Responsible growth

BAA's response to the Government consultation *The Future Development of Air Transport in the United Kingdom: South East (SERAS)*

BAA

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Executive summary

A sustainable aviation policy for the UK over the next 30 years will require the Government to choose up to three runway sites in South East England, from, in effect, a field of four: Heathrow (one), Gatwick (one) and Stansted (two). These expanded airports should continue to be operated as a single system, in order to obtain the maximum efficiency and flexibility from this expensive but vital national infrastructure. In choosing between options for new runways in the South East, the Government will have to make a trade-off between economic benefits and environmental impacts associated with each scheme.

BAA is publishing its response to the Government's SERAS consultation some weeks ahead of the closing date for responses, in order to allow others the opportunity to consider our thinking. We reserve the right to make a further submission before the consultation period closes.

UK aviation: the case for growth

The UK aviation industry is one of the UK's success stories. It directly employs 180,000 people and is responsible for generating a further 370,000 jobs. Our airport and airline industries are not just globally competitive in their own right. They also play a crucial role in promoting growth in the productivity and competitiveness of the wider UK economy, and in supporting the wealth, investment and employment potential of the UK's regions.

High-knowledge and high value-added activities such as information and communications technology, electronics, pharmaceuticals, biotechnology, research and development, insurance, banking, finance and communications, in which the UK is globally powerful, are critically aviation-dependent, as is the UK's largest employer, tourism. International air services are also a key decision factor in attracting inward investment and corporate headquarters to the UK and its regions. The provision of substantial new airport capacity in the South East of England is therefore a critical issue for the UK economy and its competitive future.

Other European governments have shown strong recognition of these arguments, providing enlarged runway and terminal capacities which have enabled airports at Paris, Frankfurt and Amsterdam to grow more rapidly than the UK's main airports in recent years. Amsterdam's Schiphol Airport now has more runways than Heathrow, Gatwick and Stansted combined.

Aviation has also brought considerable social benefits to the UK and its citizens. Flying is now within reach of the vast majority of the population and is a fully integrated part of the national public transport system. The increasing availability of air travel promotes social inclusion and enhances personal mobility. Modern, lower-cost air transport has opened up important opportunities for leisure travel and made it possible for friends and families to visit each other, however far apart they have become geographically. This represents a crucial aspect of Britain's response to the process of globalisation.

A high-quality, efficient air transport industry also gives people the chance to experience cultures and heritage previously only accessible through television and museums. This works both ways, as the UK is an important cultural destination for travellers from all over the world. The UK – and London in particular – is still one of the most cosmopolitan, culturally-diverse and ethnically-tolerant places in the world. Air travel has helped make this possible.

Why we need more runways

The Government forecasts that demand for air travel in the South East will grow from 117 million passengers a year in 2000 to around 200 million in 2015 and 300 million in 2030. No-one can be certain about such forecasts, but we have concluded that the Government's figures are a sound basis for policy making. While some might argue that the forecasts look high, experience has shown that previous estimates have often been too conservative. In simple terms, these forecasts mean that the average London area resident who today takes an average of one and a half round trips by air per year will, by 2030, take roughly three round trips. It is not difficult to imagine how a combination of holidays, family visits, sporting events and work will generate such a pattern of flying. In 1972, for comparison, every resident took an average of less than half a round trip, in an era when air travel was very much the privilege of the few, not the many.

We therefore believe that the forecasts provide the right framework for planning. They already take account of demand reductions resulting from anticipated environmental charges, so do not represent unfettered growth or a predict and provide approach. What they provide is a sound basis for planning for future needs, so that sites for runways can be safeguarded and development delivered in the most effective and flexible way. If the predicted demand does not emerge, our approach allows for runway provision to respond accordingly.

There are no alternatives
While regional airports outside the South East are properly expected to grow faster than airports in London and the South East, they have only a very limited ability to contribute to meeting the forecast demand for air travel in the London area. It would be a serious mistake to think of expansion at regional airports as a substitute for additional capacity at London's main airports.

Neither is it possible for smaller regional airports in the South East to provide significant alternative capacity to that needed at the main airports. Government policy should, nonetheless, continue to extract maximum performance from smaller South East airports and to support regional airports in meeting the demand that they can reasonably be expected to accommodate, subject to the achievement of other social and environmental policy goals, for both point-to-point demand to London as well as access to London for onward transfer.

BAA also welcomes enhancement of the UK rail network, but we believe that the scope for high-speed rail substituting for domestic and short-haul air services is very limited, not least because if the Government was successful in delivering the kind of improvements needed to deliver a high-speed rail network, there may be potential for at the very most 4% of the domestic traffic at the London airports to substitute to rail. At that level, the transfer would make no material difference to the underlying need for new runways in the South East.

The Air Transport White Paper: the right approach
In the Air Transport White Paper, the Government has the opportunity to set out a robust and deliverable long-term framework for aviation to underpin its wider economic strategy. Failure to do this would not only damage the UK's national and regional economies, but it would also consign UK aviation to the same cycle of under-investment and gridlock that has characterised other parts of the UK transport system. That is why, in the Government's own words, 'on any view, doing nothing is not an option'.

The Government has taken the right steps so far in bringing forward options for consultation and is right to tackle aviation and airports policy on a UK-wide basis and across a 30-year horizon. But as soon as practicable, following the closure of the consultation, and certainly by the end of 2003, the Government should publish its White Paper, setting out a sustainable and deliverable 30-year aviation policy framework, so that work can begin on the complex issues which lie ahead.

It will be up to the Government to take the key, specific decisions on the number of runways to be provided and their location. In South East England especially, the impacts of airport expansion are so various and widespread that only the Government can make the necessary strategic judgments. In aviation, there are also numerous international regulatory obligations, upon which only the Government can speak.

A firm but flexible policy framework
In BAA's opinion, the White Paper policy framework needs to be firm enough to provide the necessary clarity to everyone involved, but flexible enough to be robust in the face of inevitable change in a dynamic industry.

For the UK, the optimal approach is one which enables capacity to be provided throughout the South East airports system, creating a flexible base for future developments in UK aviation. This approach would recognise the continued attractiveness of Heathrow as a network hub airport, with or without another runway. While Heathrow's hub role would diminish over time without another runway, relative to Paris Charles de Gaulle, Amsterdam Schiphol and Frankfurt, it would remain a very major global airport providing a network of routes to support London's World City status. This approach would provide a foundation for other South East airports to grow as network providers, as well as bases for point-to-point operations, ensuring that additional airport capacity exists to allow airlines to respond to changes in the market. It cannot be denied, however, that an approach which limits Heathrow to two runways risks damaging London's long-term status as an international aviation hub.

BAA consequently wishes to see clear Government decisions on the following points:

i The airport location(s) in the South East where new runway development should not be provided during the period covered by the White Paper, so that unnecessary blight is avoided.
ii The airport location in the South East where a new runway is most urgently needed, along with an indication of the type of runway envisaged and its associated infrastructure.
iii The other airport location(s) in the South East where new runways will, in all probability, be needed during the 30-year period, and where land should therefore be safeguarded.
iv The number of runways and the type of runway development, along with their supporting infrastructure, which would be provided at each of these other airport locations.

BAA believes that beyond the first runway, the timing and the sequencing of runways should not be prescribed in the White Paper, but that airport developers should be encouraged to bring forward detailed applications at specific locations identified in the White Paper in response to evolving conditions.

Responsible growth
BAA is committed to the principle of sustainable and responsible development and supports the Government's core sustainability objectives, namely:

- Maintenance of high and stable levels of economic growth.
- Social progress which recognises the needs of everyone.
- Prudent use of natural resources.
- Effective protection of the environment.

Responsible growth in air transport and airports should take place only where it is in accordance with these sustainability objectives. Nationally, however, there is still a balance to be struck in weighing up the economic benefits to the UK and the environmental impacts. However, we believe that there are certain known environmental limits, such as the earth's capacity to handle greenhouse gases, which demand a clear and specific response. BAA recognises such environmental capacity issues, in this case favouring a regime of international emissions trading.

But the discussion about airport development should not purely focus only upon environmental limits. It should also recognise economic and social costs and benefits, not least in the communities around airports, which enjoy significant employment benefits, as well as suffering adverse environmental impacts.

BAA has demonstrated a first-class track record of funding and delivering high-quality airport capacity infrastructure over the last 15 years, working within costs and to time. We are also the most successful airports company in the world at maximising passenger throughput with the minimum land-take. The Government can therefore have confidence that, where its new airports policy relies on development at BAA's airports, it has the best possible chance of the relevant projects being successfully delivered and managed within its overall objectives of sustainable development.

BAA is also determined to maintain effective working relationships with a wide range of stakeholders, including local communities, passengers, airlines, staff and control authorities, so that they can help us ensure that our investment is made in a way which maximises the benefits, minimises the disbenefits, and secures the widest possible support. This is what we mean by stating that the company's goal is the responsible growth of UK aviation.

All of the SERAS options will cost several billion pounds. These options will provide capacity to meet growth in demand for the South East overall. It is therefore both right and necessary for the Government to adopt a policy towards regulation and financing which allows the resources of all BAA's London airports and their passengers to be available to support investment in additional runways wherever they are located.

Safeguarding the environment
BAA recognises that one of the most important environmental issues facing aviation is its contribution to greenhouse gas emissions. We believe that international aviation emissions should be brought within the Kyoto framework as soon as possible, and that the most efficient solution to address aviation's contribution to climate change is through a system of tradeable permits in emissions, involving an environmentally-credible emissions trading system which is open and international. This will force the aviation industry to make a choice: either cut its emissions, or pay for other industries to deliver matching emission reductions.

Because of the potential health impacts of ground-based pollutants, BAA also recognises that the Government needs to be confident that levels of all relevant pollutants could be consistently contained within the EU Directive limits due to apply in 2010. Aviation emissions should not cause breaches of the limits laid down on the EU Directive. But it is important to recognise that aviation is not the only, or the predominant, source of such emissions and that any action must therefore involve a wide range of players.

Our work on the modelling and measurement of local air quality around Heathrow demonstrates that the Government's analysis is very pessimistic, and does not offer an accurate picture from which to devise effective mitigation measures. Having established this, we believe that advances in engine technology will bring about further reductions in aircraft fuel consumption, which will directly help reduce emissions of particulates and nitrogen dioxide. Meanwhile, our plan to provide fixed electrical ground power and pre-conditioned air on aircraft stands, together with operational procedures designed to reduce aircraft taxi times and the increased use of cleaner-fuelled vehicles, will all contribute to reduced emissions at airports. Our assessment is therefore that the Government significantly over-estimates the numbers of people predicted to fall within areas where the EU Directive limit for nitrogen dioxide would be exceeded.

We nevertheless recognise that uncertainty remains over how compliance with the EU Directive can be achieved. For example, it is unclear what action governments may need to take in order to ensure compliance in a number of UK and EU urban areas, as well as what action the Government considers might be achievable through the International Civil Aviation Organisation (ICAO), in order to require aircraft engines to comply with even stricter emissions standards. These are matters on which the Government itself is best placed to judge the likely future outcomes as it has the responsibility for these matters.

For the people living under a flightpath or close to an airport, noise is a major concern and its effective management is integral to locally sustainable and responsible development. And while aircraft have been getting progressively quieter, there is no escaping the fact that new runways will lead to increases in the noise footprint around airports. While the UK Government has a role to work with other governments in developing an international framework to incentivise aircraft and engine manufacturers, we accept that responsible development means that airlines and airports must make further progress to reduce the noise impacts of their operations.

Where surface access is concerned, BAA believes that decisions on funding and delivery of future rail schemes to airports and the provision of road user charging powers for airports are vital elements in planning for the sustainable growth of aviation.

Paying for environmental impacts
BAA agrees that, in common with other industries, aviation should cover its external costs. However, we do not believe that simply monetising and internalising these costs is the solution to environmental impacts. Nor do we accept that the industry should be taxed or charged twice for the same impacts. It is possible – likely even – that cost internalisation, such as through a tax, would leave air users covering the value of the impacts of flying, but leave the impacts unresolved.

We therefore believe that smart, effective economic instruments need to be identified which internalise external costs by encouraging the aviation industry directly to reduce or mitigate its environmental impact. Such a mechanism would allocate resources in a fair, proportionate, effective and economically efficient manner, unlike a blunt fiscal instrument like Air Passenger Duty (APD), VAT or a potential fuel tax. Any smart instruments targeted at specific impacts should replace the existing blunt instruments, which are currently intended to capture some or all of the external costs.

Planning and delivery
It is essential that an aviation policy which aims to deliver significant capacity and infrastructure is backed by a planning framework which enables timely delivery. The White Paper's focus on deliverability needs to be underpinned by a planning process which prevents unnecessary delays, but which ensures that developers and developments remain open to scrutiny by those affected.

In order to secure common agreement on the delivery of new runways, we believe that the new White Paper should establish a sub-national, Government-led group of all the relevant bodies (including the DfT, Government Regional Offices, Regional Assemblies and Development Agencies, strategic transport providers, NATS and airport operators) to work within the framework provided by the White Paper. This is the way, for example, to agree the funding and delivery of the detailed rail and road schemes.

We very much hope that any further runway development at our airports will be negotiated with stakeholders in this way, against a background of clear and firm UK Government strategy.

Eleven key tests for the White Paper
BAA believes that a sustainable airports policy should be subject to the following key tests:

1 Does it provide for the continuing growth of the UK aviation industry, which is important in its own right, and as a facilitator of the success and competitiveness of other industries, and in meeting the needs of consumers?

2 Is it economically efficient, making the best use of available airport capacity?

3 Is the airport development programme sustainable?

4 Does the Government's framework clearly identify the intended location of additional runway capacity?

5 Has the Government convincingly set out a robust planning process, so that complex developments can be considered in a more timely manner, while remaining inclusive? Is there appropriate encouragement for local agreements on optimal development, including appropriate impact mitigation, compensation and control measures?

6 Is the Government confident that the airports industry will be able to attract private sector funding for the runway development programme?

7 Are all the developments envisaged consistent with maintaining or enhancing the safety and security of UK airports?

8 Is the strategy customer-led? Will the framework make it possible for UK airports to offer a wide range of high quality services to passengers, minimising delays, in conditions competitive with those found at other leading European airports? Does the policy provide for appropriate passenger-handling facilities, as well as runways?

9 Is the approach flexible, enabling the UK aviation industry to respond to rapid changes in the competitive climate?

10 Can the Government give the necessary direction and certainty of funding to enable strategic transport authorities to work with airport developers to deliver the rail and road infrastructure required to support development?

11 Is the approach well-balanced, in terms of meeting the international needs of UK business, along with the reasonable expectations of businesses and individuals in the UK's nations and regions?

Options for responsible growth

On the basis of our present knowledge, following careful consideration of the effects reported in the SERAS document and preliminary work at our own airports on airport layout, road and rail access, air quality and other aspects, BAA has reached the following judgements on the deliverability of specific airport options. These are subject to the Government's assessment as to whether the measures needed substantially to reduce the predicted effects of environmental impacts can be achieved, and that fair and effective arrangements for mitigating and compensating for the local community impacts can be put in place. The costs of such arrangements, including the fair and proportionate costs of any airport-related road and rail access, have not been included in the Government's financial appraisal, so the viability of any of the options will be affected by the scale of these additional costs.

Heathrow

A scheme for a short, 2,000-metre runway at Heathrow should be included in a shortlist of four possible sites from which the Government should select up to three in the White Paper. Our preliminary analysis suggests that this scheme would be financially viable and fundable, subject to the scale of the additional costs not calculated in SERAS, provided that the airport's users are prepared to accept airport charges broadly varying around the level which will exist following the increases for each of the next ten years recently approved by the regulator.

However, we believe that alternative layouts to the option put forward for consultation, containing passenger handling facilities north of the A4, could better deliver the increase in capacity the Government assumed for the runway, and further would enable the Harmondsworth Tithe Barn and St. Mary's Church in Harmondsworth, together with its graveyard, to be preserved, although at the cost of a greater land take.

We broadly agree with the Government's assessment of the noise impacts of a new runway development at Heathrow. However, we believe that the extent to which the relevant EU directive limit for nitrogen dioxide is predicted to be exceeded if a new runway is built has been significantly over-estimated in the SERAS consultation document. As a result, the impact in terms of the number of residents and homes predicted to fall within this area would be substantially less than estimated by the Government. It also needs to be recognised that non-aviation sources are significant contributors to this type of pollution.

Gatwick

A scheme for one new runway at Gatwick should be included in a shortlist of four possible sites from which the Government should select up to three in the White Paper. Our key conclusions in relation to a one new runway scheme are that:

i The close-parallel option was conceived as having fewer environmental impacts than the wide-spaced schemes which deliver more capacity and take more land, and that is evident from the material reported in the SERAS document.
ii Either the southern or northern wide-spaced runways option is likely to require additional rail and road infrastructure beyond that needed by the close-parallel runway.
iii The nature and the scope of the earthmoving activity associated with the northern wide-spaced runway is very substantial and needs to be much better understood, not least in terms of cost.

We believe that a single additional runway at Gatwick would be financially viable, subject to the scale of the additional costs not calculated in SERAS, although the charges needed to remunerate the investment would be significantly higher if applied to Gatwick users only, rather than shared across users of the London system as a whole.

From a surface access perspective, the preliminary work undertaken by the Strategic Rail Authority (SRA) and BAA has provided confidence that a deliverable rail strategy exists for each of the one new runway SERAS options, although the SRA and BAA have not so far been able to identify an appropriate rail strategy for delivering two new runways at Gatwick.

Unlike at other airports where the Government is considering options for runways, at Gatwick there is a legally-binding agreement which the then British Airports Authority signed with West Sussex County Council in 1979, under which the airport operator undertook not to construct a second runway at Gatwick before 2019.

Stansted

Schemes for two new runways, which could be any two of the three SERAS new runway options at Stansted and in any order, should be included in a shortlist of four possible sites from which the Government should select up to three in the White Paper. We believe that one additional runway at Stansted would be financially viable, subject to the scale of the additional costs not calculated in SERAS, although the charges needed to remunerate the investment would need to be shared across users of the London system as a whole. A second new runway could be viable on the same basis, but an appraisal would be best carried out following the investment in the first new runway.

From a surface access perspective, the preliminary work undertaken by the Strategic Rail Authority (SRA) and BAA has identified a number of infrastructure improvements to the West Anglia mainline to increase capacity to support one or two new runways, the most significant being a new railway line from the West Anglia mainline north of Harlow Mill direct to Stansted Airport railway station. However, this work has not so far been able to identify an appropriate rail strategy for delivering three new runways at Stansted.

Cliffe

A scheme for a new airport at Cliffe should not be regarded as a candidate for inclusion in the new White Paper, because of the considerable complexities of developing an airport at a wholly new site within the timescale stated in the consultation documents. We seriously doubt whether Cliffe could be commercially viable without very considerable public subsidy. This option also raises serious environmental concerns.

Organisation of BAA's response

BAA's submission is organised as follows:

Chapter 1: Introduction
Sets out our background views on the consultation process and the framework within which the White Paper is being developed.

Chapter 2: UK airports today
Examines the structure of UK airports and reports on the performance and the development of BAA's South East airports. It explains how our mainland European competitors are planning for the future and what UK airports policy must focus on in order to give the UK the best chance of continuing to compete with them.

Chapter 3: UK airports: a 30-year horizon
Looks at the 30-year horizon which the Government has set for itself in the White Paper in terms of the demand for air travel, planning and funding issues, the growth of regional airports, and hubbing. It sets out the clear decisions which are needed from the Government in the White Paper, and suggests 11 key tests for a sustainable airports policy.

Chapter 4: Responsible growth: the sustainable development of airports
Examines the economic and social benefits of air travel and how the environmental effects of airport development can best be tackled in order to deliver the Government's objectives for a sustainable airports policy.

Chapter 5: Heathrow
Comments on the detailed issues surrounding the layout, the rail and road links and the environmental and economic impacts of an additional short runway at Heathrow. It contains four plans which BAA has prepared showing alternative layouts for a new runway at Heathrow, and two plans which have been taken from the DfT's SERAS work. It also contains a plan of surface access arrangements to the existing airport.

Chapter 6: Gatwick
Comments on the detailed issues surrounding the layouts, the rail and road links and the environmental and economic impacts of an additional one (close-parallel or wide-spaced) or two runways at Gatwick. It contains four plans which BAA has prepared showing alternative layouts for a new close parallel runway at Gatwick and the plan of the close parallel runway scheme which appears in the DfT's SERAS work. It also contains a plan of surface access arrangements to the existing airport.

Chapter 7: Stansted
Comments on the detailed issues surrounding the layout, the rail and road links and the environmental and economic impacts of an additional one, two, or three runways at Stansted. It contains three plans: one showing the DfT's option for three new runways at Stansted; another showing the surface access arrangements to the existing airport; and a third showing a potential option for a new rail link.

Chapter 8: Luton
Sets out BAA's comments on Luton airport.

Chapter 9: Preliminary financial appraisal of the SERAS packages
Describes a preliminary financial appraisal which BAA has carried out to establish the relative increases in airport charges required to make the SERAS options achieve the required rate of return.

Chapter 10: The other South East airports
Comments on the existing and future roles of Southampton, London City, Alconbury, Northolt, and Redhill airports within the South East airports system.

Chapter 11: The Cliffe option
Comments on the structural issues surrounding provision of an entirely new four-runway airport at Cliffe, and then looks at the layout, rail and road links and environmental and economic impacts of the option.

Chapter 12: Other issues
Addresses some further issues that are raised in the SERAS document: freight, rail/air substitution, operational levers (such as slot allocation mechanism), and airspace policy and modelling.

Chapter 13: Next steps
Identifies how future airports policy would best deliver the integrated and timely provision of future airport infrastructure projects, and describes the post White Paper Government-led public-private sector processes that would need to be in place to achieve that goal.

Chapter 14: Conclusions
Sets out BAA's overall conclusions.

Chapter 15: BAA responses to the DfT's SERAS questions 1–21
Provides answers to the key questions in the SERAS document.

The SERAS document also sets out three key questions which the Government's consultation seeks to address, which our response covers throughout this document, though an indication is provided below of where the main material relevant to these questions can be found:

Should new airport capacity be provided in the South East over the next 30 years and, if so, how much? A particular issue is whether there is a case for having at least one major hub airport. Chapter 3 and Responses to Questions 1–4 and 8.

Where should any new airport capacity be located? A particular issue is whether or not Heathrow should be developed further. Chapters 5–8, 10, 11 and Responses to Questions 5–8 and 9–13.

What measures would be needed to control and mitigate the environmental impacts of any airport growth? Chapter 4 and Responses to Questions 14–21.

Appendix 1: Joint BAA/SRA statement on rail issues
Contains a BAA/SRA joint position statement on rail issues surrounding the SERAS options at Heathrow, Gatwick and Stansted.

Appendix 2: Detailed results of BAA's air quality modelling assessment
Contains the detailed results of the air quality modelling work which BAA has undertaken so far.

Chapter 1: Introduction

About BAA and our submission

1.1 BAA is the world's leading airport company. In the UK, we own, operate and develop Heathrow, Gatwick, Stansted, Southampton, Glasgow, Edinburgh and Aberdeen airports, and overseas we either manage contracts at, or have interests in, airports in the USA, Australia, Italy and Oman. In total, our airports handle over 200 million passengers per annum (mppa). BAA's other principal subsidiary companies are BAA Lynton, World Duty Free and Heathrow Express.

1.2 Our core business expertise is to manage the development and operation of airports. The main focus of our business is the three South East airports which, when taken together, represented 59% of BAA's total revenue and 84% of the revenue gained from UK and international airport operations in the 2001/02 financial year.

1.3 BAA plc came into existence following the privatisation of the British Airports Authority in 1987. Our market capitalisation at flotation was £1.225 billion and we handled 55 million passengers. Fifteen years on, we now handle 127 mppa in the UK, we have a market capitalisation of around £5 billion and we are among the top 50 companies listed on the London Stock Exchange. During this time, our productivity (measured in passengers handled per employee) has more than doubled, we have invested £5 billion in airport-related infrastructure, security and facilities, and we have achieved this against a 15% reduction in our charges in real terms.

1.4 In recent years, we have refocused our strategic aims to our core business of managing and developing UK airports safely and efficiently and disposing of non-core businesses, so that we are in a better position to face the challenges of safety and security, growth, competition, quality and market diversity in aviation.

1.5 BAA is publishing this response to the SERAS consultation now to enable others who are intending to make their own submissions to have our views available to them before the consultation closes. We believe that our views on airports policy, airport layouts, airport financing and issues involving environmental effects and surface access will help others in the formulation of their views. This is not intended to set up a second consultation process whereby consultees respond directly to BAA, and all interested parties should ensure that all the points they wish to make are made directly to the DfT. However, in the event that BAA does receive comments on this submission, or if more material relevant to the issues which are covered becomes available, then we may make further comments.

The White Paper process

1.6 There has not been a major policy statement on aviation since the 1985 Airports Policy White Paper. In our view, a new White Paper is urgently needed to allow the aviation industry, and others with a stake in its future, to plan and deliver the developments over the next 30 years that the UK, its businesses and citizens need. We therefore welcomed the Government's intention, set out in its 1998 White Paper on Integrated Transport, to prepare a White Paper on UK air transport policy, looking 30 years ahead. We support the way in which the Government has approached the preparation of the new White Paper. The substantial assessment and consultation exercise on which the Government has embarked has allowed it to canvass the widest possible views. However, the preparation of the White Paper has been somewhat lengthier than originally envisaged and we now urge the Government to finalise the White Paper as quickly as possible following the closure of the current consultation exercise.

1.7 As BAA said in response to 'The Future of Aviation' consultation document in December 2000, many of the Government's 1985 policy objectives remain sound and should inform the forthcoming White Paper. But since 1985, the circumstances of aviation and UK airports have changed a good deal and some of the White Paper's assumptions are out of date.

1.8 For example, the 1985 White Paper's air transport movement and air passenger demand and capacity forecasts have long been superseded and many of the detailed actions which the Government drew from those figures also need to be updated.

1.9 Meanwhile, most of the airport developments referred to or enabled by the White Paper have been delivered. A fourth passenger terminal opened at Heathrow in 1986 and a second passenger terminal at Gatwick in 1988. The planning consent for Stansted which, among other things, triggered the 1985 White Paper, has

been substantially implemented, and consent for a further expansion to accommodate around 25 mppa was granted by Uttlesford District Council in September 2002. Heathrow Terminal 5, still only a possible future development in 1985, was granted planning consent by the Secretary of State in November 2001, after a four-year public inquiry, and construction of its first phase, begun in September 2002, is due for completion in 2008. Many other airport-related developments and transport infrastructure projects have been completed at all three of BAA's London airports since 1985, and others are planned.

1.10 In response to 'The Future of Aviation' document BAA set out five priority actions for Government, consistent with the goal of sustainable growth in UK aviation. Encouraging progress has been made on four of these points, namely:

i Planning consent has been granted for Terminal 5.
ii Planning consent for development to serve around 25 mppa at Stansted has been achieved by local consultation and agreement.
iii A positive and wide-ranging debate about the provision and location of future runway capacity in the South East, now under way through the SERAS consultation process.
iv Changes to public inquiry rules, which have been introduced, following consultation. The Government is also reviewing how the pre- and post-inquiry stages of any major infrastructure planning application could be better managed.

1.11 The fifth point, relating to the creation of a constructive and flexible regulatory regime, is addressed in Chapter 3 of this response.

1.12 The Government is right to tackle aviation and airports policy on a UK-wide basis and across a 30-year horizon. The development of major public transport infrastructure, such as airports, takes time, so a coherent Government framework for aviation, integrated with its policies for sustainability, transportation, regional planning and the environment, should be put in place to enable airport developers to bring forward proposals in a co-ordinated and timely fashion. This should allow proposals at particular airports to be determined locally, within the Government's long-term framework.

1.13 We also agree that it is for Government to take the key decisions on the number of runways to be provided and their location. In South East England especially, the impacts of airport expansion are so various and widespread that only the Government can take the strategic decisions that are necessary. Moreover, there are also policy and regulatory obligations (eg International Civil Aviation Organisation resolutions, bilateral air service agreements and EU directives and regulations) associated with aviation which are governed internationally and upon which only the Government can act.

1.14 In order to put together this response, BAA has undertaken some preliminary assessments of the information contained in the main SERAS document and, where relevant, the Tier 1 and Tier 2 SERAS documents. The scope of these preliminary assessments has mainly been restricted to issues where BAA possesses core skills (for instance, airport layout and airport financing), and issues which BAA believes have required further investigation, such as air quality, rail and road provision, regional planning, and 'hubbing'.

1.15 All references in this response to the SERAS document refer to the Second Edition published by the Department for Transport in February 2003, except where explicit reference is made to the earlier edition published in July 2002.

1.16 This response should be read in conjunction with BAA's submission to the Government's 'The Future of Aviation' consultation which can be found on BAA's website.
www.baa.com/consultation

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Chapter 2: UK airports today

2.1 The UK aviation industry is one of this country's success stories. Our airport and airline industries are not just globally competitive in their own right, but they also play a crucial role in promoting growth in productivity and competitiveness of the wider UK economy, and supporting the wealth, investment and employment potential of the UK's regions. In the forthcoming White Paper, the Government has the opportunity to produce a robust and deliverable long-term framework to enable these industries to achieve sustainable growth and further success, underpinning the Government's wider economic strategy. Failure to do this will damage the UK's national and regional economies. Therefore, in the Government's own words, 'on any view, doing nothing is not an option.'

The structure of UK airports

2.2 There are some 70 airports in the UK, ranging from a major international hub to the smallest airfield handling general and private aviation. 20 of the largest airports handled over 180 million passengers in 2002, and these are owned and managed by a variety of different operators.

2.3 Following the 1985 Airports Policy White Paper, the then British Airports Authority was privatised to create BAA plc. BAA owns and operates seven airports in the UK: Heathrow, Gatwick, Stansted, Southampton, Glasgow, Edinburgh and Aberdeen. These airports serve around 127 mppa. BAA also owns or operates airports in the United States, Australia, continental Europe and the Middle East. Together, these make BAA currently the largest and the most successful private airport operator in the world.

2.4 Most other non-BAA airports in the UK are also either wholly or partially owned by the private sector. The notable exception to this is Manchester Airport, owned by a group of local authorities in the North West, which in turn owns East Midlands Airport, Humberside Airport and Bournemouth Airport. Luton Airport, the other existing airport site considered by SERAS, is publicly owned by Luton Borough Council, but is operated, managed and developed by a private consortium in which TBI plc is the majority shareholder. In total, over 85% of passengers using UK airports in 2002 travelled through airports that were either wholly or partially in the private sector. It is therefore vital to investors in the UK's private sector airports that the Government's new Air Transport White Paper sets the framework within which additional capacity can be successfully financed.

BAA's South East airports

2.5 In 2002, 109.4 million passengers flew from BAA's four South East airports, accounting for 58% of the total number of passengers using UK airports in that year. Of these, 108.6 million passengers flew from BAA's system of London airports, making London the world's number one air travel destination. Each airport is distinct, offering a complementary as well as competitive range of services for different markets.

2.6 Heathrow Airport is the world's busiest international airport with 63 mppa. Its two runways and four terminals accommodate approximately 90 scheduled airlines, which fly to around 170 different destinations. No other airport in the world handles such a large volume of traffic from such a limited runway system.

2.7 Gatwick Airport is the busiest single runway airport in the world, the second largest airport in the UK and the seventh busiest international airport in the world, handling 29.5 mppa. Its two terminals accommodate approximately 70 airlines, which are a mix of scheduled, charter and some no-frills operators, which fly to around 200 different destinations.

2.8 Stansted Airport is London's third international gateway and one of the fastest-growing airports in Europe, handling over 16 mppa. Its single terminal is home to approximately 40 airlines which serve around 100 different destinations, mostly European and Mediterranean. Stansted pioneered the no-frills service market in the UK, but also has a strong charter and cargo presence.

2.9 Southampton Airport is one of the most modern regional airports in Europe, handling 794,000 passengers in 2002. The airport is home to ten mainly regional airlines operating to around 20 different destinations, mostly in the UK and mainland Europe. Southampton is exceptionally well connected to public transport, with the shortest rail to air terminal distance of any UK airport.

2.10 Between them, these airports provide an extensive network of domestic, short-haul European and long-haul routes, including a comprehensive and vital network of UK regional services. The growth of these airports in a responsible, cost-effective and profitable way has promoted competition between airlines, bringing wide consumer benefits and falling air fares in real terms, making air travel accessible to an increasingly wide population. Recent surveys (MORI, for the Freedom to Fly Coalition) suggest that just under half of UK citizens travelled by air in the last year and that only one in ten Britons have never flown. Aviation has also brought considerable economic and social benefits to the UK as a whole, providing a boost to UK productivity and competitiveness, underpinning the development of high-value, knowledge-based businesses dependent on reliable international transport and communications, and creating employment and wealth both in areas immediately surrounding airports and across wider regional and national economies.

The BAA London airports system

2.11 BAA operates its three London airports as an integrated system, which meets the demands of its customers across a range of markets and geography in the South East. System ownership brings with it a range of well-documented advantages, such as the financial strength both to raise investment funds at favourable rates and to withstand downturns in any particular market, and the sharing of expertise in safety and security, planning, design and construction, operations and development. As a result of BAA's system ownership and responsible stewardship of Heathrow, Gatwick and Stansted, we have been able to develop all three airports and maximise capacity utilisation to a level not thought possible at the time of the 1985 White Paper.

2.12 As the table below illustrates, both Heathrow and Gatwick are significantly exceeding the maximum capacities envisaged in 1985.

Table 2.1: Maximum capacities at Heathrow, Gatwick and Stansted

	1985 capacities (mppa)	Current throughput (mppa)	SERAS maximum use capacities (mppa)
Heathrow	38–42 (4 terminals)	63	89 (5 terminals)
Gatwick	25	30	46.5
Stansted	25	16	35

2.13 This effective use of assets has not only provided the capacity that has helped the aviation industry in the UK to grow in a competitive manner, but the efficiencies which have developed and been shared across the system have helped to contain the land demands and other environmental impacts of BAA airports. At Stansted, for instance, the land-take and employment impacts at 25 mppa will be no more than was originally envisaged for the airport at 15 mppa.

2.14 The London system has been reviewed on a number of occasions, to test whether the advantages of system ownership, funding and development might be countered by potential disadvantages of common ownership. However, five Government reviews between 1985 and March 1999 have concluded that the advantages of common ownership of the three BAA South East airports outweigh any benefits that might be achieved by introducing competition. In any event, regulation ensures that national and consumer interests are protected. Any runway in whatever South East location will provide capacity for air passengers throughout the South East. The Government should provide a regulatory framework which will allow the full resources of the London airports system to be available to provide capacity at individual airports.

2.15 BAA believes that our airports system will be best placed not only to attract the required volumes of finance at acceptable rates necessary to develop these airports, but also to provide the resources that will be needed to take these developments through the planning process to the detail required, and then successfully to manage their integration into the current system. Any fragmentation of the system would be likely to disrupt financial and infrastructure planning processes severely, causing delays to development and opening up other risks to the successful operation of the most intensively used part of the UK airports infrastructure.

2.16 Both within the South East region and across the UK as a whole, the Government should be clear that the main contribution which airports (and BAA's South East airports in particular) can make to competition in the aviation industry is to provide sufficient capacity for airlines to develop their network of routes and to compete freely, not only with each other at the South East airports, but also with airlines operating from continental

hubs such as Paris, Amsterdam and Frankfurt. As outlined later in this chapter, these airports have recently carried out major investments in new capacity and significantly strengthened the ability of airlines based there to compete with UK-based airlines. The Government should therefore make clear its continued support for BAA's London airports system which has served the South East and the UK so well over the past 15 years, so that BAA can continue to provide an effective platform for a competitive UK aviation industry.

Developments at BAA's South East airports

2.17 Since the 1985 Airports Policy White Paper, BAA has delivered the investment in new facilities across its London system which were needed to keep pace with rapidly growing passenger demand. Since 1985, we have invested about £5 billion on projects at our London airports, including new passenger terminals, terminal extensions and refurbishment, new aviation security processes, environmental protection measures, and major surface access schemes.

2.18 Among the most significant investments have been the construction of new passenger terminals at Heathrow (Terminal 4), Gatwick (North Terminal) and Stansted, the development of the Flight Connections Centre at Heathrow, the construction and operation of the £500 million Heathrow Express rail service and the implementation of 100% hold baggage screening. At the same time, BAA has also invested significant resources in maintaining and improving the standard of existing facilities at its three South East airports. All of this investment has been made with private money, funded from revenues and profits, equity and debt. No other public transport infrastructure provider has anything approaching such a record of investment without considerable recourse to public subsidy.

2.19 We plan to invest around £7.5 billion over the next ten years at our London airports at 2002 prices, which is equivalent to investing £2 million per day. Over £6 billion is forecast to be spent at Heathrow, where the principal projects are the construction of Terminal 5 (including the extensions to it of the Heathrow Express and the Piccadilly lines), and extensions and improvements to Terminals 1 and 3. At Gatwick, projects worth around £1 billion are planned, including a new satellite and extensions and improvements to the South and North Terminals. At Stansted, around £600 million is to be spent on the expansion of terminal facilities to accommodate around 25 mppa.

2.20 This investment programme alone exceeds BAA's market capitalisation, which is currently around £5 billion, and indicates the extent to which the company will need to borrow very large sums on global capital markets. To ensure that this investment can take place, we have secured increases in airport charges from the recent review of charges by our regulator. The company's debt-to-asset ratio will rise to around 80% over the ten-year period. It is essential, therefore, that we are able to make this investment against a stable policy framework, giving investors and lenders as much certainty as possible.

2.21 But finance is only one part of the equation. BAA is also determined to maintain effective working relationships with a wide range of stakeholders, including local communities, passengers, airlines, staff and control authorities, so that they can help us ensure that our investment is made in a way which maximises the benefits, minimises the disbenefits, and secures the widest possible support. This is what we mean by stating that the company's goal is the responsible growth of UK aviation. One outstanding recent example of this approach has been at Gatwick, where a legal agreement was signed in 2001 with West Sussex County Council and Crawley Borough Council to provide a framework for the airport to grow to around 40 mppa. Meanwhile, at Stansted, we have secured planning permission from the relevant local authorities to permit the airport to grow to around 25 mppa, without a planning inquiry. We believe partnership and constructive dialogue with stakeholders is a much more effective approach to developing our airports than the traditional, adversarial approach. While local public inquiries are most likely to be required in order to secure planning consents for new runway developments, we very much hope that those inquiries would take place in the context of constructive negotiations with stakeholders, and against a background of a clear and firm UK Government strategy.

2.22 BAA has demonstrated a first-class track record of funding and delivering high-quality airport capacity infrastructure over the last 15 years, working within costs and to time. The Government can therefore have confidence that, where its new airports policy relies on development at BAA's airports, it has the best possible chance of the relevant projects being successfully delivered and managed.

UK airports and European competition

2.23 The last decade has seen rapid growth at the key mainland European airports, with passenger growth rates averaging between 5% and 8% a year over the ten-year period. Paris Charles de Gaulle (CDG), Amsterdam Schiphol and Frankfurt have all experienced faster rates of growth than London on the key long-haul markets of North America, the Far East and the Middle East. This is in spite of the fact that the UK's economic growth profile in the last decade has outperformed both the French and German economies.

2.24 The airlines and alliance groupings based at these hubs have aggressively developed their route networks, making the best possible use of the capacity provided. These airports now offer significantly wider ranges of destinations than any single airport in the London system.

2.25 European governments have shown a clear commitment to expanding airport capacity in order to reap the benefits of aviation growth while managing the environmental issues associated with such growth. There is consensus among European governments that demand for air travel in Europe will double in the next ten to fifteen years, and they recognise the need to provide policy support to the air transport industry, which includes providing a clear, long-term framework for airport development. This approach is not confined simply to the three continental hubs: there are further examples of significant airport developments in Madrid, Athens, Milan, Berlin and Munich.

2.26 These governments have recognised the importance of planning over a long time horizon to minimise, to the fullest extent possible, the impacts on neighbouring communities. The developments at Paris CDG, Amsterdam Schiphol and Frankfurt have all been accompanied by additional measures for noise mitigation.

2.27 Common to all countries has been an integrated decision-making process for runway and terminal development. Governments have identified the need to streamline the pre-existing planning and delivery processes to enable the timely delivery of policy. In some cases, this has led to active safeguarding of land for potential airport development requirements up to 15 years ahead.

Paris Charles De Gaulle

2.28 Aeroports de Paris (ADP), an agency of the French Government, operates Paris Charles de Gaulle (CDG) and Paris Orly, the two main airports serving the region. In 2002, CDG handled 48 million passengers, and 515,000 aircraft movements. The growth at CDG, in passengers terms, has averaged 6.7% a year over the last ten years. Paris Orly handled 23.2 million passengers in 2002, and remains constrained by an annual ATM limit which restricts aircraft movements to no more than 250,000 a year.

