

Report to: Cabinet

Date of meeting: 27 January 2015

By: Director of Communities, Economy and Transport

Title: Airports Commission Consultation Response: Gatwick Airport

Purpose: To advise Cabinet of the ongoing dialogue regarding noise impacts arising from the existing flight paths. Also to advise Cabinet of the draft proposed County Council response to the Airports Commission consultation on additional runway capacity in the south east, with particular reference to Gatwick's proposal for a second runway.

RECOMMENDATIONS

The Cabinet is recommended to:

- 1) Note the ongoing dialogue with DfT, Gatwick Airport and Gatwick Consultative Committee (GATCOM) regarding noise impacts arising from existing flight paths;
 - 2) Consider the draft proposed County Council response to the Airports Commission consultation on additional runway capacity in the south east, with particular reference to continuing to support Gatwick's proposal for a second runway; and
 - 3) Advise the Airports Commission and Gatwick Airport Limited that should the Government decide that a second runway be provided at Gatwick Airport, that the County Council would insist on Gatwick Airport Limited fully funding and delivering their publicly declared package of mitigation and compensation measures.
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1 Background

1.1. The Coalition Government commissioned Sir Howard Davies in 2012 to examine the need for additional UK airport capacity and to recommend how this can be met in the short, medium and long term.

1.2. The Airports Commission invited proposals last year on how additional airport capacity in the UK could be met in the longer term. The Commission received over 50 proposals from various stakeholders including all the major airports, and sought comments on these proposals. At the Lead Member for Economy decision making meeting on 12 November 2013, the Lead Member resolved to advise the Airports Commission of the County Council's support for Gatwick Airports Limited's submission for a proposed second runway at Gatwick Airport with the appropriate improvements to multi-model surface access infrastructure to support any expansion.

1.3. This support reflected the County Council's previous stance on a second runway which was considered by the then Lead Member for Transport and Environment in his decision making meeting on 27 June 2005 in relation to our response to the Gatwick Airport Outline Masterplan. It was resolved that the County Council should maintain its support, in principle, for the safeguarding of land in the Master Plan in order to accommodate a possible second runway at Gatwick, until such time as it becomes clearer whether such a runway will be needed.

1.4. The Airports Commission published its Interim Report on the review into airports capacity and connectivity in the UK on 17 December 2013. The Commission concluded that there is a need for one net additional runway to be in operation in the south east by 2030. Three options were shortlisted for further detailed study proposals for new runways at two locations – one at Gatwick and two options at Heathrow. In addition, the Airports Commission also advised that it would also undertake further assessment on one of the Thames Estuary options to consider whether it should be added to the shortlist. This assessment was concluded in September 2014

and the Commission resolved that the Estuary options were too environmentally damaging and cost prohibitive to warrant being shortlisted.

1.5. Gatwick Airport Limited (GAL) consulted on three runway options for a second runway in April/May 2014:

- Option 1 - Dependent segregated mode; new runway south of the existing and no new terminal
- Option 2 – Independent segregated mode; new runway 1,045 m south of the existing and a new midfield terminal
- Option 3 – Independent mixed mode; new runway 1,045m south of the existing and a new midfield terminal

1.6. At the Lead Member for Economy decision making meeting on 3 June 2014, the Lead Member resolved to advise Gatwick Airport Limited of our support for option 3 as it would maximise the economic benefits, creation of jobs, capacity and operational efficiency at the Airport and that further discussions be undertaken with Gatwick on their surface access strategy.

2 Existing and Future Flight Paths

Existing flight paths

2.2 Over the summer last year, we received a considerable level of correspondence about apparent changes to flight paths into Gatwick Airport over the county. We had been assured by Gatwick Airport and Gatwick Consultative Committee (GATCOM) that there had been no changes to flight paths and that this was as a result of the summer being the busiest experienced by the Airport. However, it has now transpired that these changes had been as a result of the Civil Aviation Authority and NATS trying out new vectoring choices for arrivals into Gatwick to see what effect they would have. The most damaging impact has been the consequential noise issues arising from the apparent reduction of height of flights from approximately 7,000 ft to the low 3,000s.

2.3 The Lead Cabinet Member for Economy has written to the Secretary of State for Transport, to which we are awaiting a response, expressing our disappointment that these changes have only been acknowledged after the event.

Future flight paths

2.4 One of the key issues with both existing and future flight planning is the introduction of performance based navigation (PBN), which supports the EU Directive and the Department for Transport's Aviation Policy Framework (APF) objective of concentration and noise reduction in order to minimise the impact on the fewest amount of people.

2.5 The National Air Traffic Service (NATS) and Gatwick Airport undertook an initial high level consultation in late 2013/early 2014 and a more detailed consultation during the summer on proposed changes to the management of local airspace at Gatwick Airport.

2.6 The more detailed proposals consulted upon last summer generated considerable amount of local concern which in turn we reflected in our consultation response, about the introduction of PBN which would ultimately result in communities potentially experiencing continual noise disturbance from aircraft flying overhead and thereby affecting their ongoing health and wellbeing. In addition, the APF also states that the PBN should be introduced 'in most circumstances' which does not mean it has to apply in all circumstances. Therefore, given the rural nature of the area around Gatwick, in particular proximity of the High Weald Area of Outstanding Natural Beauty to the airport, we put forward in our consultation response that in this particular case this should not apply.

2.7 We also suggested that flight paths needs to be shared on a more equitable basis with the development of multiple routes which provides predictable rotating respite across the arrival swathes over East Sussex into Gatwick Airport. This can be delivered using the PBN technology and this approach would seek balance with the management of airspace against the health and wellbeing of residents who would be potentially affected. Furthermore in relation to night flights we have suggested that these should be restricted to the 'shoulder' periods at the very start and

end of the night time period or for flights that have significant economic value to the UK and cannot practically arrive at other times, ie flights from long haul destinations.

2.8 Having reviewed the consultation feedback, Gatwick are re-visiting all of the proposals and have put on hold any potential changes to local airspace management to enable them to undertake more detailed work to better understand the available options and next steps. We understand that this will include further detailed work on final route options, and will consider the possible merits and options for more respite for residents most affected by noise (including at heights between 4,000 and 7,000 feet as well as up to 4,000 feet). Although the Civil Aviation Authority's requires that changes to local airspace are implemented by 2020, we are lobbying Gatwick to ensure they seek to maximise the flexibilities available in the management of the airspace around the Airport.

3 Potential Gatwick Second Runway: Supporting information

3.1 The promoters of the shortlisted schemes were required to submit more detailed proposals and assessments by May 2014. Since that time the Airports Commission has been undertaking its own assessment and analysis of the submitted proposals. It is these assessments which have now be issued for comment.

3.2 A summary of the Airports Commission assessment in relation to Gatwick Airport submission is outlined in Appendix 1 of the report including a comparison of the key metrics between the three shortlisted schemes. The key points are outlined below.

Economy and Housing

3.3 East Sussex has a great interest in good access to air services for its residents, businesses and visitors and in reaping the economic benefits arising from its proximity to Gatwick Airport.

3.4 An expanded Gatwick Airport would have significant benefits in delivering the Council's key priority, supporting economic growth in the county. A second runway would provide improved links for businesses in East Sussex to existing and emerging markets across the globe, helping to drive international and encourage inward investment. It would also help to attract tourists and tourism to the area thereby supporting local business.

3.5 The business community have indicated their support in principle for a second runway at Gatwick albeit that consideration is given to mitigating the impacts on local communities, including the Federation of Small Businesses (FSB) and a number of Chambers of Commerce - Eastbourne, Hastings, Battle, Hailsham, Seaford, Newhaven, Peacehaven and Lewes - through the Association of Chambers in East Sussex (ACES).

3.6 In addition an expansion at Gatwick would support the objectives of the East Sussex Growth Strategy which will be considered on the Cabinet. The Growth Strategy identifies that 'an opportunity to realise this potential in East Sussex comes from recognising the value that a second runway at Gatwick can bring to the infrastructure and economic fortunes of the county, while ensuring consideration is made in addressing measures on the environment and our communities'.

3.7 In terms of job creation, the Airports Commission assessment identifies that up to 63,000 jobs are likely to be created by an expanded Gatwick Airport. At present 5.3% of Gatwick's direct employment comes from the Wealden (2.8%), Eastbourne (1%) and Lewes (1.5%) districts in the county; this equates to just over 1,100 jobs – assuming a similar distribution of employees for the additional new jobs generated by a second runway, this would equate to at least 3,400 new jobs for residents in these three districts but this does not take account of the inward investment impacts that a second runway could bring to the county.

3.8 In terms of housing the Commission is estimating that with the additional employment this will require between 0 and 18,400 new homes in the Gatwick assessment area of 14 districts, which includes Wealden, Eastbourne and Lewes by 2030, but expects that the actual additional households arising from Airport expansion would lie somewhere within this range. Distributed evenly over the authorities in the Gatwick assessment area, this would equate additional annual

household growth of up to 130 per authority compared to 400 – 500 in the Heathrow area, but the Commission concludes that these housing needs are manageable.

3.9 A potential second runway at Gatwick may result in additional county council infrastructure requirements over a 25 - 30 year period to accommodate any additional housing and employment space in East Sussex resultant from the Airport's expansion. Should a second runway come forward at Gatwick we would also insist the Airport to honour its pledge of a £5,000 contribution per new home (Appendix 1, Annex 8) related to the Airport expansion to help fund these improvements in local infrastructure to support these houses as well as its £10m pledge to address airport related congestion issues on the local highway network. We would also be looking to Central Government with the Local Enterprise Partnership's support to help fund strategic transport infrastructure improvements - particularly to the A27 and rail - which may be required to support additional housing in our Borough and Districts.

