. It has therefore been assumed that 84% of CIL revenue in Croydon could be used to fund transport infrastructure; of which around 20% could be earmarked for the Brighton Main Line upgrade.

Note that the BML scheme is not included in Croydon’s regulation 123 list. Schemes that are not on this list may find it harder to be eligible for CIL funding, and so our lower estimate for CIL contribution to the BML upgrade is zero.

\textit{Resale of Land and Property}

The infrastructure work in Croydon and around Windmill Bridge Junction is likely to require some compulsory purchases, which may be re-sold at a profit. In

\textsuperscript{43} Passenger Transport Monitor – Britain’s passenger transport analysed
\textsuperscript{44} Coast to Capital LGF Delivery 2016/17 Programme Dashboard
\textsuperscript{45} Croydon OAPF
\textsuperscript{46} Croydon OAPF
\textsuperscript{47} Croydon OAPF
\textsuperscript{48} Croydon Infrastructure Delivery Plan 2015
the case of a recent study\textsuperscript{49} for Crossrail 2 for example it was assumed that 50% of the initial capital expenditure on land and property was recovered once construction was complete; and that the value of land and property rose in line with house price inflation. On that basis, it was estimated that the resale of land and property could provide 1.9% of the total Crossrail 2 funding requirement.

We have not sought to investigate specific sites along the routes that might be suitable for purchase and resale. Instead, we have used the Crossrail 2 analysis as a benchmark and have adjusted for median house prices and the number of homes in the Brighton Main Line catchment area. This results in an illustrative funding amount of approximately £17m, with a lower limit of 50% below this (£9m) and an upper limit of 50% above (£26m) between 2019 and 2032.

**Special Purpose Tax: Enterprise Zone**

There is precedent for designation of an Enterprise Zone in this corridor: the Vauxhall – Nine Elms – Battersea (VNEB) zone includes sites in both Wandsworth and Lambeth and is being used to part-fund the Northern Line extension\textsuperscript{50}. A similar Enterprise Zone could be set up to cover the whole of Croydon to capture business rates uplift. For these purposes, we have assumed that this zone retains between a quarter and three-quarters of the value projected to be retained in the VNEB zone (accounting for underlying conditions of the property market such as available space and home values). Based on this method, it could contribute an illustrative amount of approximately £105 million to £314 million between 2030 and 2047.

In addition, an Enterprise Zone further south could be pursued through the 3SC devolution process. A likely part of the Devolution Deal with the 3SC is a type of business rates retention scheme, using the value uplift from investments retained by the constituent authorities to forward-fund potential schemes. Gaining support for future 3SC investment would require political buy-in as well as an evidenced case for investment, the former of which would be a balance across the wide geographic area. The 3SC Enterprise Zone would be likely to yield a smaller amount when compared with the Croydon example. We have excluded any future revenues from this from our work.

**Additional private sector contribution**

Initially private sector contributions may be best focussed on supporting the scheme’s development.

**Remaining amount**

Any remaining amount would have to be funded in the form of a grant from central government, perhaps via Network Rail or from other sources, possibly including those identified in section 7.5 below.

\textsuperscript{49} PwC – Crossrail 2 Funding and Financing Study

\textsuperscript{50} Northern Line Extension: Enterprise Zone and borough S106/CIL contribution
7.5 Other funding sources

The availability of other funding sources would depend on local support and in some cases, a referendum. We identify the full list of potential funding sources in Appendix F. They include:

- Business Rate Supplement (BRS), beyond the Manor Royal development. This would require a referendum (if done as part of a business improvement district) or mayoral and LEP support (if done as part of a devolved administration) and therefore political implementation is key. Business rates are levied by individual local partners. There would be political considerations around some partners billing local communities for rates supplements if benefit flowed at the regional levy. We have assumed that the GLA Business Rates supplement is earmarked for Crossrail 2 and is therefore out of scope for the BML upgrade.

- Council Tax precept. This would require support of local authority and possibly DCLG. Whilst partners are subjected to the 2% cap, any use of this to support regional infrastructure would likely displace funding for other core service priorities. It is unlikely that Council Tax revenues would be used to underpin infrastructure investment unless it could be offset or largely offset by incremental revenue flows generated by the infrastructure that would mitigate the need to raise Council Tax or displace other services. Appetite for doing so may be different across different partners. From 2020, local councils are set to have control of council tax revenue and spending so scope for further involvement of this funding stream may expand. Nevertheless, we have assumed that the GLA council tax precept is earmarked for Crossrail 2 and is therefore out of scope for the BML upgrade.

- Stamp Duty land tax capture is the value capture levy on property that has benefited from transport infrastructure gains (most effective in robust markets where well-established tax administration systems can be observed). This is gathered by central government but could in future be delegated to local government.

7.6 Financing

The financing arrangements for infrastructure have become more diverse in recent years as a wider range of potential investors have widened their portfolios and as constraints on government balance sheets have remained. This means that the options for financing the two shortlisted schemes are potentially limitless as new products are developed and as appetite for risk varies from one sponsor organisation (and one construction organisation) to another. In this section, we attempt to categorise them and draw out the major implications for the schemes delivery structure and funding models.

7.6.1 Crawley Western Relief Road

For the CWRR, a range of financing options are possible. This includes:
• The traditional model of funding package, potentially made up of grants from the organisations listed earlier in this section. The grant fund would be paid to the organisation that would design and construct the road, and on completion the road would be handed over to the local highways authority, which would be responsible for its maintenance and upkeep.

• A project finance PFI / PPP type model whereby the private sector design and construction organisation remains responsible for the upkeep of the road after it has opened to the public. The public sector remains the overall funder of the road but pays availability payments (based on the reliability of the road) and/or shadow tolls (based on the number of users) to the private sector organisation. Financing would be provided by a wide range of investors through debt and equity. For example, the M25 is currently the subject of an availability-style contract and sections of the A1(M) are currently financed by shadow tolls paid by government. This type of structure has the advantage of allowing the private sector to take account of whole-life costs during construction and there is some evidence\(^{51}\) that these type of projects are more likely to be delivered to time and budget. This approval is also not dependent on grant funding and so the public sector can enjoy the advantage of not paying upfront for the asset, which can help short term affordability and can often help with balance sheet treatment. Such a contract can be structured to pass as much risk to the private sector as there is appetite for and the road could revert back to the public sector after a period of time.

• A hybrid, combining some aspects of the two models above, whereby the local authority remains responsible for heavy maintenance and capital renewals but the private sector is responsible for lighter maintenance including defect repair. This has the advantage of placing the defect risk with the private sector but transfers less risk, potentially resulting in cost savings. For example, Highways England entered into contracts covering roads in Cumbria and North Lancashire and the North East of England in December 2016.