2.29 Paris Charles de Gaulle opened in 1976 with a single terminal building and a single runway, on a site 15 kilometres from the city centre. A second parallel runway was added at CDG in 1981, separated by 3 kilometres from the original runway.

2.30 Development at CDG over the course of the last five years has added significantly to the airport's runway and terminal capacity. In 1993, ADP proposed that a further two arrivals-only runways should be developed at CDG. In 1997, following a study by a Government commission, the French Government approved the construction of these two new runways. The shortness of time between concept and execution is remarkable by British standards.

2.31 The two new runways opened in 1999 and 2001. Together with the two original runways, CDG will ultimately provide capacity for around 120 movements per hour, the largest amount of runway capacity at a single site anywhere in Europe. This allows airlines to operate schedules with 'waves' of inbound and outbound flights to optimise the transfer opportunities for connecting passengers, in a similar way to major US hubs like Atlanta and Chicago.

2.32 Terminal E was opened in 1998, increasing the airport's terminal capacity to around 50 million passengers a year. Terminal F is currently under construction, and is expected to add further capacity of around 10 million passengers a year when it opens in late 2003. The terminal will provide facilities to allow Air France to maximise the potential transfer opportunities at the airport. ADP is also progressing plans to refurbish and redevelop the airport's original terminal facilities to provide further terminal capacity.

2.33 Air France and ADP have worked closely together to create an operation which supports the airline's commercial strategy by providing new capacity to enable the development of an effective hub and spoke operation. The size of the CDG site, the existence of four parallel runways and spare terminal capacity offers the prospect of relatively unconstrained growth over the next decade, with CDG meeting the forecast levels of demand for at least the next 15 years.

2.34 Despite CDG's potential to meet the region's air transport needs for at least the next 15 years, successive French Governments over the last decade have sought to identify a possible location for a third Paris airport, the most recent location being at Chaulnes, 80 miles north of Paris city centre. Until recently, this third airport had been seen as providing the solution to the region's long-term growth requirements, when the two existing airports (CDG and Orly) had been fully developed. However, the concept of a third airport was rejected by the incoming transport minister, Gilles de Robien, in July 2002, who announced that capacity development should be focused at CDG for the next 15 years and removed a 55 million passenger a year throughput cap imposed by the previous Government in 1997.

2.35 To support growth beyond 55 million passengers a year, he also announced that the Government would consider a range of new environmental measures to mitigate to the maximum extent possible the impact of aircraft noise on the local area. These include increased airport charges for night flights, an extension of the ban on the noisiest aircraft operating at night, and the withdrawal of Air France flights between midnight and 05:00. The Government also committed ADP to implementing a range of aircraft track-keeping measures, including penalties for off-track performance.

2.36 Finally, the Government identified the need for improved control of town planning in the zones most exposed to aircraft noise, and a doubling of the zones that would be entitled to sound-proofing.

Frankfurt

2.37 Frankfurt Airport is located 12 km south-west of the city and covers a site of approximately 1,560 hectares. Until 2001, the airport was operated by Flughafen Frankfurt/Main AG (FAG), and the company's shares were held by the Federal State of Hesse, the City of Frankfurt and the Federal Republic of Germany. In 2001, the management of the airport was transferred to a new legal entity, Fraport, and 29% of the company's shares were floated on the stock market.

2.38 Frankfurt is Germany's largest airport, and the second largest airport in Europe after Heathrow. In 2002, Frankfurt handled 48.5 million passengers, and 450,000 aircraft movements. The growth rate, in terms of passengers, at Frankfurt has averaged 4.7% a year over the last ten years. The airport has the highest percentage of transfer passengers of the major hubs in Europe, at 51%, and has regularly been rated number one in the IATA connectivity index.

2.39 Frankfurt has two parallel runways and a single cross-runway which is used only for departures. The capacity of these runways is currently assessed to be around 78 movements an hour. Over the next decade, Fraport expects the passenger growth rate to continue at historic levels, and anticipates the capacity of the current runways becoming a significant constraint on further airport development after 2006.

2.40 In 1997 Lufthansa and the airport initiated a debate about additional runway capacity. The process for securing the planning consent to construct the new runway is well advanced. An initial process of 'public mediation' involving extensive consultation with a wide range of stakeholders was initiated by the state government in June 1998, and completed in January 2000. It identified a number of possible options for a fourth runway at Frankfurt.

2.41 To enable the airport to handle the anticipated level of demand of 82 million passengers in 2015, a new arrivals-only runway to the north west of the airport has been proposed. The four runways would provide capacity for around 120 movements an hour, expected to be equivalent to around 660,000 movements a year, and allow for a decade of relatively unconstrained growth. The mediation package also recommended the airport should adopt measures to optimise the capacity of the existing runway system in the interim, as well as developing a package of measures to mitigate the impacts of aircraft noise.

2.42 Following the public mediation, the airport has been engaged in a local planning process to gain detailed approval for the runway development. This two-stage process is expected to be completed in 2004. As suggested by the SERAS consultation document, the goal of the airport company is to have the new runway operational in 2006.

2.43 The planning process for a new third terminal to the south of the airfield has also been started following agreement with the US Air Force to release the land by 2005. The new terminal would provide capacity for around 25 million passengers a year, opening in phases between 2007 and 2013, with a tracked transit system connecting it to the existing terminal area.

2.44 Germany's Federal Government has provided a supportive strategic context for future development at Frankfurt. In August 2000, the Federal Government Minister launched a consultation entitled 'Airport Concept' with the industry's stakeholders to consider the long-term development of air transport in Germany. The Government stressed the need for airport capacity to be provided in time to meet the predicted level of demand, which is forecast to double over the next 15 years.

2.45 The Government emphasised the importance of the economic, social, and environmental roles played by airports in the national, regional and local areas in which they are located. It also stated that the airport should be developed so as not to endanger existing jobs, and to ensure the catalytic effects of the growth of aviation are fully realised for the rest of the economy. The Government also made clear that it would be crucial to provide sufficient airport capacity to allow the German aviation industry to participate in the future growth of global aviation.

2.46 Importantly, the Government recognised a need for an appropriate balance to be struck between national interest and local impacts, with effective planning required by government at all levels to ensure that scarce resources are used most efficiently. The consultation identifies a key role for local, regional and national governments in delivering the policy, and the Government committed itself to improving the national planning procedures to allow airport developments to be considered more quickly than in the past, but without reducing the rights of those affected by the developments. The document states that environmental impacts and the impacts on neighbouring communities should be limited to the 'unavoidable.'

Amsterdam Schiphol

2.47 The Schiphol Group is currently owned by the Dutch State and the City councils of Amsterdam and Rotterdam. Privatisation of the airport has been considered over the last couple of years, but has been held back by parliamentary elections and poor stock market conditions. In 2002, Schiphol handled 40.6 million passengers, and 401,000 aircraft movements. The growth rate, in terms of passengers, at Schiphol has averaged 7.8% a year over the last ten years.

2.48 Schiphol operates a single terminal building to make the transfer of passengers between flights as easy and as quick as possible. The airport has been praised for various elements of its customer service and is ranked highly in IATA's Airport Monitor passenger opinion survey. Schiphol has sought to achieve a competitive advantage over other European hubs for transfer passenger business, with airport charges set at a deliberately low level relative to non-transfer passengers.

2.49 Until recently, Schiphol has been tightly constrained by noise contour limits imposed by Government. The opening of the fifth runway in February 2003 will allow the airport to change its mode of operation so that the noise contours will no longer act as a constraint. Even though the five runways cannot all be operated simultaneously, the capacity of the runway system could ultimately be around 120 movements an hour, expected to equate to some 600,000 movements a year, providing capacity for 65 million passengers a year by 2012.

2.50 Dutch Government policy allows for Schiphol to be given the space to expand its operations to support the development of the airport into an internationally-competitive hub, and in line with this policy the development of the fifth runway was initiated in 1995, when the Dutch parliament granted outline consent for the development. The outline consent stated that the fifth runway should be operational by 2003 at the latest.

2.51 The detailed proposals, including the noise conditions to apply to the five-runway system, were approved by Government in 1997 after extensive public consultation. Prior to the opening of the fifth runway the airport was required to limit operations in particularly noise-sensitive areas when it appeared that they might exceed the noise constraints. However, Government intervention during this period has sanctioned increases in permitted aircraft movements each year to prevent the noise contour limit from becoming a severe constraint on the airport's activity.

2.52 In 1999, the Dutch Parliament passed an Act intended to streamline the planning and appeal procedures associated with the project, in order to help prevent further delay to the construction programme.

2.53 Construction of the fifth runway began in September 2000 and was completed in the Autumn of 2002, becoming operational in February 2003. Although a new noise contour limit applies to the five-runway operation, Schiphol management believe that it will not constrain movement growth in the medium to long-term given that aircraft using the new runway will over-fly significantly less densely populated areas than aircraft using some of the airport's other runways.

2.54 The fifth runway will provide passenger capacity of at least 65 million passengers a year. Permission has already been granted for the construction of matching terminal capacity, to be provided initially through the development of a remote satellite to the west of the existing terminal complex, linked by a tracked-transit system. Construction work is expected to start in 2004, and be complete by around 2006.

2.55 Reflecting the difficulties in managing a specific noise contour around Schiphol, the Dutch Government has developed a new approach to environmental management. Schiphol will now be treated in the same way as other businesses, in that the role of Government will be limited to setting environmental limits and monitoring performance. This is intended to provide the airport with greater discretion in managing environmental issues and allow it to grow within defined environmental parameters, without prescriptive involvement from Government.

2.56 On the basis of these environmental limits, the Government is currently studying Schiphol's potential to accommodate further growth in the long-term, beyond its five-runway capacity. The study will consider when a sixth runway might be needed, and whether it would be feasible and acceptable from a social perspective. In June 2002, Schiphol stated that it would also be considering the airport's long-term runway capacity requirements, post-2010, and identified two possible locations for new runways. In response to these initiatives, the provincial government of Noord-Holland, the region in which Schiphol is located, has safeguarded land on the approach and take-off paths of the two possible new runways. This decision has been taken to prevent further housing development along the alignment of the arriving and departing aircraft.

Implications for London

2.57 Despite these developments on mainland Europe, London's airports currently still have a very strong market position, offering an unrivalled combination of frequencies and capacity to key long-haul destinations. For example, on the four largest North American routes in Summer 2002 (New York, Toronto, Los Angeles and Chicago) Heathrow offered a combined total of 308 departures. This compared with 103 departures from Paris CDG, 59 departures from Schiphol, and 122 departures from Frankfurt. Furthermore, on the largest routes to the Middle East and Far East (Hong Kong, Singapore, Tokyo and Dubai) Heathrow offered a combined total of 165 departures per week. This compared with 80 departures from Paris CDG, 49 departures from Schiphol, and 83 departures from Frankfurt.

2.58 This position is not unassailable, however, and as capacity constraints in London and the South East bite further into our growth potential the cost of travelling to and from the South East will rise and airport congestion will worsen. UK residents will find it more expensive and more difficult to travel abroad, both for business and leisure reasons. Foreign travellers will increasingly be deterred by the cost of travelling to the UK through the South East airports, which will have a detrimental effect on UK business. The most footloose sector, the passengers transferring through South East airports, will find other European airports and airlines ready and willing to accept their custom. There is also a serious danger that congested UK airports are perceived by passengers and airlines to compare unfavourably with those in continental Europe in terms of their quality of service. These consequences of capacity constraints will have a detrimental effect on London's reputation as a World City.

2.59 But it is also clear that a single airport location is unlikely to be able to provide an extensive network of destinations and offer both high capacity and high frequency on these routes. Paris CDG, Amsterdam Schiphol and Frankfurt offer extensive route networks, but serve the key long-haul destinations with relatively low frequency and seat capacity. By contrast, Heathrow offers high frequency and high seat capacity over a more limited range of destinations, and delivers higher levels of passenger throughput per air transport movement. This suggests that other airports in the London system, besides Heathrow, could have an important role in developing a wider range of destinations, but at a lower level of frequency, following the pattern of growth experienced by other European airports.

2.60 If the UK is to continue to enjoy the economic and social benefits of air travel growth and not surrender them to France, Germany and the Netherlands, then the capacity to offer these services from the South East's airports must be provided. The key point for London is to recognise that its main airports operate as a system, providing a uniquely flexible infrastructure for the growth of UK-based aviation services. But only if this system is allowed to grow in a responsible way, in response to demand, will it remain what it is now: a world-class player and a leader in Europe.

Chapter 3: UK airports: a 30-year horizon

Introduction

3.1 Even before the Terminal 5 Public Inquiry started in 1995, the then Minister for Aviation, Lord Caithness, had described the White Paper published a decade earlier as "beginning to look a little yellow at the edges." This assessment enabled objectors to Terminal 5 to claim that the White Paper was out of date and should carry little weight. As a result, the inquiry spent 33 weeks covering the need for a development between the two existing runways and on land which the 1985 White Paper had identified for airport development.

3.2 Getting the framework right for a policy of transport infrastructure development across a 30-year horizon is not an easy task. The framework provided needs to be firm enough to provide the necessary clarity to everyone involved, but flexible enough to be robust in the face of inevitable change.

3.3 Aviation is an exceptionally dynamic industry, subject to pressure from geopolitical forces, changing demographics and lifestyles, as well as undergoing frequent waves of transformation from within. It is impossible today to answer with complete confidence a number of major questions. How, in the coming three decades, will global alliances in aviation develop? What is the future of the growing no-frills sector, and how will this interact with the mainstream market? Could unrestricted competition spread into long-haul services? What will aero-engine technology look like in 2030? Will aircraft continue to get bigger? For all of these reasons, the Government needs to produce a White Paper which is firm, but flexible enough to allow airport developers to adapt to evolving industry needs.

3.4 The need for firmness should reflect itself in four key judgements, which need to be made decisively in the White Paper, if we are to have the framework for expansion needed by the aviation industry and its customers, whilst avoiding unnecessary development at sites the Government does not intend to propose for runway development. BAA wishes to see clear Government decisions on the following points:

- The airport location(s) in the South East where new runway development should not be provided during the period covered by the White Paper, so that unnecessary blight is avoided.
- The airport location in the South East where a new runway is most urgently needed, along with an indication of the type of runway envisaged and its associated infrastructure.
- The other airport location(s) in the South East where new runways will, in all probability, be needed during the 30-year period, and where land should therefore be safeguarded.
- The number of runways and the type of runway development, along with their supporting infrastructure, which should be provided at these other locations, but not the sequence or the timing of when any of the new runways should be brought on-stream

Demand for air travel

3.5 Estimating demand for air travel over the next 30 years is clearly a subject where judgements will differ. In the last 30 years, demand for air travel in the South East has increased fourfold, as falling real air fares and rising real incomes have made air travel accessible to the majority of the population. That represents annual average growth of 5%. In this period, Government forecasts were frequently exceeded and occasional shocks, such as the OPEC oil price hikes, the Gulf War and the impact of the September 11 terrorist attacks in the US, had only short-term effects on the growth trend.

3.6 The DfT's current 'unconstrained' mid-point passenger forecasts (Figure 5A in the SERAS document), show demand for air travel in the South East growing from 117 mppa in 2000 to around 200 mppa in 2015 and 300 mppa in 2030. This represents a reduction in the trend rate of growth to 3.2%. By 'unconstrained' the DfT means that its forecasts assume that existing policy and regulatory constraints do not worsen, but that additional airport and airspace capacity is made available as necessary to accommodate growth in passenger numbers. The Government's own forecasts, however, also show that even with higher taxes or other levies on aviation designed to cover the industry's external costs, demand would still grow at the rate predicted.

3.7 This level of growth is realistic. Taking the Government's growth trends, the average London area resident who today takes an average of one and a half round trips by air per year will, by 2030, take roughly three round trips. It is not difficult to imagine how a combination of holidays, family visits, sporting events and work will generate such a pattern of flying. In 1972, for comparison, every resident took an average of less than half a

round trip, in an era when air travel was very much the privilege of the few, not the many. Flying is today no longer a means of travel enjoyed only by the better off. It is, rather, an established part of our public transport system, vital to business and an established part of ordinary people's leisure activities.

3.8 It is sometimes said that growth at the South East airports would ease if people in the regions were able to fly more easily from airports closer to their homes. But the Government's mid-point forecasts also assume that demand for aviation will grow by one percentage point per year more in markets outside the South East, as regional airports provide more point-to-point services for their local markets. The forecasts also factor in the potential for people shifting to travelling by rail and other modes, rather than by air.

3.9 At the same time, these mid-point forecasts also assume a fall in airline fares of 1% a year in real terms over the period to 2020, continuing a historical trend in which greater efficiencies and greater competition have driven down prices. However, the DfT now acknowledges that more recent evidence points to reductions in air fares of around 2% a year (paragraph 5.24, SERAS document). Falling fares act as a stimulus to demand and coupled with rising real incomes, support the basic underlying proposition that more people want to fly, more often.

3.10 BAA has considered the DfT's calculations and taken its own view about how the key drivers of air passenger demand will perform over the period covered by the White Paper. We have concluded that the Government's figures are a sound basis for policy making.

Eleven key tests

3.11 In the foreword to 'The Future of Aviation', the deputy prime minister said:

"We need to ensure that, as a country, and as individual consumers, we are getting the most from our aviation services and the future of the aviation industry is a sustainable one. Aviation has great economic, social and environmental relevance in the UK. We need a long-term framework that will maximise the beneficial aspects of aviation and minimise the negative effects."

3.12 BAA remains passionately committed to the Government's vision of a sustainable UK aviation industry, in which sufficient progress is made at the same time on each of the Government's four core sustainability objectives:

- Maintenance of high and stable levels of employment.
- Social progress which recognises the needs of everyone.
- Prudent use of natural resources.
- Effective protection of the environment.

as well as recognising well-evidenced limits to environmental capacity, in order that, when taking decisions about airport development, the Government can strike the right balance between economic, social and environmental benefits and costs. We believe that the Government's sustainable airports policy for the White Paper should be subject to the following key tests.

i Does it provide for the continuing growth of the UK aviation industry, which is important in its own right, and as a facilitator of the success and competitiveness of other industries, and in meeting the needs of consumers?
ii Is it economically efficient, making the best use of available airport capacity?
iii Is the airport development programme envisaged sustainable?
iv Does the Government's framework clearly identify the intended location of additional runway capacity?
v Has the Government convincingly set out a robust planning process, so that complex developments can be considered in a more timely manner, while remaining inclusive? Local agreements on optimal development should be encouraged wherever possible, including appropriate impact mitigation, compensation and control measures.
vi Has the Government provided an appropriate framework for the airports industry to be able to attract private sector funding for the runway development programme?
vii Are all the developments envisaged consistent with maintaining or enhancing the safety and security of UK airports?
viii Is the strategy customer-led? Will the framework make it possible for UK airports to offer a wide range of high quality services to passengers, minimising delays, in conditions competitive with those found at other leading European airports? Does the policy provide for appropriate passenger-handling facilities, as well as runways?

ix Is the approach flexible, enabling the UK aviation industry to respond to rapid changes in the competitive climate?

x Can the Government give the necessary direction and certainty of funding to enable the strategic transport authorities to work with airport developers to deliver rail and road infrastructure required to support development?

xi Is the approach well-balanced, in terms of meeting the international needs of UK business, along with the reasonable expectations of businesses and individuals in the UK's nations and regions?

3.13 In the next chapter, we set out in detail our thinking about the meaning of a sustainable airport development policy, including the economic and environmental issues involved. In the remainder of this chapter, we deal with four issues: the evolution of the planning framework for airport development; the background to airport funding in the coming years; the relationship between regional airports and South East airports and, finally, the question of airport hubbing, which is important to any understanding of the place of BAA's South East airports in the development of the UK economy.

Planning issues

3.14 Given the Government's own assumptions in the SERAS document of when second (2018) and third (2024) new runways might come on-stream, the Government will need to ensure that the new White Paper can continue to be regarded as up-to-date well beyond the promotion of the first new runway. If the new White Paper is to remain relevant and reliable for both developers and local communities then the Government needs mechanisms to achieve this, either in the White Paper itself or in subsequent confirmations or amplifications of it.

3.15 The Government should therefore have regard to the timing of any such amplifications in the context of the timing of planned developments. In relation to the first runway project following the new White Paper, a developer may find it acceptable for any additional re-affirmation of air transport or airports policy to be published after the planning application has been submitted but before any local planning inquiry. However, in relation to later schemes, promoters may require the confidence of policy being re-affirmed before the planning application and before they embark on the lengthy and costly process of developing a scheme and undertaking environmental assessment.

3.16 It is essential that an aviation policy which aims to deliver significant capacity and infrastructure is backed by a planning framework which enables the timely delivery of development. BAA therefore welcomes the Government's changes to the local public inquiry rules and we would support any further improvements to the planning process which the Government can deliver. The Air Transport White Paper's focus on deliverability needs to be underpinned by a planning process which prevents unnecessary delays, but which ensures that developers and developments remain open to scrutiny by those they affect and accountable to those with a legitimate interest.

3.17 The Terminal 5 Public Inquiry ran its course in the absence of such measures. If new runway schemes are to be the subject of a public local planning inquiry process then these changes and reforms will need to be strenuously applied, and it is possible that others may also be needed.

3.18 The terms of the forthcoming White Paper will be critical to the effective enhancement of UK airport capacity. What is needed is for the White Paper to state clearly which developments are favoured in principle, and where; encouraging developers like BAA to bring forward detailed schemes and to propose measures to reduce, mitigate and compensate for any adverse environmental impacts.

3.19 It is vital then that the Government strikes the right balance between the need for schemes to change as they are taken through detailed design and negotiations with key third parties, such as the Strategic Rail Authority (SRA) the Highways Agency (HA) and the Environment Agency (EA), and yet be sufficiently precise that they can be taken through the local planning process safely and quickly. We develop our ideas on how the Government could further improve the decision-making process in Chapter 13 of this response.

3.20 The principal focus of the SERAS assessments has been the provision of runway capacity. But it is vital that the new White Paper also recognises that passenger terminal, aircraft stand and access facilities would also be needed at each location where any additional runway development occurs. The development of these other facilities should not fall outside the policy context in which any new runway is favoured, and should be regarded as critical to allow airports to deliver the increments in capacity intended by the White Paper.

Funding

3.21 BAA plc was floated on the Stock Market in July 1987, with a capitalisation of £1.225 billion. This value reflected the company's long track record of profitability and its high standing in the commercial aviation industry. Currently, BAA has a market capitalisation of around £5 billion and is in the top 50 companies listed on the London Stock Exchange.

3.22 For the UK to retain a leading position in aviation, the Government must provide a clear economic framework to enable the industry to provide the future capacity required at UK airports, while BAA and the aviation industry should have a high level of confidence about the costs of providing additional airport capacity and their ability to fund it. Investors in BAA need confidence that reasonable levels of debt, gearing and interest cover could be achieved with the kind of investment programme required to deliver the goals of the new White Paper. This would enable BAA to raise the necessary finance at reasonable rates and would avoid the need for the Government to shoulder the risk of airport development, or to commit public funds for airport infrastructure, at a time of heavy competition for public investment.

3.23 An approach of this kind also requires that BAA is subject to a constructive and flexible regulatory regime. By law, the operation of BAA's three London airports is reviewed, normally every five years, by BAA's regulator, the Civil Aviation Authority (CAA) and the Competition Commission. The review covers two major aspects of BAA's business:

i The setting of maximum charges for the following five years, based on the principle that annual increases in revenue from airport charges per passenger are restricted to not more than the rate of inflation (RPI) plus or minus x percentage points, where the 'x' factor is intended to provide BAA with sufficient revenues to make a reasonable return on its regulated business.

ii BAA's conduct in relation to customers, business partners and suppliers. The regulator is required to ensure that the company acts in accordance with the public interest.

3.24 In March 2003 the CAA published its final decision on the price caps for Heathrow, Gatwick and Stansted for the period 1 April 2003 to 31 March 2008. At Heathrow, BAA is able to increase annual passenger charges by inflation plus 6.5%, to fund Terminal 5, whereas at Gatwick and Stansted charges will rise in line with inflation. BAA believes that this new framework will allow it to invest in airport facilities in line with the plans described earlier in Chapter 2 (paragraph 2.19).

3.25 The CAA and the Competition Commission agreed on other proposals on which the CAA had consulted, the most significant of which were:

- The continuation of a single till as the basis for setting the price caps.
- The introduction of service quality rebates.
- Adjustments to the extent to which new security costs can be recovered.
- The price cap for Heathrow to be conditional on achieving five trigger points for stages of completion for Terminal 5, and the price cap for Gatwick to be conditional on achieving a trigger in relation to the commissioning of Pier 6.
- The airports should provide enhanced information disclosure as a basis for improved consultation with their users.

3.26 However, there was disagreement between the CAA and the Competition Commission on one significant point, where the CAA finally ruled, against the views of the Competition Commission, that the previous airport system approach to setting the price caps should be replaced by one where the prices are set to reflect the market, costs and assets of each airport individually ('stand-alone').

3.27 In framing the forthcoming White Paper, the Government should seek to improve certain aspects of BAA's economic regulatory framework including the duration and complexity of these reviews, not least the fact that in the CAA and Competition Commission BAA, unusually, has dual regulators. It should also aim to provide as much clarity as possible to investors and allow airports to continue to attract private sector funds for investment in airport infrastructure. Investors must have the prospect of being able to make an appropriate return from their investment in BAA. Increases in airport charges will be required if BAA is to invest profitably in high-quality airport facilities, including runways and additional airport-related environmental mitigation measures. Recognition of this point would help to achieve the Government's stated objective of providing additional airport capacity in the South East in the most efficient and effective way, consistent with the principles of sustainable development.

3.28 The capital cost estimates identified by the SERAS studies suggest funding of between £2 billion and £4 billion will be needed to provide an additional runway at Heathrow, Gatwick or Stansted, and £10 billion and £13 billion to provide two and four runways respectively at Cliffe. These costs are based on conceptual layouts associated with the relevant options in the consultation document. They include some costs for airport-related rail and road infrastructure, which may well be different from that which is ultimately provided, but exclude any costs associated with mitigating or compensating for environmental disturbance. As long as all of these costs remain incomplete, there will be uncertainty about whether and when new airport infrastructure can be successfully financed by the private sector. It is clear that when account is taken of these additional costs, the scale of investment involved in runway development would exceed even the very substantial figure (£3.7 billion) for the construction of Heathrow's Terminal 5.

3.29 In line with the principle that aviation should meet its external costs, BAA accepts that aviation should fund its fair share of the costs of reducing, mitigating or compensating for environmental disturbance, including for aviation noise and air pollution, as well as for any surface access infrastructure schemes associated with development proposals at its airports. However, that fair share should be limited to the extent to which airport users derive benefit from the development in question.

3.30 We also believe that aviation should be liable only for its net external costs, not its gross external costs, and therefore that in assessing aviation's external costs, regard should be paid to:

- The full contribution from non-aviation sources to the cost of any scheme or mitigation.
- The full economic benefits delivered to parties other than the aviation industry, including the Government.
- The principle that aviation should not have to pay twice for the same cost. It would, for example, be unreasonable to expect the aviation industry directly to fund off-airport rail and road projects if the Government's share of the investment costs for those projects is already covered by airport passenger duty revenues.

3.31 Against this background, we have carried out our own preliminary financial appraisal of options which the Government could choose from the SERAS document in order to provide the first increment to South East runway capacity. The results of that preliminary appraisal can be found in Chapter 9 of this response.

Regional airports

3.32 BAA agrees that passengers should, wherever possible, be able to fly from the airport nearest to their home or place of work. If there is sufficient demand, airlines will provide the services their customers want at each airport.

3.33 The 1985 Airports Policy White Paper encouraged the use and development of regional airports so that they could fulfil their maximum potential, and BAA supports this policy. BAA owns four thriving airports in Scotland and Southampton. But if the UK aviation industry as a whole, and regional airports in particular, are to grow profitably and responsibly, the new White Paper needs to take into account three factors in the relationship between the regions and the main London airports which will continue into the future:

i The high proportion of passengers using the South East airports who have their origins and destinations in London and the South East, which limits the extent of any regional 'clawback' of passengers. The proportions have remained relatively constant at over 80%.
ii The continued attractiveness and importance to airlines of the South East airports, and in particular Heathrow, for transfer traffic. Many Heathrow passengers are then able to use connecting flights to access UK regional airports.
iii The fact that more people across the UK as a whole are able to fly if airport capacity is available in the South East as well as at regional airports (SERAS document, paragraph 3.30).

3.34 It follows that whilst regional airports are properly expected to grow faster than airports in London and the South East, they have only a very limited ability to contribute to meeting the forecast demand for air travel in the London area. It would be a serious mistake to think of expansion at regional airports as a substitute for additional capacity at London's main airports. Government policy should, however, continue to support regional airports in meeting the demand that they can reasonably be expected to accommodate, subject to the achievement of other social and environmental policy goals, for both point-to-point demand as well as demand for access to London.

Hubbing

3.35 One specific question the Government asks in the SERAS document is whether, within a 30-year policy framework, maintaining a hub airport is in itself a desirable objective and, if so, whether Heathrow should be developed further (SERAS paragraph 4.2). To aid its analysis on this issue, BAA commissioned Professor Rigas Doganis of Rigas Doganis & Associates to write a report about the concept of hubbing in London and its likely future development. BAA has used this report, entitled "The Future of Hubbing in London", to inform this response. The report can be found on BAA's website: www.baa.com/consultation.

3.36 For reasons that we explain below, we believe that to maintain and enhance the competitiveness of both the aviation industry and the UK economy as a whole it is vital that Heathrow continues to operate as a hub airport in the overall London airports system. BAA's view is that neither the expansion of another existing London airport nor the creation of a new London airport could replicate the advantages and qualities that Heathrow offers. Moreover, BAA questions the proposition that a major airline alliance would relocate voluntarily to another London airport. In common with other major international cities, we believe that the attractiveness of Heathrow means that the market would not support a second hub airport in the London system.

3.37 In order to explain these views, it is important to establish at the outset what is meant by a hub. Although they can and do differ in character, a hub is effectively a major airport which provides connecting services for a significant proportion of passengers who need to change planes without leaving the airport. There are essentially two types of hubs: those that provide connections to passengers by organising 'waves' or 'banks' of arriving and departing flights within an hour or so of each other, which are known as traditional hubs; and those that provide natural connections to passengers by virtue of their high-quality route networks, and these are termed network hubs.

3.38 Hub airports, whether traditional hubs or network hubs, bring benefits to business and leisure travellers alike. This is because transfer passengers help underpin a greater range of destinations, frequencies of service and competitive prices compared to non-hub airports, which rely on local passenger demand alone. Not only do these routes and frequencies offer benefits for passengers wishing to travel, but they also offer a valuable transport network for cargo, which in the case of Heathrow is almost exclusively carried in the belly of passenger aircraft. Moreover, passengers from regional airports can access destinations via the hub which cannot be sustained by the market from their own region.

3.39 The wider economy gains from the business benefits obtained by users, by the income and employment generated at the airport and among its domestic airlines and suppliers. In addition, there are advantages that companies obtain from locating their businesses either close to a hub or close to an airport which has a high frequency of flights to the hub. Indeed, the importance of Heathrow to the maintenance and enhancement of London as a World City is widely recognised, not least by the Mayor of London.

3.40 To operate successfully as a major international hub, an airport should enjoy some of the following key advantages:

i A central geographical location.
ii Sufficient runway capacity and suitable terminal transfer facilities.
iii Strong local demand.
iv An airline which sets out to pursue a hub strategy at that airport.

3.41 Some major US airports, such as Chicago O'Hare and Atlanta, operate as traditional hubs, being dominated by a single airline or airline alliance operating services in 'waves' or 'banks' timed to enable passengers to transfer from one short-haul flight to another. The New York airports, on the other hand, are more akin to a network hub. Some major European airports, most notably Paris Charles de Gaulle, seek to replicate the traditional hub model by providing facilities to enable their respective flag carriers to compete better with other European airlines.

3.42 Statistics from mainland European airports show how they currently operate more as traditional hubs than Heathrow. At Paris Charles de Gaulle, Frankfurt and Amsterdam there are intense periods of activity in the morning peak, with home carriers operating between 50 and 70 departures in a short space of time. By contrast, British Airways operates fewer than 20 departures in the morning peak at Heathrow.

	Transfer passengers 2000 mppa figures	**Departures scheduled by airlines in morning peak**
Paris Charles de Gaulle	27.9 million (58% of total traffic)	Air France – 52 deps/55mins
Frankfurt	24.5 million (50% of total traffic)	Lufthansa – 68 deps/105mins
Heathrow	24.5 million (30% of total traffic)	British Airways – 18 deps/60mins
Amsterdam	16.1 million (41% of total traffic)	KLM – 63 deps/75mins

3.43 Heathrow, on the other hand, is ideally located as a North Atlantic gateway and generates by far the greatest demand for air travel of any city or region in Europe. These advantages enable airlines operating at Heathrow to enjoy significantly greater fare premiums and profits than might be possible at a traditional hub. Consequently, the value of these advantages to airlines of access to Heathrow has tended to offset its main shortcoming of a lack of spare runway capacity.

3.44 At Heathrow, airlines maximise the capacity available to them by operating what can best be characterised as a 'network' of services. This network principally enables passengers to transfer between a wide range of short-haul and international long-haul services operated by various airlines. Historically, Heathrow has demonstrated that it has consistently delivered higher levels of throughput per air transport movement compared to other large airports in Europe and the US. So, while Heathrow could never replicate the size of the short-haul-to-short-haul operation of a traditional US hub, it can remain a successful network hub, provided its long-haul network remains strong and can be fed from the UK regions and other parts of mainland Europe.

3.45 In the future, it is likely that additional runway capacity and the continued expansion of hub operations at the mainland European airports will enable them to maintain a competitive advantage over Heathrow. Where Heathrow currently has an advantage is in its unique capability of enabling the airlines to meet in a profitable way the needs of passengers both from the South East region and from other regions of the UK and abroad (see Chapter 2 for a description of Heathrow's key frequencies, capacities and locations). However, if the Government were to decide not to allow a third runway at Heathrow, BAA recognises that there are likely to be risks to Heathrow's current advantage. These risks essentially mean that the current characteristics of Heathrow would be affected by one or more of the following trends:

i A sharper decline in the number of destinations.
ii A reduction in frequency, particularly on some thinner long and short haul routes.
iii A reduction in the frequency to and/or number of UK regional airports served.
iv A decline in the proportion of transfer passengers using Heathrow.
v A decline in the importance of the Heathrow hub relative to other European hubs.

3.46 On the other hand, if the Government were to decide that a third runway at Heathrow should be provided, the additional capacity would allow Heathrow to consolidate its competitive position by enabling the airlines to improve their slot portfolios and operate routes and frequencies that might otherwise have been lost if Heathrow was constrained to two runways. It is unlikely though, that even with a new runway Heathrow would have the level of spare runway capacity to enable airlines to organise scheduling in a series of 'waves' or 'banks', similar to a US-style or major European airport hub operation.

3.47 In our view, no other existing or new London airport could replicate the advantages and qualities that Heathrow offers. Consequently, BAA disagrees with the proposition that a major airline alliance would relocate voluntarily to another London airport, principally because it would not want to surrender the airport capacity it uses at Heathrow to its competitors. BAA believes that the attractiveness of Heathrow would mean that, even if an existing or a new airport in the London system were to operate with more than two runways, it is unlikely to either replace Heathrow as the London network hub or become a second hub airport in the London system.

3.48 Recent trends in the European aviation industry suggest that it is undergoing a phase of major evolution. Low-cost carriers are emerging as a major force within Europe. These carriers are undermining the traditional economics of hubbing by forcing down the yields of conventional scheduled carriers, both on parallel city pair routings and on thinner routes traditionally served as transfer flights via a separate hub airport. There is also a process of consolidation taking place among medium-sized European flag carriers that is leading to an increased focus on a smaller number of major hubs to achieve efficiency gains.

3.49 Changes in the economic climate and the expansion of low-cost services are therefore threatening the traditional hub model. Given those trends and the dynamic nature of the aviation industry, it is not possible to predict with any certainty how demand will be met by airlines in Europe over the next 30 years, although the network hub characteristics of Heathrow could well endure and ensure that it remains a hub airport, albeit possibly in modified form. From the airlines' perspective, it is essential that future airports policy for the South East airports provides the flexibility needed to react to changing circumstances in the aviation industry over a 30-year period. BAA agrees with Doganis's conclusion that, while trends point to traditional hubs becoming less important in the future, their future is not so grim that they would become irrelevant.

3.50 For the UK, it is impossible at this stage to envisage precisely the ideal balance between these types of operation in ten, 20 or 30 years' time. The Government's approach to hubbing needs to recognise the future uncertainties surrounding hubs and the continued attractiveness of Heathrow as a network hub airport in that context, while providing a foundation for other South East airports to grow in a complementary manner as both network providers and as bases for point-to-point operations. Given these circumstances, BAA believes that the optimal approach from an industry perspective is one which enables capacity to be provided throughout BAA's London airports system to provide a flexible base for future dynamic developments in UK aviation. Our suggested approach would ensure that the flexibility exists for the provision of additional airport capacity so that airlines can respond most efficiently to changes in the market, which therefore ensures that the UK aviation industry can continue to deliver desired economic and social benefits not only to London, but also to the South East and the whole of the UK.

Chapter 4: Responsible growth: the sustainable development of airports

4.1 BAA is committed to the principle of sustainable development and supports the Government's core sustainability objectives, namely:

- Maintenance of high and stable levels of economic growth.
- Social progress which recognises the needs of everyone.
- Prudent use of natural resources.
- Effective protection of the environment.

4.2 We believe that growth in air transport and airports should take place only where it is in accordance with these sustainability objectives, and that the Government will need to be persuaded that any runway development has the potential to meet the objectives before it could be taken forward in the White Paper. In this regard, it is for the Government to take the broad view of how new runway development would meet its sustainability objectives for the UK as a whole, rather than the local implications for any individual site. Moreover, we believe that there are some known environmental limits, such as the earth's capacity to handle greenhouse gases, which demand a clear response. BAA's approach recognises and responds to such environmental capacity issues.

4.3 However, as the Government acknowledges, the discussion about airport development should not purely focus only upon environmental limits, but it should also recognise economic and social costs and benefits. It is important to strive for a balanced understanding about the economic, social and environmental costs and benefits to communities which live near to airports and the interests of wider communities up to and including the national interest in healthy economic growth and social progress.

4.4 BAA places great emphasis upon its relationship with the communities around its airports and we have, in recent years, succeeded in negotiating growth at Stansted and Gatwick, without recourse to costly and time-consuming planning inquiries. Our aim, in taking forward any runway development proposals at BAA airports, will be to demonstrate that the development is integrated with Government policy, and then to reach local agreements with the principal stakeholders to ensure mechanisms are established to capture the positive benefits and reduce, mitigate and compensate for adverse impacts.

4.5 In this chapter, we examine the economic, social and environmental benefits and impacts of aviation in some detail in order to assess more fully whether and how air transport can grow in accordance with the sustainability principles outlined above. Further material covering the environmental effects at particular locations can be found in the individual airport chapters.

Economic importance of aviation

4.6 Britain's economy was built on shipping, which carried manufactured goods to every corner of the globe and brought raw materials from all over the world to be processed in Britain. By historical good fortune, geography and long-established trading networks, Britain has been similarly able to develop competitive advantage in air services over neighbouring European countries, and has built an aviation industry which is arguably the best in the world. Aviation has now replaced shipping as the principal means of transport for our most globally competitive goods and services. While only 5% of goods by weight are carried by air, over 30% of cargo by value, worth over £50 billion, now goes in aircraft. Importantly, these are the high value-added goods of the knowledge economy which rely on speed and reliability of delivery to reach their markets. Aviation also plays a critical role in supporting service industries, and in attracting global and European headquarters operations to the UK.

4.7 Aviation is therefore supporting those sectors of the economy on which the country's future prosperity depends. These sectors are "aviation intensive" users and this either reflects manufacturing activities which ship or receive significant proportions of goods by airfreight and for which "just in time" production and freight services are important, or activities which are high-intensity users of international travel, such as service sector companies whose staff travel abroad regularly. More specifically high-knowledge and high value-added activities such as electronics, pharmaceuticals, biotechnology, research and technology, insurance, banking and finance, business activities and communication, in which the UK is globally competitive, are aviation-dependent. These industries, being low-impact and internationally mobile, could locate anywhere offering skilled labour and access to global markets.

4.8 Aviation is also critical to tourism. The UK is number five in the world league of tourism earnings, and tourism is a major component of the modern UK economy, accounting for some 4 to 5% of UK GDP and sustaining around 7% of all jobs, many of them associated with the vibrant outward-bound travel industry. In 2001, there were 22.8 million overseas visitors to the UK, and 70% of them arrived by air, accounting for 84% of the UK's tourism revenue of £11 billion. Over a quarter of this revenue (£3.2 billion) was spent on tickets with UK carriers. Inbound tourism is estimated to support around 340,000 full time jobs, not including those in the aviation industry.