Noise and Environment

3.10 Whilst improvements to aircraft design and technology, including aircraft being able to ascend and descend faster will mean noise levels will generally continue to fall, noise impacts arising from a new runway is a significant concern to many local communities in East Sussex.

3.11 With a potential second runway, there will inevitably be an increase in flights and overflying of East Sussex on both departure and arrival routes. The departure routes eastward over East Sussex will largely remain unchanged and aircraft will be normally at a sufficient height as they fly over the county and are unlikely to have any significant noise impact.

3.12 In relation to arrivals, the Airports Commission has produced plans showing indicative arrivals flight paths. Arrivals are shown to remain south for both runways and when arrivals are coming in from the east they will fly over the county. To achieve separation between arriving flights, planes will join the northern arrival path further east than is the case at present. As a consequence, this might give to an increase in noise over the northern part of the county.

3.13 Should a second runway come forward at Gatwick, this will require further changes to the airspace management system over and above the final outcomes of the review of the Gatwick airspace management proposals described in section 2 of the report and any such changes would be the subject of their own change processes and consultation at a later date. Notwithstanding, reflecting our previous comments on the Gatwick airspace management consultation last year set out in section 2 of the report, in our response to the Airports Commission I consider we should be advising the Airports Commission that our continued support for a second runway is on the basis that in either a one or two runway scenario at Gatwick an appropriate approach is taken to sharing arrival flight paths on a more equitable basis rather than focussing on a narrow concentrated corridor, and using the available technology to minimise noise impacts that arrivals are kept as high as possible for as long as possible before descending on the approach to the airport.

Air Quality

3.14 The assessment of air quality impact considers the key pollutants associated with airport activity – nitrogen oxide (NO₂) and particulate matter PM₁₀ and PM_{2.5}. NO_x is a term for all nitrogen oxides, which include NO₂ (nitrogen dioxide) and NO (nitric oxide). NO_x is hazardous to those particularly susceptible to changes in air quality such as asthmatics whilst NO_x is a pollutant that impacts on sensitive habitats and vegetation as it has the potential to alter nutrient availability and cause acid rain.

3.15 Because of the habitats damage occurring in the Ashdown Forest, a 7km exclusion zone was created following the adoption of their Local Plan in 2013 which limits the level of development without appropriate mitigation in the area. Wealden are currently monitoring the main cause of damage, nitrogen deposition, to understand the level this is currently at, how it is changing and how it could be mitigated. However, data from the Department for Food and Rural Affairs (Defra) indicates that, on average, aircraft emissions contribute to approximately 0.5% of total ambient NO_x concentrations in the Ashdown Forest Special Area of Conservation/Special Protection Area. The Commission's assessment study equally concludes that no locations in the Gatwick study area are predicted to exceed NO_x air quality objectives or EU limits with the

exception of one site in Crawley. Therefore, any expansion to Gatwick Airport is unlikely to have a significant impact on the nitrogen deposition issues on Ashdown Forest which are predominantly associated with motorised vehicle emissions.

Surface Access

3.16 The proposals for a second runway at Gatwick are supported by an enhanced surface access strategy with a target to deliver 60% public transport mode share by 2040. Many of the identified improvements in the surface access strategy, summarised in Annex 6 of Appendix 1, are already planned and committed in the Highways Agency's and Network Rail's investment programmes with or without a second runway and should be supported. The Airports Commission have concluded in their assessment that the package of surface access improvements can accommodate the additional passengers and employees generated by a second runway.

3.17 Following the Lead Member meetings in November 2013 and June 2014, discussions have been held with Gatwick Airport about how further appropriate improvements are incorporated in the surface access strategy which will be directly beneficial to East Sussex residents and business where travelling by rail or bus/coach is not an option. These further improvements includes one hour free parking for pick up's at the long stay car parks and a local highway improvement fund which will be available to address any airport traffic related issues that arise on the local road network.

Community Pledges

3.18 In July 2014, Gatwick Airport Limited published a £256m package of mitigation and compensation measures that would be offered if a second runway was built at Gatwick. The package includes:

- An Infrastructure Delivery Fund (£46.5m) to help fund infrastructure to support new housing with a £5,000 commitment for every house built in the Gatwick region – which includes Eastbourne, Wealden and Lewes – related to the airport expansion
- A Training Fund (£3.75m) to help create 2,500 apprenticeships for local young people across the south east region. A grant of £1,500 per new apprenticeship created would be paid and the scheme would not be restricted to just airport related jobs or industries.
- A Noise Insulation scheme (£5m) for house significantly affected by noise with up to £3,000 per house towards double glazing and loft insulation.
- A council tax initiative (£45m) to compensate houses significantly affected by noise; this will equate to annual compensation equivalent to Band A Council Tax.
- A local highway development fund (£10m) to help fund local highway improvements

3.19 Should a second runway come forward, we would insist that Gatwick Airport honours these pledges but also develop a specific package of mitigation measures for East Sussex in particular for residents who may not significantly, but are adversely affected by noise arising from a second runway.

Summary

3.20 On balance, it is recommended that the County Council continues to support a potential second runway at Gatwick Airport as it will help support the delivery of a key priority of the County Council, supporting economic growth. In doing so, it should be recognised that with an expanded Gatwick there will be noise and environmental impacts on some of our communities but it is considered the economic benefits for East Sussex do outweigh these impacts.

3.21 This support for a potential second runway remains on the basis that the Airport will honour the various pledges in their mitigation and compensation package in relation to noise insulation for affected residents in East Sussex, local highway improvements where airport traffic affects East Sussex roads, infrastructure delivery to support new housing and training/apprenticeship creation.

3.22 In addition, in managing Gatwick's airspace in either a one or two runway scenario we would also expect to see that, as we have suggested, flight paths are shared on a more equitable basis with the development of multiple routes providing predictable rotating respite across the arrival swathes that go over the county into Gatwick Airport as opposed to a narrow concentrated corridor.

3.23 The Airports Commission will submit its final report to the government in the summer of 2015 which will contain recommendations on how the additional runway capacity could be provided. It will then be up to the government to consider how to respond to the Airports Commission recommendations and how this forms part of future national aviation policy.

4 Conclusion and reasons for recommendations

4.1 There has been a considerable amount of concern and correspondence from local residents regarding changes to existing flight paths into Gatwick Airport as well as proposals for changing flight paths in the future. As a County Council we have reflected these local concerns in our responses to relevant consultations as well as made representations to Gatwick Airport, Gatwick Consultative Committee (GATCOM) and the Department for Transport on these and other issues regarding the impact of flight paths.

4.2 Although there are environment and noise issues which would need to be mitigated by Gatwick Airport, the proposal for a second runway at Gatwick will generate significant benefits for East Sussex in supporting one of the Council's key priorities, economic growth and job creation in the county, and for that reason a second runway at the airport should continue be supported.

4.3 This support remains on the basis that the Airport honour their package of pledges to mitigate and/or compensate for such impacts and invest in necessary social and transport infrastructure and training opportunities, and it is recommended that in our response to the Airports Commission that we insist Gatwick Airport Limited fully fund and deliver this package which is secured through an appropriate legal mechanism or by statute; and that in either a one or two runway scenario at Gatwick there being a more equitable approach to arrival flight paths being introduced over the county when changes to airspace management are made.

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All

BACKGROUND DOCUMENTS

Airports Commission consultation documents –

<https://www.gov.uk/government/consultations/increasing-the-uks-long-term-aviation-capacity>

1. Consultation Document
2. Gatwick Airport Second Runway: Business Case and Sustainability
3. Technical Appraisal Documents

Appendix A

1. Table of key metrics drawn from Airports Commission appraisal
2. Gatwick Second Runway - scheme summary
3. Airports Commission's Phase 2 Appraisal Framework

Summaries of Airports Commission detailed appraisals:

4. Employment and Housing
5. Noise and Flight Paths
6. Air Quality
7. Surface Access
8. Mitigation and Compensation

Annex 1: Airports Commission: Consultation Document – summary of metrics between options

Metric	Gatwick Second Runway	Heathrow Extended Northern Runway	Heathrow North West Runway
Strategic Fit			
Capacity (Air traffic movements) 2030 (increase)	560,000 (280,000)	700,000 (220,000)	740,000 (260,000)
Capacity (mppa) 2050	60-96	126-142	132 - 149
Additional seats (m) 2050	3-16 long-haul 9-51 short-haul	5-17 long-haul 12-26 short-haul	7 – 21 long-haul 15 – 30 short-haul
Carbon (MtCO ₂ e) 2050	37.5 - 51	37.5 - 51	37.5 – 52
Air Freight (benefit)	low	high	high

Metric	Gatwick Second Runway	Heathrow Extended Northern Runway	Heathrow North West Runway
Economy			
Transport economic benefits (£billion)	3.7 - 44.1	9.4 – 36.7	10.3 - 42
Reduction in passenger delays (£billion)	0.73 – 1.78	0.64 – 2.18	0.84 – 2.36
Whole economy benefit (£billion)	42-127	101 - 214	112 - 211
Employment (incr in jobs) 2030	500 - 23,600	47,400 – 96,200	47,400 – 112,400
Employment (incr in jobs) 2050	7,900 – 32,600	54,800 – 92,900	64,100 – 108,300
Employment (S-CGE ¹) 2050	49,000	164,200	179,600
Housing demand (units) 2030	18,400	60,600	70,800