7.6.2 Brighton Main Line Upgrade

Private sector ownership and operation of track and infrastructure assets is less common within the UK rail industry and transfer of the assets to a third party may be particularly difficult in this case given the complex interaction of the track and signalling systems with the legacy system (where assets have been transferred in the past, they have generally been easily isolated from the rest of the rail network). Nevertheless, a range of financing options is possible, including:

• The traditional route whereby grant funding would pay for the construction works. These would be carried out by a design and construction company on Network Rail’s preferred supplier list and would then transfer to Network Rail for maintenance once completed.

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• A model whereby the design and construction company is responsible, through a long term contract, for maintaining the assets following construction and is paid fixed amounts by Network Rail for doing so. The day to day operations of the infrastructure would remain the responsibility of Network Rail but asset failures would be corrected by the company. This provides a way to package together capital and operation costs, to incentivise the constructor to consider long term asset performance and to transfer some risk away from the public sector. The private sector debt and equity requirements could be relatively low if the ownership of the assets are transferred to Network Rail at the point of completion but this would require upfront public sector investment as per the traditional model above.

• A model whereby the Brighton Main Line as a whole would transfer to a private company. The company would take on responsibility for the upgrade works (which would be financed through a mixture of debt and equity), its ongoing maintenance once complete, as well as maintenance of the existing line. The company would fund this through track access charges and would be subject to regulation by the Office for Rail Regulation so that it would be able to make a return commensurate with the original investment and the risk profile. Such an approach is relatively untested in the UK, although it shares some aspects with the HS1 contract structure and with the sections of track around Heathrow Airport. Technical difficulties, particularly at the points of interaction with the rest of the network would have to be overcome before this option could be taken forward. This would also require a sizeable private sector upfront investment, the scale of which (at £1.59bn plus financing costs, plus operating expenditure) is unlikely to be deliverable without some government guarantees or co-funding. A more extreme version of this is for the entire Network Rail Southern region to be handed to a third party, which might present fewer technical challenges but could be perceived as being too large and too risky to attract private sector capital. A lighter version would have the infrastructure around Croydon and Windmill Bridge transfer to the private sector.

• A model whereby different systems are dissected and then are owned by the private sector, which are paid availability fees accordingly. For example, the signalling systems could be the form of a separate contract to the track systems. Each contract could transfer the appropriate amount of risk to those best placed to manage it.
8 Wider Connectivity Benefits

The study remit focussed on the period until 2025 assuming a single runway Gatwick Airport. At the end of the study, some of the wider connectivity benefits of existing and recommended interventions were considered to provide further context for the GGB. This high-level review:

- Reinforced the case for the Brighton Main Line upgrade. In the future, this upgrade will create good connections to HS2 (at Old Oak Common), Crossrail 2 and Southern Rail Access to Heathrow with economic benefits as well as better air passenger access.

- Showed that more and faster direct trains from Gatwick to Reading via Reigate and Guildford will not only benefit this corridor but provide access to a wider catchment for airport suppliers and air passengers (including to Oxford and the proposed East West Rail link).

- Indicated that changing travel patterns in Kent might require further improvements in connectivity in the future. Existing improvements to the M23 and M25, combined with the Lower Thames Crossing, will provide benefits for this catchment, especially for the growing residential and employment growth around Ebbsfleet.

This chapter considers the wider connectivity impacts of the interventions recommended to the GGB, including a consideration of what might happen beyond 2025. It should be noted that the study’s remit did not cover the period beyond 2025 so the information presented in this chapter is a high-level review. It assumes a single runway airport.

8.1 Wider connectivity

As already described, the completion of the Thameslink Programme in 2018 will not only bring improvements in rail connectivity on the Brighton Main Line to Gatwick but it will also transform connectivity to the north of London. The connection to the East Coast Main Line will provide direct services through Hertfordshire to Cambridge and Peterborough for air passengers. Cross-platform connections on to trains to Yorkshire, the North East and Scotland on the Virgin Trains East Coast franchise will be possible at both Stevenage and Peterborough.

Similarly, completion of the M23 Smart Motorways scheme from Junctions 8-10 will reduce journey time variability and provide more capacity on this key strategic transport link to the airport from Croydon, London and the wider UK, via the M25.

8.1.1 The impact of the recommended rail interventions

The additional capacity delivered by the Brighton Main Line upgrade, when combined with a smaller scale intervention to enable more trains to stop at Gatwick Airport station, will facilitate a step change in connectivity to the airport both from local towns such as Crawley, Horsham and Reigate, and important future residential locations for airport employees on the South Coast and at Croydon. This scheme will also dramatically improve connectivity to Clapham Junction. With one interchange, rail passengers will be able to access HS2 at the
new station at Old Oak Common on the West London Line. This will benefit business passengers both from the Midlands wishing to use Gatwick and international business passengers wanting to reach the Midlands. The increased frequency of service to Clapham Junction will also enable easy access to the wider rail network that radiates west of Clapham towards Windsor and Ascot, South West London, Basingstoke, Portsmouth, Southampton and the West of England.

8.1.2 The impact of improved rail connectivity beyond 2025

In the future, it can be expected that at some point Crossrail 2 or a similar scheme will be constructed. This cross London route from South West London to the West Anglia Main Line will transform connections to Central London from Clapham Junction, with locations such as Tottenham Court Road (also on Crossrail) and Euston / Kings Cross for interchange onto HS1 and HS2 (as an alternative to Thameslink cross London services).

Similarly, improvements in rail access to Heathrow Airport can be expected after 2025, to support the demand growth associated with the airport’s third runway. Proposals for Southern Rail Access to Heathrow are being examined by the Department for Transport, Heathrow and Network Rail. All of the proposals envisage direct rail services to Waterloo via Clapham Junction. This may help spread the economic benefits of Gatwick’s growth, especially given some of its supply chain is located around Heathrow.

Improvements to the connection from Gatwick to Reading (particularly the provision of more and faster direct trains) via Redhill, Reigate and Guildford is important for unlocking this corridor for employees to live on and bring associated economic impacts. It is also important for air passengers.

The North Downs Line upgrade will also enable Gatwick to link with one or two connections to Oxford, the Midlands and, in the future, the East West Rail connection to Milton Keynes and Bedford. Whilst many of the benefits will be for air passengers using the route, it could be expected that over time more suppliers to Gatwick might originate from this corridor so spreading the economic benefits of the growth of the airport.