4.9 Extensive academic and commercial studies have identified access to international air services as a key decision factor in locating certain types of economic activity, especially where inward investment decisions are being made. A consequence of the UK's comparative advantage in aviation therefore is that the UK is the number one place in Europe for attracting foreign direct investment and corporate headquarters, not just to London but also to the regions. Of the stock of foreign direct investment in the EU in 2001, the UK accounted for 19%, followed by Belgium, Luxembourg and Germany at 18%, France 12% and the Netherlands at 11%. (UNCTAD, World Investment Report 2002). In addition, almost 30% of the largest companies in Europe have headquarters located in the UK, compared to 18% in France and 16% in Germany.

4.10 The UK's proportion of HQ companies within the EU represents almost twice its share of the EU's population and indicates the degree of concentration of these activities in the UK. The importance to London is recognised by the London Development Agency (LDA) in its economic strategy for London, when it states "London's function as a headquarters city for national and European companies is key. Of Europe's top 500 companies, there are 118 with London headquarters, almost twice the number in Paris, London's nearest rival." (LDA, Success through Diversity, page 23).

4.11 In its strategy, the LDA further emphasises that the international nature of modern economic activity needs to retain this level of connectivity, stating that "ever-increasing business mobility and competition mean that London must actively promote its attractiveness as a business location and effectively manage its 'account' with all its business investors. London enjoys a strong international identity" (page 21) and that "London is a 'gateway city' providing access to the UK for international firms, tourist and visitors. The attractions of London bring business and visitors to other UK regions. Building up this gateway function remains a key role that now requires greater support" (page 22).

4.12 The need to operate within an international arena is also reflected in the regional economic strategy for South East England (SEEDA, Regional Economic Strategy 2002–2012). The SEEDA strategy identifies that: "It is no good comparing the performance of the South East economy with those of other UK or even European regions. Our real competitors – and the regions against which we must judge our performance – are the top regions worldwide." A globally-competitive region needs global connectivity.

4.13 Similarly, the vision of the regional economic strategy for the East of England is "to make the East of England a world-class economy, renowned for its knowledge base, the creativity and enterprise of its people and the quality of life of all who live and work here" (East of England 2010 – prosperity and opportunity for all). Growth will be encouraged in nine key sectors, many of which are reliant on aviation. The key sectors are ICT, life sciences, media and cultural industries, financial business services, agriculture and food processing, tourism, leisure and heritage, automotive, high-technology manufacture and advanced engineering, and finally transport gateways.

4.14 However, as we outlined in Chapter 2, competitors across Europe are seeking the same economic benefits and are challenging the UK's dominance by providing substantial aviation capacity and offering footloose businesses an air transport alternative to locating in the congested South East of England, or relying on London's hub to connect to their home country or markets.

4.15 But aviation is not just important as a facilitator for the wealth-creation and competitiveness of other industries, though. It is also a substantial industry in its own right. According to research by Oxford Economic Forecasting, published in 1999, UK aviation directly employs 180,000 people across a wide range of jobs – from cleaners to engineers, and caterers to pilots – and it supports some 380,000 other supply chain and induced-effects jobs throughout the economy. In 1998 it was estimated to contribute around 1.4% of GDP or £10.2 billion in value-added to the economy. In the SERAS document, the Government estimates the economic net benefits from allowing air transport to grow in the South East alone could be as high as £18 billion in net present value terms, compared with net benefits of under £7 billion from the maximum use of existing runways only. The Government also suggests up to 80,000 additional direct and indirect jobs could be created by 2030.

4.16 Overall, it is plain that the responsible growth of aviation is crucial to the achievement of high and stable levels of economic growth at national, regional and local levels, ensuring that the UK as a whole remains competitive relative to other countries.

Economic assessment of the packages

4.17 The SERAS analysis has examined a number of possible combinations of options that provide different amounts of airport capacity. It has identified 17 potential combinations of development, 15 of which include new runways. Chapter 14 of the SERAS document sets out the results of the DfT's economic appraisal of these packages.

4.18 The main driver of the social and economic benefits is the provision of more airport capacity which in turn enables more people to fly and gives passengers a greater choice of timings and routings. These core benefits are further enhanced by benefits to the wider economy such as increases in economic productivity, foreign direct investment, and wealth gained from the tourism industry.

4.19 The model used by the DfT to appraise the SERAS runway options quantifies the net economic benefits generated from the provision of additional runway capacity. The DfT analysis identifies the following direct economic benefits:

- Benefits to new or "generated" users: these are accrued by new passengers who, without the increase in airport capacity, would have been priced out of using airports in the South East or using an airport at all.
- Benefits to existing users: these are gained from an increase in the frequency of flights from the South East airports.
- Benefits to freight users: these are calculated in the same way as benefits to generated users, and exclude any benefits to existing users and benefits to bellyhold freight that may be gained from increases in passenger air traffic movements.
- Producer benefits: these are financial benefits to airport companies gained from increases in passengers; however, benefits to airlines as a result of increased airport capacity have not been calculated.
- Government revenue: this is gained from increases in air passenger duty generated by increases in passengers using the South East airports.

4.20 The net economic benefits (SERAS document, Table 14.6) are calculated by subtracting from the direct economic benefits the capital costs of providing and maintaining the additional airport infrastructure associated with each option. As the DfT's Stage II Economic Appraisal report acknowledges, these direct economic benefit calculations are conservative in that no account is taken of:

- Suppressed traffic at the peak of daily and annual demand.
- The market premium that Heathrow currently enjoys.
- Benefits to airlines including those from reduced aircraft delays as a result of higher airport capacity.
- Indirect benefits to the economy in general, principally from lower business costs.
- The wider economic benefits mentioned above.

4.21 Chapter 14 of the SERAS document contains information on the potential capacity gains (SERAS Table 14.3) and potential direct economic benefits (SERAS Table 14.6) generated by the packages assessed. For comparative purposes, this information has been pulled together into Table 4.1 below, which shows the capacity gains and the direct economic benefits of each of the packages over and above the maximum use scenario.

4.22 The maximum use scenario is estimated to add 47.5 mppa capacity to the South East system prior to the addition of a new runway, principally through increases of around 20 mppa capacity at both Stansted and Luton (SERAS Table 14.3). The direct benefits of this capacity gain in present value terms are forecast to be £6.7 billion (SERAS Table 14.6).

4.23 The table below also shows, in the third column of figures, the value of providing capacity in terms of additional £billion of direct economic benefits per million passengers capacity gain. This third column is important, because it enables a direct comparison to be made between all the options, showing which offer the most benefits per capacity increment.

4.24 What the third column clearly reveals is the significant influence that Heathrow has in generating direct economic benefits, as only those packages which include an additional runway at Heathrow show a ratio of additional benefits per capacity gain of 0.15 or greater (ie £150 million of direct economic benefits per million passengers). For three new runways, the packages containing one new runway at each airport provide the

most optimal direct economic benefit per capacity gain, after those packages which contain two new runways at Gatwick. The Cliffe option, on this assessment, represents the worst value, with just £90 million of direct benefits per million passengers capacity.

Table 4.1: Summary of comparative capacity gains and economic benefits of the SERAS runway packages

South East runway packages	Capacity gains above maximum use	Direct economic benefits	Additional £billion direct economic benefits per mppa capacity gain
One new runway (i)			
LHR +1	27 mppa	£5.3 billion	0.20
LGW +1 2011 (CPR)	15.5 mppa	£1.9 billion	0.12
LGW +1 2011 (WSR)	36.5 mppa	£4.4 billion	0.12
LGW +1 2024 (CPR)	15.5 mppa	£1.5 billion	0.10
LGW +1 2024 (WSR)	36.5 mppa	£3.1 billion	0.08
STN +1	47 mppa	£4.3 billion	0.09
Two new runways (ii)			
LHR +1/STN +1	74 mppa	£11.1 billion	0.15
LHR +1/LGW +1 2021	38.5 mppa	£7.9 billion	0.20
LHR +1/LGW +1 2024	38.5 mppa	£7.8 billion	0.20
LGW +1/STN +1	59.5 mppa	£7.0 billion	0.12
STN +1/LGW +1 2024	59.5 mppa	£7.1 billion	0.12
LGW +2	68.5 mppa	£9.4 billion	0.14
LGW +2 both in 2024	68.5 mppa	£7.5 billion	0.11
STN +2	67 mppa	£7.4 billion	0.11
Three new runways (iii)			
LHR +1/LGW +1/STN +1	89.5 mppa	£14.3 billion	0.16
LHR +1/STN +1/LGW +1(v)	89.5 mppa	£14.6 billion	0.16
LHR +1/STN +2	94 mppa	£14.2 billion	0.15
LHR +1/LGW +2	95.5 mppa	£18.6 billion	0.19
LHR +1/LGW +2 2024	95.5 mppa	£15.9 billion	0.17
LGW +1/STN +2	92.5 mppa	£10.2 billion	0.11
STN +2/LGW +1(v)	92.5 mppa	£10.7 billion	0.12
LGW +2/STN +1	112.5 mppa	£15.9 billion	0.14
STN +1/LGW +2 2024	112.5 mppa	£15.0 billion	0.13
STN +3	94 mppa	£11.1 billion	0.12
Four new runways (iv)			
Cliffe 4 runways	113 mppa	£10.6 billion	0.09

Notes

CPR = close-parallel runway; WSR = widely-spaced runway

i In the one new runway packages, the runway is assumed to open in 2011, with the exception of Gatwick where an opening date of 2024 is reported.

ii In the two new runways packages, the runways are assumed to open in 2011 and 2021, with the exception of Gatwick where an opening date of 2024 is reported.

iii In the three new runways packages, the runways are assumed to open in 2011, 2018 and 2024, except at Gatwick where an opening date of 2024 for two new runways is reported.

iv In the four new runways package, two runways are assumed to open in 2011 and two more in 2021.

v For the two and three new runway packages the Gatwick close-parallel runway option figures have been used. In general, the wide-spaced option is forecast to generate a 21 mppa greater capacity and around £2 billion greater direct economic benefits than the close parallel option.

Wider economic benefits

4.25 The SERAS analysis also identifies (paragraphs 14.32–14.37 and Table 14.7) some of the wider economic benefits that can be generated from the provision of additional runway capacity. These include potential increases in productivity in the economy, improving the speed and reliability of market access for goods and services, potential increases in foreign direct investment and trade, business travel and tourism. Table 14.7 shows that the greatest wider economic benefits occur in those same combinations of new runways (LHR+1/LGW+1/STN+1 or LGW+2 with any other one) where the greatest direct economic benefits occur.

4.26 In relative terms, these wider benefits have a far greater impact on the economy than the direct economic benefits. For the South East airports, the overall economic benefits that could be obtained from the provision of additional runway capacity are highest at airports that already have established links to the City and to London in general (SERAS document, paragraph 15.6).

Social contribution of aviation

4.27 Thirty years ago, flying was the privilege of the better off. Now, flying is within reach of the vast majority of the population. Polls undertaken by MORI for the Freedom to Fly Coalition have revealed that nine out of ten Britons have flown, that half of us do so every year, and that eight out of ten of us expect to fly as much, or more often, in future. This situation has developed as a result of a number of factors. Incomes have been rising in real terms as air fares have been falling, making flying more affordable. Falling air fares have partly been stimulated by the provision of additional airport capacity at Stansted and Gatwick airports, which has stimulated greater competition between airlines in the South East. And low-cost and charter airlines have offered an increasing range of services, from a variety of airports, to suit different markets.

4.28 While the increase in the amount and variety of flights has enabled Britons to take more holidays abroad, it has also increasingly enabled them to visit friends and family, both elsewhere in the UK and abroad. People have always moved away from home, to other parts of the country or overseas. But in the past, a family emigrating to America or Australia, for instance, was often seldom, if ever, to be seen again. Air transport has made it possible for friends and families to visit each other, however far apart they have become geographically. It is also very important for Britons whose origins are from other countries, as they can visit and be visited by their families.

4.29 But air travel has opened access to cultural exchange too, giving Britons the chance to visit and learn about cultures and heritage that previously they could only read about, watch on the television or see in museums. This works both ways, as the UK is an important cultural destination for travellers from all over the world. However imperfect, the UK – and London in particular – is still one of the most cosmopolitan, culturally-diverse and ethnically-tolerant places in the world, and air travel has helped make this possible.

4.30 The availability of air travel to a greater number of Britons not only serves to promote social inclusion, but also enhances personal mobility which is an important factor both in terms of quality of life and in ensuring workforce mobility and flexibility.

Regional economic and social benefits

4.31 The responsible growth of aviation can help spread the economic and social benefits which air travel generates to every region of the UK. Effective regional policy can ensure that the employment and wealth benefits created by growing airports can be tapped both by communities which are currently economically and socially disadvantaged, promoting social inclusion and economic well-being, as well as those which are located in

more economically buoyant areas. The principal levers available to Government to achieve this are to be found in the regional planning policy framework, most notably through land-use designation, for housing, and the co-ordination of road and rail infrastructure, for transport access.

4.32 The importance of the regional economies of London, the South East and East of England to the health and competitiveness of the national economy is recognised and the need for their continued and improved performance is reflected in the Government's regional planning policy guidance. For example, Policy RE 1 of Regional Planning Policy Guidance for the South East (RPG 9) indicates that "the regional economy should be supported and further developed to ensure that it contributes fully to national growth and follows the principles of sustainable development." Guidance goes further to reflect the fact that while buoyant local economies can suffer from localised problems these should not be allowed to constrain continued economic prosperity.

4.33 In the Western Policy Area (stretching from Heathrow in an arc to Gatwick), RPG 9 states that "positive strategies should be developed for areas where congestion or labour or land shortages are constraining economic growth. 'Hotspots' should be identified and specific policies developed to tackle local problems." (Policy RE 8).

4.34 Similar guidance is given in respect of the Cambridge sub-region in RPG 6 (Regional Planning Guidance for East Anglia) where, among other requirements, it is stated that the vision and planning framework for the sub-region should "allow the sub-region to develop further as a world leader in research and technology based industries and the fields of higher education and research," and "foster the dynamism, prosperity and further expansion of the research and technology-based economy." (Policy 21).

4.35 Heathrow is well placed to support and serve the high value-added economic activities of London and the western sector stretching into the Thames Valley. Gatwick and Heathrow together serve the western arc, additionally Gatwick's good links with the South Coast provide potential for supporting less well-performing coastal areas. Stansted serves London and connects the economically buoyant Cambridge sub-region and areas along the M11 corridor with areas of North and East London, including the Thames Gateway. These latter areas all need regeneration, and synergy with existing buoyant economic zones can only increase their potential, as can an improved perception of an area through its increased international accessibility.

4.36 Through its partnership working with the relevant Government agencies and regional and local authorities, BAA continues to produce strategies at each of its airports that focus on facilitating employment and skills generation in areas of regeneration, complemented by the availability of cost-effective public transport services. BAA believes that, were the Government to decide that a new runway should be built at one or more of its existing South East airports, then BAA's employment and surface access strategies at those airports would be capable of maximising the economic and social benefits which that development could generate.

4.37 In the context of future additional runways, BAA recognises that it will be important for the Government to have regional planning policies that take a balanced approach. The principal issues would be the availability of suitable land to provide the amount of housing required to support the development and, in particular, the ability of existing road and rail infrastructure to be expanded in ways which would be likely to have the most positive effects on the economy.

4.38 In relation to housing, we believe that the SERAS document overstates the employment impacts within areas adjacent to its three main airports and that this in turn leads to an overstatement of the land needed to support the forecast levels of employment.

4.39 This arises in two ways. First, there are features of the assessments for particular airport sites which affect the results. At Heathrow, the employment levels in the common base year of 1998 were atypical: four years on, in 2002, when Heathrow had grown from 60 mppa to 63 mppa, on-airport employment had fallen by 5% from 1998 levels. And at Stansted, the forecasting base has been over-estimated because in 1998 direct employment did not exist outside the airport boundary as had been assumed by the study.

4.40 Second, in our view, there are also features which are common to all the assessments which further affect the results. We would apply an employment productivity rate of 2.5% up to 2015, based on our experience, while the SERAS study applies a lower rate of 1.5%, which suggests a higher employment-passenger ratio than we believe is likely. We also believe that the common multiplier of 0.3, which the SERAS study uses to calculate indirect employment numbers from direct employment levels, is too high when applied to the catchment areas of the scale set out in SERAS. In addition, we believe that SERAS has drawn the core and wider catchment areas for all additional direct and indirect employment too narrowly.

4.41 In relation to surface access, BAA believes it has identified preliminary surface access strategies at each of its airports which could provide the amount of road and rail infrastructure needed to make runway developments deliverable, and these are discussed in the relevant airport chapters. These strategies would enable passengers and employees to access the airport and also enable the spread of economic and social benefits to the region, and would do so in a well-integrated way with the minimum of additional road widening.

Environmental effects of aviation

4.42 In the SERAS document, the Government identifies four kinds of environmental impacts caused by aviation: climate change, air noise, local air quality, and surface access. BAA recognises that progress needs to be made on all of these issues by those who contribute to their effects on the environment. Improvements in performance beyond that which is being delivered today will be required from those who influence local levels of noise and air quality. In this section, we set out how the aviation industry should be tackling these issues and what role we believe the Government should have in setting a policy framework to manage the environmental impacts of aviation at international, national and local levels.

4.43 As we have already said, BAA agrees that, in common with other industries, aviation should cover its external costs. However, we do not believe that simply monetarising and internalising these costs is the solution to the environmental impacts. It is possible – likely even – that cost internalisation, such as through a tax, will leave air users covering the value of the impacts of flying, but leave the impacts unresolved.

4.44 We therefore believe that smart, effective economic instruments need to be identified which internalise external costs by encouraging the aviation industry directly to reduce or mitigate its impact. Such a mechanism would allocate resources in an economically efficient manner, unlike a blunt fiscal instrument like Air Passenger Duty (APD), VAT or a potential fuel tax. In this respect, BAA welcomes the recent publication by the DfT of 'Aviation and the Environment: Using Economic Instruments', a consultation document on this subject, and we will be responding to the DfT on the issues raised in due course.

Climate change

4.45 BAA recognises that one of the most important environmental issues facing aviation is its contribution to greenhouse gas emissions. While aviation currently accounts for only 2–3% of global carbon dioxide emissions, compared with 25% from power generation, the Intergovernmental Panel on Climate Change's central forecast is that this figure could rise to 6% by 2050.

4.46 In terms of the climate science, there is no denying that the Earth can tolerate a limited capacity of greenhouse gas emissions. Some CO_2 emissions are therefore acceptable, as long as they are in moderation. Globally, the Earth's capacity to handle greenhouse gases needs to be treated as a valuable asset, available to those users who value the environmental capacity most highly and are prepared to pay a premium to use it. Many key activities, not least meeting basic human needs, will take up some of this environmental capacity, but we believe that aviation should be one of the premium users, and we want to make this case strongly, given the economic, social and cultural benefits aviation brings.

4.47 Over the last 40 years, technological advances by aircraft and engine manufacturers have made today's aircraft 70% more fuel efficient than their predecessors. However, the aviation industry in general recognises that further significant advances are required to meet the climate change challenge outlined above. The ability of technology to deliver incremental performance improvements will be outstripped by the rate of growth of flying, and there is no credible alternative to aviation kerosene in prospect within the next 50 years.

4.48 Greenhouse gas emissions from domestic aviation, including those emissions from all airports, are already included in the UK's climate change targets under the Kyoto Protocol. However, international aviation emissions have until now been excluded from national targets, because of the difficulty of allocating emissions between member states. BAA believes that international aviation emissions should be brought within the Kyoto framework as soon as possible.

4.49 Both BAA and the UK air transport industry, through the Freedom to Fly Coalition, believe that the most efficient solution to address aviation's contribution to climate change is by a system of tradeable permits in emissions, through an environmentally-credible emissions trading system which is open and international. It will force the aviation industry to make a choice: either cut its emissions, or pay for other industries to deliver identical emission reductions.

4.50 Emissions trading is a more effective alternative to proposals for a blunt tax, such as higher APD or a charge on fuel. As such, both BAA and the UK air transport industry would argue that any new system which internalises costs already being captured by APD should replace APD, so as to avoid paying twice for the same impact.

Air noise

4.51 Air noise is a social-environmental impact, rather than strictly an environmental pollution issue. This is because noise does not have a lasting impact on the planet, in the way that greenhouse gases or the depletion of natural resources does. However, for the people living under a flightpath or close to an airport, noise is a very big issue and it is integral to locally sustainable and responsible development. And there is no escaping the fact that new runways will lead to changes in the noise impact around airports.

4.52 Over the past three decades there have been significant improvements in the levels of air noise, in part due to international action to phase out noisy engines. But we accept that responsible development means that the efforts by airlines and airports to reduce the noise impacts of their operations must make further progress if existing and future developments are to be considered acceptable. BAA's approach is a combination of regulatory, operational, mitigating and compensatory measures, which vary from airport to airport, depending on local circumstances.

4.53 We are therefore actively lobbying alongside our trade association, the Airport Operators' Association, for more stringent international controls on noise at source. We believe that the following proposals are both realistic and technically achievable:

- The phase out of all marginally compliant Chapter 3 aircraft by 2006.
- The complete phase out of all remaining Chapter 3 aircraft no later than 2015 with the simultaneous introduction of a new Chapter 5 (equivalent to at least Chapter 3 minus 14 dB).
- The introduction of yet more stringent rules by no later than 2030, together with the accompanying phase out of Chapter 4 aircraft.

4.54 BAA has also developed measures, in conjunction with airlines and NATS, which have been designed to address particular local issues. Examples of these measures include:

- A voluntary ban on scheduled QC4 night movements at Heathrow since 1996 and at Stansted since 2000.
- Arrival/departure procedures at all three South East airports to minimise the noise of aircraft at landing and take-off.
- Departure track-keeping trials at all three South East airports to ensure aircraft keep to noise preferential routes in order to limit noise impact on the ground to areas beneath those routes.
- Promotion of 'continuous descent approach' procedures which reduce noise from arriving aircraft.
- As far as possible, consistent with flight safety, no use of reverse thrust on landing at night at all three South East airports.
- Measures to manage high-power engine running at all three South East airports.
- Fines for infringements of the noise limits by departing aircraft at all three South East airports.
- Day and night time differential landing fees according to aircraft noise categories at all three South East airports to encourage airlines to use quieter aircraft.
- Voluntary noise insulation schemes at Heathrow and Stansted.
- Restrictions on the use of aircraft engine ground power sources at all three South East airports and the promotion and provision of fixed electrical ground power on new, fully operational stands.

4.55 BAA recognises, however, that even a vigorous programme of measures of this kind, plus future measures, will not alter the fact that runway development will increase the numbers of those affected by aircraft noise and that it will be right to agree compensation. More detailed information on this matter can be found in our response to Question 18 at the end of this document.

Air quality

4.56 Because of the potential health impacts of some ground-based pollutants at certain levels, BAA recognises that the Government needs to be confident that levels of all relevant pollutants could be consistently contained within the EU Directive limits due to apply in 2010. Aviation emissions should not cause people to live in areas where the quality of air is unacceptable.

4.57 The two sensitive sites in terms of air quality effects are Heathrow and Gatwick, and so in looking at air quality generally we have focused principally on the results of the work which has been undertaken by the DfT for those locations. Details about the work BAA has undertaken with the Government's consultants during the consultation period to investigate the air quality effects at the three main BAA South East airports can be found in the chapters on each airport, and in Appendix 2 at the end of this submission.

4.58 The analysis undertaken for SERAS was based on the best available knowledge at the time, but it nevertheless contained a number of limitations. BAA commissioned detailed air quality work to try to address the uncertainty in the modelling, as well as the need to demonstrate how air quality impacts could best be

mitigated, as appropriate. We have developed a revised model which is consistent with the overall SERAS approach but which we believe is more accurate in predicting future concentrations of NO_2 in the local community. The results from this work are important because they offer a more accurate starting point from which to assess the benefits of alternative mitigation scenarios.

4.59 In summary, BAA believes that advances in aircraft engine combustion technology will reduce emissions of nitrogen oxide. Added to this, the provision of fixed electrical ground power and pre-conditioned air on aircraft stands, together with operational procedures designed to reduce aircraft taxi times and the increased use of cleaner-fuelled vehicles will all contribute to reduced emissions at airports. Our assessment is therefore that the Government significantly over-predicts the number of people likely to fall within areas where the EU Directive limit for NO_2 would be exceeded.

4.60 It also needs to be recognised that a significant proportion of pollutants in the vicinity of airports arise from road traffic in the surrounding areas, most of which is not related to the airports at all. In the case of Heathrow, 15% of road traffic at peak times on the major trunk roads in the area is airport-related. The analysis presented in Chapter 5 on Heathrow shows a significant contribution of non-airport sources at those locations where exceedences are predicted. Consequently, action to improve local air quality levels cannot solely rest with airports. A wider approach is required, bringing together the relevant influential organisations in the area concerned.

Surface access

4.61 Good surface access will be key to the deliverability of new runways in the South East. BAA has an established track-record of investing in surface access and public transport improvements in order to support the growth of our airports. We have sought to facilitate the delivery of high-quality rail services at our South East airports, in particular the popular Airport Express services. Most notable is the £500 million investment in Heathrow Express, now being supplemented with a further £370 million investment to extend both it and the Piccadilly Line service to Terminal 5. In addition, BAA has contributed funding and marketing support of bus and coach services for both staff and passengers.

4.62 Rail is a key component of the preliminary surface access strategies that BAA has identified to support runway options at its three London airports. During the consultation period, BAA has worked very closely with the SRA to develop a joint understanding of deliverable rail options at each of its airports, and the results of that work are reported in Chapters 5, 6 & 7 and in Appendix 1 of this document.

4.63 The preliminary surface access strategies all identify some selective road infrastructure improvements which are necessary to complement the rail options. Part of BAA's general approach to its future surface access strategies recognises the need for airports to be able to manage future modal choice better. We are therefore asking the Government to issue us with powers to implement Road User Charging (RUC) schemes at our airports, with revenues hypothecated directly to airport-related transport improvements.

4.64 We believe that decisions about the development and funding of future rail schemes to airports and RUC powers for airports are vital parts of the Government decision-making process for new runways in the South East. We also believe that arrangements will need to be established to ensure that detailed and well-integrated transport strategies are funded proportionate to the value that airport and non-airport traffic derives from them, and also delivered speedily following any decisions to develop further runway capacity.

Targeting action at the appropriate level

4.65 We believe that a mix of measures should be adopted to address the external environmental impacts of aviation, ranging from international negotiations to local action. Government action, at both international and national levels, to reduce environmental impacts provides the most effective action in reducing noise and air quality emissions at source.

International action

4.66 The way in which the Government engages with the International Civil Aviation Organisation (ICAO) and the European Union (EU) in the international framework of environmental regulation is described in paragraphs 16.2–16.23 of the SERAS document. These paragraphs describe, among other things, the consolidated statement of ICAO policies and practices relating to environmental protection, known as Resolution A33–7, and how the contribution which aviation makes to climate change can best be managed.

4.67 We believe that the only effective way to tackle the aviation industry's contribution to climate change is at international level. The Kyoto Protocol, to which the UK Government is a signatory, requires action to be taken through ICAO to reduce emissions from international flights. ICAO, through the Committee on Aviation Environmental Protection (CAEP), has explored three market-based measures: emissions trading; emissions-

related levies and voluntary agreements. It is in the process of commissioning consultants to work up detailed options for an open emissions trading scheme, ie one that enables trading with other sectors, a measure which BAA supports. This will make several specific recommendations on key design issues for consideration by the CAEP working group addressing this issue.

4.68 BAA supports the influence which the Government continues to exert within the ICAO and CAEP process. The achievements to date and the scale of the task which remains are clearly described in Chapter 16 of the SERAS document. In the medium to long-term we believe that the Government should continue to work within the EU to achieve consensus on measures to reduce emissions and noise.

4.69 We also support the balanced approach to noise management in line with ICAO policy and agree that the best way to deliver improvements to the noise climate around airports is on an airport-by-airport basis. BAA is working with the Government, our airline customers and local stakeholders to help deliver improvements in each of the four elements of noise management which Resolution A33–7 identifies.

4.70 The Government's efforts should also be directed towards measures to enable economic instruments to be applied in pursuit of environmental improvements, where locally appropriate. In addition, BAA strongly supports the use of both contractual and voluntary agreements for controlling noise impacts as a means of securing continuous improvement. These measures have been effective with National Air Traffic Services (NATS) and airlines in promoting continuous descent approaches and in greatly improving track keeping at our airports.

4.71 In relation to the proposals in the 'horizontal' directive (SERAS document, paragraph 16.10) to replace the Leq noise index by the less familiar Lden, BAA remains opposed to any move to take this work on harmonising measurement systems further in order to impose noise limits at airports which are not determined locally and which might not reflect the environmental, social and economic priorities of the community.

National action

4.72 BAA strongly supports the consensus which the Government observed in the responses to 'The Future of Aviation' consultation about what its priorities should be for tackling key environmental impacts at national level, and which are described in paragraph 16.25 of the SERAS document. We favour this order of priorities and follow this approach wherever possible at our airports, although we have a small number of further points to draw to the Government's attention.

4.73 In order to support voluntary or contractual arrangements between the airport operator and third parties, the Government should consider giving airports additional powers to develop schemes to incentivise, or enforce if necessary, improved performance in order to reduce the external environmental impacts. We also strongly believe that any form of constraint or incentive, including the use of economic instruments, should reflect local sensitivities and circumstances.

4.74 Finally, we are concerned that existing methods for predicting aircraft emissions and simulating their contribution to local ground level concentrations remain subject to significant uncertainty. BAA recognises that significant improvements in dispersion modelling have been made and that the model used by SERAS has been widely compared to experimental, although predominately non-airport, data. Notwithstanding this, there is significant uncertainty on the behaviour of aircraft exhaust emissions and the subsequent modelling of their dispersion effects. It is because of these uncertainties that present modelling assumptions are designed to over-estimate the near-field concentration contribution from aircraft. BAA's work in recent months does, we believe, offer a real prospect of a better understanding of these issues. The Government should support or sponsor further research in this area to build on what BAA has done to enable more accurate assessments to be made of the impact of aircraft on local air quality.

Local action

4.75 In spite of any significant advances that might be achieved from government action at a national and international level, there will still remain local environmental impacts from the activities of aviation. With the exception of airborne aircraft noise and land-take (where UK airports are among the most efficient in the world), airports are not the sole contributors to local impacts. In particular, air pollution and non airport-related road traffic noise from road traffic have significant environmental impacts around airports and, as we have already indicated, their management needs an area-wide approach to find solutions and reduce the effect on local communities.

4.76 In accordance with the governmental priorities mentioned above, we are determined to work with other parties in the industry to remove or minimise the negative environmental and social effects of aviation growth. Where these impacts cannot be avoided, the aviation industry should compensate for its environmental impacts either financially or by making improvements in other areas.

4.77 Experience of major local public inquiries leads all parties to welcome and encourage the prospect of moving away from an adversarial approach such that appropriate legal agreements, commitments and undertakings can play a part in the settlement of issues at local level. Such agreements may not remove the need for local public inquiries, but they could significantly influence the time such inquiries would take and the spirit in which they were conducted. BAA believes that such a process would be underpinned if the Government was able through measures set out in the White Paper:

- To encourage local and regional planning authorities and other stakeholders to engage positively with the airport operator in the long-term planning of an airport.
- To avoid pre-determined and uniform barriers to development in the form of national set limits for local environmental impacts, and to allow local agreements to be forged.

4.78 We believe that the best opportunity to reach local agreements is when all parties recognise and assess an airport's contribution to positive and negative impacts, so that agreements can contain mechanisms for delivering the positive benefits as well as controlling adverse impacts, in an area-wide context.

4.79 For new capacity to be delivered over a 30-year period, the local environmental impacts of air noise, air quality and airport-related transport congestion must be addressed. The aviation industry has made considerable progress in these three key areas over many years, but BAA recognises that further efforts will need to be made to ensure any new runway development in the South East is sustainable, and that UK aviation must also meet its responsibility to tackle its climate change impacts.

Chapter 5: Heathrow

5.1 Heathrow Airport is the world's busiest international airport with 63 mppa (million passengers per annum). Its two runways and four terminals accommodate approximately 90 scheduled airlines, which fly to around 170 different destinations. No other airport in the world handles such a large volume of traffic from such a limited runway system. It is the jewel in Britain's aviation crown, and with Terminal 5 currently being built and due to open in 2008, Heathrow is well-placed to retain its position as Europe's premier international gateway and consolidate the tremendous economic benefits which it brings to Britain.

5.2 The Government has only one proposal for consultation at Heathrow: a short (2,000-metre) runway to the north of the airport, on land between the A4 and M4. However, Heathrow features in a number of options where more than one runway would be provided in the South East during the 30-year horizon of the White Paper.

5.3 BAA's principal interest at the outset of our appraisal of the Heathrow option was to understand how the new runway would perform in aeronautical terms, ie whether its operation could be integrated efficiently with the operation of the existing airport for the purpose of maximising the release of additional runway capacity. But it was also vitally important to understand the impacts of the option on the environment and local communities, so our work has also focused on how best to achieve the increment in capacity stated in the SERAS document with the minimum negative impact.

5.4 In this Chapter, we therefore consider the airport layout issues associated with both the maximum use of the current runways, and a new runway. We also consider the road and rail links which would be needed to support growth, the impacts on communities and the environment, in terms of land and housing, air noise and air quality, and what measures would be needed to address these impacts. Finally, we briefly consider the financial appraisal of the Heathrow runway option, and examine any implications for regional planning.

5.5 In Chapter 3 of our submission, we call for Government decisions in the new White Paper on where a new runway is most urgently needed and on those other sites in the South East where, over the 30-year period, new runways will be required. In answer to SERAS Question 1 at the back of this document, we say that the Government should make a choice of up to three runway sites from the SERAS runway options at Heathrow, Gatwick and Stansted.

5.6 BAA is satisfied that a Heathrow short-runway option could work from an aeronautical and airport operational point of view. We have also carried out our own preliminary work on airport layout, rail and road access, air quality, and other aspects, in order to add our views on those matters to the assessment work reported in the SERAS document.

5.7 In our view, taking everything we know now into account, a scheme for a new 2,000-metre runway at Heathrow should be included in a shortlist of four possible sites, from which the Government would select up to three in the White Paper, in order to provide capacity in the South East over the next 30 years. This conclusion assumes the implementation of appropriate funding arrangements which we outline in Chapter 3, as well as a process which we describe in Chapter 13 to allow airport operators to expedite proposals quickly and safely. It will be for the Government to decide whether measures needed at Heathrow substantially to reduce the predicted environmental effects can be delivered, and that fair and effective arrangements for mitigating and compensating for the significant local community impacts can be put in place.

Layout issues

Maximum use case

5.8 The SERAS document identifies the Heathrow maximum use case as one where Heathrow has five passenger terminals and the existing two main runways operating in segregated mode as they do now. It is assumed (Tables 7.1, 14.2 and 14.3) that the throughput associated with this case is 89 mppa carried on 480,000 atms (air transport movements). This maximum use case does show passenger and aircraft handling facilities within the existing airport boundary additional to those currently provided at Heathrow (but no additional passenger terminal).

5.9 In line with our comments elsewhere in this response in support of the maximum use being made of the existing number of runways in the South East, and the need for sufficient passenger and aircraft handling facilities to be provided in support of runway capacity, BAA wishes to see the need for such developments at Heathrow acknowledged in the new White Paper, whether or not a new runway is to be provided.

A new runway

5.10 The SERAS Heathrow option envisages a new 2,000 metre long runway built to the north of the existing airport, which would only be used by smaller, narrow-bodied aircraft. It is proposed that the new runway would be used for both landings and take-offs, while the two existing runways would continue to operate in segregated mode with alternation, as they do now. The SERAS document states that this option under these arrangements would increase Heathrow's capacity from about 90 mppa to some 116 mppa.

5.11 Under the option in the SERAS document, no new aircraft parking stands or passenger facilities are envisaged, so aircraft using the new runway could only gain access to aircraft parking stands by crossing Heathrow's existing northern runway. The assessed capacity of the new runway implies that an average of 38 aircraft would need to cross the existing northern runway in most hours of the day. Our assessment is that the level of activity on the existing northern runway is such, however, that gaps between aircraft movements are typically not long enough to allow aircraft to cross that runway.

5.12 Consequently, spacings between aircraft using the existing northern runway would have to be increased to allow aircraft access to and from the new runway. Based on BAA's preliminary assessment, this would lead to a materially greater reduction in the use of the existing northern runway than has been suggested by the DfT's consultants. As the northern and southern runways operate in segregated mode, any capacity reduction on the northern runway would be mirrored by capacity reductions on the southern runway. We believe that the additional capacity of Heathrow, with three runways, operating in the configuration shown in Figure 7B of the SERAS document, would therefore be less than half the 27 mppa stated in the SERAS document.

5.13 If it is the Government's objective to maximise the additional runway capacity which could be provided by a 2,000 metre runway, then it would be necessary to provide aircraft stands and passenger handling facilities north of the Bath Road to serve the new runway. This would enable aircraft using the new runway to avoid having to cross the northern runway. Such an arrangement was illustrated by option E5 from the DfT's Stage 1 Report, though alternative layouts could achieve the same objective.

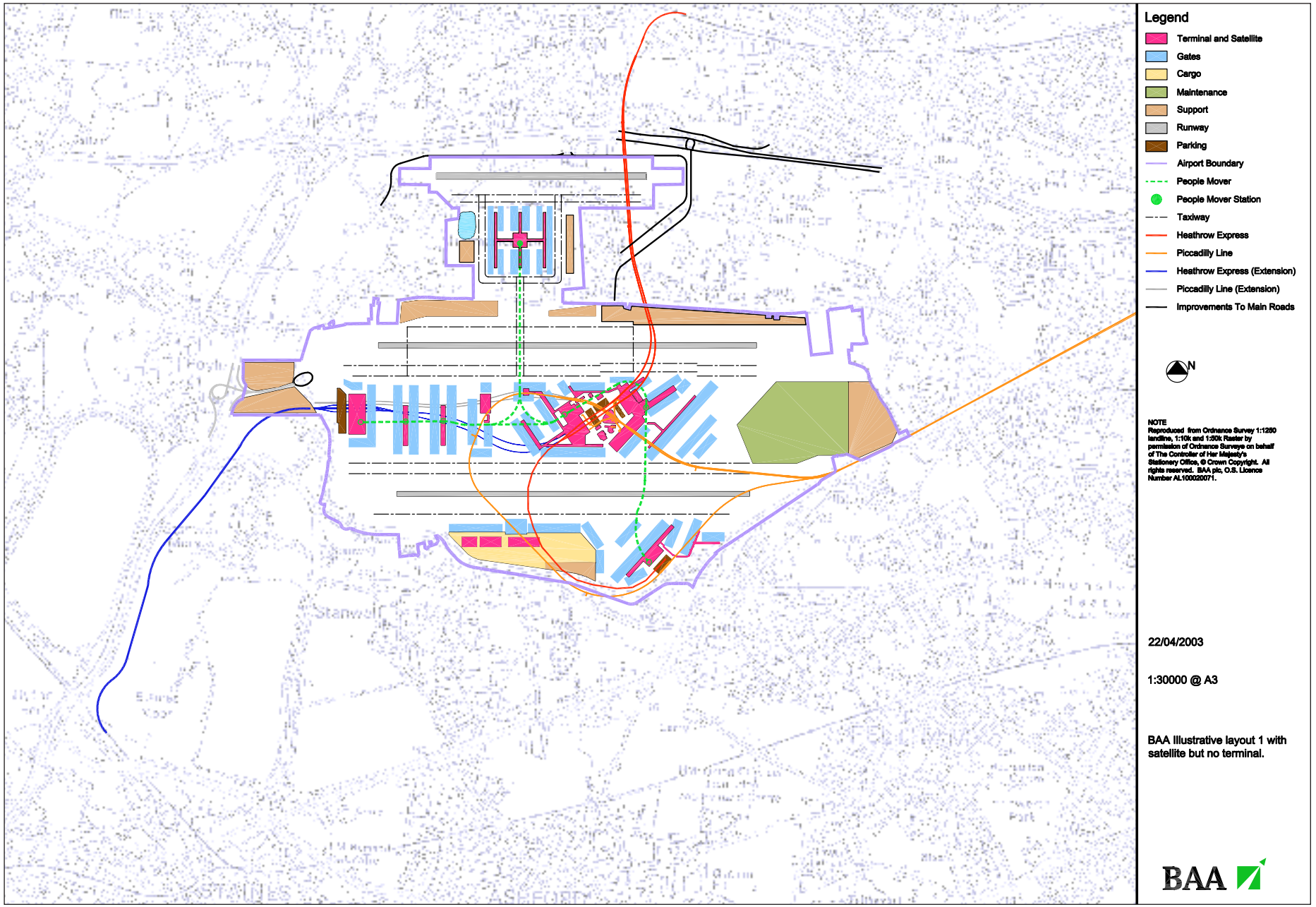
5.14 Making this assumption, BAA has therefore looked at alternative layouts to the SERAS option which would be capable of delivering the increment in capacity from a new 2,000-metre runway stated in the SERAS document in a way which works effectively in aeronautical terms. Four examples are shown illustratively on Plans 5A–5D. Two (Plans 5A and 5B) show the provision of stands and passenger satellite buildings (but not terminal buildings) north of the Bath Road, and two (Plans 5C and 5D) show a passenger terminal building as well as stands and a satellite in that location. For ease of comparison, SERAS options E4 (where passenger facilities are provided within the existing airport) and E5 (where a satellite is shown to be provided north of the Bath Road) are also attached as Plans 5E and 5F respectively.