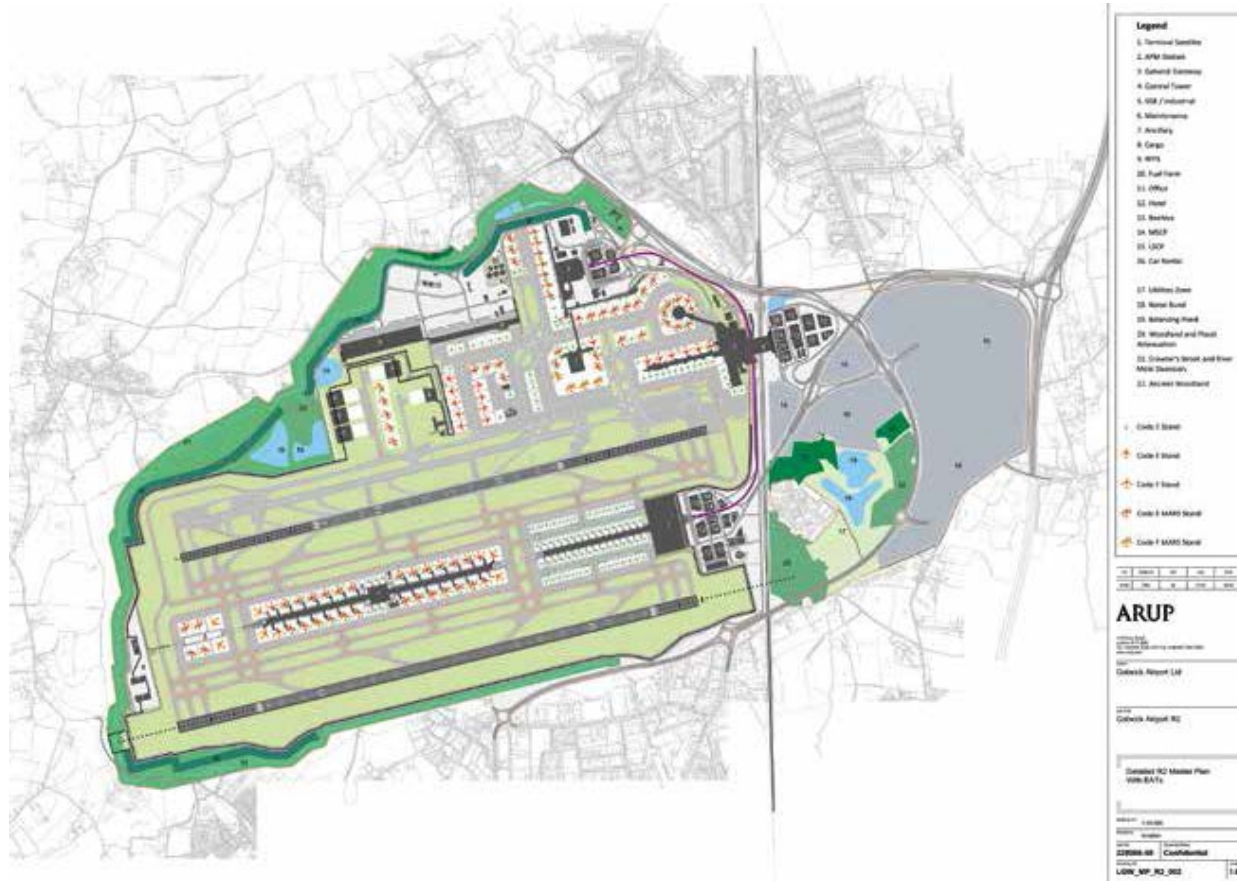
¹ Spatial Computable General Equilibrium model, used to predict Gross Domestic Product impacts giving a whole economy assessment.

Metric	Gatwick Second Runway	Heathrow Extended Northern Runway	Heathrow North West Runway
Environment			
Noise (popn) ²	x 2-3	X 1.5-2	X 0-0.8
Air quality	Standards met	At risk	At risk
Land take (ha)	624 - 711	724 - 1114	569 - 906
House demolished	168	242	783
Quality of life	<5km neutral, nationally +itive	<5km neutral, nationally +itive	<5km neutral, nationally +itive

² Noise assessments are complex using three different methods to produce six different metrics for comparison purposes. The different methods are consistent in indicating trends, but vary significantly in scale of impact.

Metric	Gatwick Second Runway	Heathrow Extended Northern Runway	Heathrow North West Runway
Cost and Delivery			
Cost (£billion)	9.3	13.5	18.6
Airport charges (£per passenger)	15 – 18, peak 23	27 – 28, peak 30	28 – 29, peak 32
Finance – equity/debt (£billion)	3.7/14.3	5.1/24.9	8.4/29.9
Surface access improvements (£billion)	0.787	6.3	5.7
Delivery risk	Low	Substantial	Substantial
Operational viability			
Terminal transfer time (min)	60	64 - 73	64 - 73

Annex 2: Gatwick Second Runway – scheme summary



Gatwick Airport Ltd proposes a second runway to the south of the existing runway. The two runways would be sufficiently separated to allow independent mixed-mode operations on both.

Land take includes a safeguarded area to the south of the existing airport for the second runway, an area to the east between the Balcombe Road and M23 for use as additional car parking and replacement commercial land, and land to the west of the existing and proposed runways for diversion of the River Mole.

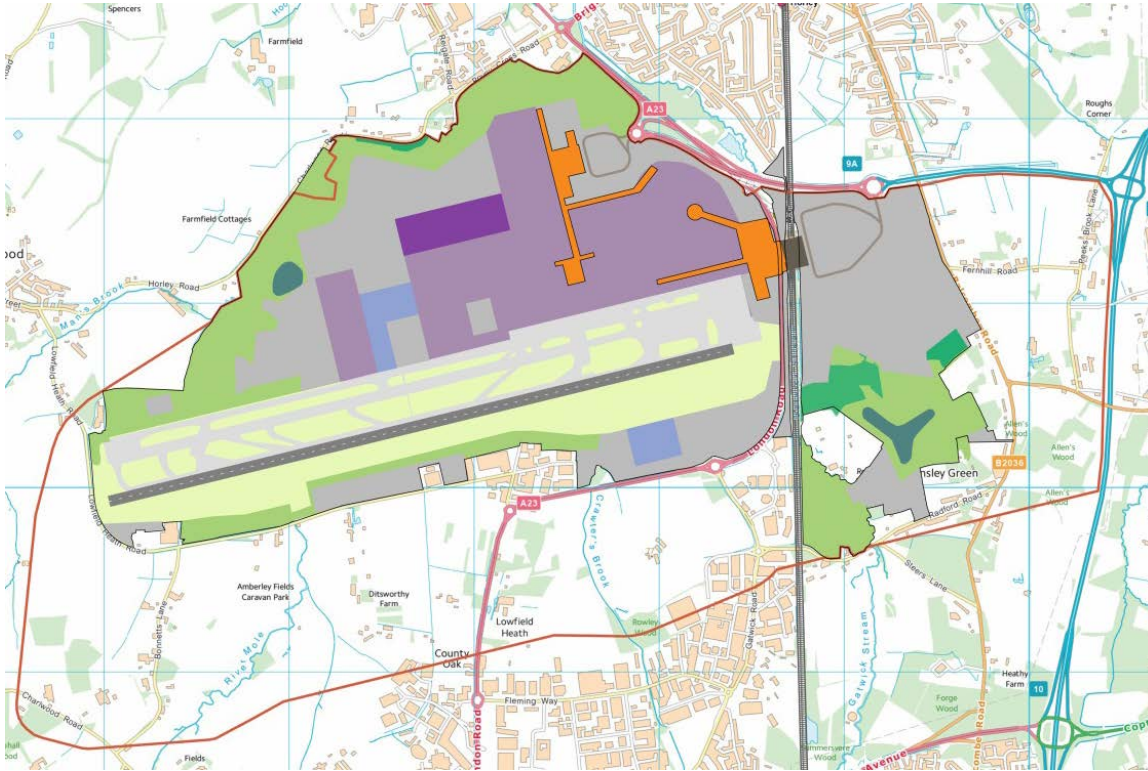
The space between the runways would be used to accommodate a new terminal building, main pier and satellite. The new terminal would have a capacity of about 50mppa.

Local surface access changes include:

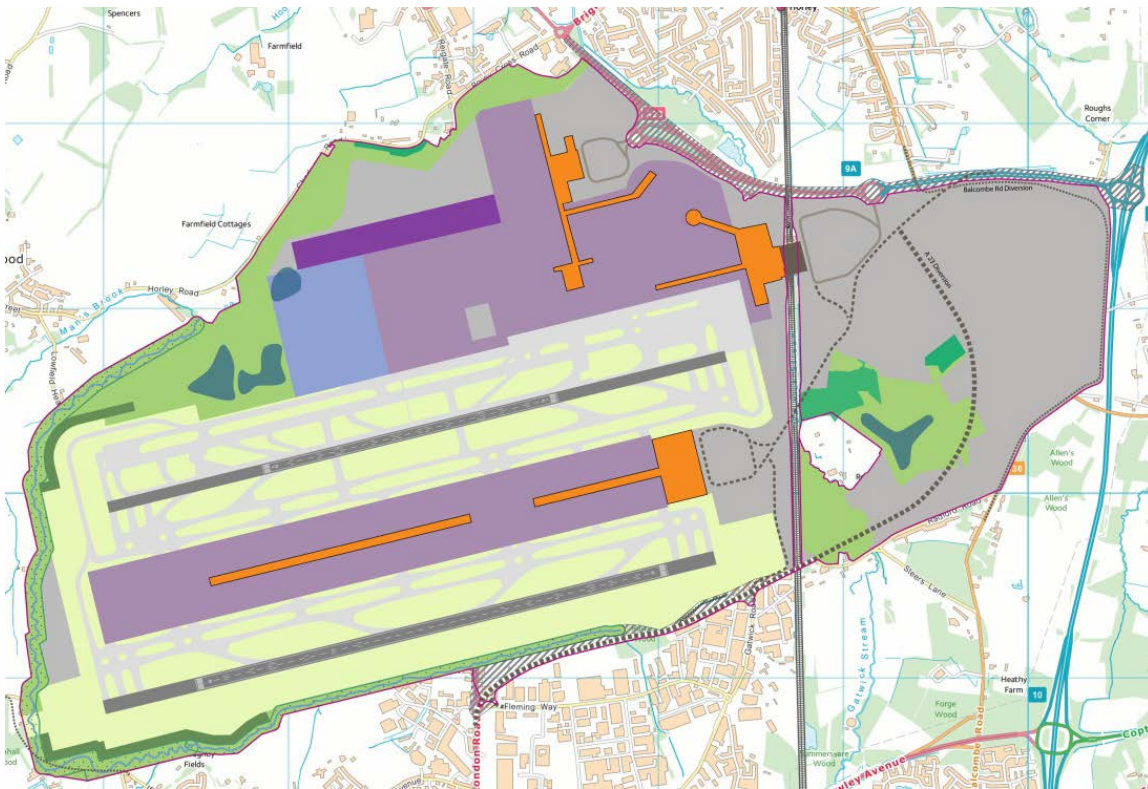
Location	Requirement
M23 Junction 9	Slip road widening
	Grade separated flyover for southbound slip
M23 Spur	Relocation of roundabout further south
	Widening to four and five lanes
Airport Way	Widening to four lanes in each direction
A23	Realignment of A23 to east of existing route
	Grade separated link to M23 spur
	Grade separated link to Airport Way
North terminal access	New roundabout and approaches
Longbridge roundabout	Redesigned to increase capacity
Gatwick Road	New roundabout and approaches
Balcombe Road	Realigned to east (adjacent to M23)
Lowfield Heath Road	Closed
Gatwick station	Redesigned station concourse

Strategic surface access improvements rely heavily on planned or committed improvements to the M23, M25, and Brighton mainline. This includes improved accessibility via Thameslink, platform upgrades to allow longer trains, improvements to London terminals at Victoria and London Bridge, and the tender requirements in recent rail franchises.

Land take: existing airport plan



Land take: Proposed airport plan



Annex 3: Airport Commission’s Phase 2 Appraisal Framework

Phase 2 appraisal module	Phase 2 objective
Strategic Fit	To provide additional capacity that facilitates connectivity in line with the assessment of need
	To improve the experience of passengers and other users of aviation
	To maximise the benefits of competition to aviation users and the broader economy
	To maximise benefits in line with relevant long-term strategies for economic and spatial development
Economy Impacts	To maximise economic benefits and support the competitiveness of the UK economy
Local Economy Impacts	To promote employment and economic growth in the local area and surrounding region
	To produce positive outcomes for local communities and the local economy from any surface access that may be required to support the proposal
Surface Access	To maximise the number of passengers and workforce accessing the airport via sustainable modes of transport
	To accommodate the needs of other users of transport networks, such as commuters, intercity travellers and freight
	To enable access to the airport from a wide catchment area
Noise	To minimise and where possible reduce noise impact
Air Quality	To improve air quality consistent with EU standards and local planning policy requirements
Biodiversity	To protect and maintain natural habitats and biodiversity
Carbon	To minimise carbon emissions in airport construction and operation
Water and Flood Risk	To protect the quality of surface and ground waters, use water resources efficiently and minimise flood risk
Place	To minimise impacts on existing landscape character and heritage assets
Other Environment	To identify and mitigate any other significant environmental effects

Phase 2 appraisal module	Phase 2 objective
Quality of Life	To maintain and where possible improve the quality of life for local residents and the wider population
Community	To manage and reduce the effects of housing loss on local communities
	To reduce or avoid disproportionate impacts on any social group
Use of public funds	To make efficient use of public funds, where they are required, and ensure that the benefits of schemes clearly outweigh the costs, taking account of social, environmental and economic costs and benefits
Cost and Commercial Viability	To be affordable and financeable, including any public expenditure that may be required and taking account of the needs of airport users
Delivery	To have the equivalent overall capacity of one new runway operational by 2030
	To actively engage local groups in scheme progression, design and management
Operational Risk	To enhance individual airport and airports system resilience
Operational Efficiency	To ensure individual airport and airports systems efficiency
	To build flexibility into scheme designs
	To meet present industry safety and security standards
	To maintain and where possible enhance current safety performance with a view to future changes and potential improvements in standards

Annex 4: Employment and Housing

Employment

Employment forecasts for each scheme are based on the total of direct, indirect and induced employment against a 'do minimum' scenario.

Table 1: Number of additional jobs

Year	Assessment	Gatwick R2	Heathrow NWR	Heathrow ENR
2030	Additional jobs	200-23,600	47,400-112,400	47,400-96,200
	Jobs (total)	27,800-58,400	238,000-349,400	238,000-333,200
2050	Additional jobs	7,900-32,500	64,100-108,300	54,800-92,900
	Jobs (total)	28,400-63,000	206,500-329,500	197,100-314,000

The significantly higher employment potential of the two Heathrow schemes are the result of a number of factors, primarily because of the greater economic forecasts arising from the expansion of Heathrow, and because of a higher employee per passenger ratio at Heathrow due to its greater transfer and long-haul traffic.

The Commission has also attempted to measure the total impact on employment, including possible catalytic effects. Catalytic employment arises from firms choosing to locate near an airport because of the greater connectivity, either internally or internationally. The Commission has used a new, untested, methodology called the Spatial Compatible General Equilibrium (S-CGE) model to generate the figures in table 2. Due to the inherent uncertainty in forecasting catalytic growth, the figures need to be treated with caution.

Table 2: Number of additional jobs, including catalytic growth

Year	Assessment	Gatwick R2	Heathrow NWR	Heathrow ENR
2050	Total additional employment (including catalytic)	49,600	179,800	163,300

Under a 'do minimum' scenario, employment at either airport would continue a historic downward trend, due to greater productivity outweighing growth in employment to service higher passenger numbers. Reductions in direct jobs would have a consequent downward pressure on indirect and induced jobs.

Table 3: 'Do nothing' scenario (direct employees only)

Year	Assessment	Gatwick	Heathrow
2011	Jobs - direct	24,900	84,400
2030	Jobs - direct	20,600-26,400	70,300-87,400
	Change (loss)/gain	(4,300)-1,500	(14,100)-3,000
2050	Jobs - direct	15,500-23,500	52,700-81,800
	Change (loss)/gain	(9,400) – (1,400)	(31,700)-(2,600)

The location of directly employed employees at Gatwick is as follows:

Table 4a: Existing Distribution of employment (Gatwick)

Local Authority	% Gatwick direct employment	No. of employees (approx. direct no. of employees - 21,000)
Crawley	31.8	6,678
Reigate & Banstead	9.4	1974
Mid Sussex	8.2	1722
Horsham	7.1	1491
Brighton & Hove	6.0	1260
Croydon	3.3	693
Wealden	2.5	525
Tandridge	2.4	504
Lewes	1.8	378
Arun	1.5	315
Mole Valley	1.4	294
Adur	1.3	273
Worthing	1.3	273
Eastbourne	1.0	210

Assuming the same percentage distribution for Gatwick's direct employment is applied to the maximum total number of additional jobs that a second runway at Gatwick could bring (63,000), it would equate to the following number of jobs in Wealden, Lewes and Eastbourne.

Table 4b: Potential number of jobs derived from a Gatwick second runway based on the existing Distribution of employment (Gatwick)

Local Authority	% Gatwick direct employment	Max no. of additional employees derived from a 2 nd runway (63,000)
Wealden	2.5	1,575
Lewes	1.8	1,134
Eastbourne	1.0	630

(Note: existing direct employment distribution applied to max number of additional employees derived from a second runway – 63,000 additional jobs)

Households

The figures for additional households are derived from direct, indirect and induced employment forecasts, weighted according to the proportion of existing employees living within the respective study areas³ (approximately 80% in the case of Gatwick and 63% in the case of Heathrow). The Gatwick study area includes Wealden, Eastbourne and Lewes.

³ Gatwick study area: Crawley, Tandridge, Reigate & Banstead, Epsom & Ewell, Mole Valley, Horsham, Mid Sussex, Croydon, Wealden, Eastbourne, Lewes, Brighton & Hove, Adur, Worthing, Arun

Table 5: Number of additional households

Year	Assessment	Gatwick R2	Heathrow NWR	Heathrow ENR
2030	Additional households (direct)	0-13,500	11,000-26,000	11,000-22,300
	Additional households (direct, indirect, induced)	0-18,400	29,800-70,800	22,900-60,600

The Commission expects actual additional household formation arising from airport expansion to lie somewhere within this range, rather than the maximum because of other factors that tend to reduce overall demand, such as a reduction in the unemployment rate, reduction in out-commuting, and an increase in the economically active population.

The Commission's appraisal does not attempt to assign the additional household projections spatially. It notes that if distributed evenly among authorities in the study areas, over the ten year period between 2020 and 2030, additional annual household growth would be approximately 130 per authority in the Gatwick study area; by comparison this equates to 400-500 per authority in the Heathrow study area.

The Commission has looked in general terms at accommodating additional housing development in the study areas in terms of historic housing growth trends, previously-developed land, housing densities and affordability.

The Commission concludes that the scale of change needed to meet additional household formation is unlikely to significantly increase the housing pressures over existing natural growth and inward migration; and that over both airport's study areas, housing needs are manageable, although it acknowledges it would be easier to meet additional demand in some authorities than others.

Annex 5: Noise

The noise impact arising from a new runway includes:

- Aircraft noise
- Flight paths
- Ground noise

Noise impact arising from Heathrow does not impinge on East Sussex and therefore the assessment of noise impact has concentrated on the Gatwick shortlisted scheme. Some Heathrow noise data is given below for comparative purposes.