Over time the case for improving rail connectivity into Kent may improve. The DfT’s Consultation on the next South Eastern Franchise states “the Ashford to Tonbridge line, which connects on to Redhill and Reading under other operators, could form part of a fast and frequent London orbital service, taking pressure away from the M20 and M25. As it is, journeys are faster via London and this potential link is underused”.52 This development could facilitate some direct rail services from Ashford and Tonbridge to Gatwick (or good connections at Redhill). This would improve access to the airport from Kent enabling employment to be relocated further into that county.

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52 South Eastern Rail Franchise Public Consultation, Shaping the Future. Department for Transport. March 2017
Whether or not a business case exists with existing demand patterns remains to be seen due to existing travel patterns and densities. However, this may change as Kent is changing fast with Ebbsfleet growing as a residential, employment and tourism centre and Ashford becoming increasingly attractive as a business centre. Good connections to Gatwick may encourage suppliers from Kent to focus on the airport as a potential customer so further spreading the economic benefits.

8.1.3 The impact of the road interventions

The road interventions focus more on reducing congestion and journey time variability. Any enhancements to the M25, including the junction with the M23, will enhance connectivity to Gatwick Airport for both airport campus employees and Gatwick’s supply chain. This could be important for improving connections to Kent, including Ebbsfleet (via the M25 and A2), and to businesses located close to the M25 and the key radial motorways from it.

The Secretary of State for Transport announced the preferred route for the Lower Thames Crossing in April 2017 with the crossing alignment to the east of Gravesend in Kent and Tilbury Essex. With a potential cost of between £4.4 and £6.2 billion, this new road connection via a bored tunnel under the Thames will provide a 70% increase in capacity across the river, creating more reliable journey times on the South East sector of the M25.

With opening of the London Aerospace and Technology College (LATC) at Biggin Hill Airport, providing education, skills and training for the aeronautical and aviation sector, good connectivity between the two airports via the M23 and M25 will be an important consideration.

8.2 Summary

The study remit focussed on the period until 2025 with a single runway Gatwick. At the end of the study, some of the wider connectivity benefits of existing and recommended interventions were considered to provide further context for the GGB. This high-level review:

- Reinforced the case for the Brighton Main Line upgrade as it will provide good connections to HS2 (at Old Oak Common), Crossrail 2 and Southern Rail Access to Heathrow via Clapham Junction.
- Showed that more and faster direct trains from Gatwick to Reading via Reigate and Guildford will also provide access to a wider catchment for airport suppliers and air passengers.
- Indicated that changing travel patterns in Kent might require further improvements in connectivity in the future. Existing improvements to the M23 and M25, combined with the Lower Thames Crossing, will provide benefits for this catchment, especially for the growing residential and employment growth around Ebbsfleet.

Appendix A

Projection of change in working age population and annual housing delivery targets for Local Authorities
### A1 Projection of change in working age population and annual housing delivery targets for Local Authorities

Table A.1: Projection of change in working age population and annual housing delivery targets for Local Authorities

<table>
<thead>
<tr>
<th>Local Authority</th>
<th>Projected % change in working age population, 2016-2025</th>
<th>Annual housing target (New homes)</th>
<th>Source for housing target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adur</td>
<td>5%</td>
<td>181-214</td>
<td>Local Plan (2014) / SHLAA (October 2014)</td>
</tr>
<tr>
<td>Arun</td>
<td>4%</td>
<td>640 – 2,028</td>
<td>SHLAA (May 2012)</td>
</tr>
<tr>
<td>Brighton and Hove</td>
<td>5%</td>
<td>565 - 596</td>
<td>Housing Strategy (2015) / SHLAA (June 2014)</td>
</tr>
<tr>
<td>Bromley</td>
<td>9%</td>
<td>641 - 648</td>
<td>London Plan (2014) / Five Year Supply of Deliverable Land for Housing (June 2015)</td>
</tr>
<tr>
<td>Crawley</td>
<td>7%</td>
<td>308 - 333</td>
<td>Housing Implementation Strategy (November 2014) / Housing Trajectory (September 2014)</td>
</tr>
<tr>
<td>Croydon</td>
<td>7%</td>
<td>1,435</td>
<td>London Plan (2014)</td>
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<tr>
<td>Eastbourne</td>
<td>2%</td>
<td>400</td>
<td>Housing Strategy (2013)</td>
</tr>
<tr>
<td>Horsham</td>
<td>1%</td>
<td>750 - 830</td>
<td>Position Statement (July 2015)</td>
</tr>
<tr>
<td>Lewes</td>
<td>5%</td>
<td>376 - 490</td>
<td>Housing Land Supply Position (April 2015) / SHLAA (June 2014)</td>
</tr>
<tr>
<td>Mid Sussex</td>
<td>4%</td>
<td>325 - 650</td>
<td>District Plan (March, 2015) / SHLAA (November 2015)</td>
</tr>
<tr>
<td>Reigate and Banstead</td>
<td>8%</td>
<td>392 - 460</td>
<td>Core Strategy (July 2014) / SHLAA (December 2014)</td>
</tr>
<tr>
<td>Sevenoaks</td>
<td>4%</td>
<td>16</td>
<td>Core Strategy (February 2011)</td>
</tr>
<tr>
<td>Tandridge</td>
<td>5%</td>
<td>93 - 125</td>
<td>Core Strategy (October 2008) / SHLAA (March 2011)</td>
</tr>
<tr>
<td>Tonbridge and Malling</td>
<td>5%</td>
<td>665</td>
<td>Local Plan (February 2015)</td>
</tr>
<tr>
<td>Tunbridge Wells</td>
<td>2%</td>
<td>285 - 300</td>
<td>Local Plan (June 2010) / Site Allocations Development Plan Document (Draft, February 2015)</td>
</tr>
<tr>
<td>Wealden</td>
<td>4%</td>
<td>675 - 906</td>
<td>Strategic Housing Market Assessment (October 2015) / SHLAA (December 2013)</td>
</tr>
</tbody>
</table>

Table note: Annual Housing Target range represents minimum (constrained) and maximum (unconstrained) targets. Population projections are from ONS and working age is defined as 16-64 years old.

Source: Arup analysis, ONS, DfT London & South Coast Rail Corridor Study
Appendix B

Methodology for Future Residential Growth
Methodology for Future Residential Growth

This Appendix summarises the methodology for allocating where Gatwick Airport campus employees live in 2016 and where they may live in 2025.

Estimating where Gatwick Airport employees live in 2016

In January 2016 Gatwick Airport conducted an Employer Survey which contained the home postcodes of all staff working at the airport campus, allowing us to build a clear picture of where employees live today.

Estimating where Gatwick Airport employees might choose to live in 2025

Using data on current employees’ residential locations and changes in the working age population, it is possible to generate a spatial distribution of where employees may live in the future. The 2025 estimate assumes no major change in the transport network and therefore represents a ‘business as usual’ scenario.