5.15 These plans should not be regarded as our proposals for another runway at Heathrow. They have been included only to provide the DfT and other interested parties with an idea of the sort of scheme which is more likely to be able to make a throughput of around 116 mppa at Heathrow achievable.

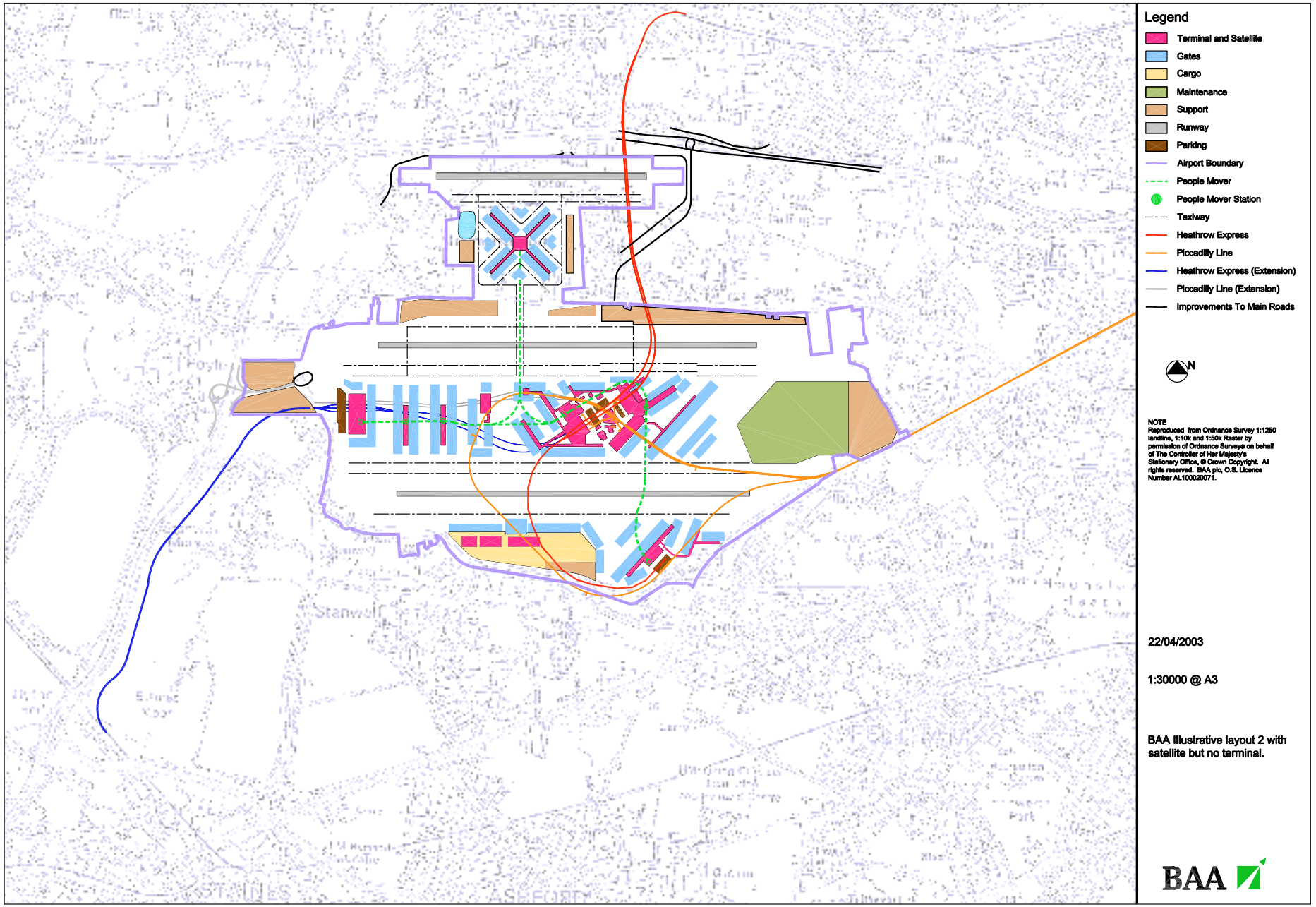
5.16 But as stated earlier, BAA is also concerned to minimise the impacts of any development on the environment and local communities. Therefore, in preparing these plans, we have attempted to limit the number of properties which would have to be demolished and to preserve sites of significant local heritage. We have a regular dialogue with communities which live alongside our airports and this process has continued during the consultation period. We have tried, where possible, to respond to concerns expressed to us. We have, for example, not only tried to limit the number of homes which would have to be taken, but also to limit the effects on those properties remaining which would be in close proximity to the new runway and its associated facilities, and to preserve or replace the local road network which would be affected.

5.17 Each of the four layouts which we have illustrated shares the following key features and assumptions with the SERAS option E4:

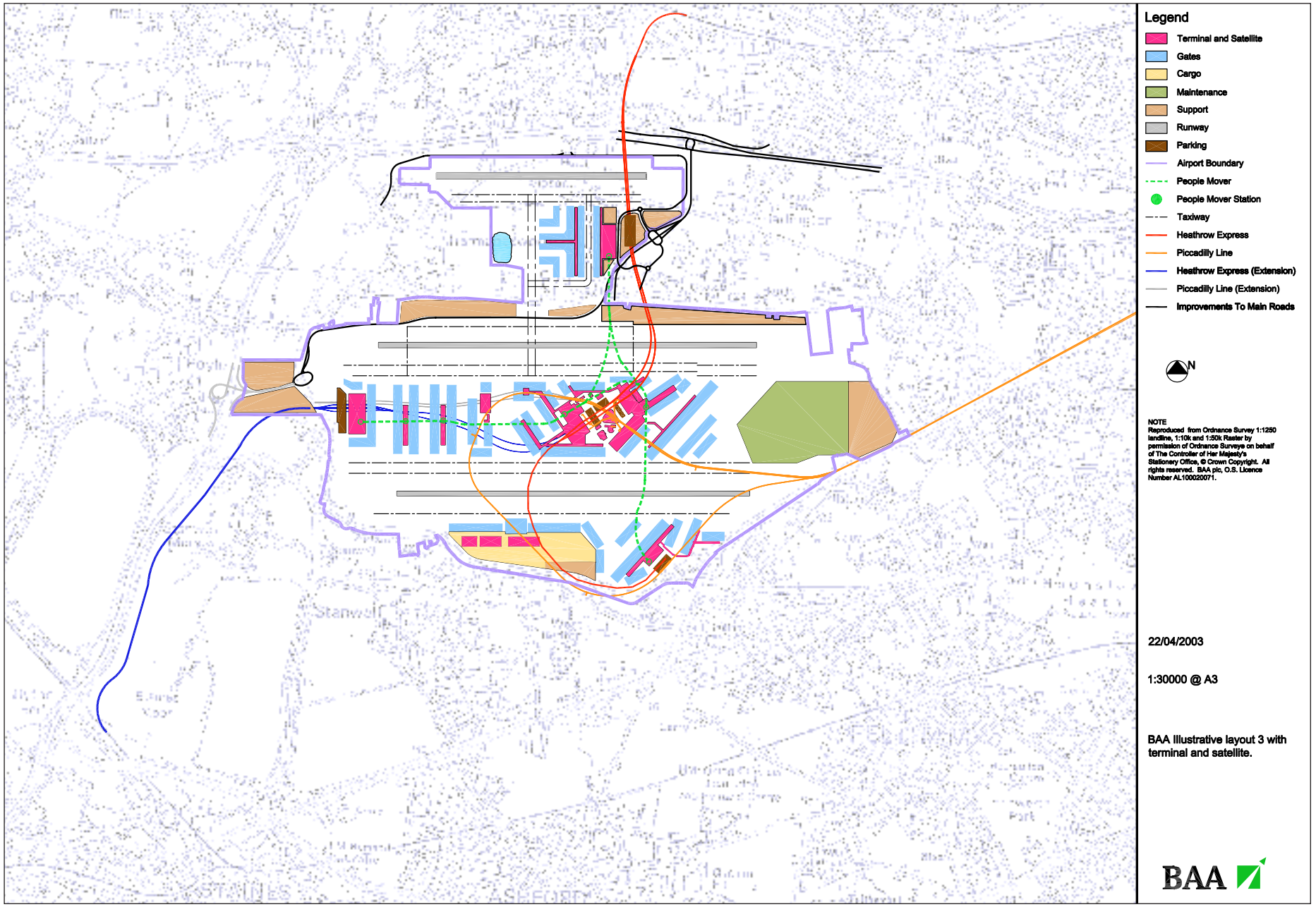
- A new 2,000 metre runway would be located approximately 1,600 metres north of the existing northern runway.
- A dual parallel taxiway system would connect a new runway to the existing airport.
- Total Heathrow runway capacity of approximately 116 mppa.



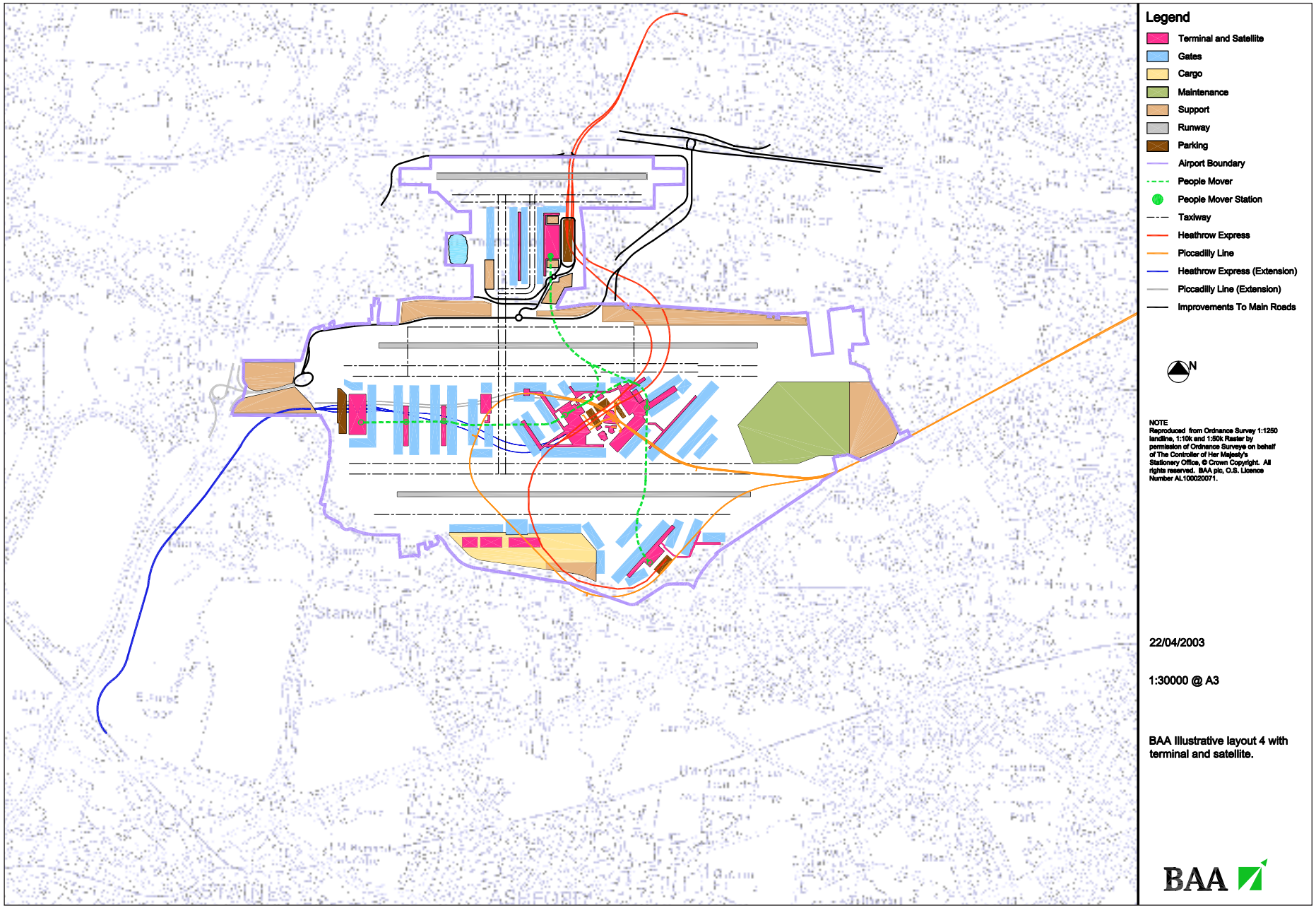
Plan 5A: BAA Illustrative layout 1 with satellite but no terminal.



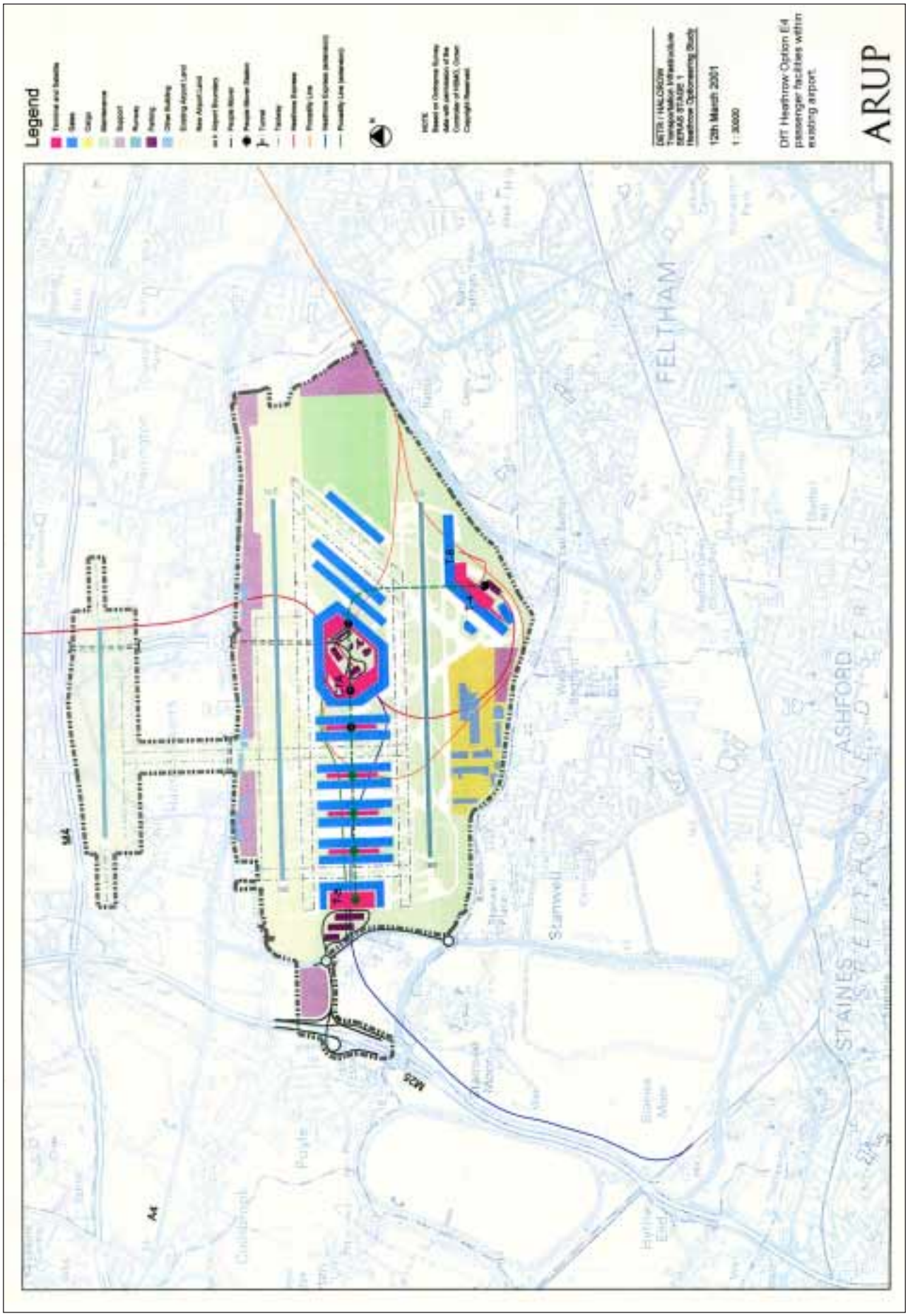
Plan 5B: BAA Illustrative layout 2 with satellite but no terminal.



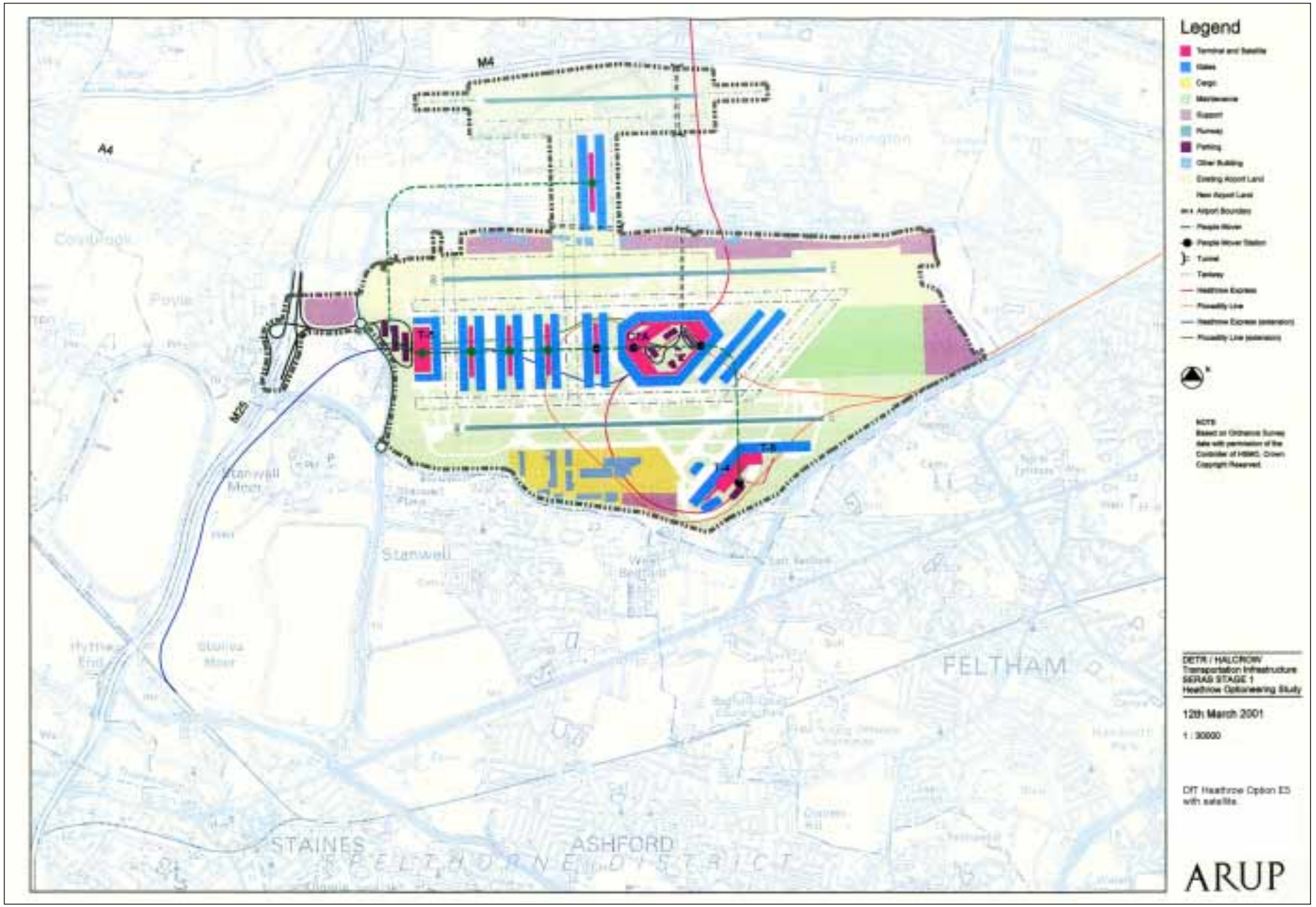
Plan 5C: BAA Illustrative layout 3 with terminal and satellite.



Plan 5D: BAA Illustrative layout 4 with terminal and satellite.



Plan 5E: DfT Heathrow Option E4 – passenger facilities within existing airport.



Plan 5F: DfT Heathrow Option E5 – with satellite.

- The existing runway system would continue to operate in segregated mode, with alternation, but the new runway would operate in mixed mode.
- A new runway would predominantly handle domestic and European short-haul operations.
- A new parallel taxiway would be provided to the north of the existing northern runway for part of its length.

5.18 In addition, we have made further assumptions that are common to all four examples, the most significant being:

- The DfT option runway would be moved 100 metres to the east. This would ensure that the runway's safeguarded surfaces would not be infringed by the M4/M25 interchange, and it would also reduce the impact on the rivers to the west. The runway and taxiway layout which BAA has then been able to devise would enable the Harmondsworth Tithe Barn and St. Mary's Church in Harmondsworth, together with its graveyard, to be preserved.
- In order to achieve the additional capacity claimed for option E4 in the SERAS document it would be necessary to provide a new apron and aircraft parking adjacent to the new runway.

5.19 The satellite-only layouts (Plans 5A and 5B) are conceptually similar to how Terminal 5 will operate, with an airside satellite connected to a passenger terminal by underground and surface links. However, in the arrangements illustrated on the plans, there would be much greater connection distances between the satellites and the existing terminals than is the case at Terminal 5, and this raises questions about operational viability. The satellites shown on Plans 5A and 5B would be separated from their terminals by about two kilometres, and between them would lie a runway and two major roads (the A4 and the airport's Northern Perimeter Road). These aspects significantly increase the risks of providing reliable links between the buildings for passengers, staff, vehicles and baggage, and further work would need to be done to assess those risks.

5.20 The one significant presentational difference between BAA Plans 5A–5D and SERAS options E4 and E5 (reproduced here as Plans 5E and 5F), is the way in which possible additional terminal capacity is represented. The SERAS plans show additional terminal provision in the central terminal area and at Terminal 4 to support the new runway. Our plans show additional terminal capacity at Terminal 5 and in the central terminal area for Plans 5A and 5B and an additional terminal to the north of the Bath Road in Plans 5C and 5D. The terminal extensions shown in Plans 5A and 5B are purely illustrative and would need detailed feasibility studies to identify the best way to extend the existing facilities.

5.21 Each of the layouts shown on Plans 5A–5F would have significant impacts on the local area between the M4 and the A4, with the degree of impacts varying from plan to plan. It will be for the Government to judge whether these impacts are acceptable, although we are very aware of the disruption which they would cause to our local communities. For example, in terms of two aspects of future development at Heathrow that would appear to be most challenging – surface access provision and nitrogen dioxide concentrations – the plans which show direct access by rail to a terminal building north of the Bath Road (Plans 5C and 5D) would have significant advantages in terms of public transport usage and be beneficial in terms of emissions from road vehicles. However, the number of properties which would be lost in one of the examples with direct rail access (Plan 5C) would rise to approximately 700, compared with 260 in other options.

5.22 In our comments on the impacts of a new runway, we have, where possible, commented not just on the reported effects of the SERAS Option E4 but also on whether those effects might change if layouts like those in Plans 5A–5D were adopted. In general terms, since the changes would not necessarily affect the capacity of the option, where differences exist they occur in the effects on land, property and heritage and not in the wider road and rail network provision, noise, air quality or regional planning issues.

5.23 The facilities shown in Plans 5A–5D represent those we believe to be necessary to add to the future two-runway maximum use airport layout (in segregated mode) in order to serve the new runway. BAA has not carried out any detailed work to identify the impact of the three-runway air traffic throughput on the infrastructure provided in the two-runway base case. While the assumption is that the impact is neutral, more detailed work may show that changes in the characteristics of the air traffic using the existing two runways would require further modifications to be made to facilities lying within the existing airport boundary.

5.24 On the basis of the work we have done to date, we believe that we have layout solutions which would make the best use of the capacity of a three-runway airport. All of the potential solutions are capable of being engineered. Given that some passenger handling facilities would have to be provided north of the A4, the provision of satellite buildings only would at this time appear to be a risky option, from an operational point of view, and a passenger terminal building would be preferred on those grounds. The viability of such an option would in large measure depend on the trade-off between the additional land-take and the properties lost, and the better rail and road access which could be provided with a terminal and the consequential benefits in terms of vehicle emissions.

Rail and road links

Rail links

5.25 For the SERAS maximum use scenario, the SERAS document assumes (paragraph 7.12) a new service with two trains an hour from Heathrow to Hayes Gateway and Ealing Broadway. We have wanted to launch such a service for some time and therefore look forward to working with the SRA and the railway industry to secure it. We also await the publication of the SRA's Capacity Utilisation Policy for the Great Western mainline.

5.26 If a new, short runway is constructed, the SERAS document identifies a number of rail services and rail infrastructure options for improving access to Heathrow. BAA has taken specialist advice and has undertaken some preliminary technical work, jointly with the SRA, which is reported in a separate joint submission between the parties included in Appendix 1 of this document.

5.27 The approach to a rail strategy for a new runway must be seen in the context of an evolving rail environment both north and south of Heathrow. In particular, the SRA is currently reviewing future services in the context of its emerging Capacity Utilisation Policy for both the Great Western and South West mainlines, as well as preparing to re-franchise the Great Western mainline. The SRA has additionally stated its objective to improve regional and inter-regional train services to the Heathrow area. Furthermore, proposals for the potential Crossrail project are being considered in advance of securing the relevant procedural powers and funding approval.

5.28 Given this degree of activity and uncertainty, the joint work by the SRA and BAA has considered a number of 'building blocks' for the development of a long-term rail strategy in the Heathrow area. BAA believes that this approach has identified core schemes which are deliverable and which have the capacity to support a new runway development at Heathrow.

5.29 On the basis of BAA's high-level evaluation, we have the following comments:

- Maintenance of quality rail services to London that are attractive to air passengers is vital.
- A derivative of the long-standing 'Airtrack' scheme, with four additional trains an hour connecting Waterloo and Paddington via Heathrow, appears to be the most effective scheme for both improving direct access to Heathrow and improving regional and inter-regional train services for non-airport rail passengers in West London.
- In addition, with the establishment of a former chord at Staines, the potential exists to establish links to Reading (via Bracknell), Guildford and Woking. BAA believes that such a pattern of services would provide the basis of an appropriate and deliverable transport strategy to support a three-runway Heathrow operating at around 116 mppa. BAA also believes that these new rail services would offer significant non airport-related benefits to many travellers within important sectors of South London and the Western Policy Area of the South East of England (an area located within an arc round from Heathrow to Gatwick) which is of national economic importance.
- Improvements to Airport Junction on the Great Western mainline are likely to be required to support levels of train services in excess of six trains per hour.
- Other rail services and infrastructure identified in the SERAS document should benefit Heathrow users. However, on the basis of the demand forecast information for airport-related use set out within the material supporting the SERAS document, all are likely to be justified on the basis of wider non-airport benefits. The manner in which such services are integrated and the extent to which airport users would benefit from these schemes would need further study, as would the identification of their likely commencement dates.

5.30 In line with the SERAS analysis, which assumed increased rail provision to Heathrow, BAA believes that a rail strategy such as that outlined above would be unlikely to increase flows on the Piccadilly Line.

5.31 As outlined in Chapter 13 of this response, the Government needs to ensure that appropriate measures are put in place following the publication of the White Paper in order that rail schemes are, first, funded proportionate to the value that airport and non-airport traffic derives from them and, second, delivered speedily following any decisions to develop further runway capacity.

Road links

5.32 For the maximum use scenario, BAA agrees with the DfT's analysis that all of the off-airport road infrastructure assumed for the opening of Terminal 5 would be sufficient to support this scenario. However, our preliminary review has highlighted the following issues for the airport access road infrastructure required to support a new runway.

5.33 The SERAS report assumes that the M4 Spur could be put into tunnel approximately along its current alignment. But existing Highways Agency standards would lead BAA to believe that this would not be technically feasible and a re-alignment of the spur, together with the re-configuration of M4 Junction 4, would be necessary. BAA has identified one possible new alignment for the Spur and the route is shown illustratively on BAA Plans 5A–5D.

5.34 The SERAS report also assumes the provision of a new dual two-lane highway in tunnel from Terminal 4 connecting with the A316/M3 close to M3 Junction 1. This scheme is very similar to the northern-most elements of the HASQUAD scheme originally proposed in the early 1990s, which at that time drew strong objections to the provision of capacity in this corridor. Similar concerns are expressed in a technical report commissioned by the South East of England Regional Assembly (SEERA). SEERA's report was undertaken by Roger Tym and Partners and WS Atkins. The latter consultant acted for both the Highways Agency and BAA during the Terminal 5 Public Inquiry and more recently was responsible for the Thames Valley Multi Modal Study.

5.35 In any event, if the location of additional terminal capacity to support the new runway is in the central terminal area or at Terminal 5, or north of the Bath Road, there is not the same justification for a scheme which ends up at Terminal 4. Different airport access road layouts will clearly have different implications for the existing strategic road infrastructure. Initial conclusions are that it would be possible to make capacity improvements to the on-airport road system connected to the M25/Terminal 5 Spur road to enable it to act as a complementary airport access point to the M4 Spur road, if this was necessary.

5.36 In terms of local road diversions, the SERAS analysis of option E4 identified a requirement to divert local roads, in particular the current through routes formed by Holloway Lane and Sipson Road, to accommodate the new runway north of the existing airport. Such diversions look possible and new arrangements are shown illustratively on BAA Plans 5A–5D.

5.37 Further work will be required to understand better how the greater use of public transport and the management of the level of demand for road users, including the potential for an airport road user charging scheme, could avoid the need for any further airport-specific widening of the strategic road network. We believe that road user charging will be necessary in order to influence behaviour of airport users in favour of public transport, to reduce air quality emissions from these sources, and in order to provide a source of funding for investment in airport-related transport.

5.38 Paragraph 7.19 of the SERAS document identifies a requirement to dual the A4 west of Heathrow Airport to M4 Junction 5 in order specifically to accommodate airport-related traffic. We do not believe that this scheme would be essential to support a new runway at Heathrow.

5.39 While BAA will continue to assess road issues, we urge the Government to direct its strategic road organisations, in particular the HA, to consider further what road infrastructure would be required to support one new runway at Heathrow. As with its joint working with the SRA, BAA would offer full support to the HA in the consideration of potential highway arrangements for Heathrow.

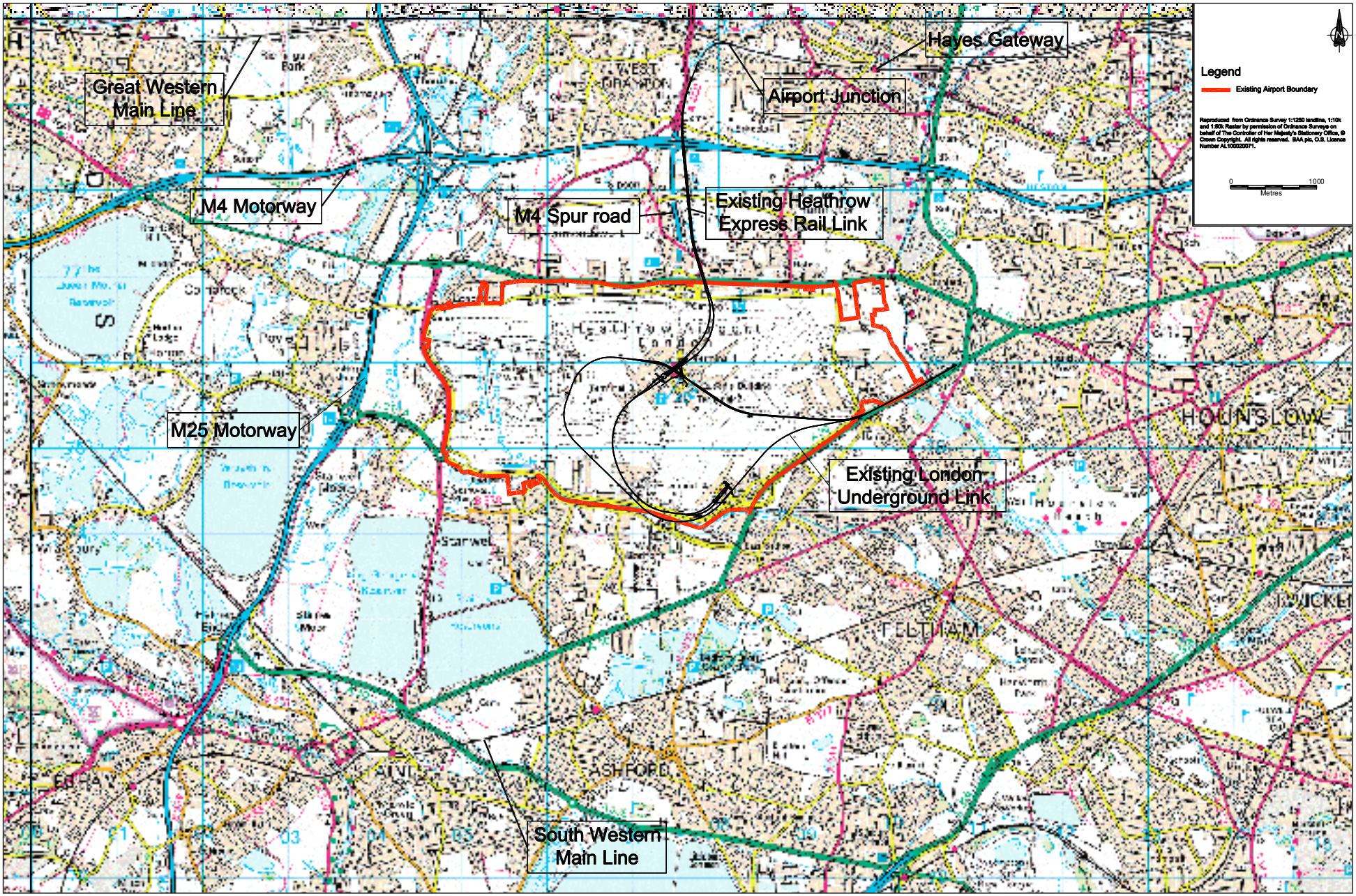
5.40 As outlined in Chapter 13 of this response, the Government would need to ensure that appropriate measures are put in place following the publication of the White Paper in order to identify the precise strategic and regional road infrastructure that would be required for both airport and non-airport reasons.

Impacts on people and the environment

5.41 Critical to the deliverability of a sustainable runway development at Heathrow is the impact it will have on the people who live near the airport and on the local environment. The effect on land and housing, air noise and air quality will be key determinants for the Government as to whether a new runway can be a included in a White Paper. We look at each of these issues in turn.

Land and housing

5.42 The unavoidable impact of any new runway development at Heathrow is that homes would need to be purchased, and residents compensated for the loss of those homes. While BAA has made, and will continue to make, every effort to minimise the housing impacts of a new runway at Heathrow in drawing up plans, a considerable number of homes would still need to be taken if the Government decided that a Heathrow development should go ahead.



Plan 5G: Heathrow Airport – Existing Layout showing surface access.

5.43 The four BAA plans show that the total land area of the airport would need to increase from 12 sq km today to between about 14.5 and 14.7 sq km, compared to the increase to 14 sq km in option E4. This means that, on Plans 5A and 5B (the satellite options) and 5D (a passenger terminal option), about 260 properties would have to be purchased, which is similar to the number which would be taken in the Government's option E4 (Plan 5E). But the impact of the Plan 5C passenger terminal layout is considerably greater, with the loss of 700 properties.

5.44 As we indicated earlier in this chapter, a significant benefit of moving the runway 100 metres to the east, as shown in Plans 5A–5D, is that it would reduce the negative heritage impacts described in paragraph 7.21 of the SERAS document, allowing St. Mary's Church at Harmondsworth and its graveyard to be retained, along with the Harmondsworth Tithe Barn.

5.45 However, no assessment has yet been carried out of whether or how many listed buildings might be affected by any of the plans. Neither has BAA done any detailed assessment work on the other effects on land identified in the SERAS document, and so it has no further comments to make about the reported effects on other land, property and heritage issues, or matters in respect of ecology or water.

5.46 BAA is, however, aware from our discussions with the communities north of the A4 of some very local concerns that would need to be acknowledged by BAA and by the Government should a new runway at Heathrow be contemplated. The retention of St. Mary's Church and its graveyard, and the Harmondsworth Tithe Barn, and local road links through and between the villages between the M4 and the A4 have all been mentioned. BAA is also mindful that it should have particular regard to the Harmondsworth Primary School, which would be only some 240 metres from the new airport boundary, and the William Byrd Primary School in Harlington, which would be only some 340 metres from the new airport boundary, and we would therefore need to respond to the communities' views when considering how best to protect the learning environment of the children who attend these schools. The Heathrow Primary School in Sipson would be lost in any of the layout options which are shown.

5.47 On other matters of special local interest, BAA's views on how the Government should deal with blight are set out in Chapter 13 of this document, and our views on mitigation and/or compensation for local residents affected by increased levels of noise can be found in our response to Question 18 at the end of this document.

Air noise

5.48 BAA has looked at the input assumptions which the DfT has made in preparing its air noise contours. On the basis of the assumptions about the number of aircraft and the fleet mix in the maximum use and one new runway cases in 2015 and 2030, we believe that the sizes of the areas of the 16-hour Leq contours shown in Figure 7C and described in Tables 7.2 and 7.3 of the SERAS document would be broadly representative of the future air noise climate around Heathrow, when operating at the air traffic levels assumed.

5.49 Currently, around 300,000 people fall within the 57 LAeq noise contour at Heathrow. We recognise that by 2030, the number of people within the 57 LAeq contour is predicted to rise to 332,000 with one new runway, and that changes to the flight paths associated with a three-runway Heathrow would mean that people who are not currently overflown would, as a result of a new runway, be newly exposed to air noise from arriving or departing aircraft. Like other environmental impacts, this will have to be taken into consideration by the Government in its overall assessment of the Heathrow option.

5.50 We explain in Chapter 4 of this submission, and in our response to SERAS Question 16 at the end of this document, measures which we have developed in conjunction with airlines and National Air Traffic Services (NATS) designed to address particular local air noise issues. In addition to measures of this kind, further international standards and measures could be brought forward to contribute to the noise management of future runways at Heathrow. In circumstances where BAA did promote a new runway at Heathrow it would expect (as was the case with its consent for Terminal 5) an air noise cap to be imposed as a planning condition on any approval, to give communities a degree of certainty about the noise environment which would exist. Like the DfT, our starting assumption is that the air noise cap of 145 sq km imposed as a condition of the consent for Terminal 5 would continue to apply at Heathrow. The SERAS document describes at the end of Chapter 16 possible further measures which would mitigate or compensate for the effects of air noise on the local community. BAA's views on these possible further measures can be found in our response to Question 18.

Air quality

5.51 We recognise that air quality modelling is a complex and technical issue. We therefore begin this section with an overview that provides a non-technical summary of the key findings from our work so far.

Overview

5.52 We have reviewed the DfT's air quality assessment of the Heathrow E4 runway option, and we have improved the accuracy of the air quality model so that the model better reflects the absolute contribution of airport emissions to nitrogen dioxide (NO_2) concentrations in the community. We have done this in two ways: first, by applying a model optimisation technique, based on a comparison of the SERAS Heathrow model to measured nitrogen dioxide concentrations around Heathrow, and second, by accounting in the model for reduced thrust operational practices by aircraft on take-off at Heathrow.

5.53 Our assessment has shown a material sensitivity of the model outputs to the approach taken in modelling background emissions (ie non airport-related emissions). We therefore model the future predicted effects of the E4 option under two scenarios, where one is less conservative than the other. We have also identified a number of airport and industry mitigation options and modelled their cumulative impact in reducing the number of people predicted to be exposed to exceedences of the EU NO_2 limit values in 2015. What we have not accounted for are any planned national and local actions to reduce non airport-related sources. Table 5.1 below summarises the results of our work to date.

Table 5.1: Summary of BAA's revised and improved air quality modelling results for Heathrow.