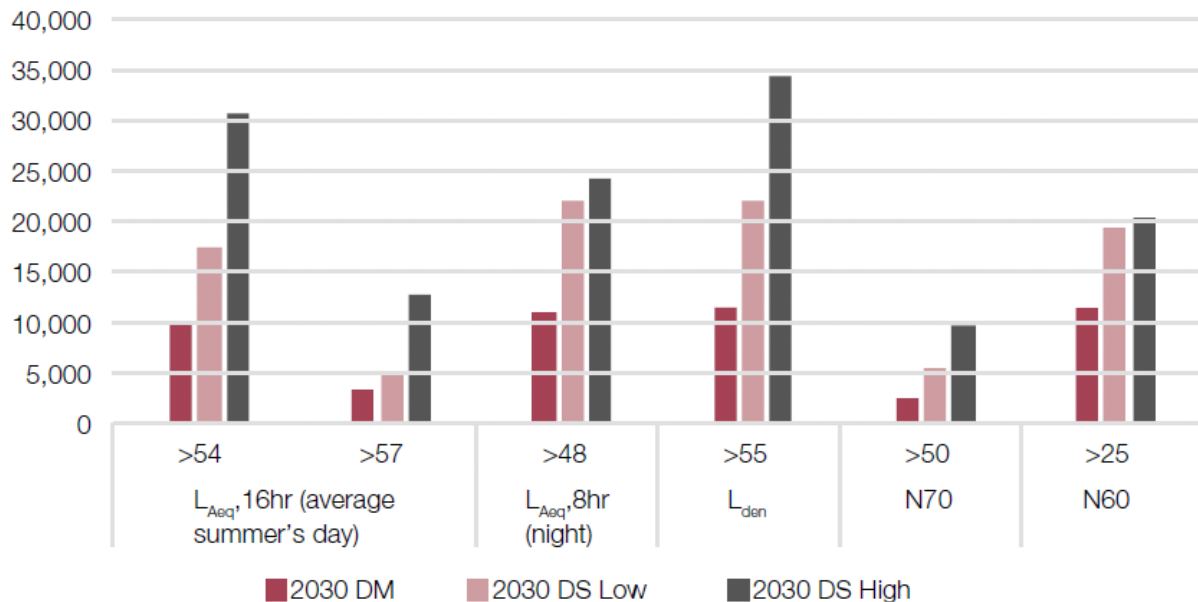
Aircraft Noise

To address the differing ways in which people respond to noise disturbance, the Airports Commission has assessed noise against three different methodologies, producing different noise metrics. An explanation of the different metrics is given at the end of this annex.

To give a baseline against which to compare different scenarios, the Commission has used current noise levels (see table 1) and 'do minimum' forecasts where Gatwick continues to operate as a one-runway airport (see tables 2a and 2b). Under the 'do minimum' forecasts, noise levels generally continue to fall as improvements in aircraft design and technology outweigh growth in the number of aircraft movements and population. The exception to this trend is with night flights where increasing use of the 'shoulder periods' (23:00-23:30 and 06:00-07:00) leads to increased noise disturbance.

For a two-runway operation, the Commission has drawn up forecasts using the various scenarios set out in their appraisal. Figure 1 below shows forecasts for 2030: a 'do minimum' forecast where Gatwick continues to operate as a one-runway airport, and two 'do something' scenarios where Gatwick operates as a two-runway airport under the lowest-growth scenario, and a two-runway airport under the highest-growth scenario.

Figure 1: Gatwick, 2030 – do minimum (DM), do something low (DS Low), do something high (DS High) forecasts (people)



Measured against any of the noise metrics, a second runway at Gatwick would lead to a significant increase in noise disturbance in both low and high-growth scenarios. The number of people affected

by noise are approximately twice (low-end scenario) or three times (high-end scenario) those forecast to be affected in a 'do minimum' scenario. These trends are the same when compared to current noise levels.

The bulk of the additional people adversely affected are those lying to the south of the expanded airport in Crawley, where noise from the second runway would impinge on a number of residential neighbourhoods.

Figure 2: Gatwick airport 2030 – do minimum, $L_{Aeq,16h}$ contours

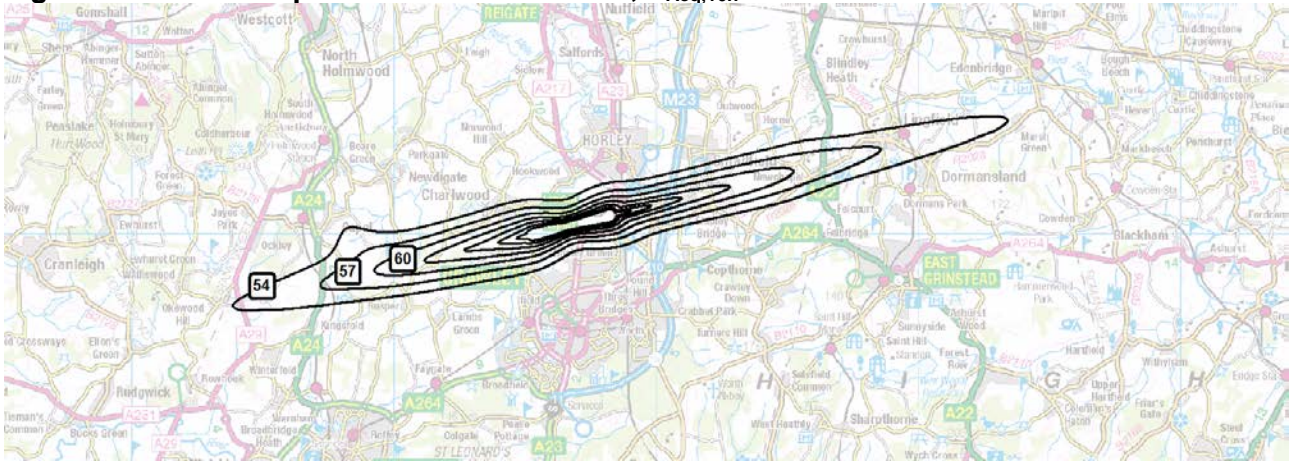
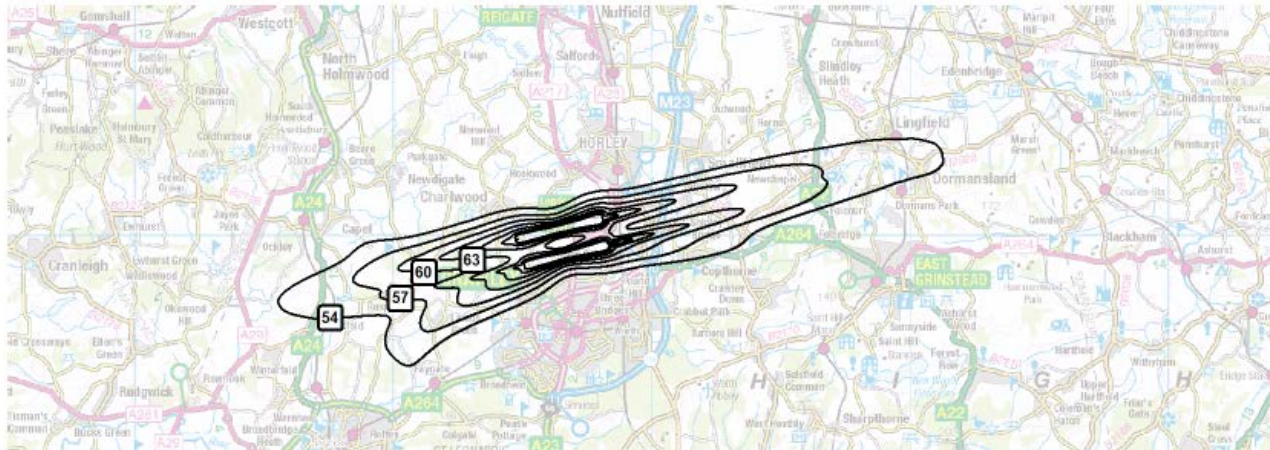


Figure 3: Gatwick airport 2030 – do something, $L_{Aeq,16h}$ contours



The Commission has used new noise metrics to give a measure of the frequency of noise events above a certain level. The following diagrams compare the daytime frequency of flights between 'do minimum' and 'do something' scenarios in 2030.