The figure and table below summarises the inputs and calculations used to estimate where employees may live in 2025.

Figure B.1: Simplified schematic of estimating where employees may live in 2025

---

Source: Arup
Table B.1: Inputs used to estimate where Gatwick Airport employees may live in 2025

<table>
<thead>
<tr>
<th>Data used</th>
<th>Source</th>
<th>Publication name</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home location of current employees</td>
<td>Gatwick Airport</td>
<td>Gatwick Employer and Travel to Work Survey</td>
<td>2016</td>
</tr>
<tr>
<td>Population data</td>
<td>ONS</td>
<td>Principle projections by five-year age band.</td>
<td>2014 (latest available)</td>
</tr>
<tr>
<td>Total number of future Gatwick Airport employees</td>
<td>Oxford Economics/Gatwick Airport</td>
<td>The Economic Impact of Gatwick Airport</td>
<td>2017</td>
</tr>
</tbody>
</table>

Source: Arup

Using ONS population projections, an estimate of the percentage change in working age population by Local Authority can be calculated between 2016 and 2025. This change in potential employment pool gave a proxy for change in the number of Gatwick employees living in each geography compared to 2016, based on underlining demographic changes. Any remaining unallocated Gatwick employees were then allocated to geographies that have forecast growth in working age population and are already popular places for Gatwick employees to live.

Key assumptions:

- Working age is defined as between 16-64 years old;
- To ensure consistency across geographies we have used ONS projections, instead of bespoke LA projections where they exist; and
- Change in working age population for a LA is a proxy for changes in the pool of potential employee available to work at Gatwick Airport.
Appendix C

Employment Definitions
## Employment Definitions

### Table C.1: Employment definitions

<table>
<thead>
<tr>
<th>Employment type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct employment</td>
<td><strong>Employment at the ~250 firms based at Gatwick Airport campus.</strong> Relates to the activities taking place on the Gatwick Airport campus, encompassing both the airport operator (GAL) as well as other businesses on the site.</td>
</tr>
<tr>
<td>Indirect Employment</td>
<td><strong>Employment at Gatwick Airport’s ~800 off-campus suppliers.</strong> Encapsulates the activity and employment supported in Gatwick Airport’s supply chain, as a result of the procurement of goods and services by GAL and businesses on the campus.</td>
</tr>
<tr>
<td>Induced employment</td>
<td><strong>Employment created by direct and indirect Gatwick Airport employees spending their wages.</strong> Comprising the wider economic benefits that arise when workers at Gatwick Airport and its supply chains spend their earnings, for example in local retail and leisure establishments.</td>
</tr>
</tbody>
</table>

*Source: Oxford Economics*
Figure C.1: Gatwick Airport campus boundary map

Source: Gatwick Airport 2016 Employers & Travel to Work Survey
Appendix D

Methodology for Future Employment Growth
D1 Methodology for Future Employment Growth

This Appendix summarises the methodology for allocating where Gatwick Airport creates employment in 2016 and where the airport may create employment in 2025, under a business as usual scenario where there are no major changes to the transport network.

Estimating where Gatwick Airport creates and supports employment in 2016

Table D.1: Inputs used to estimate where Gatwick Airport supports employments

<table>
<thead>
<tr>
<th>Data used</th>
<th>Source</th>
<th>Publication name</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Gatwick Airport campus employees and their home locations</td>
<td>Gatwick Airport</td>
<td>Gatwick Employer and Travel to Work Survey</td>
<td>2016</td>
</tr>
<tr>
<td>Procurement spending by Gatwick Airport and listed address of Gatwick Airport suppliers</td>
<td>Gatwick Airport</td>
<td>Not published</td>
<td>Covers spending from November 2015 to October 2016</td>
</tr>
<tr>
<td>Total number of direct, indirect and induced jobs supported by Gatwick Airport in 2016 and 2025</td>
<td>Oxford Economics/Gatwick Airport</td>
<td>The Economic Impact of Gatwick Airport</td>
<td>2017</td>
</tr>
<tr>
<td>Estimate of home locations of Gatwick Airport campus staff in 2025</td>
<td>Arup</td>
<td>This document</td>
<td>2017</td>
</tr>
</tbody>
</table>

Source: Arup

The airport supports different types of employment (direct, indirect and induced employment) as defined in Appendix C. The common inputs and the methodology used to spatially allocate each employment type is outlined in the table above.

Direct employment

Assuming that all airport staff are based at Gatwick Airport, all the direct employment created by the airport was allocated to Crawley. This is the same assumption used in Gatwick’s Employer and Travel to Work Survey.

Indirect employment

Using total estimates of indirect employment from Oxford Economics, indirect employment was allocated spatially based on off-campus procurement spending
by Gatwick Airport. This high-level estimate depended on two key assumptions outlined below:

- That each supplier's address on the Gatwick Airport database was the location at which the employment was created; and
- That the value of the procurement contract is a proxy for the amount of indirect employment the contract created.

The only exception to the above assumptions is for the indirect employment created from policing the airport. In the absence of information, it was assumed that 80% of the indirect employment was allocated to the airport in Crawley and 20% to Sussex's police headquarters in Lewes.

**Induced employment**

The allocation of induced employment was split between induced employment supported through spending by Gatwick Airport campus employees and induced employment supported through spending by employees of Gatwick Airport’s suppliers.

In the absence of information, total estimate of induced employment from Oxford Economics were allocated spatially by making two assumptions:

- That employees spend the majority of their wages in the same Local Authority that they live; and
- That employees of Gatwick Airport’s suppliers spend their wages in the same Local Authority that they work in.

**Estimating where the airport may create and support employment in 2025**

Using data on where Gatwick Airport currently supports employment and Oxford Economics’ LEP based estimates of where the airport may support growth in 2025, it is possible to generate a spatial distribution of employment impact.

The 2025 estimate assumes no major change in the transport network and therefore represents a ‘business as usual’ estimate.

Oxford Economics estimate the percentage uplift in employment between 2016 and 2025 for each of three different employment types by four geographic areas.

The four geographical areas specified by Oxford Economics are:

- The Gatwick Diamond;
- Areas of the Coast to Capital LEP that are not in the Gatwick Diamond;
- Areas of England that are not in the Coast to Capital LEP; and
- The South East LEP.

Our estimate of where Gatwick Airport supports employment applies the relevant Oxford Economics uplift depending on the employment types and which of the four Oxford Economics geographies the Local Authorities sit within. Where a Local Authority could be in more than one of the four geographies the Local Authority was allocated randomly to a relevant geography.
Appendix E

List and RAG analysis of transport schemes
E1 List and RAG analysis of transport schemes

Transport schemes have been reviewed based on a Red-Amber-Green (RAG) analysis building on Task 1 to 3.