Scenario	Description	No of people predicted to fall within an area where the EU NO_2 limit value is exceeded in 2015	
Core DfT assessment	Original SERAS assessment	35, 000	
DfT sensitivity	Optimistic future scenario	5,235	
		Under more conservative procedure	Less conservative procedure
Revised Baseline	Revised improved model that accounts for reduced thrust and more accurately models dispersion of aircraft emissions	13,500	9,800
Mitigation 1	With on airport mitigation and all aircraft engines perform at least 20% better than CAEP 4	8,100	4,050
Mitigation 2	With on airport mitigation and all aircraft engines perform at least 40% better than CAEP4	4,300	1,450

5.54 We have also assessed the relative contribution of airport and non-airport emissions to local air quality. These show an increasing dominance of non airport emissions in areas where the EU NO_2 limit value is predicted to be exceeded in 2015, as airport mitigation measures take their effect.

5.55 Overall, the more accurate modelling which we have been able to undertake shows significant reductions in the levels of population falling within areas where the NO_2 limit value is predicted to be exceeded. It also identifies a clear need for proactive action by BAA, the wider industry and the Government in order substantially to reduce levels of pollutants around Heathrow.

5.56 We believe that with the support of airlines to implement on-airport mitigation of the form described here, appropriate polices to encourage technology improvements in the aircraft fleet, and national and local policies and actions to reduce road transport emissions both locally to Heathrow and across the country there is the prospect that in the future concentrations of NO_2 around Heathrow could be consistently contained within EU limits.

5.57 We also conclude from our reading of the UK submission to the EU under the Daughter Directive that there is a need for UK Government action to address air quality nationally and in London irrespective of decisions relating to airport capacity.

Introduction to the analysis

5.58 The DfT commissioned detailed air quality modelling of the Heathrow option to support the SERAS consultation. The analysis was based on the best available knowledge at the time and predicted that, without any further action taken on air quality performance by the aviation industry, approximately 35,000 people (17,500 properties) would fall within an area where the EU Daughter Directive limit for annual average NO_2 (40µg/m^3) would be exceeded if a new runway were built. No exceedence was predicted of the NO_2 hourly limit value (200µg/m^3 not to be exceeded more than 18 times per year by 2010).

5.59 Inspection of the detailed results at Heathrow confirms that, even for the recently agreed more stringent PM_{10} standard (reduced to 23µg/m^3 from the 40µg/m^3 as assessed in SERAS), no exceedence of PM_{10} is predicted in 2015.

5.60 The SERAS air quality modelling was intended primarily to allow a comparison of options, and the DfT recognised that it overestimates absolute pollutant concentrations and is subject to significant uncertainty. In part addressing these concerns, the DfT identified and modelled the impacts of two sensitivity scenarios. The more optimistic scenario predicted that the population within the area where the EU limit for NO_2 would be exceeded would fall to 5,235 (2,618 properties), although no assessment was made of the feasibility of achieving the conditions necessary to underpin this scenario.

5.61 BAA commissioned detailed air quality modelling work aimed at improving the absolute predictive capability of the SERAS air quality modelling, and to investigate the performance of different mitigation options related to the E4 option. This work was carried out using the original SERAS air quality model and by the DfT's SERAS retained consultants in order to ensure consistency and comparability with the original analysis. The four key objectives of this work programme have been to:

i Improve the absolute accuracy and reduce the level of uncertainty of the SERAS model by generating an improved baseline model indicative of predicted air quality impacts in 2015 under SERAS core assumptions.
ii Provide an assessment of the mitigation potential of options to improve air quality based on an improved baseline model.
iii Identify the scope of future work to address any residual uncertainties in the modelling and feasibility of potential mitigation options.
iv Review the implication for air quality of changes in the layouts described earlier in this chapter.

5.62 The results from the work BAA has undertaken towards these objectives are described below. The detailed results are set out in Appendix 2 at the end of this document.

Improving the SERAS baseline model

5.63 This work aimed to improve the absolute predictive accuracy of the SERAS model. The key areas addressed were:

- The over-estimation of aircraft emissions, resulting primarily from the unrepresentative core assumption that all aircraft take-off at full thrust. Reduced thrust on take-off is a recognised operational practice approved by aircraft manufacturers, the US Federal Aviation Authority and CAA. Its key operational benefits are to minimise engine wear, thereby enhancing engine life, and minimising maintenance costs. It is therefore a widespread and common operational practice used by airlines.
- The under-prediction of near-field dispersion of aircraft emissions and the consequent over-prediction in the near-airport effects of these emissions.
- The uncertainty in the modelling of non-airport background sources.

Representing reduced thrust in the model

5.64 To address the first issue, BAA has collated currently-available data on the use of thrust settings by aircraft on departure at Heathrow. This data is a compilation of detailed data from the British Airways fleet (which accounts for about 38% of total Heathrow movements) and BAA's own study of thrust settings used by other operators. This data has been used to improve the SERAS core analysis to more closely represent operational experience at Heathrow. An additional allowance of 5% has been added to the identified reduced thrust settings to allow for variability in the data and to ensure the results on balance remain conservative.

Dispersion modelling of aircraft emissions and background emissions

5.65 As a second step, and also to address the second and third modelling issues, BAA applied the SERAS model to a current case, using the aircraft movement data and remodelled thrust settings for the period 2001/02. The results from this model were cross-correlated to monitoring data from six continuous monitoring sites on or near to Heathrow Airport (see Appendix 2, Figure 1). This work has shown a consistent over-prediction of NO_2 concentrations by the SERAS model, ranging between 4% and 44% at these monitoring sites (See Appendix 2, Figure 2). The source of this over-prediction was considered to arise from two independent sources:

- An over-prediction of the contribution of aircraft emissions to local NO_2 concentrations
- An over-prediction in the level of other background sources which are non aviation-related, eg from local roads.

5.66 To distinguish between these sources, our consultants used the data from the six monitoring locations. These are at various distances from the principal sources on the airport, and are therefore at locations ranging from where airport emissions are predicted to dominate, to locations where background emissions will dominate. By comparison with the modelled data, two model parameters have been identified that when applied to the modelled results ensure that these correlate with the values found at the monitoring sites. The first of these parameters is an increase in the modelling factor governing near-field dispersion of aircraft exhaust emissions, and the second is a parameter that scales down the background contribution from non-airport sources (a background correction factor). Each is discussed further below.

i) Near-field dispersion

5.67 The increase in near-field dispersion constitutes an improvement in the modelling of aircraft emissions compared to the original SERAS model. In the original SERAS model a conservative value was chosen, reflecting a lack of *in situ* data to support a more representative value. Halcrow's report for the DfT[1] states:

> *"In SERAS, initial dispersion parameters have been chosen that are more likely to underestimate than overestimate the near field dilution, and are thus more likely to overestimate than underestimate near field concentrations." (Halcrow, 2002)*

Furthermore:

> *"The empirical data on aircraft exhaust plume rise is difficult to interpret. Thus no specific representation of the potential plume rise of aircraft engine exhaust gases is included in the SERAS modelling. This could lead to an overestimation of the near field concentration contribution from aircraft." (Halcrow, 2002)*

5.68 In addition, there is some evidence from past air quality assessments at airports that the methodology used to estimate the aircraft contribution may produce an overestimate.[2]

5.69 Lastly, results from an on-going monitoring study (using diffusion tubes) commissioned by British Airways also support the view that aircraft contributions to local NO_2 concentration are lower than previously predicted. This research involves measuring monthly average NO_2 values on a north-south transect of the airport extending into the community to the north, and crossing both runways. Results to date, covering the first four months of the proposed 12-month study, show NO_2 concentrations rapidly decreasing with distance from the runway centreline and central terminal area. These preliminary results therefore substantiate the view that the influence of aircraft sources on local NO_2 concentrations falls rapidly as you move away from the source, in this case the runways and central terminal area.

5.70 In conclusion, the BAA work to cross-correlate the modelled values to local monitored values provides credible data to support the increase in the parameter governing near-field dispersion of aircraft emissions. There is therefore high confidence in applying this revised parameter to the modelling of aircraft emissions in 2015.

ii) Background emissions[3]

5.71 Confidence in the background parameter identified by the fitting of modelled data to monitored data at local monitoring stations near Heathrow is not so high. This stems from a lack of any physical modelling parameter to which the difference can be linked, as well as a possibility that the identified background factor is sensitive to the specific locations of the monitoring sites used to identify the parameter. Indeed, modelling background air quality at Heathrow is recognised as challenging due to the complex interaction of rural and urban sources as well as the influence of central London. Consequently, more detailed analysis, using data from more background sites (where background as opposed to aircraft sources would dominate) is necessary to improve confidence in this parameter.

Revised air quality results

5.72 BAA therefore adopted two separate procedures:

i A conservative procedure, where the SERAS model is improved to account more realistically *only* for near-field dispersion effects.

ii A less conservative procedure where the model is improved to account for both near-field dispersion and background effects.

5.73 Both procedures were applied to the future 2015 Heathrow case to generate revised and more accurate estimates of the air quality impacts of the SERAS option E4. The population-counting procedure was identical to that used in the original DfT assessment and therefore ensures comparability of the results. Overall therefore, the basic SERAS model has not been changed and the results presented here are as a consequence directly comparable with the DfT's original assessment and present an improvement in the absolute predictive accuracy of the air quality impacts in 2015. This analysis showed that (see also Appendix 2, Figures 3–5):

- Under the conservative procedure the population within an area where the EU Directive limit for NO_2 would be exceeded is predicted to fall from 35,000 people to 13,500 (6,750 properties).
- Under the less conservative procedure, where the identified over prediction in non-aviation sources is accounted for, the number is predicted to fall further from 35,000 people to 9,800 (4,900 properties).

5.74 This difference should be seen as two alternative views on the future air quality impacts of the SERAS option E4, and is based on best available monitoring data and knowledge on aircraft and non aircraft-related emissions. It shows that as a minimum the absolute contribution of aircraft sources to NO_2 concentrations outside of the airport boundary has been over-predicted in the original SERAS assessment.

5.75 In conclusion, this analysis offers a more accurate starting point from which to assess the benefits of alternative mitigation scenarios. The results do not, however, take account of the further initiatives planned by the industry, such as Heathrow's published air quality strategy, future more stringent emission standards (eg CAEP 6[4]), the effects of Defra's and the GLA's action plans for achieving national compliance with the EU Daughter Directive and other forms of local mitigation planned by local authorities under the UK Government's Air Quality Strategy.

BAA options for mitigation

5.76 While the remodelled and improved assessment shows that considerably fewer people are predicted to be exposed to levels of NO_2 which exceed the EU Daughter Directive than was initially suggested by SERAS, a significant and large number of people would still be predicted to be exposed to these levels without action to reduce air quality impacts or to mitigate them. We also recognise that because significant uncertainty still remains in the absolute levels of future NO_2 concentrations, there also remains uncertainty about the number of people predicted to be affected.

5.77 Clearly the contribution of non airport-related sources on the number of people affected by the NO_2 limit value is significant as shown by the material reduction in the number of people affected when background emissions are adjusted. Notwithstanding this, we have investigated the potential for airport-related mitigation to reduce the air quality impacts predicted in 2015.

5.78 Below we present the results obtained through the cumulative introduction of more stringent mitigation options. We have not specifically addressed the costs and benefits of any one option. This mitigation falls into two main categories:

i On-airport initiatives under the control of BAA

5.79 By inspection of the key sources of airport-related emissions, and the technical and operational feasibility of implementation, BAA has identified the following set of measures that, assuming the co-operation of airlines and other airport operators, could be implemented prior to 2015:

- The introduction of pre-conditioned air on all pier-served stands at Heathrow, thereby reducing emissions from auxiliary power units (APUs).
- A package of on-airport measures that include a 50% reduction in emissions from airport airside vehicles, a 33% reduction in emissions from aircraft held on the ground, and a 20% reduction in airport-related traffic emissions.

ii Aircraft engine technology improvements related to fleet renewal and technology development

5.80 Two milestones have been identified. The first assumes continued trends in engine technology take-up, supported through a conservative approach to the next set of discussions on a new emissions standard at CAEP 6 in January 2004. Under this scenario, it has been assumed that all aircraft using Heathrow by 2015 perform at least 20% better than the present CAEP 4 standard. BAA considers this realistic and likely given:

- Our analysis of the present fleet which shows that over 60% of the fleet already at least meet the CAEP 4 standard, even though the standard does not apply to new engines until January 2004 and is likely to result in a production cut off beyond 2008.
- Published commitments by engine manufacturers to develop breakthrough NO_x reduction technologies. For example, Rolls Royce is committed to technology improvements that deliver 45% NO_x improvement relative to CAEP4 by 2010.
- Outputs from research programmes run by ACARE[5] and NASA and research for the DfT by consultants Arthur D Little[6], which indicate technology improvements offering at least 30% to 50% reductions in NO_x over current technology by 2015.

5.81 The second milestone assumes that all aircraft operating at Heathrow in 2015 perform at least 40% better than CAEP 4. To achieve this level of performance would require a step change in performance and would therefore, in BAA's opinion, require a strong Government policy on future emission standards and controls. BAA's review of forecast future aircraft engine technologies indicates that technology to achieve this level of emission reduction will be available by 2015, although it is a matter for government policy to influence the up-take of these technologies within airline fleets. Similarly the attitude of airlines to significantly reducing their local emissions will also be important in determining the likelihood of achieving this level of performance by 2015.

5.82 BAA's modelling of these mitigation scenarios shows that (see Appendix 2, Figures 6–9):

- If all airport-related mitigation *and* a minimum of 20% below CAEP 4 were achieved then the population predicted within an area where the EU limit for NO_2 would be exceeded would fall to between 8,100 (4,050 properties) and 4,050 (2,025 properties).
- If all airport-related mitigation *and* a minimum of 40% below CAEP 4 was achieved then the number would fall further to between 4,300 (2,150 properties) and 1,450 (725 properties).

Contribution of airport and non-airport emissions to local NO_2 concentrations

5.83 The role of non-airport emissions to the level of exceedence of the NO_2 limit value has been assessed by examining the total number of people predicted to be affected by NO_2 levels in excess of the EU limit value at locations near to the airport and near to major roads where these emissions are predicted to dominate.

5.84 Inspection of Figures 6–9 in Appendix 2 shows that the population clusters remaining above the EU limit are concentrated into two broad areas: along the M4 corridor north of the airport, and north of the A4 and in the southern part of Harlington. Figure 10 in Appendix 2 shows that as airport mitigation is increased from the 20% below CAEP4 to 40% below CAEP4 scenario:

- The number of people in Harlington (where airport emissions are more significant) falling within an area where the EU limit is exceeded is reduced by 78%.
- The number of people near the M4 (where background emissions are more significant) falling within an area where the EU limit is exceeded is reduced by only 38%.
- The number of people in Harlington within an area where the EU limit is exceeded falls to levels that are approximate 40% below those on the M4 corridor.

5.85 We have also assessed the relative contribution of airport and non airport sources to NO_x concentrations at representative near airport locations[7]. This shows that with increasing airport mitigation (see Figure 11, Appendix 2)

- Average total NO_x concentrations fall by up to 25%.
- Average background related concentrations increase as a percentage of total emissions.
- Average airport related concentrations fall to levels below background.

5.86 This analysis illustrates the importance of UK Government action to reduce future emissions from non-airport sources.

Airport-related policy implications

5.87 Taken altogether, our analysis of mitigation potential illustrates an absolute need for BAA to set and deliver policies that minimise emissions from airport sources. It also illustrates the need for the UK Government to set policy to support the research and development of and the take-up of low NO_x aircraft engine technology, and for an airline policy on operational procedures to reduce airport emissions and increase take-up of low NO_x engine technology within the fleet.

5.88 It is the role of Government to consider the case for and the likelihood of achieving performance improvements in the fleet that will help ensure the NO_2 standard is achieved at Heathrow.

Non airport-related policy implications

5.89 In addition, our analysis has also identified a need for UK Government policy to address the significant non airport-related emissions at Heathrow and thereby ensure behaviours that will reduce road congestion and accelerate vehicle technology improvements beyond the business as usual scenario modelled within SERAS.

5.90 We believe these polices are necessary irrespective of decisions relating to future airport capacity in the South East, since the EU directive imposes a responsibility on the UK to achieve the EU NO_2 standard at all locations in the UK by 2010. In addition, Defra's assessment of UK compliance with the NO_2 standard in 2010 indicates significant areas of non-compliance, especially at large conurbations such as London, Liverpool and Manchester (see Appendix 2 Figure 12). Similar challenges exist also to achieve the EU Daughter Directive PM_{10} standards by 2005 and 2010.

5.91 A review of the reporting questionnaire[8] prepared by Defra and required under the EU Daughter Directive shows that out of a total of 43 defined clusters nearly 50% are currently assessed by Defra as containing community areas exceeding the EU NO_2 threshold that requires the UK Government to define appropriate actions to meet the NO_2 standard by 2010,[9] with less than 12% assessed below the NO_2 limit value. It is assumed that effective implementation of the UK Government plan for meeting its national obligations under the EU daughter directive (both for NO_2 and PM_{10}) will contribute significantly to reducing the predicted levels of population affected by the NO_2 standard across the UK, in London and therefore by definition at Heathrow in 2015.

Future work programme

5.92 So far, BAA's model improvements and mitigation have focused primarily on airport and aircraft-related effects. To improve model confidence further, there is clearly a role for more research to improve confidence in the modelling of non-airport sources and to model the effects at Heathrow of necessary transport-related air quality improvements near Heathrow, in London and nationally to ensure the EU limit value is met by 2010. We believe it is the role of UK Government to lead this work, which BAA will be pleased to support.

5.93 Not withstanding this BAA will continue to improve its knowledge of the air quality impact of its airports and will:

- Continue to refine the SERAS model's predictive capability including research and further interpretation of existing and new monitoring data.
- Test the implications on future predicted NO_2 levels of the recently revised vehicle emission factors published by Defra.
- Review the SERAS fleet forecast to ensure its representativeness and as appropriate interpret implications on forecast NO_2.

5.94 There also remains scope to improve further our knowledge of the feasibility of the mitigation set out here. BAA will therefore continue to progress research to improve the certainty in the model outputs. We will be pleased to make this information available to the DfT as it becomes available.

Implications of layout changes on air quality assessments

5.95 Earlier in this chapter, we explained our illustrative alternative layout plans. Clearly the introduction of satellite or terminal buildings north of the Bath Road would relocate to the north the position of some aircraft taxiing, auxiliary power units and associated vehicle movement emissions from elsewhere on the existing airport in the SERAS model. Although it has not been possible to model this impact explicitly, it is BAA's view that the incremental effect on NO_2 concentrations at residential locations will be insignificant, given that:

- The number of air transport movements is assumed to remain the same (655,000), and it is aircraft emissions on take-off that dominate in terms of total airport emissions.
- There are potential fuel, hence emissions, savings from reduced runway crossings and taxiing through the introduction of a northern passenger terminal or satellite, which would counter-balance any effect in moving emissions to the north.
- The emissions associated with the proposed satellite or terminal would be from ground-based sources such as auxiliary power units and airside vehicle movements, both of which, after mitigation, do not significantly contribute to NO_2 concentrations outside the airport boundary.

Economic impacts and regional planning

5.96 We believe that a runway development at Heathrow would generate significant economic benefits for airlines, users, business, tourism, competitiveness, productivity, investment and employment. The SERAS document sets out estimates of the employment benefits of runway developments, suggesting that from a 1998 base of 102,000 direct and indirect employees at Heathrow, by 2015 with a new runway, Heathrow could generate 147,000 jobs.

5.97 We judge this to be an overestimate because, as we set out in Chapter 4, we believe that the combined effects of a number of the DfT's assumptions have exaggerated the impact of development in terms of employment and, in turn, the possible land use impacts at a local level.

5.98 While it is important to use a common base year for all airports as part of an assessment of future airport-related employment, the base year chosen, 1998, was atypical at Heathrow. Four years on, in 2002, when Heathrow had grown from 60 mppa to 63 mppa, on-airport employment had fallen by 5% from 1998 levels.

5.99 In addition, our employment forecasting methodology at the Terminal 5 Inquiry, which we believe to be robust, used an overall productivity growth rate of 2.5% a year for the period 1992–2016, compared with the lower rate of 1.5% adopted for SERAS over that period.

5.100 We believe that the adoption of our productivity assumptions would result in some 17,000 fewer direct on- and off-airport jobs in 2015 with a new runway than is shown in the SERAS document.

5.101 We also believe that the core and the wider employment catchment areas used by the SERAS study overestimate the percentages of direct airport employment within them. In addition, the multiplier of 0.3 which the SERAS study uses to calculate indirect employment numbers from direct employment levels is too high when applied to a catchment area of the scale in SERAS. A multiplier of 0.075 would have been more appropriate.

5.102 For these reasons, BAA concludes that the employment impacts in the SERAS document are overstated within areas adjacent to Heathrow and that this in turn would lead to an overstatement of the land, housing and social infrastructure requirements to support the forecast levels of employment.

Financial appraisal

5.103 As part of the background to the SERAS consultation, the DfT carried out a preliminary financial appraisal exercise to identify the relative implications for airport passenger charges of the individual SERAS options and packages of options. Using the DfT's financial model, BAA has carried out its own sensitivity analysis to reflect its own judgements and experience in delivering major infrastructure projects. The results of BAA's sensitivity analysis for the first new runway options in the South East are contained in full in Chapter 9.

5.104 The DfT and BAA analysis has been based on the indicative assessments in the SERAS consultation material of the cost of providing the infrastructure. The SERAS costs include an assessment of costs for surface access schemes which may well not be those which are ultimately provided, and they exclude costs for environmental mitigation and compensation which might be required. Further information concerning possible mitigation and compensation measures is set out in our answer to Question 18 in Chapter 15 of this submission. On the basis of three hypothetical scenarios described in our response to the question, the mitigation and compensation costs associated with a new short runway at Heathrow range between £290 million and £1.2 billion. Until these costs are known, there will remain a degree of uncertainty about these assessments.

5.105 That said, the analysis in Chapter 9 shows that a new runway at Heathrow could be remunerated by airport charges held indefinitely at a level of just over £11 per passenger at Heathrow, following the increases of 6.5% above inflation for each of the next ten years which have been approved by the regulator to pay for Terminal 5.

5.106 The modelling results are highly sensitive to changes in the key assumptions. For example, the level of charges required to remunerate the options would be greater if the target rate of return in the model is not high enough to attract investors to provide funds for investment in new airport capacity, or the airport is expected to make more significant contributions to surface access infrastructure or mitigation and compensation schemes, than have been assumed in the modelling.

Footnotes

[1]Halcrow (2002) "SERAS Stage Two, Appraisal Findings Report Supporting Documentation Air Quality Appraisal", report produced for the DTLR.

[2]See for example, Reigate and Banstead Borough Council (2001) "Stage 3 Local Air Quality Review and Assessment NO_2 and PM_{10}. Report A35870100/yb/1743/Final", prepared by Stanger Science and Environment, and BAA Stansted (2002) "Proposed development at Stansted Airport: Addendum to the environmental statement."

[3]Background emissions are associated with all non airport related activity, for example local road trips.

[4]CAEP is the Committee on Aviation Environmental Protection responsible for setting aircraft engine emission performance standards. The next scheduled meeting where a new standard will be agreed is in January 2004.

[5]Advisory Council on Aeronautical Research in Europe are the advisers to the European Commission.

[6]Arthur D Little (2000) "Study into the potential impact of changes to technology on the development of the UK air transport industry."

[7]As identified in the modelling originally carried out for the DfT. See Halcrow (2002) "SERAS Stage Two, Appraisal Findings Report Supporting Documentation Air Quality Appraisal", report produced for the DTLR.

[8]Defra (2002) "Reporting Questionnaire on Council Directive 96/62/EC on ambient air quality assessment and management and Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air", Defra, London.

[9]The trigger defined under the EU standard that determined the need for government action planning is exceedence of the Margin of Tolerance (MOT). For NO_2, the MOT is set at 50% of the 40µg/m^3 limit in 2001 diminishing at equal increments to 0% by 2010. In other words, if any location presently exceeds 60µg/m^3 the UK Government must develop and implement actions to improve performance in line with achieving the limit value in 2010.

Chapter 6: Gatwick

6.1 Gatwick Airport is the busiest single runway airport in the world, the second largest airport in the UK and the seventh busiest international airport in the world, handling 29.5 mppa (million passengers per annum). Its two terminals accommodate approximately 70 airlines, a mix of scheduled, charter and some no-frills operators, which fly to around 200 different destinations.

6.2 The Government has three options for consultation at Gatwick: a new close-parallel runway 385 metres to the south of the existing runway, a new wide-spaced runway 1,035 metres to the south of the existing runway, and a new widely-spaced runway 2,900 metres to the north and 2,000 metres to the west of the existing runway. Gatwick features in a number of options where more than one runway would be provided in the South East during the 30-year horizon of the White Paper.

6.3 BAA's principal interest at the outset of our appraisal of the Gatwick option was to understand how a new runway or runways would perform in aeronautical terms, ie whether their operation could be integrated efficiently with the operation of the existing airport for the purpose of maximising the release of additional runway capacity. But it was also essential to understand the impacts of the options on the environment and local communities, so our work has also focused on how best to achieve the increments in capacity stated in the SERAS document with the minimum negative impact.

6.4 In this Chapter, we therefore consider the airport layout issues associated with both the maximum use of the current runway, and possible new runways. We also consider the road and rail links which would be needed to support growth, the impacts on communities and environment, in terms of land and housing, air noise and air quality, and what measures would be needed to address these impacts. Finally, we briefly consider the financial appraisal of the Gatwick runway options, and examine any implications for regional planning.

6.5 In Chapter 3 of our submission, we call for Government decisions in the new White Paper on where a new runway is most urgently needed and on those other sites in the South East where, over the 30-year period, new runways will be required. In answer to SERAS Question 1 at the back of this document, we say that the Government should make a choice of up to three runway sites from the SERAS runway options at Heathrow, Gatwick and Stansted.

6.6 BAA is satisfied that each of the three Gatwick SERAS options could work from an aeronautical and airport operational point of view. We have also carried out our own preliminary work on airport layout, rail and road access, air quality, and other aspects, in order to add our views on those matters to the assessment work reported in the SERAS document.

6.7 In our view, taking everything we know now into account, a scheme for one new runway at Gatwick should be included in a shortlist of four possible sites, from which the Government would select up to three in the White Paper, in order to provide capacity in the South East over the next 30 years. This conclusion assumes the implementation of appropriate funding arrangements which we outline in Chapter 3, as well as a process which we describe in Chapter 13 to allow airport operators to expedite proposals quickly and safely. It will be for the Government to decide whether measures needed at Gatwick to reduce the predicted environmental effects can be delivered, and that fair and effective arrangements for mitigating and compensating for the significant local community impacts can be put in place.

6.8 In the limited time available to consider the Gatwick options, our key conclusions in relation to a one-new runway scheme are that:

i The close-parallel option was conceived as one which would have fewer environmental impacts than the wide-spaced schemes which deliver more capacity and take more land, and that is evident from the material reported in the SERAS document.
ii Either of the southern or northern wide-spaced runways options is likely to require additional rail and road infrastructure beyond that needed by the close-parallel runway.
iii The nature and the scope of the earthmoving activity associated with the northern wide-spaced runway is very substantial and needs to be much better understood, not least in terms of cost.

6.9 In relation to two new runways at Gatwick (both the southern and northern wide-spaced options), BAA has not so far been able to identify an appropriate rail strategy beyond that identified for a one new runway scenario. The SRA and BAA believe that substantial new rail infrastructure, significantly in excess of the package considered for the one new runway options, would be required to support an option with two new runways.

6.10 In respect of Gatwick's near neighbour, Redhill aerodrome, we welcome the decision in the SERAS document (paragraph 12.11) to reject the possible development of Redhill as a satellite runway for Gatwick. If there is to be a new runway in the locality, that new runway should be at Gatwick.

Gatwick Legal Agreement

6.11 Unlike at other airports where the Government is considering options for runways, at Gatwick there is a legally-binding agreement which the then British Airports Authority signed with West Sussex County Council in 1979 under which the airport operator undertook not to construct a second runway at Gatwick before 2019. This same agreement also prevents BAA from using Gatwick's standby runway at the same time as the main runway.

6.12 BAA recognises that local residents and their political representatives attach great importance generally to the existence of this Agreement. BAA also recognises the views of some airline representatives that the Agreement should not be treated as an insuperable block on the development of a new runway at Gatwick before 2019. It is the case, however, that BAA is bound by the Agreement, even though we recognise that the Government does have the power, through legislation, to overturn it.

6.13 We have frequently been asked whether or not we stand by the Agreement, and we have always answered that we do. We are not asking the Government to overturn the Agreement as part of our response to the SERAS consultation.

6.14 Nevertheless, we recognise that, having consulted widely on its options, the Government could still include a Gatwick runway option in the White Paper in terms that would question whether or not the Agreement should be allowed to run its course. In those circumstances, BAA would be willing to enter into discussions with appropriate local stakeholders over ways in which the Agreement might be amended.

Layout issues

6.15 BAA provided technical information to the DfT during its preparation of layout plans for schemes at Gatwick at the SERAS optioneering stage. In principle, the schemes described in Chapter 8 of the SERAS document have the capability to achieve the broad orders of additional runway capacity ascribed to them. BAA has developed its ideas on the potential layouts and the land take associated with the two southern runway alternatives since the optioneering stage, and we describe those further ideas below.

6.16 BAA has also been concerned to minimise the impacts of any development on the environment and local communities. Therefore, in considering these options, and any firm plans which might emerge from them, we would attempt to limit the number of properties which would have to be lost and to preserve sites of significant local heritage. We hold regular conversations with communities which live alongside our airports and this process has continued during the consultation period. We have tried, where possible, to respond to concerns expressed to us and would try not only to limit the number of homes which would have to be taken, but also to limit the effects on those properties remaining which would be in close proximity to any new runway and its associated facilities, and to minimise the effects on the local road network.

Maximum use case

6.17 In our general comments on the DfT's assessments we have taken account of the capacities of the main South East airports in the maximum use case. For the three main BAA airports, we would accept the assessments of Stansted (35 mppa) and Heathrow (around 90 mppa, subject to the provision of additional infrastructure within the existing airport boundary), but we would be cautious about using the figure of 46.5 mppa attributed to Gatwick when recent changes in the character of Gatwick's traffic (particularly the reduction in long-haul scheduled services) raise doubts about the pace and growth in average passenger loads.

Close parallel runway option

6.18 A new full-length close parallel runway option, shown on Figure 8B in the SERAS document (reproduced as Plan 6A), is proposed some 385 metres to the south of the existing runway, and it is proposed that these two runways should operate in segregated mode. Some initial analysis undertaken by BAA in conjunction with NATS suggests that there is a risk the DfT's close parallel runway option scheme shown on Figure 8B may not be able to deliver the 70 movements per hour which are required on the two runways to achieve the assessed

airport capacity of 62 mppa. The particular concern relates to the angle of alignment of the taxiway system to the runway, which BAA believes would cause aircraft to spend more time manoeuvring into position prior to taxiing across the runway. This would increase the runway crossing time and could reduce the overall capacity, possibly by around five movements an hour.

6.19 BAA has therefore looked at ways to increase the likelihood that 70 movements an hour will be achievable, and two alternatives which would give greater confidence than the SERAS scheme are shown illustratively on Plans 6B and 6C. Plan 6B shows an option in which the separation between the new and existing runways has been increased by about 100 metres from 385 to 482 metres. This would allow aircraft which have landed on the new runway to be positioned perpendicular to the existing runway while they wait for crossing clearance, significantly reducing the crossing time once clearance has been given by air traffic control. However, a consequence of this would be to move the southern boundary of the airport further south, as is shown on Plan 6B.

6.20 Plan 6C shows a more extensive taxiway system provided for the SERAS 385 metre separation option which would allow aircraft to pass behind the runways at their eastern ends, removing the need for runway crossings at all. Such an arrangement has not been used before at a UK airport and the feasibility of it requires further testing. A consequence of this arrangement would be to move out the western and south-eastern ends of the southern boundary of the airport, as shown on Plan 6C.

6.21 BAA has also looked at its two alternative options to see what the consequences might be if the additional airport facilities to support a new close-parallel runway were to be provided to the south of the airport rather than to the north-west, as shown on Plans 6A, 6B and 6C. Plan 6D illustrates what this would mean for the wider separation scheme shown on Plan 6B, and Plan 6E illustrates what this might mean for the more extensive taxiway system scheme shown on Plan 6C.

6.22 These plans should not be regarded as our proposals for a new close-parallel runway at Gatwick. They have been included only to provide the DfT and other interested parties with an idea of the sort of schemes which are more likely to be able to deliver a throughput at Gatwick of around 62 mppa by the addition of a close-parallel runway. We hope that the provision of alternative options will assist the Government in coming to a decision about whether a new close-parallel runway could be included in the White Paper. As these options demonstrate, there are a number of different ways in which such a runway and its associated infrastructure could be designed and constructed.

Wide-spaced runway option

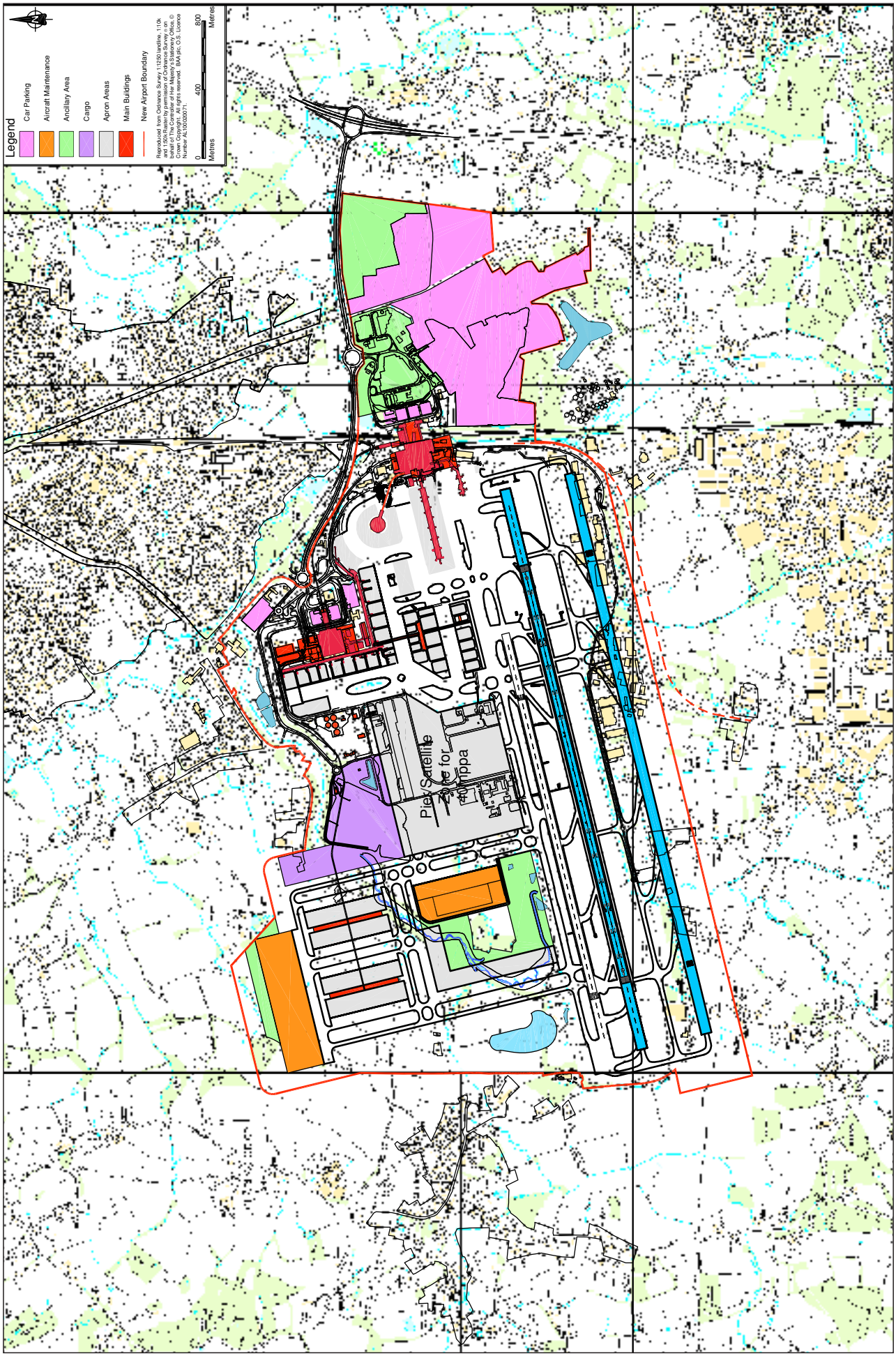
6.23 An alternative option would be a new wide-spaced runway, shown on Figure 8C in the SERAS document, located some 1,035 metres to the south of the existing runway and assumed by the DfT to allow independent mixed mode operations on the two runways. The SERAS document suggests that the overall runway capacity for Gatwick in this option would be some 83 mppa and that this would require the construction of two new terminals.

6.24 The precise extent to which full independent mixed mode operations would be possible on the wide-spaced runway option in this location will be influenced by the presence of high ground to the west of the runway. This is likely to limit the runway take-off distance for aircraft on the new runway on westerlies and thereby add an additional complication to independent mixed mode operations on both runways. It may also be necessary to increase the taxiway capacity between the runways by reducing the amount of new aprons constructed there. But these are not fundamental issues and we believe it would still be possible for this option to deliver some 83 mppa as the SERAS document reports.

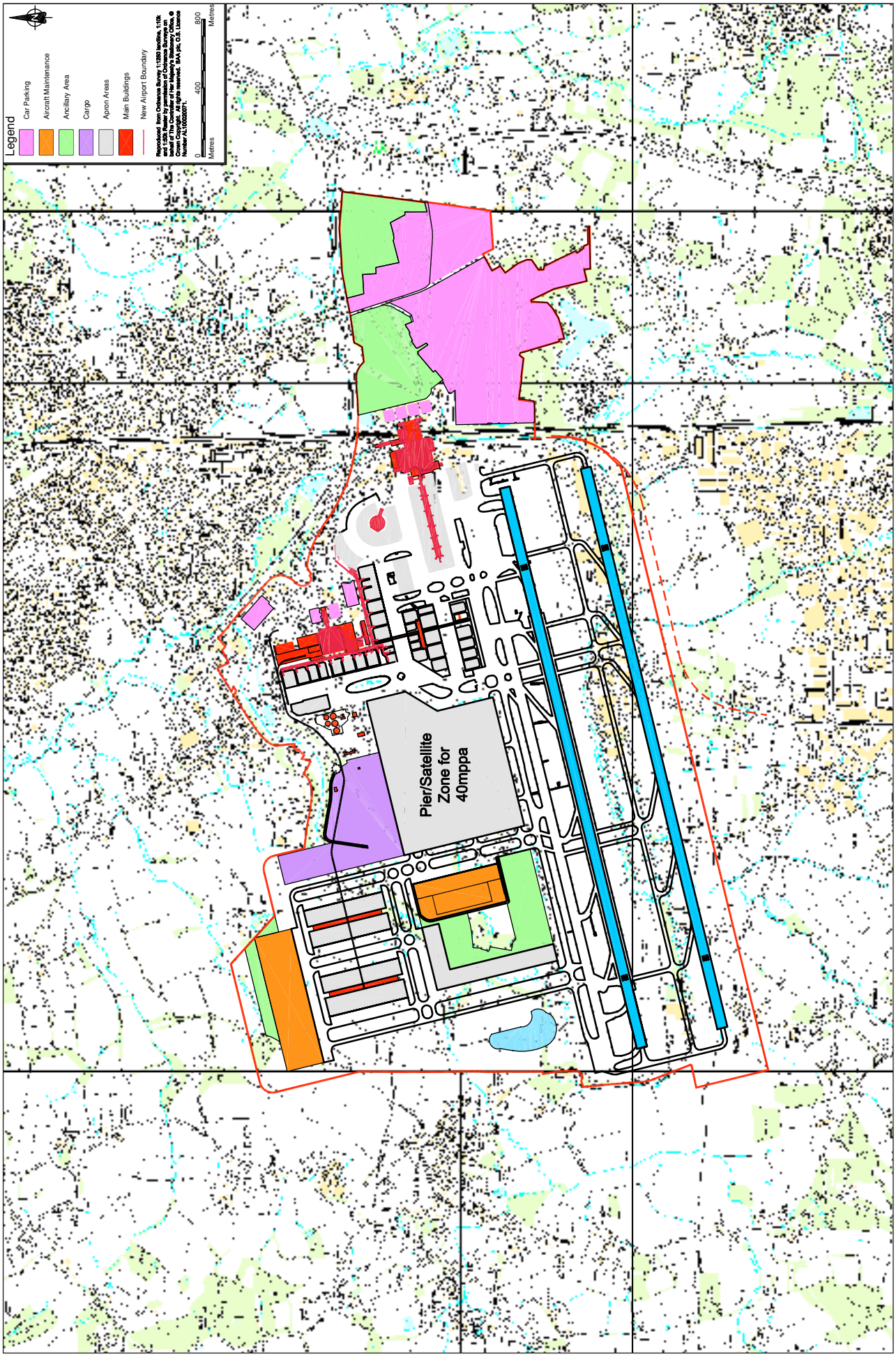
6.25 Also there may be some scope to reduce the overall land-take indicated for the wide-spaced runway option. For example, BAA believes that a better solution than building two new passenger terminals, one located in the north-west zone and one located on the sewage works east of the railway line, might be to build only the latter and expand one or both of the existing terminals. This could potentially reduce the significant loss of housing in Hookwood and at Povey Cross. However, the precise extent of any reduction and the changes to the airport boundary shown on SERAS Figure 8C would only emerge from the detailed work that would precede the submission of any planning application.