Figure 4: Gatwick airport 2030 – do minimum N60 contours

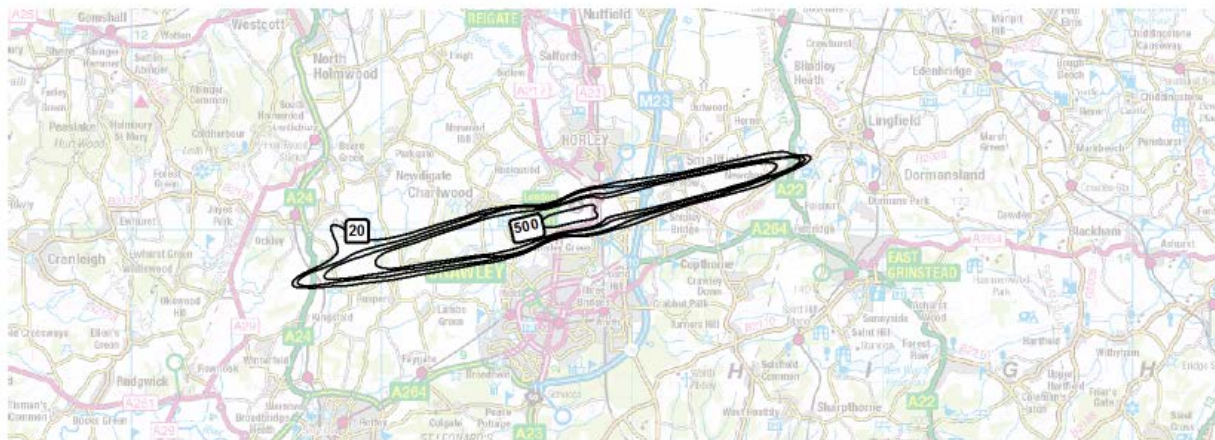
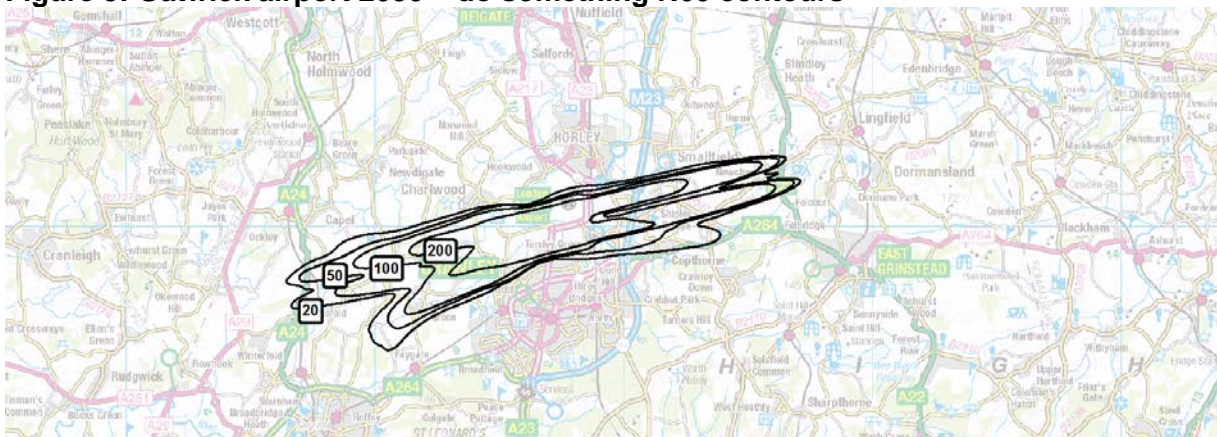


Figure 5: Gatwick airport 2030 – do something N60 contours



Flight Paths

Indicative flight paths are shown in Figure 6b. Arrivals are shown to remain from the south for both runways. To achieve separation between arriving flights for the two runways, more planes would join the northern runway arrival paths further west than is the case at present. This might give rise to an increase in noise in the northern part of the county when the airport is operating to the west.

Southern departure routes remain largely as existing. There would be the SFD southward route across the north of Wealden and Lewes District as well as the southern 'loop-around' - LAM/BIG/CLN/DVR – which would overfly part of Wealden and Rother. Noise would inevitably increase along these routes with growing numbers of flights compared to current levels albeit aircraft will be above 7,000 feet whilst overflying these areas of the county.

Comparison with Heathrow

Also included are comparative statistics for Heathrow (see table 3). It is apparent that under any of the noise metrics, the number of people affected by noise at Heathrow is many times higher than that at Gatwick, and would continue to be that way even if Gatwick were to have a second runway.

However, the noise analysis undertaken by the Commission does not quantify the lower ambient noise environment around Gatwick compared to Heathrow, including the more rural parts of this district, nor the character of tranquillity recognised in the AONB.

National Noise Assessment

While of limited value to the assessment of noise on this district, the Commission has provided national noise statistics, which forecast the aggregated number of people at Gatwick and Heathrow against the three shortlisted schemes. A two-runway scheme at Gatwick would be broadly neutral as the increase in people affected by noise around Gatwick would be offset by reductions in people around Heathrow, where air traffic would not grow as sharply as in a 'do minimum' scenario.