The meaning of each RAG criterion is as described below.

Table E.1: RAG analysis of long list of transport schemes

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Directly relevant to GGB study. Important to recognise this scheme.</td>
</tr>
<tr>
<td>Yellow</td>
<td>Relevant to GGB study but not core growth corridor. Also important to recognise.</td>
</tr>
<tr>
<td>Orange</td>
<td>Not core to GGB study. Potentially some benefits but lower impact.</td>
</tr>
<tr>
<td>Red</td>
<td>Not relevant to GGB study in its own right.</td>
</tr>
</tbody>
</table>
Figure E.1: List of Rail Schemes

<table>
<thead>
<tr>
<th>Proposed scheme</th>
<th>Relevant benefits</th>
<th>Cost</th>
<th>Status</th>
<th>Connectivity benefit and relevance to study from Tasks 2 and 3</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 BML upgrade and specifically Croydon/Windmill Bridge Junction</td>
<td>6 additional tph to London from south of Gatwick plus 2 tph Reigate Thameslink service, faster journey times (e.g. by removing need to split &amp; join at Hayward’s Heath), improved train performance.</td>
<td>Estimated £1.6bn at 2016 prices (note this excludes grade separation of Gloucester Road Jn for ELL service increase).</td>
<td>NR now seeking further funding to deliver Outline Business Case, at which point they would be ready to deposit the Croydon TWA application. A significant element of this is design including site surveys (cables, traffic, utilities, noise, environmental impact etc.).</td>
<td></td>
<td>DfT has funded the development team for the next few months (costing £0.75m). No funding is yet in place for the major development phase over the next 18 to 24 months which is currently estimated at a cost of £12-15m. Funding of Croydon/Windmill Bridge Junction to be explored through Task 5.</td>
</tr>
<tr>
<td>2 Gatwick Airport track scheme – bring forward to start of BML upgrade</td>
<td>In conjunction with the above scheme, enables more trains stopping at Gatwick in AM peak by removing the constraint of 1 Up Fast Platform. If delivered prior to the Croydon/Windmill Bridge Junction scheme, this on its own could deliver capacity to stop more Up trains at Gatwick in the AM peak (number to be confirmed) and likely to improve train performance.</td>
<td>Estimated £65m.</td>
<td>Programmed to be carried out mid to late 2020s. However, GGB could lobby for this scheme to be brought forward to reduce costs (through synergies with the station concourse work) and early realisation of benefits.</td>
<td>Implication of the Gatwick Airport track scheme being brought forward is that GGB will also be prioritising the station concourse project for completion as soon as possible and there would be efficiencies if the track scheme is brought forward to align with concourse work being carried out. Currently the track scheme is scheduled for CP7.</td>
<td></td>
</tr>
<tr>
<td>3 Early morning trains</td>
<td>Arrive at Gatwick from 0400 for early shift workers. Will also benefit air passengers for the earlier flights.</td>
<td>Operating cost for additional services</td>
<td>GGB could lobby DfT and GTR to include in Thameslink Programme.</td>
<td>Linked to GTR timetable considerations.</td>
<td></td>
</tr>
<tr>
<td>4 Gatwick-Crawley-Horsham rail connectivity</td>
<td>Linked to Thameslink Programme and more frequent services to Gatwick from Horsham, West Sussex Local Transport Plan supports improvements along Arun Valley line.</td>
<td>Operating cost for additional services</td>
<td>GGB could lobby DfT and GTR to include in Thameslink Programme.</td>
<td>As above</td>
<td></td>
</tr>
<tr>
<td>5 Redhill scheme to allow NDL trains to reverse</td>
<td>Allow a 3rd tph from the North Downs Line to Redhill with 2 tph extended to Gatwick (rather than 1 tph as now). This is expected to happen in time for the December 2017 timetable.</td>
<td>Funding secured except for £10-15m for level crossing work.</td>
<td>As of April 2017, funding is still not secured. An important part of the Surrey Rail Strategy. GGB should lobby for this scheme.</td>
<td>Whilst not a core corridor for employment growth beyond Redhill/Reigate from Task 1, this is an important scheme which provides an opportunity to redistribute employment growth towards the Thames Valley. GGB to acknowledge support for this.</td>
<td></td>
</tr>
<tr>
<td>Proposed scheme</td>
<td>Relevant benefits</td>
<td>Cost</td>
<td>Status</td>
<td>Aligns with employment growth corridors from Task 1</td>
<td>Connectivity benefit and relevance to study from Tasks 2 and 3</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------</td>
<td>------</td>
<td>--------</td>
<td>--------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>6 Lewes-Uckfield Line</td>
<td>Reinstatement of the Lewes – Uckfield line as part of wider rail capacity. Proposed by East Sussex in Local Transport Plan 3, 2011-2026.</td>
<td>Significant CAPEX as rail link has been removed. Compromised by development in Lewes.</td>
<td>Sussex Route Study explores potential resilience of having this link as a diversionary route for the BML. The Study found that “only limited benefits would accrue at times of major disruption”. Identified as having no business case by Network Rail in 2015 WSP study.</td>
<td>Not a core corridor from the GGB study and impact is marginal.</td>
<td></td>
</tr>
<tr>
<td>7 Reinstatement of the Willingdon Chord</td>
<td>Proposed by East Sussex in Local Transport Plan 3, 2011-2026.</td>
<td>Disputed as potential to prejudice existing rail passenger services to Eastbourne.</td>
<td>Not a core corridor from the GGB study but benefits to Gatwick and the region unclear.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Crossrail 2</td>
<td>Enhanced connectivity through Clapham Junction and into Central London.</td>
<td>£30bn</td>
<td>Major scheme proposed to enhance rail connectivity from Surrey through London into Hertfordshire.</td>
<td>Not a core corridor in the GGB study and it is beyond 2025 timeframe of this study but of importance and to be acknowledged.</td>
<td></td>
</tr>
<tr>
<td>9 BML 2</td>
<td>A proposal to connect Brighton, Seaford and Eastbourne via Lewes then Uckfield through Oxted and into East Croydon.</td>
<td>tbc</td>
<td>Not committed. Journey times would be inferior to those currently on BML. Demand from Uckfield line to South Coast is low. Challenges with double tracking part of the Uckfield branch.</td>
<td>London &amp; South Coast Rail corridor study produced by WSP PB in April 2016 and published by Department for Transport in March 2017 identified no benefit of BML2 for the reasons stated here.</td>
<td></td>
</tr>
</tbody>
</table>
### List of Road-based Public Transport Schemes