The option of two new runways

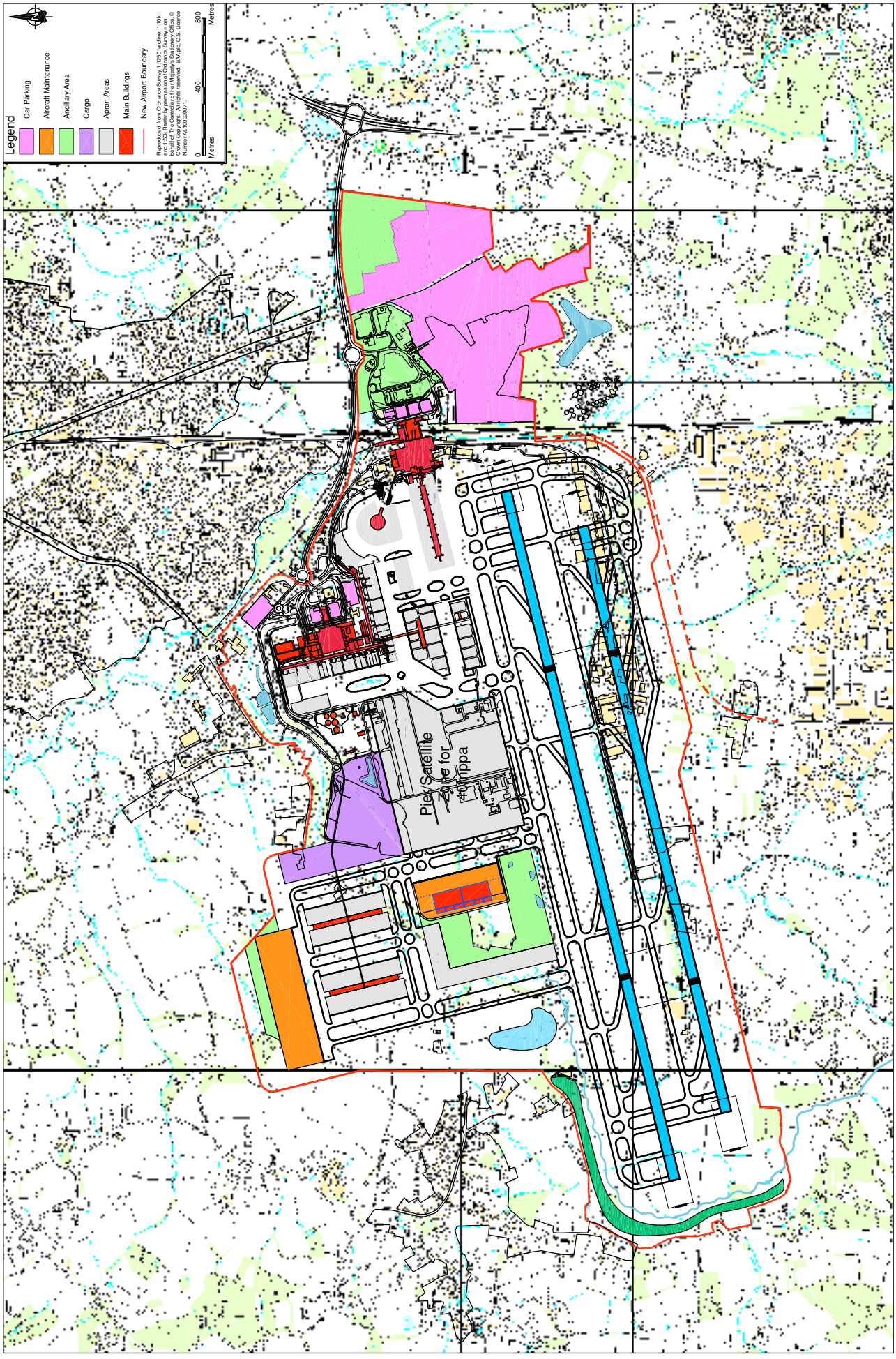
6.26 The option for two new runways shows, on Figure 8D in the SERAS document, two new full length, wide-spaced runways, one the southern wide-spaced option described earlier and the other located some 2,900 metres to the north and staggered 2,000 metres to the west. BAA agrees that the layout of the two new runways option shown in SERAS Figure 8D and operated as described in paragraph 8.14 of the SERAS document is technically capable of delivering some 115 mppa.



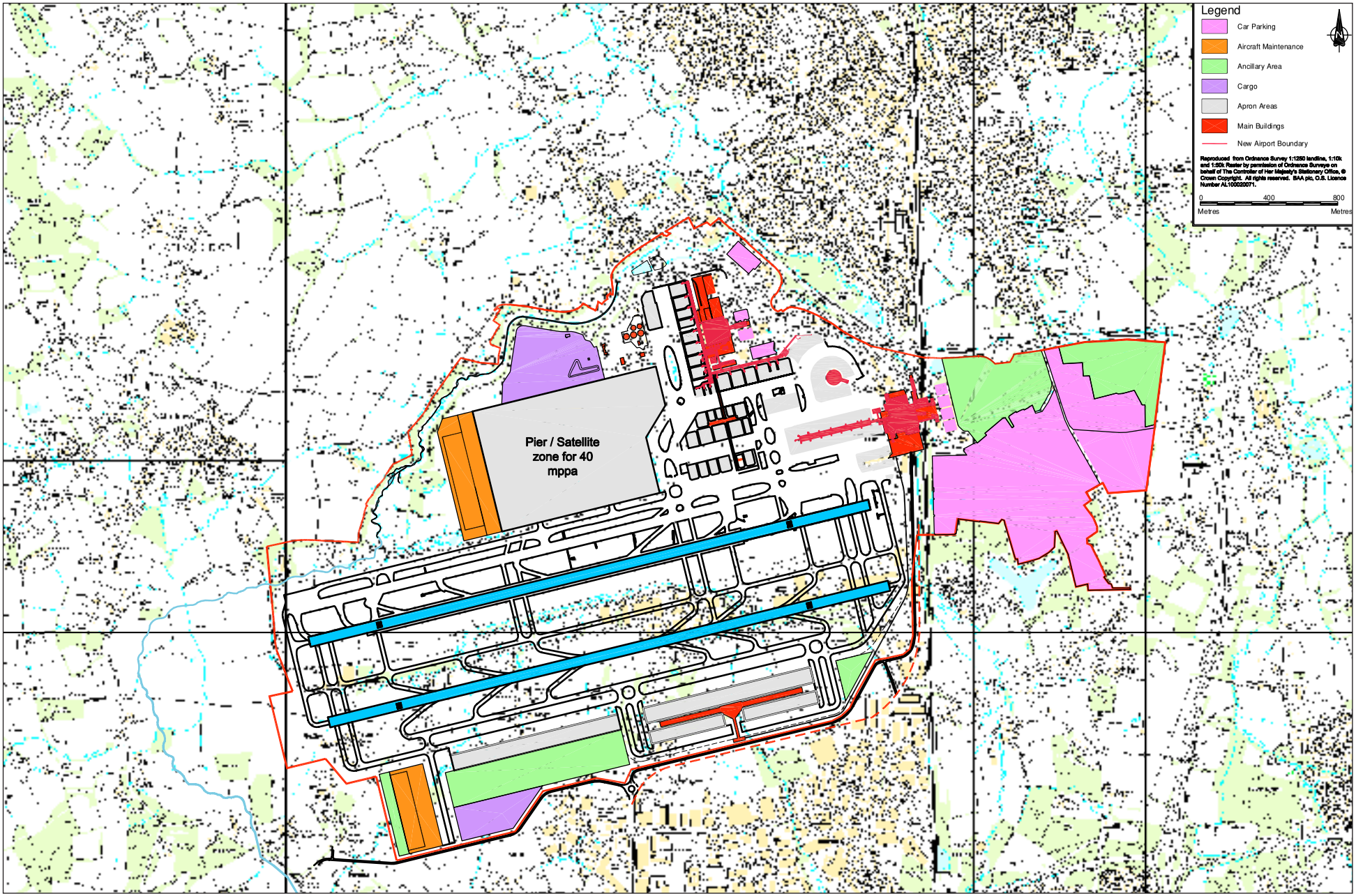
Plan 6A: DfT Gatwick Option 1 with close parallel runway (385m separation).



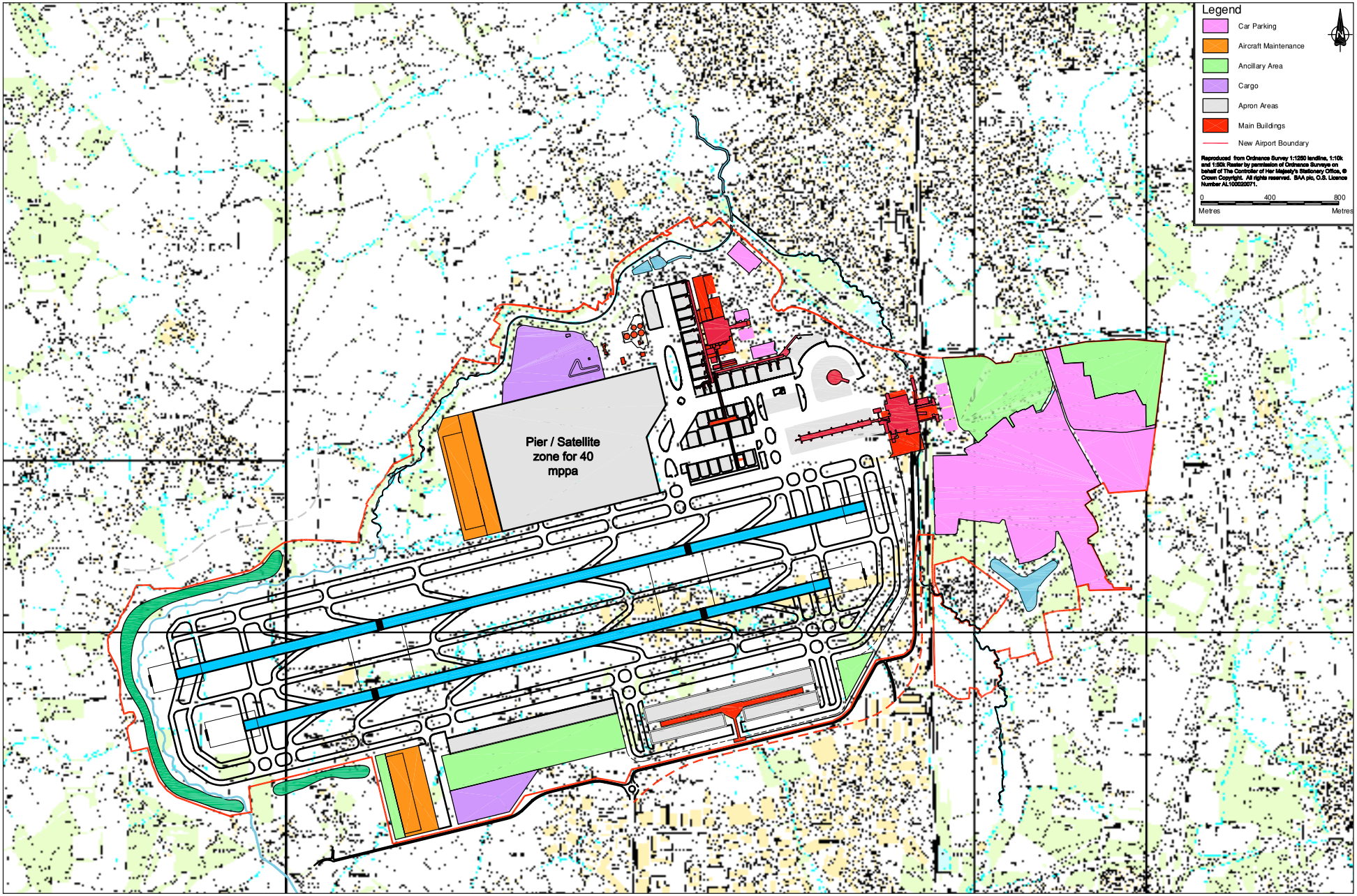
Plan 6B: BAA Illustrative layout with close parallel runway (482m separation).



Plan 6C: BAA Illustrative layout with close parallel runway (385m separation) with improved taxiway system.



Plan 6D: BAA Illustrative layout with close parallel runway (482m separation) with southern satellite.



Plan 6E: BAA Illustrative layout with close parallel runway (385m separation) with improved taxiway system and southern satellite.

6.27 However, the most immediate observation to be made about a new northern runway is that the ground level at the proposed location is up to 50 metres higher than that within the current airport boundary, and this would raise concerns about the amount of material which would need to be excavated and re-used or removed from the site.

6.28 BAA has taken specialist advice and has undertaken some preliminary technical work to establish the volumes involved and the technical solutions which might need to be adopted. The optimum technical and engineering solution would fall within the scope of two extreme cases:

i Levelling the land for the new runway at a height 10–15 metres above the level of the existing airport.
ii Excavating the land for the new runway so that it would be established at the same level as the existing airport.

6.29 For option a), where the land is being levelled out, BAA estimates that around 19 million cubic metres of material would need to be excavated and then re-used on the site. For option b), where the land levels would be brought down to those of the existing airport, BAA estimates that around 45 million cubic metres of material would need to be excavated, removed from the site, and then disposed of in some way. These volumes compare with the one million cubic metres of material excavated and re-used on the site of Terminal 5 at Heathrow, the 1.8 million cubic metres of material removed from site to make the cutting for the M3 at Twyford Down, and the 2.3 million cubic metres of material which were excavated and re-used on the site of Manchester Airport's second runway.

6.30 Option a) would cost around £266 million, and option b) some £1,350 million. These costs are based on the costs the DfT has used for earthmoving elsewhere in the SERAS document, but neither sum features in the costs associated with this option in the SERAS document.

6.31 BAA recognises that the large amount of earthworks required for the construction of a new runway in this location north of the airport would have a dramatic effect on a large amount of countryside at Charlwood, around Stan Hill and Edolphs Copse, and close to Glover's Wood.

Timing of delivery

6.32 The Government considers two scenarios for Gatwick: one in which the 1979 Agreement runs its full course; and one in which action is taken to overturn it. BAA believes that the Government is too pessimistic in assuming that the earliest a runway could be delivered after 2019 is 2024, given the relative absence of complexity in the southern runway options for Gatwick and given that the local planning process could be completed prior to 2019, as could much, if not all, of the acquisition of the land needed for development.

Rail and road links

Rail links

6.33 BAA's approach to a rail strategy for the SERAS options at Gatwick has been to undertake a preliminary analysis of the proposals and work jointly with the SRA to identify potential schemes which are deliverable. Since the publication of the Second Edition of the SERAS document at the end of February 2003, BAA and the SRA have only been able to form an initial view of the rail issues for Gatwick.

6.34 BAA's preliminary analysis of the rail proposals for Gatwick has identified the possibility of a lower rail mode share, and consequently lower rail demand for the single new runway options, than the share assumed in the SERAS analysis. In addition to lower rail volumes, BAA's initial analysis has also revealed the potential for a different distribution of Gatwick rail demand between the two principal London rail stations (Victoria and London Bridge) from that assumed in the SERAS analysis.

6.35 The approach to rail strategies for the Gatwick SERAS options must be seen in the context of Gatwick's location along one of the busiest commuter railway lines in the country, together with an evolving approach to using that railway line more efficiently through the SRA's emerging Capacity Utilisation Policy and re-franchising plans. Consequently, the implications for the rail industry of the provision of additional runway capacity at Gatwick are of a different nature from the SERAS options considered at other locations. In particular, consideration of the potential form of enhancements to rail infrastructure and rail services along the London-Brighton mainline will continue, irrespective of the potential for the provision of additional runway capacity at Gatwick Airport.

6.36 Given this degree of activity and uncertainty, the joint work by the SRA and BAA has focused on identifying a number of potential schemes to deliver greater rail capacity. We have taken specialist advice to enable us to identify these potential schemes, which we believe are both deliverable and have the capacity to support some new runway development at Gatwick. The results of the joint working between the SRA and BAA are reported in Appendix 1 of this document.

6.37 For the maximum use scenario, we agree with the analysis reported in the First Edition of the SERAS document published in July 2002 that no additional rail services or infrastructure, beyond those currently operating and planned, would be required.

6.38 On the basis of BAA's high-level evaluation, we have the following comments for the single new runway SERAS options at Gatwick:

- A dedicated Gatwick Express service to London would be an essential feature of the rail strategy.
- For the close parallel runway option, the potential exists to increase the number of carriages on the Gatwick Express services up to 12 cars, without triggering the requirement for infrastructure improvements along the London-Brighton mainline. If needs be, further potential exists to increase the number of carriages on some other selected rail services. In this respect, BAA agrees with the analysis reported in the First Edition of the SERAS document, that no additional rail services or infrastructure, beyond those currently planned, would be required.
- For either of the wide-spaced runway options, the potential exists to create additional rail services, either through more efficient use of the train paths or some small infrastructure improvements at particular pinch-points, or a combination of the two. In this respect, it is worth noting that both BAA and the SRA believe that works of the magnitude of the Croydon underpass scheme identified in the SERAS document will not be required.
- For both airport and non airport-related reasons, it is likely that improvements to Gatwick Airport station will be required, the precise nature and scale being dependent on the respective magnitude and timing of growth at Gatwick and for the region as a whole.
- No work has yet been undertaken to assess any impacts at the London rail stations, but based on the potential volumes and distribution of demand at the London rail stations identified by BAA, we believe that one new runway is unlikely on its own to be the cause of overall concourse and onward travel congestion problems either at Victoria or London Bridge.

6.39 For the two new runways option at Gatwick, BAA's preliminary studies have not so far identified an appropriate rail strategy. Both BAA and the SRA believe that the growth in non-airport rail demand, especially to London, would exceed any growth in airport rail demand for a three-runway airport at Gatwick and so require substantial new rail infrastructure significantly in excess of the package for either of the wide-spaced options. Further consideration of an appropriate rail strategy for two new runways at Gatwick could therefore only be undertaken in the context of the Government's new Regional Spatial Strategy that would be required for the area.

6.40 As outlined in Chapter 13 of this response, the Government needs to ensure that appropriate measures are put in place following the publication of the White Paper in order that rail schemes are, first, funded proportionate to the value that airport and non-airport traffic derives from them and, second, delivered speedily following any decisions to develop further runway capacity.

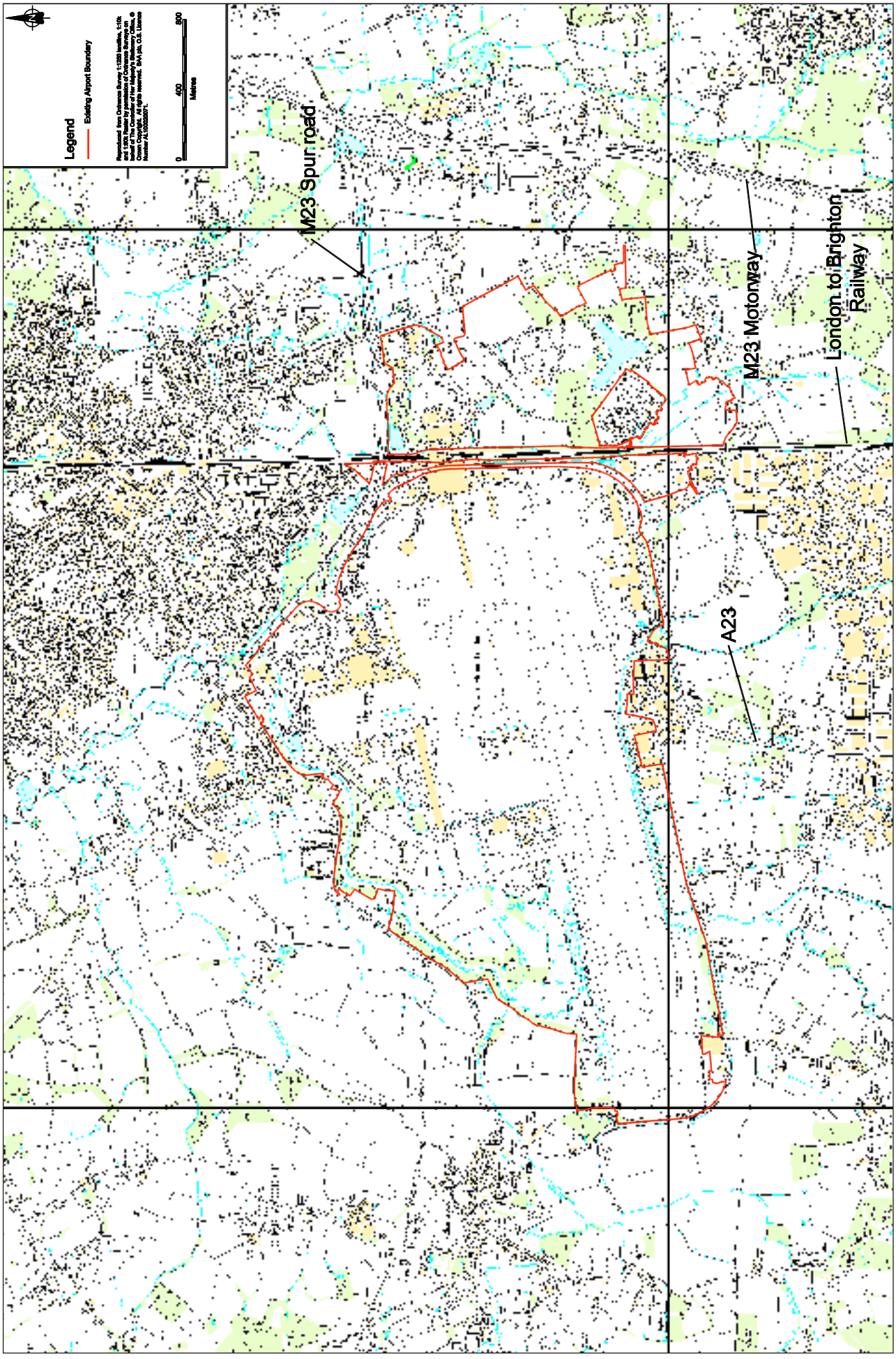
Road links

6.41 For the maximum use scenario, BAA agrees with the SERAS analysis that no additional road infrastructure beyond that currently planned would be required.

6.42 For the addition of one or two new runways, BAA believes that the airport access road infrastructure identified by the SERAS document needs further review.

6.43 The Government's regional policy envisages housing and economic development in the area surrounding Gatwick. BAA's preliminary review of the strategic road infrastructure has identified the need for a co-ordinated approach to assess the level of improvements to the M23 that would be required to support increased levels of activity at Gatwick, over and above what would in any event be required to deliver an appropriate regional strategy.

6.44 As outlined in Chapter 13 of this response, the Government would need to ensure that appropriate arrangements are put in place following the publication of the White Paper, in order to identify the precise strategic and regional road infrastructure that would be required for both airport and non-airport reasons.



Plan 6F: Gatwick Airport – Existing Layout showing surface access.

6.45 The SERAS analysis of the new runway options identifies the closure of some local roads. Arrangements could be made either to minimise the effects of these closures or to provide suitable alternative routes.

Impacts on people and the environment

6.46 Critical to the deliverability of any sustainable runway development at Gatwick is the impact it will have on the people who live near the airport and on the local environment. The effect on land and housing, air noise and air quality will be key determinants for the Government as to whether any new runways can be a included in a White Paper. We look at each of these issues in turn.

Land and housing

6.47 The unavoidable impact of any new runway development at Gatwick is that homes would need to be purchased, and residents compensated for the loss of those homes. While BAA would make every effort to minimise the housing impacts of any new runway at Gatwick when drawing up any detailed plans, a number of homes would still need to be taken if the Government decided that a Gatwick development should go ahead.

6.48 The SERAS analysis shows that the close-parallel option would increase the current airport land by 3.3 sq km, from 7.7 sq km to 11 sq km. This would mean the loss of around 50 houses (lying to the north and the south of the current airport and in part of Fernhill, to the east) and 120ha. of green belt to the north of the airport.

6.49 For the southern wide-spaced runway option, further increases in land area of 4 sq km would be required, and this would mean the loss of around 300 houses (principally to the north of the airport in Hookwood and at Povey Cross, to the east in Fernhill and Tinsley Green, and some to the south between the airport and the Crawley neighbourhoods of Ifield and Langley Green), and 240ha. of green belt to the north of the airport.

6.50 For the two-runway option, a further 3 sq km of land area would be required, and around 430 houses (those taken for the wide-spaced option, plus additional properties in Hookwood and in the countryside to the north of Charlwood Village) and 530ha. of green belt to the north of the airport.

6.51 The four BAA alternative plans for the close-parallel option all require more additional land than the SERAS close-parallel option. Whereas the SERAS close-parallel option (Plan 6A) increased airport land by 3.3 sq km (from 7.7 sq km to 11 sq km), the wider-spaced close-parallel (Plan 6B) and the additional taxiways (Plan 6C) options increase airport land by about 3.7 sq km and 4.6 sq km respectively. Placing additional airport facilities to the south of the airport rather than the north (as shown in the SERAS option), adds a further 0.1 sq km for the wider-spaced close-parallel (Plan 6D) and a further 0.7 sq km for the additional taxiways option (Plan 6E).

6.52 We have already indicated that it is possible to reduce the amount of land required for the southern wide-spaced option by proposing only one new terminal, rather than two, but we have done no detailed work to quantify those reductions. Nor have we undertaken work to verify the effects of the SERAS options on land and property, heritage, ecology and water as reported in the SERAS document, or to ascertain the precise effects on land and property, heritage, ecology and water for the potential modifications we have identified for the SERAS close-parallel and wide-spaced options.

Air Noise

6.53 BAA agrees that the size of the areas of the air noise contours shown on Figures 8E to 8J and in Tables 8.2 and 8.3 of the SERAS document would be broadly representative of the future air noise climate around Gatwick if the close parallel and wide-spaced runway options were operated as described in paragraphs 8.11–8.13.

6.54 Currently, around 9,000 people fall within the 57 Leq noise contour at Gatwick. We recognise that by 2030 the number of people within the 57 Leq contour is predicted to rise to 10,000 with a new close-parallel runway, to 23,000 with a new southern wide-spaced runway, and to 31,000 with two new wide-spaced runways. Changes to the flight paths associated with a two- and three-runway Gatwick would mean that people who are not currently overflown would, as a result of a new runway, be newly exposed to air noise from arriving or departing aircraft.

6.55 We explain in Chapter 4 of this submission, and in our response to SERAS Question 16 at the end of this document, measures which we have developed in conjunction with airlines and NATS designed to address particular local air noise issues. In addition to measures of this kind, further international standards and measures could be brought forward to contribute to the noise management of future runways at Gatwick. In circumstances where BAA did promote a new runway or runways at Gatwick it would expect (as was the case with its consent for Heathrow Terminal 5) an air noise cap to be imposed as a planning condition on any approval, to give communities a degree of certainty about the noise environment which would exist. The

SERAS document describes at the end of Chapter 16 possible further measures which would mitigate or compensate for the effects of air noise on the local community. BAA's views on these possible further measures can be found in our response to Question 18.

Air quality

6.56 We recognise that air quality modelling is a complex and technical issue. We therefore begin this section with an overview that provides a non-technical summary of the key findings from our work so far.

Overview

6.57 We have reviewed the DfT's air quality assessment for Gatwick SERAS runway options, and we have improved the accuracy of the air quality model so that it better reflects the absolute contribution of airport emissions to nitrogen dioxide (NO_2) concentrations in the community. We have done this in two ways: first by applying a model optimisation technique based on comparison of the SERAS Gatwick model to measured NO_2 concentrations around Gatwick, and second by accounting in the model for reduced thrust operational practices by aircraft on take-off at Gatwick.

6.58 The results of our revised improved SERAS Gatwick model show that the number of people predicted to fall within an area where the EU Daughter Directive for NO_2 is exceeded falls significantly from the DfT's original estimates, as shown in Table 6.1 below.

Table 6.1: Summary of BAA's revised and improved air quality modelling results for Gatwick.

DfT Option	Short Description	When built	Modelled year	Original DfT SERAS predicted No of people affected by exceedence of NO_2 limit value	Revised improved SERAS model prediction of people affected by exceedence of NO_2 limit value
Option 1	Single close parallel	2011	2015	1000	52
Option 1	Single close parallel	2011	2030	3833	991
Option E1B	Single wide spaced parallel	2024	2030	3697	183
Option E1	Wide spaced parallel and northern runway	2011& 2018	2030	7216	1079

6.59 These results predict reductions in future air quality impacts similar to the pattern of results described in our assessment of the revised Heathrow baseline figures prior to mitigation (see Table 5.1 in Chapter 5). What they do not account for are any planned actions to improve local and national air quality by BAA Gatwick, the aviation industry, local authorities and Defra. Consequently, we believe that the number of people predicted to be affected by an exceedence of the EU Daughter Directive NO_2 limit value could, assuming effective implementation of these plans, be reduced to zero in the time periods considered.

Introduction

6.60 The DfT commissioned detailed air quality modelling of the Gatwick options to support the SERAS consultation. The analysis was based on the best available knowledge at the time and predicted the number of people that would fall within an area where the EU Daughter Directive limit value for annual average NO_2 (40µg/m^3) would be exceeded under different runway scenarios.

6.61 No exceedences are predicted of other air quality standards for the options in the 2015 and 2030 timeframes considered by the DfT. By inspection of the detailed PM_{10} results it can also be concluded that no exceedence is predicted of the recently-agreed more stringent PM_{10} standard of 20µg/m^3.

6.62 The DfT analysis reported that if no runways were constructed at Gatwick the number of people in 2015 predicted to fall within areas where the NO_2 EU limit value was exceeded would range between 671 (the SERAS base case) and 611 (the SERAS maximum use case). In the cases of new runway options, the population numbers are predicted to range between 1,000 in 2015 (a new close parallel built in 2011) and 7,216 in 2030 (two new wide-spaced runways).

6.63 We have commissioned the DfT's consultants to replicate the improvements made to the base SERAS model as described in the Heathrow air quality section in Chapter 5 to a selection of the original Gatwick DfT air quality assessments. In choosing the options to analyse we have been mindful of ensuring coverage of:

- Air quality predictions in both 2015 and 2030
- SERAS options with the largest air quality impacts (where a SERAS model exists)
- All three runway variants ie the close-parallel, the southern wide-spaced and the northern wide-spaced runways.

6.64 Applying these criteria, we were able to select the options and modelled years summarised in Table 6.2 below for our detailed air quality assessment. This selection does not indicate any preference by BAA for any specific Gatwick option but has been made merely to illustrate the range of possible effects.

Table 6.2: Options chosen for detailed air quality modelling.

DfT Option	Short Description	When built	Modelled year	DfT prediction of people affected by exceedence of NO_2 limit value
Option 1	Single close parallel	2011	2015	1000
Option 1	Single close parallel	2011	2030	3833
Option E1B	Single wide-spaced parallel	2024	2030	3697
Option E1	Wide-spaced parallel plus northern runway	2011 & 2018	2030	7216

Improving the accuracy of the SERAS baseline model

6.65 In improving the air quality model for Gatwick we have applied the same approach as used to improve the Heathrow air quality results. Our objective throughout this work has been threefold:

i To improve the absolute predictive accuracy of the Gatwick air quality assessments and therefore offer a better starting point for understanding future air quality impacts of the Gatwick SERAS options.
ii As far as practicable to follow a similar procedure as applied at Heathrow to ensure the improved air quality results remain comparable.
iii To identify the scope of future work to address any residual uncertainties.

6.66 To support these objectives we engaged the same air quality consultants to replicate, as far as practicable and appropriate, the approach first applied at Heathrow. This work has encompassed the same core tasks,[1] including:

- revising the Gatwick SERAS model to more realistically account for reduced thrust levels estimated at Gatwick and reflecting local conditions and operations
- calculating near-field dispersion and background parameters that ensure modelled values for a current SERAS case (2002) match monitored values at monitoring stations at Gatwick (See Appendix 2, Figure 13).

6.67 The Horley 2 site (shown in Figure 13 Appendix 2) has not been used in the process of fitting modelled to monitored data since a full calendar year of monitoring data was not available for the year 2002. It was however used as an independent check of the accuracy of the revised SERAS model developed through this work. This check showed that the revised SERAS model predicts oxides of nitrogen (NO_x) concentrations of 53.0µg/m^3 at Horley 2 in 2002, which compares favourably with a measured value[2] of 53.1µg/m^3 and therefore adds confidence to the fitting procedure adopted at Gatwick.

6.68 In improving the Gatwick SERAS model we have throughout taken advice from our consultants (as used previously by the DfT) on the approach and assumptions to ensure the revised improved model produces results that remain conservative. We are therefore confident that the results presented here represent an improvement in the predicted absolute air quality impacts of Gatwick SERAS options, and in line with the DfT's original assessment remain conservative.

Revised and improved SERAS results for Gatwick options in 2015 and 2030

6.69 We have produced revised air quality results for the four SERAS options detailed in Table 6.2 based on the work described above to improve the absolute predictive accuracy of the DfT SERAS air quality model. The fitting procedure used at Gatwick identified a close correlation between modelled and monitored background (non airport-related) levels. Therefore no adjustment has been made to the forecast background levels around Gatwick in 2015 and 2030. The results presented here are therefore comparable to the without background adjustment results presented in Table 5.1 in Chapter 5 under the heading 'more conservative procedure'. The population counting procedure used was identical to that used in the original DfT assessment and therefore ensures comparability of the results.

6.70 The number of people predicted by the revised improved model for the selected options to fall within an area where the NO_2 limit value is exceeded is summarised in Table 6.3 below. The revised NO_2 contours for each option are shown as Figures 14 to17 in Appendix 2.

Table 6.3: Original and revised number of people predicted to be affected by NO_2 exceedences at Gatwick in 2015 and 2030.

DfT Option	Short Description	When built	Modelled year	Predicted passenger throughput (mppa)	Predicted Annual Air Traffic Movements (000)	Original SERAS predicted No of people affected by exceedence of NO_2 limit value	Revised model prediction of people affected by exceedence of NO_2 limit value
Option 1	Single close parallel	2011	2015	52	378	1000	52
Option 1	Single close parallel	2011	2030	61	378	3833	991
Option E1B	Single wide-spaced parallel	2024	2030	76	486	3697	183
Option E1B	Wide-spaced parallel and northern runway	2011 & 2018	2030	109	675	7216	1079

6.71 The revised and improved SERAS model results show a marked reduction in the number of people predicted to be affected by an exceedence of the EU NO_2 limit value under each Gatwick runway option. Inspection of these results shows:

- Air quality impacts with a close parallel runway are relatively small in the shorter term with approximately 50 people predicted to fall within areas where the NO_2 EU limit value would be exceeded in 2015.
- The air quality impacts of the higher capacity wide-spaced runway are lower than the close parallel runway in 2030. This is because the wide-spaced runway is located further from Horley[3] than the close-parallel option. Given the rapid dispersion of aircraft emissions, even displacements on this scale would have noticeable effects, as shown here, on air quality in the community.
- Approximately 1,100 people are predicted to fall within areas where the NO_2 EU limit value would be exceeded in 2030 for the two new wide-spaced runway option.
- Air quality impacts of the close-parallel runway are markedly higher in 2030 than in 2015, even through the number of air traffic movements stay the same. This can be explained by two factors: first the DfT's predicted increase in the average size of aircraft operating at Gatwick in 2030, compared to 2015; second, the proportionately higher NO_x emissions on a per passenger basis for larger aircraft types resulting from the aircraft technology forecasts produced by the DfT. Consequently, for this option, aircraft ground level emissions are predicted by the DfT to increase by approximately 50% between 2015 and 2030 compared to a passenger increase of only 20%.

6.72 Our assessment of the contribution of non airport-related sources to local concentrations shows that these are not insignificant. For example non-airport sources account for 27% of emissions at Horley 1 for the southern wide-spaced and northern wide-spaced runway options in 2030.

6.73 These results do not, however, take account of the further initiatives planned by the industry, such as Gatwick's air quality strategy, future more stringent emission standards (eg at CAEP 6), Defra's action plans for achieving national compliance with the EU Daughter Directive and other forms of local mitigation planned by local authorities under the UK Government's Air Quality Strategy. We believe therefore that planned actions to mitigate air quality at Gatwick, locally and nationally will effectively address the residual air quality impacts identified by this analysis.

Further work

6.74 We are committed to continuing to improve our understanding of air quality at Gatwick and will progress this work in line with the work programme described for Heathrow. In addition, as for Heathrow, we will also identify and model the impact of potential airport and industry mitigation on the revised air quality impacts for the Gatwick SERAS options described here. We will be pleased to make this information available to the DfT as it becomes available.

Economic impacts and regional planning

6.75 We believe that a runway development at Gatwick would generate significant economic benefits for airlines, users, business, tourism, competitiveness, productivity, investment and employment. Gatwick is critical to the South East region and is a main driver of the sub-region in which it is located.

6.76 The SERAS document sets out estimates of the employment benefits of runway developments at Gatwick, suggesting that from a 1998 base of 43,000 direct and indirect employees, with a new runway Gatwick has the potential to generate up to 70,000 jobs. However, we have some reservations about the assumptions behind the Government's calculations, and believe that the SERAS study overstates the employment impact of new runways at Gatwick.

6.77 First, we regard the assumption that direct off-airport employment represents 14% of total direct employment as too high. Second, we believe it would have been more appropriate if the core catchment area had been drawn more widely and not constrained by the assumption of containing only 50% of the employees. This would have enabled it to take better account of future patterns of recruitment supported by the use by airport staff of discounted travel costs on public transport. And third, as with the Heathrow work, we would have preferred to see a smaller multiplier than the 0.3 which the SERAS study uses to calculate indirect employment levels respective to direct employment when applied to the catchment area of the scale used by SERAS.

6.78 In respect of the two runways option, SERAS appears to assume that significant transport infrastructure improvements could enable Gatwick to draw higher levels of employees from a wider labour market area. BAA has argued generally that consideration of wider labour market areas should have taken place in any event, based on trends in airport labour recruitment and not only where significant reliance is placed on transport infrastructure improvements within a single corridor such as the Croydon/Gatwick/Brighton corridor.

6.79 Either of the alternative southern runway options would have implications for the provision of housing in the north-east sector of Crawley, and we recognise that this would cause further complications for housing provision in the sub-region. Having said that, and based upon the noise contours provided in the SERAS document, it would appear that it would be technically feasible within the terms of the Government's Planning Policy Guidance (PPG) 24: 'Planning and Noise' to develop the site if a close-parallel runway was provided, although the housing capacity of the sector might somewhat reduce. We believe that for the future there need to be tighter external controls on where housing can be located with regard to noise impacts, and we think that the Government should be making a stronger statement about this than can presently be found in PPG 24.

Financial appraisal

6.80 As part of the background to the SERAS consultation, the DfT carried out a preliminary financial appraisal exercise to identify the relative implications for airport passenger charges of the individual SERAS options and packages of options. Using the DfT's financial model, BAA has carried out our own sensitivity analysis to reflect our own judgements and experience in delivering major infrastructure projects. The results of BAA's sensitivity analysis for the first new runway options in the South East are contained in full in Chapter 9.

6.81 The DfT and BAA analysis has been based on the indicative assessments in the SERAS consultation material of the cost of providing the infrastructure. The SERAS costs include an assessment of costs for surface access schemes which may well not be those which are ultimately provided, and they exclude costs for environmental mitigation and compensation which might be required. Further information concerning possible mitigation and compensation measures is set out in our answer to Question 18 in Chapter 15 of this submission. On the

basis of three hypothetical scenarios described in our response to the question, the mitigation and compensation costs associated with a close-parallel runway at Gatwick range between £4 million and £45 million, and between £12 million and £60 million for a southern wide-spaced runway. The mitigation and compensation costs associated with two new runways range between £20 million and £125 million. Until these costs are known, there will remain a degree of uncertainty about these assessments.

6.82 That said, the analysis in Chapter 9 shows that the options for one new runway at Gatwick would be financially viable, subject to the scale of the additional costs not calculated in SERAS, although the charges needed to remunerate the investment would be significantly higher if applied to Gatwick users only, rather than shared across users of the London system as a whole.

6.83 A new close-parallel runway would require charges to increase by around 30% above the 2003/04 level (in real terms) if it was remunerated on a 'system' basis, and by around 90% on a 'stand-alone' basis. A new wide-spaced runway would require charges also to increase by around 30% above the 2003/04 level (in real terms) if it was remunerated on a 'system' basis, and by around 90% on a 'stand-alone' basis.