Figure 6a: Gatwick Airport – existing arrival and departure routes

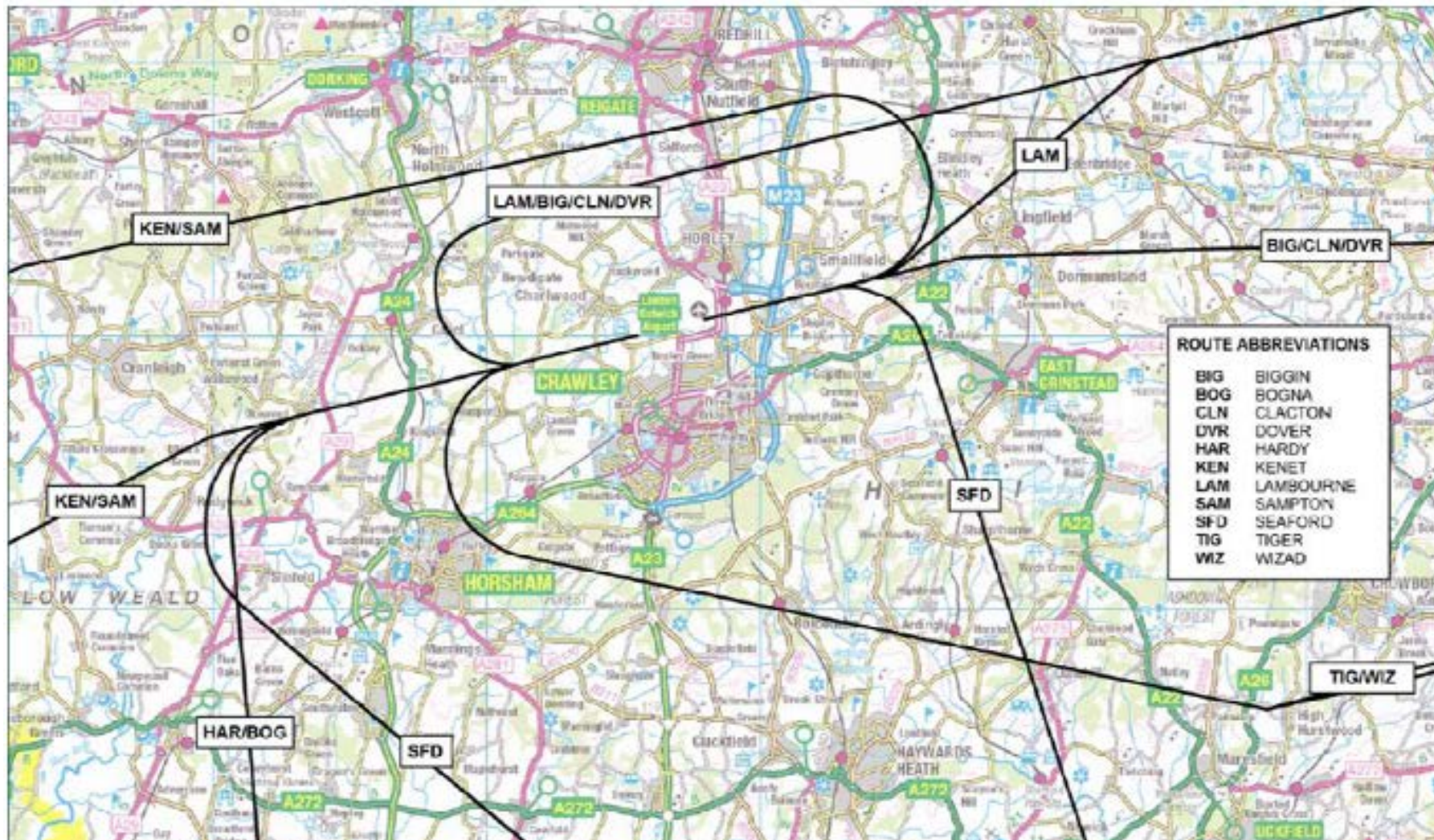


Figure 6b: Gatwick Airport Second Runway – indicative arrival and departure

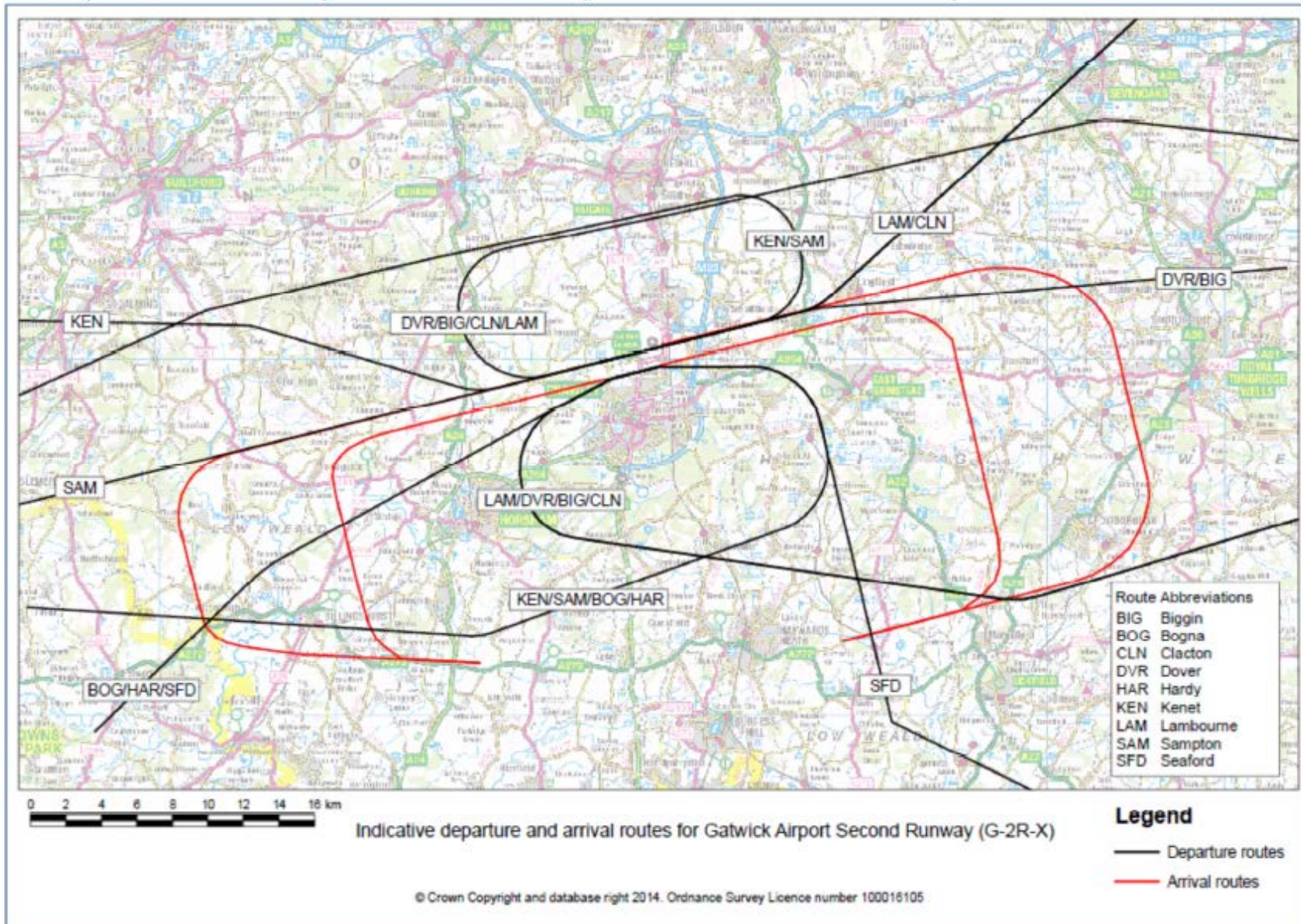


Table 1 - current aviation noise levels:

Metric	Period	Value (dB)	Noise Exposure (pop ⁿ)	
			Gatwick	Heathrow
L _{Aeq,16hr}	Day	>57	3,550	266,100
L _{Aeq,16hr}	Night	>48	11,200	421,300
L _{den}	24-hour	>55	11,300	766,100
N70	Day	>50	2,500	217,700
N60	Night	>50	4,900	2,600

Table 2a - 'do nothing' forecast for 2030 compared to current noise levels:

Metric	Period	Value (dB)	Noise Exposure (2030) incr (decr) from current pop ⁿ noise exposure	
			Gatwick	Heathrow
L _{Aeq,16hr}	Day	>57	(1,700)	(44,900)
L _{Aeq,16hr}	Night	>48	500	(150,100)
L _{den}	24-hour	>55	(1,900)	(185,600)
N70	Day	>50	(700)	(33,600)
N60	Night	>50	2,300	(2,600)

Table 2b - 'do nothing' forecast for 2050 compared to current noise levels:

Metric	Period	Value (dB)	Noise Exposure (2050) incr (decr) from current pop ⁿ noise exposure	
			Gatwick	Heathrow
L _{Aeq,16hr}	Day	>57	(2,100)	(196,800)
L _{Aeq,16hr}	Night	>48	0	(48,200)
L _{den}	24-hour	>55	(1,800)	(182,600)
N70	Day	>50	(600)	(28,200)
N60	Night	>50	2,200	3,900

**Table 3 - additional aircraft noise exposure by population in comparison to the 'do nothing' situation:
Scenario – low end (assessment of need; carbon capped)**

Metric	Period	Value	Gatwick Second Runway			Heathrow North West Runway			Heathrow Ext Nthrn Runway		
			2030	2040	2050	2030	2040	2050	2030	2040	2050
L _{Aeq,16h}	Summer av day	>54	9,600	12,000	17,000	(37,400)	28,000	56,100	216,200	265,400	266,800
L _{Aeq,16h}	Summer av day	>57	2,700	3,100	4,400	15,900	30,500	29,700	76,200	86,300	84,300
L _{Aeq,8h}	Summer av night	>48	10,600	6,300	7,400	(4,400)	(28,500)	(77,300)	121,500	139,700	143,200
L _{den}	Annual average	>55	12,700	12,100	15,100	(24,300)	29,200	54,200	226,300	267,300	269,000
N70	Summer average	>20	8,400	7,800	8,200	(14,200)	600	1,700	6,500	28,500	14,300
N60	Summer average	>25	7,700	5,900	6,800	(21,900)	(61,100)	(173,400)	197,700	239,600	200,200

Note: Numbers in parentheses show a reduction in population exposure

Note on metrics:

dB(A) – measurement in decibels weighted to mimic human hearing sensitivities to different frequencies – ‘A-weighted’.

L_{Aeq,16h} – A-weighted equivalent continuous sound level over the sixteen hour period between 07:00-23:00 averaged over the summer period (between 16 June-15 September) – used as a measure of daytime noise exposure.

L_{Aeq,8h} – the same as above but for the eight hour period between 23:00-07:00 averaged over the summer period – used as a measure of night-time noise exposure.

L_{den} – A-weighted equivalent continuous noise level over an annual average 24 hour period, further weighted with a 10dB penalty during the night (23:00-07:00) and 5dB penalty during the evening (19:00-23:00) to reflect greater sensitivity during these periods.

N70 – measurement of the number of times a noise event exceeds 70dB during an average sixteen hour summer daytime period. For example N70>50 relates to the population affected by more than 50 noise events, each over 70dB, during the daytime.

N60 – as above, used as a measure of noise events exceeding 60dB during an average eight hour summer night-time period.

Annex 6: Air Quality

The emissions that are the main concern for air quality are emitted from various sources including cars, goods vehicles, aircraft, biomass boilers, incinerators, brake & tyre wear and auxiliary power units. The total emissions from different sources, combined with the distance to the sensitive receptor (i.e. humans or the environment) will determine the level of impact. Road traffic (due to the polluting effects of the vehicles and close proximity to people) is the most dominant airport related emission source causing poor air quality.

The assessment of air quality impact considers key pollutants associated with airport activity, nitrogen oxide (NO₂) and particulate matter (dust) PM₁₀ and PM_{2.5} which are particles with diameters of less than 10 and 2.5 microns respectively. NO_x is a term for all nitrogen oxides, which include NO₂ (nitrogen dioxide) and NO (nitric oxide). NO_x is hazardous to those particularly susceptible to changes in air quality such as asthmatics. NO_x is a pollutant that impacts on sensitive habitats and vegetation as it has the potential to alter nutrient availability and cause acid rain. PM₁₀ and PM_{2.5} pollutants can penetrate deep into the lungs causing health problems.

The air quality assessment prepared for the Airports Commission is the first of a two-stage approach. The current study looks at the impact of the airport proposals on air quality at a national scale and at a local scale. The second stage (to follow) will consider pollution dispersion modelling including the effect of government and scheme promoter mitigation measures.

Air quality impacts of Gatwick proposals

The study concludes that no locations in the Gatwick study area are predicted to exceed NO_x air quality objectives or EU limits with the exception of a small area along the A2011/Hazelwick Roundabout in Crawley. It is also concluded that there is unlikely to be any risk of PM₁₀ and PM_{2.5} air quality objectives being exceeded within the study area both with and without mitigation.

Comparison with Heathrow

The study concludes that there is a risk of exceeding annual NO_x air quality objectives and EU limits for both runway schemes within the study area. It is also concluded that there is unlikely to be any risk of PM₁₀ and PM_{2.5} air quality objectives being exceeded. It was suggested that mitigation of road traffic emissions may be required along three roads in the study area.

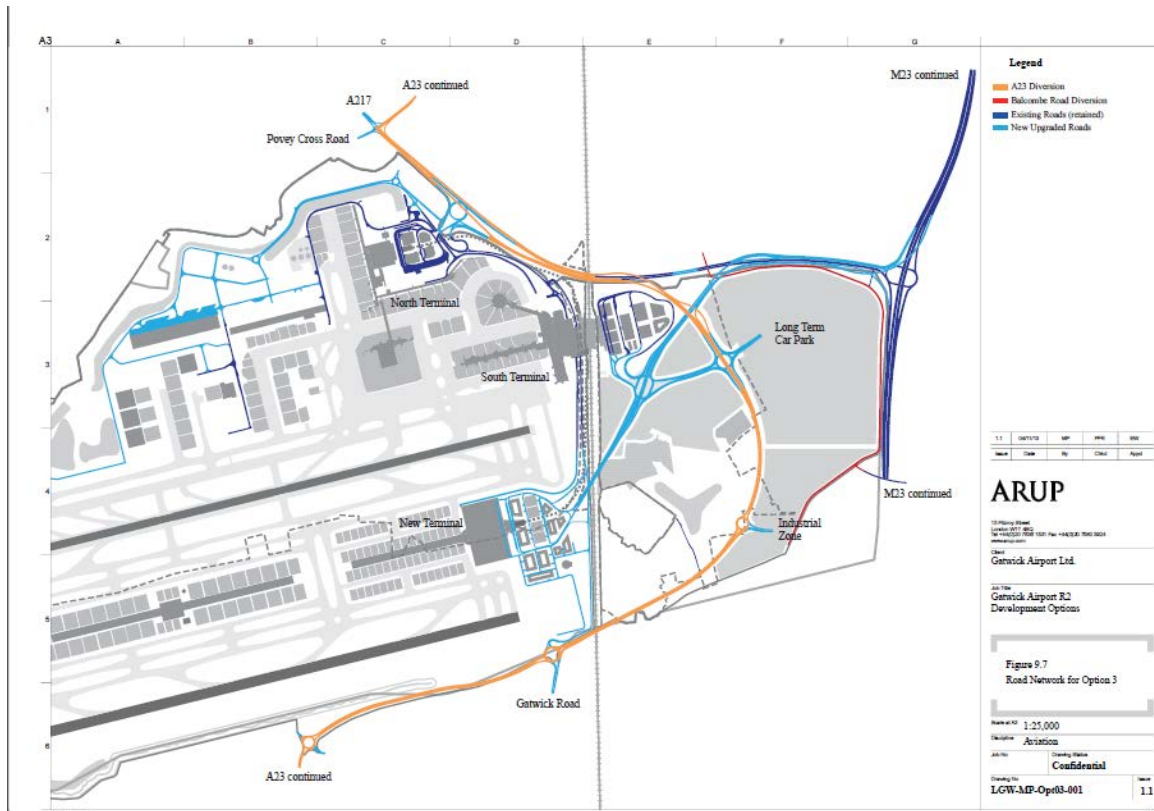
Annex 7: Surface Access

For the purposes of the appraisal, surface access has been divided into two parts:

- Local surface access improvements
- Strategic surface access improvements

Local surface access improvements

A summary of local surface access improvement and changes are included in the scheme summaries in annex 3.