<table>
<thead>
<tr>
<th>Proposed scheme</th>
<th>Relevant benefits</th>
<th>Cost</th>
<th>Status</th>
<th>Aligns with employment growth corridors from Task 1</th>
<th>Connectivity benefit and relevance to study from Tasks 2 and 3</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> M23 Smart Motorways Junctions 8-10</td>
<td>Improves journey time certainty between these junctions and at Junction 9 onto the M23 Spur.</td>
<td>£220m (2015 announcement)</td>
<td>Committed as per 2015 Government announcement.</td>
<td></td>
<td></td>
<td>Committed</td>
</tr>
<tr>
<td><strong>2</strong> M23 Spur between Junction 9 and 9a</td>
<td>The current Highways England proposals include for three lanes westbound only on the M23 Spur. Analysis by GAL shows maximum benefit being provided by 3 lanes in each direction. However, delivery of full enhancement along the Spur may form part of a separate package of works, potentially as part of RIS2.</td>
<td>tbc</td>
<td>Not committed but discussions between GAL and Highways England are ongoing.</td>
<td></td>
<td></td>
<td>GGB recognises the importance of securing the widest possible economic benefits from the committed Smart Motorways scheme and from upgrades to the M23 Spur between Junction 9 and 9a.</td>
</tr>
<tr>
<td><strong>3</strong> M25 South West Quadrant</td>
<td>M25 Jctns 10 to 16 hard shoulder running and 4-lane through-junction running.</td>
<td>tbc</td>
<td>Committed. Start of works in March 2020 and open to traffic in 2022/2023.</td>
<td></td>
<td></td>
<td>Committed</td>
</tr>
<tr>
<td><strong>4</strong> Gatwick-Crawley-Horsham improved local connectivity</td>
<td>Opportunity for multi-modal road-rail-bus connectivity improvement to support this local growth and growth at Gatwick. Could include Crawley Western Relief Road.</td>
<td>£50m for CWRR</td>
<td>Local connectivity opportunity to be explored through GGB study in Task 5.</td>
<td></td>
<td></td>
<td>Funding of this scheme to be explored through GGB study Task 5.</td>
</tr>
<tr>
<td><strong>5</strong> A23 and M23 Junction 7</td>
<td>Improvements to secure employment growth in Croydon.</td>
<td>tbc</td>
<td>Hooley – Star Lane to Netherdene Drive Junction Improvement is committed.</td>
<td></td>
<td></td>
<td>Minor improvement committed</td>
</tr>
<tr>
<td><strong>6</strong> A27</td>
<td>Various upgrades proposed. A27 Chichester Bypass, A27 Arundel Bypass, A27 Worthing &amp; Lancing and A27 East of Lewes. All committed schemes.</td>
<td>tbc</td>
<td>Committed improvements along the corridor. Supported in West Sussex Local Transport Plan 2011-2026.</td>
<td></td>
<td></td>
<td>Some improvements proposed along this corridor</td>
</tr>
<tr>
<td>7</td>
<td>Public transport interchange improvements at Crawley, Burgess Hill, East Grinstead, Gatwick Airport, Hayward’s Heath, Horsham and Three Bridges stations.</td>
<td>Various projects. Proposed by West Sussex in Local Transport Plan 3, 2011-2026.</td>
<td>Unknown</td>
<td>Various.</td>
<td>Linked to GGB support for BML and Arun Valley rail improvements related to more frequent services and wider benefits in terms of improved connectivity for the region.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix F

Long List of Funding Options
# Long list of funding options

<table>
<thead>
<tr>
<th>Funding mechanism</th>
<th>Nature</th>
<th>Description</th>
<th>Benefits/Pros</th>
<th>Risk/Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Fee / Toll Collection / Congestion Charging</td>
<td>Revenue</td>
<td>A charge to the users of a facility, e.g. road/bridge/tunnel tolls, congestion charging or low emission zone charging, public transport fares, etc. In a devolution agreement this could include bus fares under a franchise bus model. For roads, many tunnels and bridges across the UK are tolled, e.g. the Mersey Tunnels, Dartford Crossing and the currently under construction Mersey Gateway Bridge, toll roads are less common (M6 Toll is the only one so far). London also has a congestion charge zone in operation and a congestion charge / ULEZ zone is a possibility near to Heathrow Airport. New congestion charge zones are likely to require a local referendum or mayoral devolution. For rail, under a franchised system increased user charges would flow through the train operator and through DfT, and support from these bodies would need to be secured so that net surplus income could be retained to provide an additional source of funding.</td>
<td>May be viewed as more efficient and fair when compared with public funding sources as the cost of a project is mostly borne by the beneficiaries and users. Is simple to implement on projects that are traditionally revenue generating, e.g. new light rail scheme, re-opening of rail line.</td>
<td>Unless charges are high, on its own this will be insufficient to cover the cost of investment in the upfront infrastructure. Introducing fees and tolls on infrastructure that was previously / traditionally 'free' at source can be challenging or create unintended consequences such as dis-incentivising use of the infrastructure - perhaps better suited to bridges etc. than new roads. Revenue risk where income is insufficient to cover costs. ULEZ and congestion charges zones are in their infancy and may require a referendum to implement.</td>
</tr>
<tr>
<td>Commuter Infrastructure Levy (CIL)</td>
<td>Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIL is a compulsory charge that local planning authorities can levy upon new development as a condition of granting planning consent. It allows local authorities to raise funds from developers undertaking new building projects, with this then being used to fund a wide range of strategic infrastructure. In London there is also an additional Mayoral Community Infrastructure Levy (Mayoral CIL). Its purpose is to contribute to the cost of additional infrastructure required as a consequence of new homes, offices and other buildings. All Mayoral CIL revenues are currently being used to fund Crossrail. Another example is where the affected councils in London agreed to pool CIL contributions from sites in the Nine Elms Enterprise Zone to help fund borrowing for the Northern Line Extension to Battersea Power Station. The levy is intended to provide infrastructure to support the development of an area rather than to make individual planning applications acceptable in planning terms. The levy must be charged in pounds per sqm on the net additional increase in floor space of any given development.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Draws a link between a new development and the consequential need to invest in broader support infrastructure. CIL is a faster and more transparent than S106 as it eliminates the need for individual negotiation as CIL rates are set in consultation with local communities and developers. Contributions to the costs of the development are made by the project beneficiaries. |