6.84 The modelling results are highly sensitive to changes in the key assumptions. For example, the level of charges required to remunerate the options would be greater if the target rate of return in the model is not high enough to attract investors to provide funds for investment in new airport capacity, or the airport is expected to make more significant contributions to surface access infrastructure or mitigation and compensation schemes, than have been assumed in the modelling.

Footnotes

[1]For a more detailed description of these tasks refer to the Air Quality section in Chapter 5.

[2]Scaled up to 12 months based on ratio comparison to Horley 1.

[3]Horley lies immediately to the north of Gatwick and is the only residential area that falls within the predicted NO_2 exceedence contour.

Chapter 7: Stansted

7.1 Stansted Airport is London's third international gateway and one of the fastest-growing airports in Europe, handling over 16 mppa (million passengers per annum). Its single terminal is home to approximately 40 airlines which serve around 100 different destinations, mostly European and Mediterranean. Stansted has a significant level of business traffic and over a third of its passengers are visiting friends and relatives. Stansted pioneered the no-frills service market in the UK, but also has a strong charter and cargo presence. Stansted has maintained phenomenal growth over the past five years due to the demand for short-haul low cost air travel and is seen as a centre of excellence for this market.

7.2 The Government has three new runway options proposed for consideration at Stansted:

- A full-length independent runway located 2,450 metres to the south east of the existing runway
- A full-length close-parallel runway located 1,300 metres to the north west of the existing runway
- A close-parallel runway located to the south east of the proposed wide-spaced runway.

Some or all of these options appear in several of the packages where more than one runway would be provided in the South East during the 30-year horizon of the White Paper.

7.3 BAA's principal interest at the outset of our appraisal of the Stansted options was to understand how the new runways would perform in aeronautical terms, ie whether their operation could be integrated efficiently with the existing airport for the purpose of maximising the release of additional runway capacity. But it was also essential to understand the impacts of the options on the environment and local communities, so our work has also focused on how best to achieve the increments of capacity stated in the SERAS document with the minimum negative impact.

7.4 In this Chapter, we therefore consider the airport layout issues associated with both the maximum use of the current runway, and with new runways. We also consider the road and rail links which would be needed to support growth, the impacts on communities and environment, in terms of land and housing, air noise and air quality and what measures would be needed to address these impacts. Finally, we briefly consider the financial appraisal of the Stansted runway options, and examine any implications for regional planning.

7.5 In Chapter 3 of our submission, we call for Government decisions in the new White Paper on where a new runway is most urgently needed and on those other sites in the South East where, over the 30-year period, new runways will be required. In answer to SERAS Question 1 at the back of this document, we say that the Government should make a choice of up to three runway sites from the SERAS runway options at Heathrow, Gatwick and Stansted.

7.6 BAA is satisfied that each of the three Stansted SERAS options could work from an aeronautical and airport operational point of view. We have also carried out our own preliminary work on airport layout, rail and road access, air quality, and other aspects, in order to add our views on those matters to the assessment work reported in the SERAS document

7.7 In our view, taking everything we know now into account, schemes for one or two new runways, which could be any of the three SERAS new runway options at Stansted and in any order, should be included in a shortlist of four possible sites from which the Government would select up to three in the White Paper, in order to provide capacity in the South East over the next 30 years. This conclusion assumes the implementation of appropriate funding arrangements which we outline in Chapter 3, as well as a process which we describe in Chapter 13 to allow airport operators to expedite proposals quickly and safely. It will be for the Government to decide whether measures needed at Stansted to reduce the predicted environmental effects can be delivered, and that fair and effective arrangements for mitigating and compensating for the significant local community impacts can be put in place.

7.8 Insofar as a third runway is concerned, BAA has not so far been able to identify an appropriate rail strategy beyond that identified for a two new runways scenario. The SRA and BAA believe that there would be a need to provide significantly enhanced rail infrastructure, over and above that required for the one and two new runway options, in order to support a four runway airport.

Layout issues

7.9 BAA provided technical information to the DfT during its preparation of layout plans for schemes at Stansted at the SERAS optioneering stage. In principle, the schemes described in the SERAS document have the capability to achieve the broad orders of additional runway capacity ascribed to them. As with Gatwick, where we also gave the DfT technical assistance at the optioneering stage, we have continued to consider layout options for Stansted but, unlike at Gatwick, we have no further suggestions to those which we gave to the DfT at that time. We therefore have only a few additional points to make about the runway layouts. However, in order to help follow some of the points we make in this chapter, we include here as Figure 7A DfT's Option 7, which shows the three new runways layout illustrated in SERAS Figure 9D. This is not an option which BAA favours for inclusion in the White Paper, as we make clear in preceding paragraphs, but it does help to understand the possible locations and possible effects of the one and two new runways options which we do think should be on the Government's shortlist for inclusion in the White Paper.

7.10 BAA has also been concerned to minimise the impacts of any development on the environment and local communities. Therefore, in considering these options and any firm plans which might emerge from them, we would attempt to limit the number of properties lost and to preserve sites of significant local heritage. We have regular dialogue with communities which live alongside our airports and this process has continued during the consultation period. We have tried, where possible, to respond to concerns expressed to us, and would not only try to limit the number of homes which would have to be taken, but also to limit the effects on those properties remaining which would be in close proximity to any new runway and its associated facilities, and to preserve or replace the local road network which would be affected.

Maximum use case

7.11 We have commented in the Heathrow and Gatwick chapters about the ability of those airports to deliver the amounts of capacity featured in the DfT's maximum use case. At Stansted, we believe that the SERAS maximum use case of 35 mppa could be achieved off the existing runway by expanding terminal facilities, aircraft stands and car parking within the existing airport's land boundary. Surface access infrastructure issues for the 35 mppa case are covered later in this section. The existing layout with its current surface access links is shown on Figure 7B.

One new runway option

7.12 A new full-length runway option, shown in SERAS Figure 9B, is proposed some 2,450 metres to the south-east of the existing runway. Terminal and aircraft stand capacity would be provided between the two runways. The principal areas affected by the one new runway option would be Molehill Green to the east of the airport, and Coopers End and the northern end of Bambers Green to the south of the airport.

7.13 BAA believes that if both the existing and new runways were to operate in mixed mode, as the SERAS document assumes, then the airport runway capacity of this option could deliver around 85 mppa rather than the 82 mppa reported in the SERAS document.

7.14 However, BAA believes that in this SERAS option there is a case for operating only the existing runway in mixed mode and the new runway in segregated mode in order to minimise the air noise impact on Takeley and Hatfield Forest. More detailed work would be needed to discover whether a capacity of 82 mppa could be maintained in those circumstances.

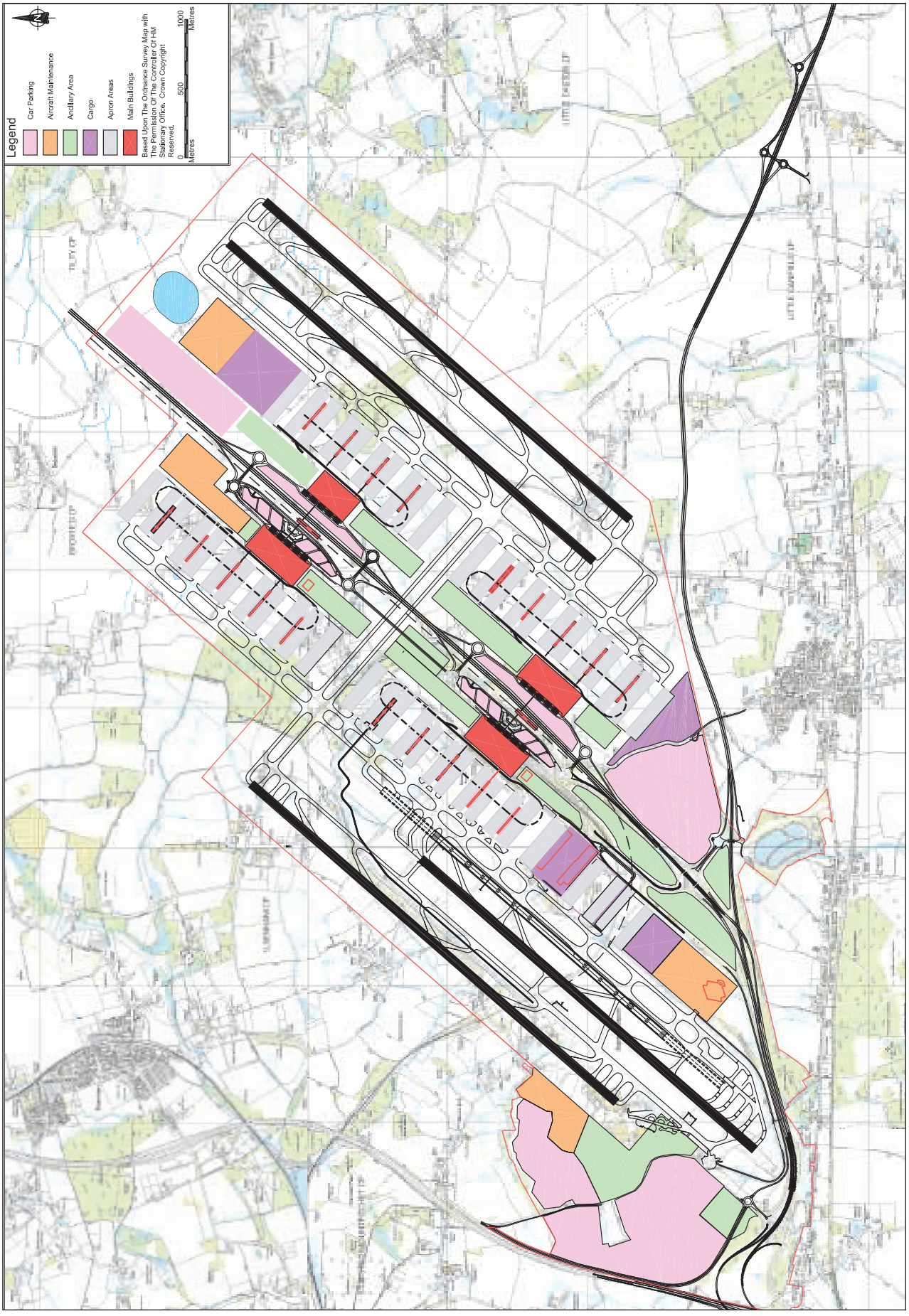
Two new runways option

7.15 This SERAS option adds a full-length close parallel runway some 1,300 metres to the north-west of the existing runway (SERAS Figure 9C). The principal additional areas affected by the two new runways option would be Gaunts End to the north of the existing airport boundary, and some other areas to the south of Tye Green and Burton End.

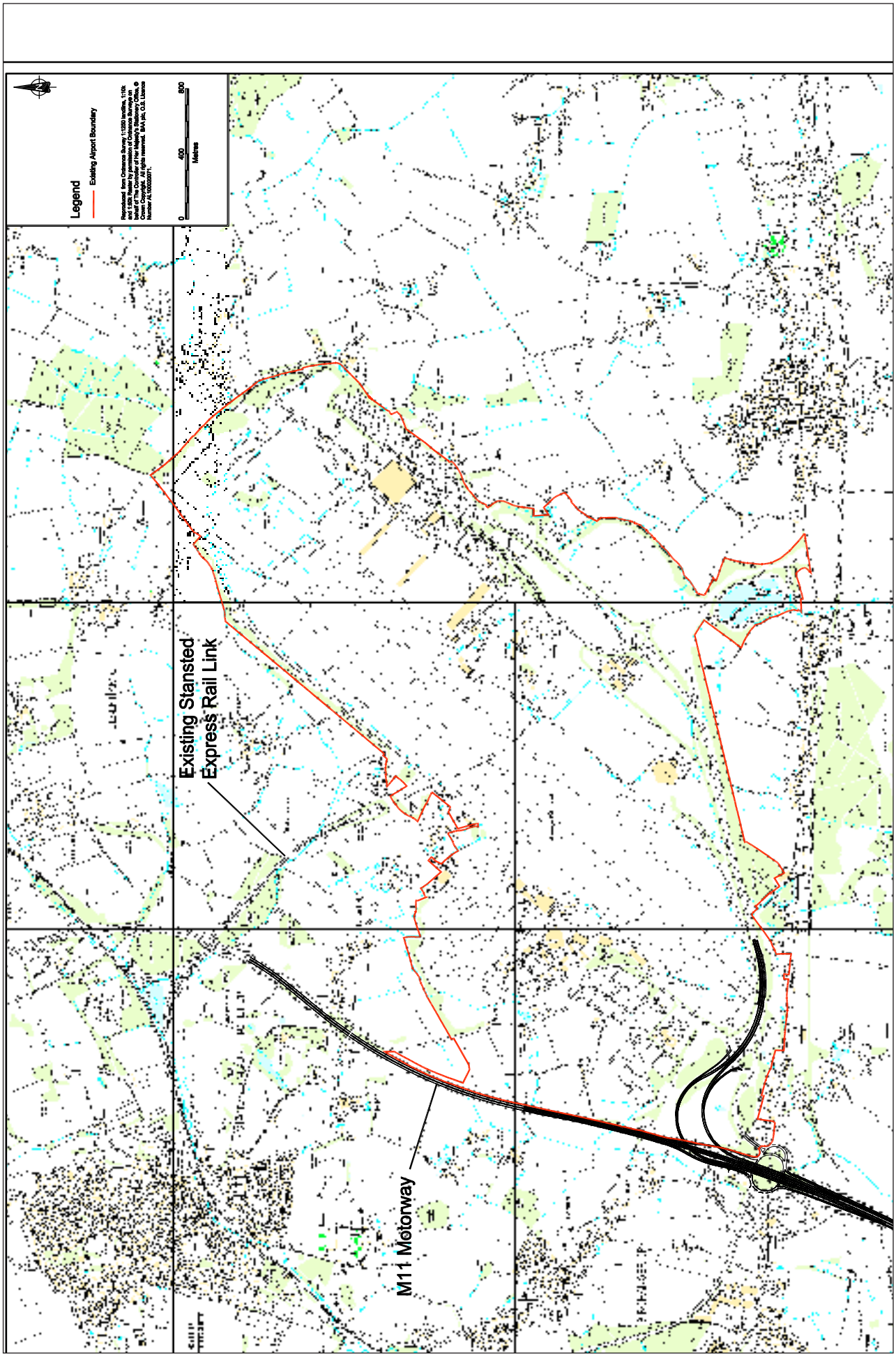
7.16 BAA considers that the SERAS capacity estimate of 102 mppa is reasonable, although more capacity could be created if the stagger between the close parallel runways was increased by some 1,200 metres to around 2,500 metres. The layout could also be modified in order to move the northern-most passenger terminal away from Eastend Wood.

Three new runways option

7.17 This SERAS option adds a close parallel runway to the south-east of the new wide-spaced runway (the one new runway option), providing the airport with two pairs of close parallel runways. The principal additional area affected by the three new runways option would be Bambers Green to the south of the existing airport boundary.



Plan 7A: Stansted Dft Option 7 – 3 new runways



Plan 7B: Stansted Airport – Existing Layout showing surface access.

7.18 The mode of operation for these four runways could be either that each pair of runways would be used for either departures or arrivals, or that they would operate as two pairs of arrival/departures runways. In either mode, BAA believes that the SERAS capacity estimate of 129 mppa is likely to be an under-estimate and that up to 140 mppa could be achieved.

Rail and road links

Rail links

7.19 The SERAS document lists a series of rail services and infrastructure schemes for improving access to Stansted under the maximum use scenario as well as in the options for one, two and three additional runways. The details give an indication of what may be needed, but no firm conclusions are drawn.

7.20 BAA's approach to a rail strategy for new runways at Stansted must be seen in the context of an evolving rail environment along the West Anglia mainline which links Liverpool Street, Stansted and Cambridge. The SRA is currently reviewing future services in the context of its emerging Capacity Utilisation Policy, as well as continuing negotiations for re-franchising the West Anglia mainline operations. In addition, consideration of the potential form of enhancements to the West Anglia mainline and access arrangements to Stansted Airport will continue, irrespective of the potential for the provision of additional runways at Stansted.

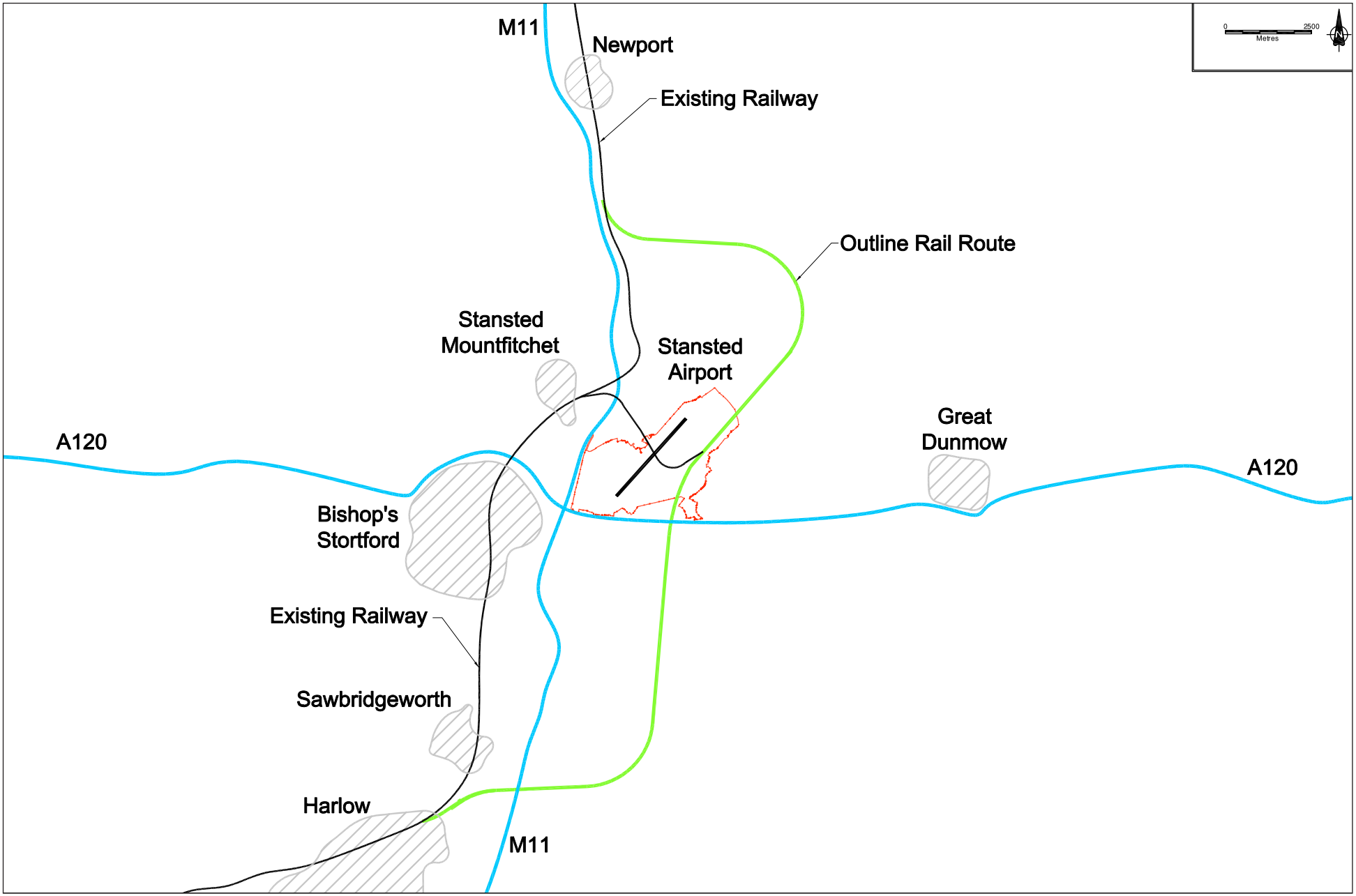
7.21 BAA has taken specialist advice and has undertaken some preliminary technical work jointly with the SRA to consider the development of a long-term rail strategy for the West Anglia mainline. We believe that this approach has identified potential schemes which are deliverable and have the capacity to support new runway development at Stansted. The results of the joint working between the SRA and BAA are reported in Appendix 1.

7.22 On the basis of our high-level evaluation and our joint working with the SRA, we believe that, given the current plans to increase the number of carriages on the Stansted Express services up to 12 cars, the option exists to serve the maximum use case of 35 mppa at Stansted without triggering the requirement for a second tunnel bore to provide additional rail access to Stansted Airport rail station.

7.23 In the context of the SERAS one and two new runways scenarios for Stansted, a number of infrastructure improvements to the West Anglia mainline have been identified to increase capacity and so support potential future airport and non-airport train services. The most significant enhancement that has been identified is a new 'southern' railway line from the West Anglia mainline north of Harlow Mill direct to Stansted Airport railway station. Further study will be required to identify an alignment which is technically and environmentally sustainable, particularly with regard to the need to safeguard Hatfield Forest. A potential route for this new 'southern' railway line is shown illustratively coloured green on BAA Plan 7C. A wide range of complementary infrastructure schemes to provide increased capacity on sections of the existing West Anglia mainline between London and Harlow have also been identified. The SRA and BAA are confident that an efficient project, to be implemented in stages, can be developed to enable extra rail capacity to be provided to match both the growth in airport business and within the rail corridor in general.

7.24 An option also exists for extending the new 'southern' airport line between Harlow Mill and Stansted to the north, so that it rejoins the existing West Anglia mainline south of Newport. A potential route for this new 'northern' railway line is shown illustratively coloured green on BAA Plan 7C. This 'northern' extension would enable some lengthened Cambridge trains to operate via Stansted Airport and potentially be integrated with the existing Stansted Express service. This proposal is believed to warrant more detailed consideration, and the advantages could justify bringing forward this new 'northern' railway line in support of an earlier stage of the airport development.

7.25 While we are confident that an appropriate rail strategy can be delivered for two new runways at Stansted, BAA's preliminary studies have not so far identified an appropriate rail strategy for three new runways at Stansted. Both the SRA and BAA believe that the growth in non-airport rail demand, especially to London, would exceed any growth in airport rail demand for a four-runway airport at Stansted and so require



Plan 7C: Stansted Airport – BAA outline rail route alignment

substantial new rail infrastructure significantly in excess of the package for the two new runways option. Further consideration of an appropriate rail strategy for three new runways at Stansted could therefore only be undertaken in the context of the Government's emerging Regional Spatial Strategy for the East of England.

7.26 As outlined in Chapter 13 of this response, the Government needs to ensure that appropriate measures are put in place following the publication of the White Paper in order that rail schemes are, first, funded proportionate to the value airport and non-airport traffic derives from them and, second, delivered speedily following any decisions to develop further runway capacity.

Road links

7.27 BAA agrees with the SERAS analysis which assumes that, following the completion of the new slip roads at M11 Junction 8, and the improvement and re-alignment of the A120 (both currently under construction), no further road infrastructure would be required for the maximum use scenario.

7.28 BAA believes that the airport access road infrastructure identified by SERAS analysis for the one, two and three new runways scenarios for Stansted needs further review. The Government's regional policy envisages significant housing development in the London-Stansted-Cambridge corridor, as well as important economic development in Cambridge and Harlow. Our preliminary review of the strategic road infrastructure has identified the need for a co-ordinated approach to assess the level of M11 improvements required to support increased levels of activity at Stansted, over and above what would in any event be required to deliver an appropriate regional strategy.

7.29 As outlined in Chapter 13 of this response, the Government would need to ensure that appropriate arrangements are put in place following the publication of the White Paper, in order to identify the precise strategic and regional road infrastructure that would be required for both airport and non-airport reasons.

Impacts on people and the environment

7.30 Critical to the deliverability of any sustainable runway development at Stansted is the impact it will have on the people who live near the airport and on the local environment. The effect on land and housing, air noise and air quality will be key determinants for the Government as to whether any new runways can be a included in a White Paper. We look at each of these issues in turn.

Land and housing

7.31 The unavoidable impact of any new runway development at Stansted is that homes would need to be purchased, and residents compensated for the loss of those homes. While BAA would make every effort to minimise the housing impacts of any new runways at Stansted, a number of homes would still need to be removed if the Government decided that any Stansted developments should go ahead.

7.32 The SERAS analysis shows that the one new runway option would increase the current airport land by 7 sq km, from 9.5 sq km to 16.5 sq km. Around 100 houses (around Molehill Green, Bamber's Green and Broxted Hill) would need to be purchased, and 700ha. of high-grade agricultural land to the north-east of the airport would be lost.

7.33 The analysis shows that a two new runways option would increase the airport land area by a further 2.5 sq km, and that a three new runways option would increase airport land area by another 3 sq km. With both of these bigger options, around 200 houses would need to be purchased – those required for the one new runway scheme, together with other properties in those areas, as well as properties in Brick End and parts of Gaunt's End, and possibly Tye Green. Some 1,200 ha. of prime agricultural land would be lost to the north and the north-west of the airport. BAA has not undertaken work itself to verify the effects of the SERAS options on land and property, heritage, ecology and water as reported in the SERAS document.

7.34 We believe, based on our experience of developing our airports, that it would be possible to reduce the amount of land required for the three options, but we have done no detailed work to quantify those reductions.

Air noise

7.35 BAA has looked at the input assumptions which the DfT has made in preparing its air noise contours. On the basis of the assumptions which the DfT has made about the number of aircraft and the fleet mix in the maximum use and one, two and three new runway cases in 2015 and 2030 (and subject to any of the differences in capacity estimates between BAA and those quoted in the SERAS document), BAA believes that the areas of the 16-hour LAeq contours shown in Table 10.2 of the SERAS document would be broadly representative of the future air noise climate around Stansted with those airports operating at the air traffic levels assumed.

7.36 Currently, around 6,000 people fall within the 57 Leq noise contour at Stansted. We recognise that by 2030, the number of people within the 57 Leq contour could rise to 14,000 with one new runway, 24,000 with two new runways, and 28,000 with three new runways, and that people who are not currently overflown would, as a result of new runways, be newly exposed to air noise from arriving or departing aircraft.

7.37 We explain in Chapter 4 of our submission, and in response to SERAS Question 16 at the end of this document, measures which we have developed in conjunction with airlines and NATS designed to address particular local air noise issues. In addition to measures of that kind, further international standards and measures could be brought forward to contribute to the noise management of future runways at Stansted. In circumstances where BAA did promote any additional runways at Stansted we would expect (as was the case with its consent for Heathrow Terminal 5) an air noise cap to be imposed as a planning condition on any approval, to give communities a degree of certainty about the noise environment which would exist. The SERAS document describes at the end of Chapter 16 possible further measures which would mitigate or compensate for the effects of air noise on the local community. BAA's views on these possible further measures can be found in its response to Question 18.

Air quality

7.38 Work commissioned by the DfT to model the predicted air quality impacts of additional runways concludes that there would only be small a number of people at Stansted falling within an area exposed to an exceedence of the European Union (EU) nitrogen dioxide (NO_2) annual average Daughter Directive limit value.

7.39 The DfT's analysis shows no-one affected in either the SERAS base case or the SERAS maximum use case in 2015, and that only 21 people (10 properties) are predicted to be exposed in 2015 if one new runway was built. In 2030 all the new runway options result in populations exposed to exceedences of the EU NO_2 limit value, ranging from 298 people (150 properties) with two new runways to 45 people (23 properties) with one new runway. In its consultation document, the DfT also concludes that it is likely that such impacts could be prevented in practice.

7.40 The air quality work we describe in Chapters 5 (Heathrow) and 6 (Gatwick) indicates that there is a systematic over-prediction bias in the DfT air quality assessments. This suggests therefore that the air quality impacts predicted for the Stansted options are overstated. Inspection of the detailed DfT results shows that the predicted NO_2 exceedences in 2030 are predominantly due to aircraft-related emissions which account for between 66% and 76% of total NO_x emissions in the Stansted study area across all options.

7.41 Our work to improve the DfT's original air quality model has identified, with a high degree of confidence, a systematic over-prediction in the contribution of aircraft emissions to NO_2 concentrations outside the airport boundary. The effect of applying a similar improvement, as found at Heathrow and Gatwick, to the Stansted modelling of aircraft emissions would, given their significance in the Stansted area, be likely to result in a significant reduction in the modelled airport-related NO_2 contribution away from the main runways. Furthermore planned air quality improvements by the industry, Defra and local authorities would also contribute to improved future performance.

7.42 We would conclude, therefore, that there is a high probability that a revised improved Stansted air quality model, which accounts for both the systematic over-prediction bias in modelling the effects of aircraft emissions and the air quality improvements planned by industry, local authorities and Defra would show reduced air quality impacts at levels that would result in few, if any, people exposed to NO_2 in excess of the EU limit value in any SERAS option in either 2015 or 2030.

Economic impacts and regional planning

7.43 We believe that runway developments at Stansted would generate significant economic benefits for airlines, users, business, tourism, competitiveness, productivity, investment and employment. Stansted is critical to the East of England region, and a main driver of the sub-region in which it is located, with significant regeneration potential for areas of north and east London.

7.44 The SERAS document sets out estimates of the employment benefits of runway developments at Stansted, suggesting that from a 1998 base of 10,000 direct and indirect employees, one new runway could deliver 60,000 jobs by 2015, while two new runways could deliver 74,000 jobs by 2030. However, we believe that the SERAS document overstates the employment impacts around Stansted, for the following reasons.

7.45 First, the assumption that in 1998 direct employment existed outside the airport boundary additional to on-airport is incorrect. As a consequence the forecasting base has, in BAA's view, been overestimated. Current development proposals do not require the allocation of any airport-related activities outside the boundary.

7.46 Second, we disagree with the use of a multiplier of 0.3 for the calculation of indirect employment related to direct employment if the results are located only to the defined core and wider catchment areas. From previous survey data BAA would recommend that if that approach is to be taken then a multiplier of 0.06 would be more appropriate.

7.47 Third, we believe that both the core and wider catchment areas have been drawn too tightly, and fail to take account of other Districts with a high proportion of resident airport employees and an already changing pattern of employee residence.

7.48 A consequence of the overstatement of employment potential will be an overstatement of the land and housing needed to support the forecast levels of employment. The employment overstatement will be further exaggerated by a shift in labour supply pattern which is already evident and which will not be triggered solely by consideration of the larger development options proposed in SERAS.

Financial appraisal

7.49 As part of the background to the SERAS consultation, the DfT carried out a preliminary financial appraisal exercise to identify the relative implications for airport passenger charges of the individual SERAS options and packages of options. Using the DfT's financial model, BAA has carried out our own sensitivity analysis to reflect our own judgements and experience in delivering major infrastructure projects. The results of BAA's sensitivity analysis for the first new runway options in the South East are contained in full in Chapter 9.

7.50 The DfT and BAA analysis has been based on the indicative assessments in the SERAS consultation material of the cost of providing the infrastructure. The SERAS costs include an assessment of costs for surface access schemes which may well not be those which are ultimately provided, and they exclude costs for environmental mitigation and compensation which might be required. Further information concerning possible mitigation and compensation measures is set out in our answer to Question 18 in Chapter 15 of this submission. On the basis of three hypothetical scenarios described in our response to the question, the mitigation and compensation costs associated with one new runway range between £20 million and £250 million, between £30 million and £270 million for two new runways, and between £35 million and £390 million for three new runways. Until these costs are known, there will remain a degree of uncertainty about these assessments.

7.51 We currently believe that the option for one new runway at Stansted would be financially viable, subject to the scale of the additional costs not calculated in SERAS, but the charges needed to remunerate the investment would need to be shared across users of the London system as a whole rather than applied to Stansted users only. The analysis in Chapter 9 shows that one new runway would require charges to increase by around 35% above the 2003/04 level (in real terms) if it was remunerated on a 'system' basis, and by around 120% on a 'stand-alone' basis.

7.52 A financial appraisal of any further runway investments at Stansted, beyond the first runway, would be best carried out following the approval, construction and operation of the first runway investment, taking into account the approach to financing the investment (ie the 'system' approach or 'stand-alone') and subsequent growth in passenger traffic across the South East system.

7.53 The modelling results are highly sensitive to changes in the key assumptions. For example, the level of charges required to remunerate the options would be greater if the target rate of return in the model is not high enough to attract investors to provide funds for investment in new airport capacity, or the airport is expected to make more significant contributions to surface access infrastructure or mitigation and compensation schemes, than have been assumed in the modelling.

Chapter 8: Luton

8.1 The SERAS document considers two options for the maximum use at Luton: a new southern runway or a new realigned runway, either of which would replace the current runway. These are shown on Figures 10B and 10C respectively.

8.2 Luton Airport is publicly owned by Luton Borough Council, but is operated, managed and developed by a private consortium in which TBI plc is the majority shareholder. BAA has not done any detailed work on the layout options shown on Figures 10B and 10C and has no comments to make on the possible layout options, the capacity each might deliver, or the rail and road links required to support those options.

8.3 There are however some general points which BAA can make in respect of Luton which are consistent with the general approach to the provision of additional capacity which BAA advocates in this document.

8.4 The Government proposes that maximum use should be made of the existing number of runways at the main South East airports (paragraph 14.17) in order that some additional capacity could be available before a first new runway could be provided in any location. BAA agrees with this objective and believes that it should be the Government's most immediate priority. Development at Luton falls within this approach and Luton should be supported in meeting the demand it could reasonably be expected to attract as long as new capacity can be provided in a way which would meet the Government's airports policy objectives and its objectives for sustainable development. However, we should make it clear that we do not regard either new SERAS runway option for Luton as one of the three runways which we believe the South East needs over the coming 30 years if demand is to be met; it would replace the existing runway and should therefore be regarded as part of the South East's maximum use development only.

8.5 As with any major infrastructure development, there must be a risk that, for whatever reason, no replacement runway is built at Luton. The White Paper would need to cover this possibility in its approach to new runway provision elsewhere in the South East.

Chapter 9: Preliminary financial appraisal of the SERAS packages

Introduction

9.1 The preceding chapters considered the options for providing additional runway capacity in the South East. This chapter considers how the long-term level of airport charges would need to change to remunerate the required capital investment in new runway capacity. Recent experience of major airport projects has shown that airport charges usually need to rise in order to remunerate additional investments at a reasonable rate of return.

9.2 By considering these issues, it is possible to gain an understanding of whether the scale of the investments required, or the manner in which the investments are remunerated, represent a significant issue for the Government in its decision-making in preparation for the White Paper.

9.3 As part of the background research for the SERAS consultation, the DfT carried out a preliminary financial appraisal exercise to identify the relative implications for airport passenger charges of the individual SERAS options, and packages of options. BAA emphasises that although this exercise yields valuable insight for the purposes of policy-level decision-making, it cannot provide an accurate guide to the absolute level of airport charges that might be required to remunerate satisfactorily investment in a new runway.

9.4 At this stage, it is only really possible to establish the broad scale of airport charges and the relative differences between the long-term levels of charges required for runway developments at each location. The broad profile of charges that would need to apply to provide investors with confidence over their short and medium-term financial security cannot be established from the DfT's financial appraisal. The promoter of a runway proposal would, at an appropriate time in the development process, need to carry out a significantly more detailed appraisal of the financial viability and fundability of any proposed development schemes.

The DfT's financial appraisal

9.5 The financial model used by the DfT's consultants to appraise the Government's options was based on the following principal assumptions:

- The level of airport charges in 2000 will increase in line with the Retail Price Index (RPI), thereby maintaining their value in real terms, and implying regulatory neutrality (RPI plus or minus zero in the language of regulation).
- Cashflows are discounted to a net present value over 60 years at a pre-tax nominal discount rate of 12.5%.
- Costs and revenues are based on 2000 values with 2.5% annual inflation applied.
- Three-year construction periods for runways and their associated facilities.
- Rapid build-up of passenger traffic following the opening of each runway option.

9.6 We note that, using these assumptions, all the SERAS options have significantly negative net present values, indicating internal rates of return well below the DfT's 12.5% discount rate. In layman's terms they would not be counted as viable investments at the current level of airport charges. Applying a more generous regulatory regime throughout the 60-year appraisal period, assuming modest increases in airport charges (as modelled in the DfT's sensitivity analysis), still results in almost all the runway options having rates of return below the DfT's target level.

BAA's sensitivity tests

9.7 We have undertaken a number of sensitivity tests to establish the increases in current airport charges required to make each of the SERAS options achieve the DfT's target rate of return of 12.5%. To ensure a consistent approach to the financial appraisal exercise, the DfT supplied BAA with a version of the spreadsheet model used in the preparation of the SERAS consultation material. The results of the sensitivity tests are reported and discussed below.

9.8 BAA used the DfT's financial model to run a number of sensitivity tests which varied several of the DfT's key assumptions. The changes were made principally to reflect BAA's judgement and its experience of delivering major infrastructure projects, but also to establish a revised base level of passenger charges following the recent announcement by the CAA of the outcome of the regulatory review for BAA's South East airports. The implications of the CAA's decision for the five-year period from 2003/04 to 2007/08 are discussed later in this chapter.

9.9 The main differences in the assumptions used in BAA's sensitivity tests were:

- BAA assumed an indicative seven-year construction period (DfT assumed three years).
- BAA assumed construction prices would grow by three percentage points faster than RPI during the construction phase (DfT assumed costs would rise at the same rate as RPI throughout the period).
- BAA assumed a slower build-up of passenger traffic following the opening of a new runway.
- BAA assumed the level of airport charges that applied from the 1st April 2003, increasing in line with Retail Price Index (RPI), thereby maintaining their value in real terms, and implying regulatory neutrality (RPI plus or minus zero in the language of regulation).

9.10 BAA maintained the DfT's target rate of return of 12.5%, given the focus of the exercise was to establish a relative assessment of the options. For the purposes of the exercise BAA also retained the DfT's assumptions concerning the costs and commercial revenues for each airport. In particular, Cliffe was assumed to enjoy the same cost and commercial revenue characteristics as Heathrow, while Stansted was assumed to continue operating with current levels of costs and commercial revenues. In any further work on this issue, BAA would seek to examine the impact of varying both these assumptions.

9.11 BAA carried out the sensitivity tests using two different sets of assumptions about how the investments would be remunerated: one based on the investments being paid for only by passengers at the airport where the development takes place ('stand-alone'), and the other where investment at BAA airports is paid for by a system-wide increase in charges for all passengers using BAA's London Airports (the 'system approach').

9.12 Using the DfT's financial model, BAA has reworked the DfT's original SERAS analysis using the level of airport charges for 2003/04 as the base at Gatwick and Stansted. This exercise did not alter any of the DfT's other assumptions and was intended only to provide a common basis on which to compare the DfT and BAA financial modelling results, taking into account the change in the base level of charges from the recently concluded regulatory review referred to in paragraph 9.8.

9.13 BAA has considered the runway options that Government could potentially decide to identify as the first addition to South East runway capacity above the SERAS maximum use case. For the purposes of the financial modelling, the DfT assumed the runway would be operational by 2011, with construction beginning in 2008.

9.14 Table 9.1 shows the indicative step increases in passenger charges at each airport (rounded to the nearest 5 pence) that would need to apply throughout a 60-year period to remunerate the runway investments at Gatwick, Stansted and Cliffe to the target rate of return of 12.5%, using both the DfT's and BAA's assumptions. For the purposes of the exercise, the 'base' level of charges at Cliffe in 2003/04 was assumed to be zero.

9.15 In general, Table 9.1 shows that for any investor to achieve the Government's target rate of return on the investment in an additional runway, airport charges would need to increase from their current levels. Table 9.1 also demonstrates that BAA's assumptions generally imply that larger increases in charges would be needed to remunerate the runway options than the DfT assumptions. As outlined above, we believe the DfT's assumptions are too optimistic in several respects, and consequently understate the relative impact on charges of each of the runway options.

Table 9.1: Increases in airport charges per passenger (pax) above 2003/04 levels required to achieve the DfT target rate of return at Gatwick, Stansted and Cliffe (£@2000 prices)

		DfT SERAS assumptions		BAA Core assumptions	
SERAS options	Current Charges 2003/04 (£ per pax)	Stand-Alone (£ inc per pax)	System (£ inc per pax)	Stand-Alone (£ inc per pax)	System (£ inc per pax)
Stansted – Option 5	£4.29	+£2.80	+£0.95	+£5.10	+£1.50
Gatwick – Option 1	£4.32	+£1.10	+£0.35	+£3.95	+£1.25
Gatwick – Option E1B	£4.32	+£2.50	+£0.90	+£3.80	+£1.30
Cliffe (two runways)	£0.00	+£13.70	N/A	+£26.65	N/A

9.16 Table 9.1 shows that at both Gatwick and Stansted, the increase in charges will need to be greater if the runway investment is remunerated on a stand-alone basis, rather than by the BAA system. For example, at Stansted, charges would need to increase by around a third if the runway was remunerated on a system basis, and around 120% on a stand-alone basis. At Gatwick, charges would need to increase by around 30% if either of the runways was remunerated on a system basis, and 90% on a stand-alone basis. This difference occurs because under a stand-alone approach users of one airport would be required to meet all the costs of an additional runway provided to meet growth in demand for the South East overall. It therefore, tends to skew the results towards lower charges at airports with the largest base of existing passengers.