The changes include:

- M23 – widening slip roads and adding a flyover for southbound traffic accessing the airport
- M23 spur – terminal roundabout re-sited to south of existing, grade separated to give separate access to existing south terminal, new terminal, and A23
- A23 – realigned to east of existing south terminal, grade separated junctions to M23 spur and north terminal

Strategic surface access improvements

Both Heathrow and Gatwick lie in areas which already have some of the busiest major road and rail networks in the country. All three schemes rely heavily on existing planned upgrades in both strategic road and rail transport to accommodate surface access to their respective expanded airports.

The Commission has assessed strategic surface access against a baseline. The baseline consists of surface transport schemes which are already committed and funded (core baseline); and also schemes which are likely to have been built by 2030 to meet background demand regardless of airport expansion, but which are not yet funded or committed (extended baseline).

Due to uncertainties in forecasting background growth demand, the scale of intervention required and the scope for further capacity upgrades, the Commission has not attempted to extend the baseline beyond 2030.

Baseline improvements expected to existing road and rail are set out in detail in the Commission's technical documents. Some key improvements include:

Core baseline (committed and funded)	
Thameslink programme	Rail programme to increase capacity and enable cross-London north-south rail routes, including Gatwick airport. Scheduled for completion by 2018.
Crossrail programme	Rail programme to increase capacity and enable cross-London east-west routes, including Heathrow airport. Operational by 2018
HS2 (excluding airport spur)	New high-speed rail line between London and Birmingham (phase 1). Operational by 2026.
London Underground upgrades	Upgrades to Northern, Victoria, Piccadilly (serving Heathrow), Bakerloo, Central and Waterloo & City lines. Operational between 2020-2031.
M25 'smart' motorway running	Use of variable speed limits and hard shoulder running at peak periods, junctions 5-7, 23-27. Operational by 2015.
M3 'smart motorway running	Use of variable speed limits and hard shoulder running at peak periods, junctions 2-4a. Operational by 2016.
Extended baseline (planned, not funded)	
Western rail access to Heathrow	New rail link from Reading to Heathrow airport via Maidenhead and Slough
Gatwick Station redevelopment	New high-level concourse with lift and escalator access from all platforms
Brighton Main Line upgrades	Various grade separated improvements including Windmill Bridge and Stoats Nest junctions, other junction improvements and platform extensions to increase capacity and remove operating conflicts
Crossrail 2	Rail programme to increase capacity and enable cross-London routes between Surrey and Hertfordshire using part of Crossrail
M23 smart motorway running	Use of variable speed limits and hard shoulder running at peak periods, junctions 8-10.
M4 smart motorway running	Use of variable speed limits and hard shoulder running at peak periods, junctions 3-12.
Lower Thames Crossing	New Thames crossing east of London to increase road capacity.

Southern rail access	New southern rail link to Heathrow
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Gatwick Second Runway

This Commission’s analysis is made on the basis of a passenger forecast of 47mppa⁴ and 26,500 employees with a modal split of 60% public transport and 40% by car. It also assumes completion and implementation of all core and extended baseline schemes relating to Gatwick on the basis that these will be required to meet background growth in any event.

A second runway is estimated to generate a net increase of up to 1200 rail trips to the airport in the AM peak. This demand would be accommodated by the planned Thameslink and Brighton mainline upgrade capacity improvements. The Commission does note that background growth is forecast to cause overcrowding on the Brighton mainline in the busiest section between East Croydon and London Bridge by 2030, notwithstanding capacity improvements. However, **as the additional trips generated by a second runway would only increase from 4% to 6% of total traffic, growth at the airport would not in itself be the main driver of congestion.**

On the strategic road network, **a second runway is estimated to generate a net increase of 1000 trips to the airport in the AM peak. Subject to ‘smart’ running improvements on the northern section of the M23 between junctions 8 and 10, this can be accommodated on the existing strategic road network without further capacity enhancement before 2030.** Sensitivity testing shows that at higher trip levels part of the M25 would be affected, but as with rail this is largely the result of background growth rather than airport generated traffic.

The Commission concludes that surface access improvements already committed or planned can accommodate additional passengers and employees generated by a second runway.

There is little difference in journey times associated with the planned upgrades, so no benefits to the local area.

Heathrow

Surface access impacts are similar for the two Heathrow schemes, with the North West Runway having a slightly greater impact because of its potentially higher passenger and employee levels.

The Commission’s analysis is based on 104mppa and 90,000 employees with a third runway, and assumes completion all of the committed and planned network improvements related to Heathrow.

Significant improvements to rail accessibility are expected to increase rail mode share from 28% to 43% in 2030. The proportion of rail trips originating outside London increases even further from 7% to 35%. Crossrail will provide connectivity to Thameslink and HS1, and western rail access will provide an alternative interchange point for Heathrow to the west of London. Southern rail access would improve access from the south, and is likely to be popular with commuters as well as airport employees. The Heathrow Express will continue to provide a premium service from central London, and also a new connection with HS2 at Old Oak Common. Improvements to rail connectivity reduce travel times to Heathrow from almost all destinations.

On the strategic rail network a third runway would generate up to 2,400 additional inward trips and 1,400 outward trips in the AM peak. Even with the expanded rail capacity, the Piccadilly line is forecast to be overcrowded in the peak period by 2030, although this is likely to happen without any airport expansion. However, dependence on the Piccadilly lines lessens, with the share of Heathrow

⁴ Million passengers per annum

rail demand falling from 81% to 29%. Demand for Crossrail should remain within its capacity, other than in very busy peak periods.

On the strategic road network, a third runway is predicted to generate up to 1,200 additional car/taxi trips to the airport and 600 from the airport in the AM peak. Certain sections of motorway directly serving the airport (M4J3-4 and M4 spur) would need widening as a result of increased airport traffic, and these are included in the baseline or local road improvements. The Commission concludes that a third runway at Heathrow only marginally increases traffic on an already constrained system, principally because of a greater mode share for public transport. Other means of reducing trips, such as employee car sharing and more efficient use of taxis, require incentive and management plans by the airport operator and behavioural changes.

Annex 8: Gatwick Airport Ltd – mitigation and compensation package

Gatwick Airport Ltd has published a package of mitigation and compensation measures that would be offered if a second runway were built at Gatwick.

The package of mitigation and compensation measures totals some £256m, as follows:

- £46.5m infrastructure delivery fund - to help fund infrastructure to support new housing. The fund would be open to bids from local authorities in the Gatwick region.⁵ Distribution of funds would be a matter for GAL, and dependent on housing development in each local area.
- £3.75m training fund - to help create 2,500 apprenticeships for local, young people. The sum is based on a grant of £1,500 per new apprenticeship place created. Candidates would be taken from across the south-east region. Funding would not be restricted only to airport related jobs or industries. Funds would be distributed by GAL after consultation with airport employers, local councils and key colleges.
- £131m property market support bond fund - to compensate owners of houses required to be demolished. For homes compulsorily purchased, owners will be given 25% above market value, plus moving costs.
- £14m home owners support scheme – to purchase houses that would become subject to very high levels of aircraft noise.
- Engagement charter – a dedicated team to advise landowners and businesses displaced or otherwise adversely affected by a new runway.
- £45m council tax initiative – to compensate houses significantly affected by noise. Annual compensation equivalent to Band A council tax (currently £1,000) from when runway becomes operational.
- £5m noise insulation scheme – for houses significantly affected by noise. Up to £3,000 per house towards double glazing and loft insulation.
- £10m local highway development fund – to help fund local road improvements.
- Fully fund local road alterations - including M23 J9 enlargement and A23 diversion.
- Increase the passenger transport levy – to support increased sustainable access and public transport.
- Continue to meet all legal air quality standards – includes measures to encourage low emission and electric vehicles, continued monitoring in Horley, and two additional permanent monitoring stations in north Crawley.

⁵ For the purposes of GAL's housing study, the Gatwick region comprises the Surrey authorities of Reigate & Banstead, Mole Valley and Tandridge; the Sussex authorities of Crawley, Horsham, Mid Sussex, Arun, Worthing, Adur, Brighton & Hove, Lewes, Eastbourne, Wealden; and the London Borough of Croydon.

- Replacement woodland – any woodland lost will be replaced at 2:1 ratio for non-ancient and 3:1 for ancient woodland.
- £30m flood resilience programme – to implement measures to reduce flood risk to the airport and communities downstream. This will include diverting the River Mole and Crawters Brook into open channel around the western end of the runways.