| Contingent upon developments being taken forward. Quantum is likely to be relatively small. CIL revenues can be volatile and "lumpy" as they are linked to new developments in the area and the volume may change with the economic cycle, and a single development joining / falling away can have a large impact on the quantum raised. CIL can only be spent on infrastructure defined through a local authority's Regulation 123 list. If a new piece of infrastructure is deemed a priority, the local authority's Regulation 123 list will need to be updated. |
| **Business Rate Supplement (BRS)** | **Revenue** | **Gatwick Airport Limited**  
A BRS is a compulsory charge added to all National Non-Domestic Rates (NNDR) that are levied on qualifying properties within a given local authority area. Under the terms of the Business Rates Supplement Act 2009, A BRS can be levied up to a maximum of 2p in the pound of rateable value. This measure has been adopted by the Greater London Authority (GLA) as part of the Crossrail funding package. | **Gatwick Growth Board Connectivity Study**  
The rateable value is only re-valued every five years, reducing the volatility of revenue. Quantum can be reasonably high - although detailed evaluation should be undertaken to determine the potential income that could be generated and an assessment of the risks of introduction (the GLA received £220m in the year to 31 March 2015.) An existing tax that can be readily adopted. | **Arup Report**  
Represents an additional 'tax' on businesses and risks choking off growth that investment is supposed to stimulate. Relies on either devolution to Sussex / 3 counties or a referendum (the Act requires authorities to hold a ballot of business where revenue from the BRS is expected to amount to more than a third of the total cost of the project to be funded). Outcome of referendum only lasts for 5 years so little certainty of funding beyond that. |
<p>| Council tax precept | Revenue | An addition to council tax which could be levied for either a specific project or an infrastructure investment programme as a whole, e.g. the GLA Olympic Games precept levied on residential properties equivalent to £20 p.a. for a 'Band D' property. The GLA Olympic Games precept was structured to raise £625m over 11 years. | Would provide an incremental uplift in the revenue base. Quantum may be relatively high. Subject to local control and available to spend at Local authorities' discretion. Households can see what the benefits would be. More direct outcome linked. | Represents an additional household tax so perhaps less politically deliverable than alternatives. Would be subject to 2% cap, although potentially a referendum could be called on the one-off increase. |
| Parking Levy (WPL) | Revenue | A levy on employers for providing workplace parking with the aim of reducing private car commuting to work and encouraging a shift towards public transport, e.g. as charged by Nottingham to fund the tram scheme under section 178-190 of the Transport Act 2000. | Revenue from parking levy can help fund public transport systems, reducing carbon emission from private vehicles on the one hand and promoting greater use of public transit on the other. Would represent an incremental revenue stream. Possibility to ring-fence revenues towards transport improvements | Represents an additional 'tax' on businesses. WPL may cause employer-employee friction as businesses contemplate whether to reimburse employees for parking costs for work. Quantum can be relatively low. May have undesired policy outcomes e.g. increased nuisance parking just outside the levied zone. |
| Special purpose local taxes, e.g. business rates retention through Enterprise zones, local hotel taxes, etc. | Revenue | Specific fund-raising measure such as tax levied on the purchase of consumer goods made in the local area or a tax levied on tourism (such as hotel tax), an annual charge based on the rental value of land (Land Value Tax), etc. There are, of course, a range of other possible taxes which could in theory provide additional funding, though these may pose wider challenges in terms of practicality, fairness and competitiveness. A form of hotel/tourist tax is in place in many European cities. Land value taxation is implemented in a number of countries. LVT promotes efficient use of land. Instead of leaving land vacant, land owners are incentivised to develop the land to generate income or sell it to others who will generate income from the land. In 2014 the Catalonia Tourist Tax in Spain raised €41m which is used to fund tourism-related infrastructure. In Australia, state and local government raised over AUS$ 33 billion from property-based taxes in 2010-11, accounting for 47.3% of all state and local government tax revenue. | Collected from both local residents and visitors. An opportunity to raise incremental revenue but must be considered in terms of broader economic impacts. | Uncommon in the UK so would require central govt cooperation / devolution. Sales tax may hurt local businesses as consumers make their purchases in other cities without the sales tax. Land value increase may not equate wealth and ability to pay, cash flow problem may force land owners sell their land prematurely and not able to take advantage of the full potential of the land. A hotel tax risks hurting the local hotel/tourist industry (tourists choosing among different UK destinations may bypass Gatwick to other regions, negatively impacting local economies beyond the hotel/tourist industry) |</p>
<table>
<thead>
<tr>
<th>Land Value Capture (LVC) through Stamp Duty retention</th>
<th>Revenue</th>
<th>Improvements in data, technology and research methods now enable isolating the transport-induced value uplift in a more intelligent, targeted and potentially more proportionate manner. Directly linked to market value of property at the time of sale. Creating new land value capture charge (e.g. transport premium charge) - capture a proportion of the premium paid to landowners by new purchasers or tenants of residential property for access to new transport facilities. Would create a mechanism that is very effective at funding new infrastructure, especially schemes that could expand housing supply.</th>
</tr>
</thead>
</table>

Capture land value uplift to fund transport investments. Stamp Duty Land Tax is gathered on the transfer of land or property. At present this accrues to central rather than local government, but could be devolved in future. Opportunities to improve the extraction of land value uplifts on new and existing stock: Assign zonal value growth in Stamp Duty Land Tax receipts relative to local control. Revaluations and full zonal retention of revaluation growth from business rates. Creating new land value capture charge (e.g. transport premium charge) - capture a proportion of the premium paid to landowners by new purchasers or tenants of residential property for access to new transport facilities. Would create a mechanism that is very effective at funding new infrastructure, especially schemes that could expand housing supply. |

Existing value capture mechanisms extract only a small fraction of land value gains from transport investment, in an ad hoc and poorly targeted manner. Control over the major property taxes (council tax, business rates and Stamp Duty) and powers to introduce new charges and levies are not yet devolved to 3SC / local area. May have to wait for sale of properties to realise the value. Attributing change in values of property to infrastructure may be challenging.
<p>| Local Asset Backed Vehicles (LABV) | Revenue / capital | Mechanism of cooperation and cost sharing between public sector and private operator or developer. Public sector would own the land and therefore capture some of the value that is generated from its development. The approach centres public land being offered by a local authority to attract a long term investment from a private firm for a project which has a positive impact on regeneration. LABV is deployed by the public sector in partnership with the private sector to deliver a range of outcomes relating to management improvements, development activities and regeneration projects. | Joint development may promote efficiency and benefit equity among participants. Private developers benefit from better accessibility and more potential customers, and the public sector benefits through the sharing of construction costs. Provides an efficient use of public land and/or buildings so can deliver wider social and economic value. | Requires public sector ownership of land - and for that land to be in the correct place. No change of law / minimal central government dependencies. |</p>
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<tr>
<th>Development Rights Auction Model (DRAM)</th>
<th>Revenue</th>
<th>For zones with high development potential (particularly for housing) with multiple landowners, the Government and local stakeholders should consider the development rights auction model (DRAM), a new land value capture mechanism. Integrated planning and consenting of land use and density in a defined zone around a major new transport facility, in parallel with the planning of the transport scheme. Introduction of a periodic development rights auction, in which development rights over land put forward by landowners are auctioned in assembled packages to a competitive field of developers. Gains above a reserve price are shared between the participating landowners and the planning/auctioning authority. CIL and S106 are not payable under this scheme. All non-operational but developable public sector owned land within the zone is entered into auction as part of a standard public sector land pooling arrangement.</th>
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<tr>
<td>Introduction of a high zonal CIL for those landowners who wish to self-develop rather than participate in the auction.</td>
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<td>The use of reformed compulsory purchase order (CPO) powers to deal with holdout problems that threaten to stall development, together with further consideration of other options as discussed in</td>
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<tr>
<th>&quot;Repatriation&quot; of other national taxes</th>
<th>Revenue / capital</th>
<th>Future devolution discussions may seek to focus on repatriation of other existing nationally levied taxes, e.g. property taxes (stamp duty land tax, annual tax on enveloped dwellings and capital gains property disposal tax) which are responsive to local conditions and therefore well suited to local control.</th>
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<tr>
<td>Greater control over setting the tax rates, revaluations, banding and discounts to best reflect local conditions and requirements. Increased ability to directly capture benefits from infrastructure investments.</td>
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<td>Increased accountability to residents and businesses for the activities the tax revenues fund.</td>
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<tr>
<td>Central Government / LEP funding</td>
<td>Capital</td>
<td>Decisions for funding made by LEP members - LEP support is the main barrier to funding - so funding is attuned to local needs.</td>
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<td>The LEP programme aims to promote direct investment, principally within small-medium enterprises (SMEs), into sustainable business and as a result, increase private sector employment in the Gatwick area. LEP funding comes from a number of grant sources. Some of these currently include; Regional Growth Fund; Growing Places Fund; Single Local Growth Fund. <strong>Regional Growth Fund:</strong> £2.4bn fund which supports projects which aim to create long term private sector led economic growth and employment in England. Allocated based on a competitive bidding process open to a broad range of projects provided the project has clear economic benefits; the key factor is that there must be demand demonstrable with private sector involvement, and the proposals must be on the edge of financial viability. Proposals with the backing of the relevant Local Enterprise Partnership (LEP) and those that can demonstrate private sector support and financial contributions of 50% tend to have a much stronger case. <strong>Growing Places Fund:</strong> The Growing Places Fund is a £500 million fund administered by Communities and Local Government (CLG) and the Department for Transport (DfT) aimed at sites within Local Enterprise Partnership (LEP) areas where delivering infrastructure is a key barrier to new development. In March 2012, an additional £270m of funding for the Growing Places fund was announced. A proportion of the fund has been allocated to local areas by applying a formula based on population and employed earnings. The funding will be distributed to the LEPs who can use these funds for infrastructure projects which will act as a catalyst for economic growth.</td>
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<td><strong>DfT / Central Government grants</strong></td>
<td>Capital</td>
<td>Perhaps the most typical way of funding a local transport project. Existing funds include the DfT Integrated Transport Block, DfT Local Pinch Point Fund, DfT Better Bus Area, DfT Bus Service Operators Grant, Local Major Transport Scheme grant etc.</td>
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<td><strong>Section 106</strong></td>
<td>Capital</td>
<td>Planning obligations under Section 106 (S106) are a mechanism which make a development proposal (that would not be acceptable otherwise) acceptable in planning terms. S106 are legal contracts linked to a planning application decision, relating to the land rather than the person or organisation developing the land. Planning obligations are used to prescribe the nature of development to comply with policy; to compensate for loss or damage (such as loss of open space) created by a development; and to mitigate the impact from a development.</td>
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<td>Third party contributions</td>
<td>Surplus asset sales / development</td>
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<tr>
<td>Capital</td>
<td>Capital</td>
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<tr>
<td>Voluntary or negotiated contributions to infrastructure costs. E.g. Canary Wharf group contributed £150m to new Crossrail station.</td>
<td>Asset sales and development may include the sale of surplus assets to realise a capital receipt; the sale of land and property temporarily claimed to deliver new infrastructure; and investment in enhancing surplus land to prepare it for development to generate an uplift prior to disposal.</td>
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<td>Seeks to draw a link between infrastructure and business benefit, and/or consequential land and property gain.</td>
<td>Can realise capital value to contribute towards new infrastructure (either one-off sales or through development partnerships. May be scope to act as a landlord and create a regular lease income where land assets are marketable. Sale of surplus land and property will ensure that project funds are used efficiently.</td>
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<td>The potential for contributions from businesses and land owners depends on the nature of the benefits and property and land value gains that arise. Generally requires large 3rd parties served directly by the infrastructure. May have modest success but unlikely to generate significant sums.</td>
<td>Asset sales not a sustainable long term source of funding. Difficulty forecasting how much income the sale of assets will raise. May be opposed by public.</td>
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### Business Improvement Districts (BIDs)

| Business Improvement Districts (BIDs) | Revenue | Business led and business funded scheme to improve a defined commercial area through additional services or new initiatives. Empowering businesses to 'raise funds locally to be spent locally' on improving their trading environment. BIDs are funded through a nominal levy calculated on the rateable value of all businesses within a defined area. Although the percentage can be set higher or lower, most BIDs apply 1% or 2% levies and exempt very small ratepayers. BIDs are viewed by many businesses as a fair and affordable way of creating a ring fenced fund for up to 5 years that is 'managed by business for business'. | Whilst the majority of income will come from the private sector, non-domestic ratepayers from the public and voluntary sector will also contribute towards the BID. This levy income can be used to lever in more funding; for example, from public sector agencies, grant bodies, sponsorship, landowners and trading income during the 5-year scheme, maximising the potential funding stream and the benefits that the BID can achieve. | The process of developing a BID involves extensive consultation with businesses to establish what improvements they want and may be prepared to pay for. A BID Proposal is then produced and a 28-day postal ballot held. For the BID to go ahead, two conditions must be met; firstly, a majority of those voting have to vote ‘yes’ and secondly those ‘yes’ votes have to represent more than 50% of the total rateable value of all votes cast. Manor Royal BID may be requested to support Gatwick Airport station development. |

| Sponsorship / naming rights / track/Road side advertising | Revenue | Sponsorship or naming rights, and / or advertising billboards on the side of roads or rail tracks. | Easily implemented, few legal issues. | Likely to be a very small contribution only. |