9.17 At Gatwick, the increases in charges required to remunerate the investment in the close-parallel runway and the wide-spaced runway are broadly the same, even though the cost of the wide-spaced runway would be roughly double that for the close-parallel runway. This is because the wide-spaced runway would provide more than twice the capacity increment of the close-parallel runway, spreading the extra cost of the additional investment over a much greater passenger base.

9.18 At the other end of the scale, the stand-alone remuneration of the investment in two runways at Cliffe would require airport charges nearly three times the 2012/13 level at Heathrow. At the same time, it should be noted that the two runways at Cliffe provide the largest increment of capacity of any of the options in Table 9.1. The scale of the charges required to remunerate Cliffe is partly due to the fact that pre-funding of the investment would not be possible, given the absence of passenger traffic prior to the opening. The difference between the BAA and DfT levels of charges is caused by the effect of the different assumptions used in the modelling. The results demonstrate the extreme sensitivity of the Cliffe option to changes which increase the cost, delay the opening or result in a slower build-up of passengers than have been assumed.

9.19 BAA has not expressed a view on the scale of the risks associated with the rate of traffic build-up at Cliffe. For any new airport this must represent an area of significant uncertainty. Further detailed appraisal of the Cliffe option would also need to take account of the possibility of a longer construction period, the potential for significantly slower passenger growth, and the greater risks associated with the development generally.

9.20 The analysis for Heathrow is complicated by the decision by the CAA to allow charges at Heathrow to rise by 6.5% above inflation for each of the next five years. The CAA also signalled that it expected charges to continue to rise at the same rate for the following five years. These increases are the minimum necessary to remunerate the company's investment at Heathrow over the next ten years, most notably in the construction of Terminal 5. BAA will need to increase Heathrow's charges by the full amount permitted by the CAA price-cap to achieve a satisfactory rate of return, and allow the company to continue to attract the funds needed for future investments. If the base case is adjusted to incorporate these increases, the Heathrow charges will rise by 70%, to just over £11 per passenger by 2012/13.

9.21 Building these increases into the base, the results of BAA's sensitivity tests imply that the level of airport charges permitted by the CAA to remunerate the ten-year investment programme at Heathrow would need to maintained in perpetuity at broadly the same value (in real terms), to remunerate the investment in a third runway at the DfT's specified rate of return.

9.22 The fact that the Heathrow option would not require a further increase in charges, beyond the level required to remunerate current investment at Heathrow, should not be taken to imply that a Heathrow option is naturally a more commercially attractive proposition than any of the other SERAS options. This result is, to a large extent, a product of the increase in charges required for the remuneration of BAA's investment in Terminal 5 and the high level of 'base' passengers at the airport to share the financial burden of remunerating the cost of a new runway.

9.23 Even though the cost of additional runways at Heathrow, Stansted and Gatwick (Option E1B) are all in a range between £2 billion and £4 billion, the increase in charges needed at Stansted on a stand-alone basis would be significantly greater simply because the investment would initially be remunerated by a much smaller number of passengers than at either Gatwick or Heathrow. At Stansted, which is currently dominated by no-frills carriers, the necessary increases in charges would also imply acceptance by these carriers to remunerate the investments from which they would derive considerable benefits.

The impact of mitigation and compensation costs

9.24 As noted earlier, the DfT's capital costs did not include estimates for environmental mitigation and compensation, and Sections 5, 6, 7 and 11 demonstrate the range of potential impacts associated with a new runway at different locations. The additional costs for environmental mitigation and compensation will not be

known until a detailed scheme has been developed and a full impact assessment completed. To reflect the range of mitigation and compensation costs, we have carried out a further set of sensitivity tests to identify the possible impact on the required increase in airport charges.

9.25 To reflect this uncertainty and the likely difference in costs between locations, the financial appraisal has identified the indicative impact on passenger charges of generic mitigation and compensation costs of £500 million. The figure of £500 million is only illustrative; the number may be higher or lower for different options. The results of these tests are reported in Table 9.2, showing the results for the 'stand-alone' case and 'system' case. BAA's core assumptions for the 'stand-alone' case and for the 'system' case are the same as in Table 9.1.

Table 9.2: Increases in airport charges per passenger required to achieve the DfT's target rate of return with £500 million additional costs for generic mitigation and compensation purposes

Additional increase in charges to remunerate additional £500 million in costs	Stand-Alone (£ inc per pax.)	System (£ inc per pax.)
Heathrow – Option E4	+£0.60	+£0.40
Stansted – Option 5	+£1.30	+£0.40
Gatwick – Option 1	+£1.15	+£0.35
Gatwick – Option E1B	+£0.90	+£0.30
Cliffe (two runways)	+£1.85	N/A

9.26 Using Heathrow as an example and assuming the investment is remunerated on a stand-alone basis, Table 9.2 shows that if additional costs of £500 million were incurred, charges would need to rise by a further 60 pence with the £500 million additional mitigation and compensation costs. If the Heathrow runway was remunerated on a system basis, the increase in charges would need to be 40 pence greater with the £500 million additional mitigation and compensation costs.

Implications for Government policy

9.27 From the analysis reported above, it is clear that the size of the increase in airport charges required to remunerate a new runway in the South East will depend principally on the runway option considered, whether the runway was being remunerated on a stand-alone or system basis, and the level of additional costs incurred in delivering the new runway.

9.28 In isolation, a proportion of the increase in airport charges would be passed through to passengers in the form of higher ticket prices. However, the downward trend in airline costs is expected to be maintained, with reductions of at least 1% per annum expected over the long-run. In a competitive airline industry, we would expect these cost savings to be passed through to passengers and have an offsetting effect on ticket prices.

9.29 At Heathrow, the size of the passenger base would make it possible for the airport to remunerate its own development using its own revenues if airlines accept paying a long-term level of charges above £11 in current prices. However, at Stansted and Gatwick, where the cost of paying for the investment would be borne initially by a smaller number of passengers, remunerating the new runway on a stand-alone basis would require a significant increase in the current level of airport charges. The size of the increase could result in the level of passenger charges being as great as or greater at airports with new runway capacity than those without, which could act as a considerable financial constraint on the airport's ability to attract new passenger traffic.

9.30 In BAA's view, to finance any of the SERAS runway options at BAA airports, it would be preferable, if not necessary, to draw on the overall resources of the South East system. This would mean increasing the level of charges for all passengers using BAA's South East airports to pay for the investment in new facilities. The Government and Competition Commission have consistently adopted this approach over the last 20 years when considering airport charges at BAA's London airports. Maintaining this approach would continue be justified on the grounds that all users would benefit from the provision of additional capacity in the South East, irrespective of its location, as a result of the reduced congestion, enhanced airline competition and lower airfares. There would be wider public interest benefits to developing airport infrastructure in a way that underpinned the economic health of London, the South East and the UK as a whole.

9.31 There is also a considerable risk that by adopting a stand-alone approach, the Government or the regulator would jeopardise the timely provision of additional capacity in the South East. Without financial support from Government, the airport operator would have to wait until demand, and hence airlines' willingness to pay, for new capacity had risen to a level that would justify investment in the new runway. Such a delay in providing new capacity would not be in the interests of airlines, their passengers or the wider economy.

9.32 In setting the level of charges, a regulator would need to take full account of the airport operator's financial prospects during and after the investment in a new runway, to ensure the project could attract the necessary capital. As noted earlier, BAA's sensitivity tests were based on the DfT's target rate of return. Using a higher target rate of return in the financial model requires charges to be increased by more to remunerate the runway. In BAA's view, the DfT's 12.5% pre-tax level of return may not be high enough to remunerate investment in a new runway, given the significant funding requirements that it would generate. This means that airport charges may have to be higher than discussed above, particularly if the investment is remunerated on a stand-alone basis, and costs have to be borne by the balance sheet of one airport alone.

9.33 The DfT's financial model is designed to provide a relative assessment of the options, and does not attempt to 'profile' the level of charges to achieve a reasonable level of return for the airport operator through the early years of the runway investment. The Competition Commission and the CAA both recognised the importance of this issue in the recent regulatory review in connection with BAA's investment in Terminal 5 at Heathrow. Therefore, increases in charges during the early years of the new runway would need to be more substantial than indicated by the DfT's model to provide those financing the investment with an appropriate level of security over their return. Related to this point, BAA welcomes the DfT's continued application in the SERAS financial appraisal of the concept of pre-financing major airport developments. BAA believes this would be a necessary step in the financing of any major new developments, as it has been with Terminal 5.

9.34 It should be noted that the analysis reported in this chapter only considers the impact on airport charges of the first in a potential sequence of runway investments. Clearly, the increase in airport charges required to remunerate investment beyond the first runway would depend heavily on whether a system or stand-alone approach to remuneration had been adopted.

9.35 If the first runway had been remunerated on a system basis, further runways remunerated on the same basis would have a cumulative effect on the level of airport charges across the BAA system, although the relative increase in charges would be progressively smaller as the number of passengers travelling through the system increased. Alternatively, if the first runway had been remunerated on a stand-alone basis, additional runways at the same location would require further increases in that airport's charges. Further runways elsewhere funded on a stand-alone basis would, by definition, leave charges at the other airports unchanged.

9.36 Until now, investments at BAA's London airports have been remunerated on a system-wide basis. In BAA's view, any shift away from this approach, to financing investments on a stand-alone basis could in many cases jeopardise the timely delivery of new runway capacity. In addition to this important point of principle, the preliminary indications from our work on the DfT's financial appraisal have the following further implications for the future economic framework for BAA's airports that the Government will need to develop to support the delivery of its forthcoming White Paper:

- A new runway at Heathrow could be remunerated at 12.5% by maintaining permanently the level of charges which will apply at the end of BAA's next regulatory period (2008/09–2012/13), subject to the scale of additional costs associated with design and layout changes, and environmental mitigation and compensation.
- A new runway could be provided at Gatwick and/or Stansted, but a system-wide approach to airport charges would make it a substantially more attractive financial proposition than a stand-alone approach.
- The scale of costs and the considerable increase in charges needed to remunerate the provision of two runways at Cliffe make this the least financially attractive option.
- BAA would almost certainly need to raise new capital from a range of sources to fund new runway development at any of its South East airports, and the expected levels of dividend and interest cover generated by the investment would need to be sufficiently attractive to make it possible to raise new funds on reasonable financial terms.
- There would be a need for continued support for the principle of raising the level of airport charges prior to any new airport development coming on-stream in order to smooth the increase in airport charges that would be required to remunerate the development over a period of time.

Chapter 10: The other South East airports

10.1 In Chapters 5–8 we dealt with the four main airports considered in the SERAS document. In this chapter, we comment on the existing and future roles of some of the 'first tier' and 'second tier' airports in the South East, as set out in SERAS.

10.2 The first tier airports on which we have views are Southampton, which we own, and London City. The second tier airports on which we have views are Alconbury, in which we have an interest through our property subsidiary, BAA Lynton; and Northolt and Redhill, in which we are interested because of their proximity to Heathrow and Gatwick respectively.

General comments on regional airports

10.3 The Regional Air Services consultation documents forecast that demand will continue to grow more quickly at regional airports than at the main South East airports over the 30-year period covered by the new White Paper. At the same time, the DfT's mid-point forecasts suggest that demand in the South East will probably grow to some 300 mppa by 2030, creating a potential shortfall in capacity in the region of around 100 mppa if no further development is approved.

10.4 The SERAS analysis (Table 12.1) demonstrates that in such circumstances the South East's first tier airports (Southampton, London City and Norwich) would face a considerable overspill of demand from the region's main airports. As new services are initiated to meet the overspill, it is likely that these airports would also improve their ability to claw-back passengers who would otherwise have used the main South East airports.

10.5 We believe that regional airports have an important role to play in meeting the demand that arises regionally. Given the significant economic benefits to regional economies, regional airports should be supported in meeting the demand they can reasonably be expected to attract, subject to the achievement of other social and environmental policy goals.

10.6 However, the South East's first tier airports have only a limited ability to contribute to meeting the region's substantial demand for air travel and should not be considered in the new White Paper as providing an effective substitute for additional capacity at London's main airports.

Southampton

10.7 Southampton is one of the most modern regional airports in Europe, handling 794,000 passengers and offering the shortest train to terminal distance of any UK airport. The SERAS report contains demand forecasts for the region's first tier airports under two scenarios: one with no additional runway capacity in the South East (the constrained case) and one with three new runways at the main airports (the high capacity case).

10.8 The DfT forecasts passenger demand at Southampton of around 3 mppa by 2015 and 7 mppa by 2030 in the constrained case, compared with 1.6 mppa in 2015 and 3 mppa by 2030 in the high capacity case. This difference mainly reflects the increased overspill traffic that Southampton could attract from the South East market if no additional capacity, beyond that already in the planning system, was provided for in the new White Paper.

10.9 If significant capacity is provided at other airports, then Southampton's growth is more likely to be driven by the airport's ability to generate local demand for air services, and by the capacity of its facilities.

10.10 As we did for Gatwick and Stansted, BAA provided technical assistance to the DfT in the preparation of layout plans for schemes at Southampton at the optioneering stage. Our work did not include any assessment of the environmental, economic or social impacts, including detailed surface access impacts or possible airspace implications.

10.11 For the purposes of the SERAS study, we estimated the maximum planned capacity of Southampton to be around 1.4 mppa, consistent with the airport's development plan. We estimate that, over the period covered by the new White Paper, the capacity of the existing primary infrastructure could be increased to between 2 mppa and 2.5 mppa, subject to obtaining additional planning consents.

10.12 The SERAS document describes the development of the airport within the existing airport boundary, coupled with an upgrading of the runway to handle larger aircraft, and states that the capacity of such development would be in the region of 7 mppa. However, our assessment of the capacity achievable within the airport boundary would be the 2 mppa to 2.5 mppa stated above. The development option to which we believe the DfT is referring requires the acquisition of substantial additional land outside the existing airport boundary in the southern business park. BAA believes that the capacity of such an option would be closer to 5 mppa, with aircraft stand capacity limiting further growth in passenger traffic.

10.13 The SERAS document states (paragraph 12.6) that Southampton's runway would need to be upgraded to handle code D (medium-sized) aircraft. BAA would support the widening of Southampton's runway, if required, to handle an increasing number of code D size aircraft and, if appropriate, BAA will bring forward plans to upgrade the Southampton runway to full code D status.

London City

10.14 The SERAS document suggests that London City could grow from 1.6 mppa in 2000 to around 5 mppa in a constrained case, and up to 4.8 mppa in a high capacity case. BAA agrees that London City should be supported in meeting the demand it could reasonably be expected to attract as long as new capacity can be provided in a way which would meet the Government's airports policy and sustainable development objectives.

Alconbury

10.15 The DfT identified Alconbury, a former military airfield near Huntingdon, as a possible site for a small-scale development following a preliminary Site Search Study. Its possible development would combine air freight and express parcel facilities, a low-cost passenger terminal and a third-party maintenance base.

10.16 The SERAS study forecasts significant growth in demand for air freight over the next 30 years, with a trend towards an increasing proportion of the demand being met by dedicated freighters rather than in the bellyhold of passenger aircraft. The capacity to accommodate growth in dedicated freight traffic at London airports is limited, and operators already experience pressure on existing facilities at some airports. Alconbury has therefore been identified as having a potential role in helping the air freight industry meet its growth aspirations over the period covered by the new White Paper.

10.17 Alconbury offers some benefits to freight operators. The site is well connected to strategic road and rail networks, providing access to the South East freight market. According to the SERAS document, Alconbury is sufficiently remote from population centres to offer the potential for night-time operations. The prospect of a significant dedicated freight facility at Alconbury would also provide a degree of certainty for long-term planning by freight operators.

10.18 The DfT also forecasts the demand for passenger facilities at Alconbury under two scenarios: one with no extra capacity at the main South East airports, and the other with additional capacity provided at the main South East airports. The forecasts show (SERAS paragraph 12.23) there would be demand for around 1 mppa at the Alconbury facilities if no new capacity was provided at other South East airports in the period up to 2030.

10.19 Following the publication of the first edition of the SERAS document in July, BAA considered the potential for new passenger facilities at Alconbury, both with and without new capacity in the South East. The results of this exercise were broadly consistent with the DfT's forecasts.

10.20 It is clear from both the DfT's and BAA's assessment that Alconbury's ability to attract freight and passenger traffic would be heavily dependent on decisions to be taken in the new White Paper and the provision of new capacity in the South East.

10.21 The capital costs of the investment required at Alconbury are set out in the DfT's background consultation material. However, no financial appraisal was undertaken by the DfT to examine the financial viability of the potential development. BAA has carried out an appraisal of the DfT's Alconbury proposal to establish the profitability of the site under a range of different scenarios, to help gauge the commercial viability of the development.

10.22 Our financial appraisal assumed traffic demand levels consistent with a constrained South East airports scenario, in order to provide a measure of the most optimistic development conditions for the airport. Our appraisal suggests the development would not be commercially sustainable, even with the most favourable assumptions about traffic growth. The level of activity at Alconbury, and the revenue this would

generate, does not appear to be sufficient to remunerate satisfactorily the required investment by a private sector operator. Any public subsidy considerations would probably need to be to the tune of several hundreds of millions of pounds to allow the development to proceed.

10.23 BAA's property subsidiary, BAA Lynton, has a 50% interest in a joint venture known as Alconbury Developments Limited (ADL). ADL has a 25-year Development Agreement with the Ministry of Defence (which currently retains the freehold of the site) to develop the former military airfield at Alconbury.

10.24 ADL submitted a planning application for 7 million square feet of road/rail-based distribution warehousing in 1997. The planning application was refused by Huntingdon District Council and, following an appeal by ADL, a local planning inquiry was held, which concluded in 2001. The planning inspector's report has now been submitted to the Secretary of State for his determination.

10.25 Flying operations at Alconbury were considered at the public inquiry, and a planning condition was volunteered by ADL which would safeguard the potential use of the runway, associated taxiways and aprons for flying purposes, to the extent necessary to protect its re-use as a Code 4D Instrument Runway.

10.26 Given that the ADL proposals preserve this option, BAA does not see why an option for the development of Alconbury in the SERAS report would provide grounds for the Secretary of State to refuse, or delay the grant of, planning consent on the grounds of prematurity.

Northolt and Redhill

10.27 The SERAS document explains (paragraph 12.11) that the possible developments of Northolt and Redhill airports as satellite runways for Heathrow and Gatwick airports respectively were considered but rejected in favour of other development options at Heathrow and Gatwick. BAA welcomes that decision.

10.28 The SERAS document goes on to identify (paragraph 12.17) Northolt as one of the small airports where the forecast demand for business aviation and other general aviation could be accommodated. BAA has no comment to make other than the obvious point that the availability of Northolt for this purpose should never reach a level where, given its proximity to Heathrow, it might start to affect the present and future capacity of Heathrow or the safety of Heathrow's operations.

10.29 In respect of Gatwick's near neighbour, Redhill aerodrome, if there is to be a new runway in the locality then that new runway should be at Gatwick.

Chapter 11: The Cliffe option

11.1 The most ambitious option for consideration in the SERAS document is an entirely new hub airport located on the Cliffe Marshes, in north Kent. The Government's principal option is for a four-runway airport, comprising two pairs of close parallel runways, timed to be built in stages, with the first two runways opening together, and the third and fourth to be added as demand requires them. The possibility exists for a fifth runway to be added should one be deemed beneficial from a noise perspective.

11.2 BAA has not undertaken any detailed work on this option, but we make a number of general points which are consistent with the approach to the provision of additional capacity advocated throughout in this document, along with a number of specific points.

11.3 BAA has no reason to believe that a four- or five-runway airport at Cliffe could not work from an aeronautical and an airport operational point of view (subject to our concerns explained later about safety). But following consideration of the structural issues and effects reported in the SERAS document, we believe the Government would have to think very carefully indeed about the complexities of developing an airport at a wholly new site at Cliffe, when so many issues cast considerable doubt on its viability. Even if all of the structural problems could be overcome, the Government would need to consider further the challenges that would remain. In our view, these challenges would be likely to extend the development period of Cliffe well beyond the timescale stated in the consultation document, and thereby cast doubt over Cliffe's ability to contribute to meeting demand in the South East as early as indicated.

11.4 In our view, taking everything we know now into account, the option to develop a four-runway airport at Cliffe should not be regarded as a candidate for the White Paper to provide airport capacity in the South East over the next 30 years.

Structural issues

11.5 As the Government acknowledges in paragraph 11.1 of the SERAS document, building Cliffe would represent a radical change to airport provision in the South East of England. The nature of the Cliffe proposal would, in our view, raise the following structural issues that the Government would need to evaluate when coming to policy decisions concerning the Air Transport White Paper.

Demand

11.6 The Cliffe proposal assumes that a significant proportion of traffic is 'seeded' at the airport to create a network of services and frequencies on the day the airport becomes operational. Aside from financial matters which are addressed below, the main reason for seeding services would be to lay the foundations for Cliffe to become a hub airport.

11.7 If Cliffe is to become a successful airport, then it should be an attractive proposition to airlines, particularly those that operate or would want to operate at Heathrow. In this regard, BAA believes that before an airline group would move away from Heathrow it would have had to have been convinced that it would be gaining more from moving than its competitors would be gaining from the use of the additional capacity which its move would release at Heathrow. Indeed, from its own discussions with airlines at Heathrow, BAA believes significant doubt exists over the willingness of airlines voluntarily to relocate to Cliffe.

11.8 If indeed airlines would not move voluntarily to Cliffe, then the Government would have to consider policy mechanisms to achieve that outcome. The principle policy mechanisms explored in the SERAS document are traffic distribution rules, 'carrot and stick' measures, public subsidy and, in the most extreme, the forced closure of an existing South East airport. We do not believe such mechanisms would be wise, for the following reasons.

11.9 In the past, the UK and other countries have used the concept of traffic distribution rules for the purposes of implementing policy and influencing the type and amount of air traffic using specified airports. The UK Government abandoned its 1986 traffic distribution rules in March 1991. While it may in theory be possible to draft traffic distribution rules, history tells us that these have had a limited effect and have now all but disappeared from the Government's policy agenda. In any event, this is not a direction we would wish to see maintained in policy-making.

11.10 Incentives for airlines to re-locate their operations to Cliffe might come from a preferential airport charging regime which, in theory, should enable airlines to provide discounted fares. The likelihood of success for this measure is very small. Assuming the internationally-accepted 'cost-related' principle is applied, the level of charges required to remunerate such airport development would be high (such as at Kansai in Japan) and this would have consequences on the competitive effectiveness of the airlines that did relocate. Even if it were possible to keep the level of airport charges artificially low (for example, lower than at Heathrow), airport charges as a percentage of airline costs are very small (typically less than 5%), and so lower airport charges at Cliffe would be unlikely to allow airlines to provide the level of discounts in fares that would be required to generate the volumes of passengers to offset any reductions in profitability they would experience during the early years of operation.

11.11 The approach most likely to succeed at Cliffe is for the Government to provide public sector finance, possibly for the following purposes:

- To enable airport developers to pre-fund the development.
- To keep airport charges low enough in the early years of operation (when the profile of airport operations is very peaky) so that airlines are able to transfer their operations with some confidence that they would be financially viable in the early years.

11.12 But this approach would have ramifications for the Government's public sector borrowing, and would also be likely to cause significant distortions in the South East airports market, both before and after the development opens. Before making a decision to include Cliffe in the White Paper, the Government would clearly need to satisfy itself that other runway options at the existing South East airports, which could be privately-financed, would not achieve its policy goals.

11.13 Setting aside the issues surrounding the legality and effectiveness of these policy mechanisms, there is a further factor that in requiring airlines to transfer from Heathrow and possibly other London airports, such a policy would undermine the viability of Heathrow and/or those other airports from which significant amounts of traffic would be taken.

11.14 Even the extreme action of closing Heathrow, or another South East airport, would be likely to require high levels of Government subsidy. Experience from Hong Kong (where the Government took the decision to close Kai Tak Airport and construct Chep Lap Kok Airport), suggests that the direct replacement of one airport by another could only be achieved through high levels of Government subsidy. Furthermore, there would be enormous regional planning implications of closing an existing South East airport. There is in any event no guarantee that airlines would re-locate to Cliffe from an existing South East airport that had been closed, as they may prefer instead to relocate a sizeable part of their operations to airports with spare capacity in mainland Europe. So even if it was thought that Cliffe should be developed as a hub airport, there is doubt as to whether government actions would be sufficient to provide the certainty needed by developers that it would be fully utilised.

11.15 In any case, any reduction in the use of any of London's existing airports would run counter to a fundamental part of the Government's policy, which we strongly support, that the best use should first be made of existing infrastructure. This is more efficient environmentally and therefore more in tune with the Government's central goal of providing for the growth of UK aviation in a sustainable way.

Financing

11.16 Government policy is for airport development to be funded by the private sector. Paragraph 15.12 of the SERAS document recognises that in order for Cliffe to be funded by the private sector, the airport's capacity would have to be substantially used from the time of opening. In light of the uncertainty outlined above about the demand for Cliffe, our view is that any private sector airport developer is likely to view the unpredictability of demand as a perilous risk to its business.

11.17 BAA notes that the Cliffe proposal is estimated in the SERAS consultation document to cost £13 billion. Setting aside the possibility that these costs exclude contributions to some very large surface access schemes and may yet prove to be underestimates, there would be the need for a private sector developer to pre-fund design and construction of the scheme, presumably ahead of receiving any funds once the airport has opened. The SERAS document makes no mention of a specific mechanism that would deliver funds to the developer during the design and construction stages.

11.18 We recognise that the timescales for delivering the first additional runway at any existing South East airport would be challenging. But given that Cliffe would be a new airport with complex construction, we doubt that Phase 1 at Cliffe could open in 2011. For that opening date to be achieved, the eight-year planning, design and

construction programme for the development would need to outperform the design and construction programme achieved by the new Hong Kong airport, Chep Lap Kok, which is around half the area of the Cliffe site and which took nine years from decision to opening. It would also assume that the supporting rail and road infrastructure and the ecological relocation measures had received planning permission, had obtained the necessary finance, and were complete prior to opening in 2011.

11.19 Finally, the problems of longer timescales would manifest themselves not only in greater costs for the development itself, but also in greater 'shadow' or delay costs incurred by the travelling public which, depending upon their scale, might have some effect in dampening down demand for air travel and would have an effect on the UK economy.

Ecology

11.20 Cliffe Marshes is a site of national and international importance for birds, flora and fauna and is protected by the EC Habitats Directive. The special ecological circumstances associated with Cliffe require the Government first to demonstrate that it has considered all reasonable alternatives, and second to promote compensatory measures to prevent the overall loss of habitat and bird numbers.

11.21 In relation to the first point, BAA's view is that the incremental growth of its existing airports should be considered to be a reasonable alternative to the Cliffe proposal. On the second point, paragraph 11.17 of the SERAS document identifies one possible compensatory measure as being to purchase land and create a new habitat elsewhere in Kent. Clearly, such compensatory measures will at the very least require an effective Government policy mechanism, if not financial support from the Government as well.

Airspace

11.22 We note the strong concerns already expressed by NATS about the implications of a major airport development at Cliffe for South East airspace management. BAA understands that from an air traffic control perspective it would be considerably easier to accommodate further capacity development at existing airports in London's airspace than the development of capacity at entirely new sites such as Cliffe. We also understand that the development of Cliffe would also require changes to Belgian and Dutch airspace. We make these points in more detail, along with others on airspace considerations generally, in Chapter 12.

11.23 Allied to airspace management is the potentially significant bird strike hazard from locating an airport in a habitat heavily used by birds. A report by the Central Science Laboratory and the British Trust for Ornithology, dated March 2003, found that the risk of bird-strike at Cliffe would be three times the level than at most, if not all, major airports in the UK. It concluded: "Without a comprehensive and aggressive bird management programme in place, incorporating careful and considered airport design, appropriate habitat management and active bird control, an airport could not operate safely in that location. Even with such world class management and mitigation measures in place as identified in this report, it is not considered possible to reduce the risk to a level similar to that experienced at other UK airports."

Layout issues

11.24 BAA did not provide any technical assistance to the DfT in the preparation of layout plans for Cliffe. We have not undertaken any detailed work on the layout arrangement shown in Figure 11A but we have no reason to challenge the runway capacity assumptions in the SERAS document. We therefore have no comments to make about the layout plans or the runway capacity estimates for the Cliffe option in the SERAS document.

Rail and road links

11.25 As with the existing South East airports, the provision of rail infrastructure and services would be an important pre-requisite for Cliffe to operate as a major airport, whether it has two, four or five runways. The proposals assume a 48% public transport mode split, with approximately 20,000 rail trips to and from Cliffe in the morning peak period, potentially requiring the use of double-deck trains. While BAA has not undertaken any detailed analysis of the rail and road schemes which might be needed for the Cliffe option, we believe that the rail schemes outlined in the SERAS document are problematical in respect of the planned rail services in Kent which would require to be displaced. BAA awaits the comments of the SRA on this issue.

11.26 The airport access road improvements require links to the A2/M2 and to the A13 via a Lower Thames Crossing. In addition, the Lower Thames Crossing scheme is assumed to be provided irrespective of whether the Cliffe proposal proceeds, and that the costs associated with it are not included in the costs for developing Cliffe.

11.27 In relation to potential strategic road improvements, widening of the eastern sections of the M25 would be required, and at higher levels of capacity a second road crossing of the Thames would be required to access the labour market north of the Thames and to provide some relief to the other road crossings. All of these schemes are substantial in nature and are largely assumed to be required in any event, with only an allowance for the second road crossing included in the costs for developing Cliffe.

Impacts on people and the environment

Land

11.28 We have already indicated the ecological impact that a new airport in this location would have on several nationally and internationally designated areas, and the protection which one such designated site is afforded under the EC Habitats Directive. In addition, paragraph 11.21 of the SERAS document acknowledges that the raised airport platform is likely to increase the risk of flooding elsewhere on the Hoo Peninsula. Finally, we note that for Phase 1 the volume of cut and fill of earthworks is approximately 120 million cubic metres to construct the two runway option. These volumes compare with the 1 million cubic metres of material excavated and re-used on the Terminal 5 site at Heathrow, the 1.8 million cubic metres of material removed from site to make the cutting for the M3 at Twyford Down, and the 2.3 million cubic metres of material which were excavated and re-used on the site of Manchester Airport's second runway.

Air noise and air quality

11.29 The SERAS document reports no significant air noise and air quality impacts, due mainly to the location of the proposed airport. BAA does not challenge this assessment.

Economic impacts and regional planning

11.30 BAA agrees that the development of a completely new airport would allow the incorporation of the latest technology and the achievement of economies of scale with resulting improvements in productivity. But while we feel that the long-term productivity gain of 1.5% a year is realistic, we also believe that the level of employment for the four years between the notional opening date of 2011 and 2015 may prove optimistic. Provided that the chosen government instrument works and traffic levels are high at opening, staffing levels at start-up are likely to be higher than assumed.

11.31 Given the opportunity to contain most, if not all, airport related activity within the boundary of the new airport, we also question the need to assume 15% direct off-airport employment.

11.32 The core catchment area of Cliffe extends to six districts and lies in equal proportions either side of the River Thames. The provision of sufficient means of surface access linking these centres of population with the new airport would be critical to the utilisation of the potential workforce to the north of the Thames.

11.33 The SERAS document makes a number of assumptions about employment at Cliffe which have the effect of reducing employment and subsequent land-related impacts. These are:

- An indication that 'commuter draw-back' could lessen housing requirements.
- The widening of the catchment area for direct and indirect employment by the provision of rail links to Stratford and Ashford. This is a different approach from the other airport locations where both the core and wider catchment areas are assumed for impact purposes to contain all additional employees.
- The attraction of potential workers to Cliffe using a variety of incentives such as 'training and various subsidies.'

11.34 In our view, assumptions of this nature should have been applied to the SERAS assessments at Heathrow, Gatwick and Stansted. Equal treatment of the sites would have shown reduced employment and land-related impacts at the three main BAA South East airports.

11.35 Clearly it will be for the Government to determine whether the Cliffe option serves its policy objectives to a greater or lesser extent than the existing sites. As part of its consideration, the Government will need to determine the extent to which the structural issues associated with the Cliffe proposal can be resolved to enable a developer to consider promoting a planning application for the scheme.

Financial appraisal

11.36 We have already raised a number of issues about the financing of a new airport at Cliffe. As part of the background to the SERAS consultation, the DfT carried out a preliminary financial appraisal exercise to identify the relative implications for airport passenger charges of the individual SERAS options and packages of options. Using the DfT's financial model, BAA has carried out its own sensitivity analysis to reflect its own judgements and experience in delivering major infrastructure projects. The results of BAA's sensitivity analysis for the first new runway options in the South East are contained in full in Chapter 9.

11.37 The DfT and BAA analysis has been based on the indicative assessments in the SERAS consultation material of the cost of providing the infrastructure. The SERAS costs include an assessment of costs for surface access schemes which may well not be those which are ultimately provided, and they exclude costs for environmental mitigation and compensation which might be required. Further information concerning possible mitigation and compensation measures is set out in our answer to Question 18 in Chapter 15 of this submission. On the basis of three hypothetical scenarios described in our response to the question, the mitigation and compensation costs associated with two new runways at Cliffe range between £4 million and £25 million, and the costs associated with four new runways between £20 million and £60 million. Until these costs are known, there will remain a degree of uncertainty about these assessments.

11.38 That said, we currently believe the airport charges which would be needed to remunerate two new runways at Cliffe would be considerably higher than for any other SERAS option. The analysis in Chapter 9 shows that charges would need to be around four times the current level of charges at Heathrow (which are £6.48 per passenger in 2003/04). The Government will have to consider whether, on the basis of these figures, Cliffe could be commercially viable without very considerable public subsidy.

11.39 The modelling results are highly sensitive to changes in the key assumptions. For example, the level of charges required to remunerate the options would be greater if the target rate of return in the model is not high enough to attract investors to provide funds for investment in new airport capacity, or the airport is expected to make more significant contributions to surface access infrastructure or mitigation and compensation schemes, than have been assumed in the modelling.

Chapter 12: Other issues

12.1 This section addresses a number of issues which are raised in the SERAS document, including our comments on freight (Chapter 13 of the SERAS document); on rail/air substitution (Chapter 17); on possible operational levers, such as slot allocation mechanisms (Chapter 15); and on airspace issues (Chapter 18).

Freight

12.2 The air freight sector makes an important contribution to the UK economy by linking UK industry to the rest of the world. Around 30% of UK exports are transported by air each year, valued at approximately £50 billion. The air freight sector is likely to become even more important in the 21st century as knowledge-based industries, competing in global markets, come to rely increasingly on its services to supply other businesses and consumers.

12.3 BAA is committed to developing world-class facilities at our airports to meet the growing needs of the air freight industry. Over the last five years we have, together with our airline and cargo-handling partners, invested over £500 million in improving the facilities and processes at Heathrow, Gatwick and Stansted. New cargo developments continue at each airport, with the recent completion of a major cargo transit facility at Stansted, the identification of new cargo development opportunities at Gatwick, and a number of potential cargo developments at Heathrow.

12.4 The SERAS consultation document (Table 13.1) forecasts that the growth in demand for air freight will continue to exceed the growth in passenger capacity during the period covered by the new White Paper. This will mean that the overall bellyhold capacity of passenger aircraft will probably not be sufficient to satisfy the growth in demand for freight, and additional dedicated freight movements will be necessary to meet the increased level of demand. As a result, an increasing proportion of the UK's freight will be carried on dedicated cargo flights. This trend will be reinforced by the increasing demand for express freight services.

12.5 In preparing the new White Paper, and in deciding how much airport capacity should be provided, the Government should take full account of the freight industry's increasing needs over the next 30 years. The Government should also take into account the long-term trends in the freight industry, including the growing share of all-cargo flights and the growth in the express freight sector. BAA supports the Government's consideration through the SERAS consultation of how airports both in and around the South East region might contribute to meeting the rising demand for air freight.

12.6 In BAA's view, the South East region will continue to dominate the UK market for air freight. This will be driven by the diversity of facilities at the South East airports, the range and frequency of scheduled services, and the opportunity for freight operators to operate the three main airports as a system. Consequently, access to London and the South East market is particularly important for express freight operators, who compete with each other on the ability to offer the best possible 'next day delivery' services.

12.7 Experience from the UK and other countries has tended to show that dedicated freight airports are not financially sustainable unless they are part of a global logistics network attached to one of the major distribution companies. This suggests that the growth in demand for air freight will probably be met at airports where there are also significant passenger operations.

12.8 Where possible, the Government should seek to provide sufficient airport capacity to allow airlines to offer a combination of passenger and all-cargo services to meet the overall needs of the air freight industry. However, where this is not possible, the Government should avoid any regulatory steps to dedicate capacity at the South East's main airports for use by all-cargo services, and instead permit the market to make appropriate trade-offs between the use of scarce airport capacity for passenger and freight operations. Given that these market mechanisms do not currently exist and that the Government has decided that priority should be given to passenger operations, then the principles behind the Government's decision to prevent all-cargo flights operating in peak hours at Heathrow and Gatwick remains correct, and the current traffic distribution rule should therefore be retained.

12.9 There are specific social-environmental impacts associated with the air freight industry. As the SERAS document explains, these environmental impacts are increased by the need for freight integrators and consolidators to operate during the night in order to achieve the required levels of service. The Government should continue to work constructively with airlines, and operators of all-cargo flights in particular, to minimise

these impacts. But in framing policies which incentivise the aviation industry to minimise and mitigate its environmental impact, passenger and all-cargo aircraft should be treated equally. Policies or measures which focus on either passenger or freight traffic would not be appropriate.

12.10 BAA remains sceptical about the opportunity for significant increases in the movement of freight by rail to or from airports. Carriage by air is best suited to serving small volumes or weights between two points separated by a long distance, rail and road transport are better suited to the carriage of large volumes or weights between two points separated by a shorter distance. Attempts to integrate air and rail services for these two target markets are unlikely to be fruitful.

Heathrow

12.11 Heathrow currently handles 1.25 million tonnes of freight a year, and accounts for about 70% of all UK air freight. Over the period covered by the new White Paper, freight operators will find it increasingly difficult to secure slots at Heathrow for dedicated cargo movements, on the assumption that the existing traffic distribution rule continues to be applied. However, BAA agrees with the SERAS forecasts that there will be overall growth in the cargo handled as a result of expanded bellyhold capacity of passenger aircraft using the airport. We expect Heathrow to continue to dominate the UK market for bellyhold freight, primarily as a consequence of the airport's extensive range of destinations and service frequencies, and we intend to support the growth in cargo by providing, in partnership with airlines and cargo operators, high-quality facilities to ensure rapid clearance of air freight.

Gatwick

12.12 Gatwick currently handles 240,000 tonnes of freight a year. BAA agrees with the SERAS forecasts that there is unlikely to be any growth in dedicated freight movements at Gatwick over the period being considered for the new White Paper, particularly if current restrictions on slot availability for freight movements in the peak periods continue to be enforced by the Government. We also agree with the SERAS forecasts that the volume of bellyhold freight will grow at Gatwick as the growth in passenger traffic at the airport leads to further services and frequencies, particularly on long-haul routes. The rate of growth in bellyhold freight at Gatwick will largely be determined by the extent of the airport's future route network. In the short-term, the recent restructuring of British Airways' route network, which has resulted in a transfer of long-haul routes from Gatwick back to Heathrow, has reduced the number of services on which significant volumes of bellyhold freight can be carried. However, over the long-term, additional runway capacity at Gatwick would be likely to lead to a higher proportion of long-haul services and an increase in bellyhold freight operations.

Stansted

12.13 Stansted currently handles 192,000 tonnes of freight a year. As the SERAS background research recognises, the growth in dedicated freighter traffic in the South East over the last ten years has been concentrated at Stansted. This growth has largely been as a result of the development of an express parcels hub at the airport. The significant growth in freight traffic experienced at Stansted over the last decade is forecast to continue during the period covered by the new White Paper. The airport will continue to dominate the South East market for dedicated freight traffic, and could also experience a significant growth in bellyhold freight if long-haul services develop at Stansted.

12.14 BAA would support the overall future growth of freight traffic at Stansted, subject to two important caveats: one relating to the use of the runway at peak periods and the other regarding a suggestion in the SERAS document that the relaxation of the night-time movement cap for the airport might be a way to address the forecast demand for such movements.

12.15 As we say earlier, the market should normally be allowed to determine the appropriate allocation of capacity between passenger and freight movements. However, in the absence of an effective market mechanism for allocating airport capacity, the Government might need to consider the introduction of a traffic distribution rule at Stansted to give priority to passenger flights operating in peak hours, as is the case at Heathrow and Gatwick.

12.16 The SERAS document (paragraph 13.5) identifies two main issues for the UK air freight industry: overall capacity and the availability of night-time access. The express sector needs the ability to operate during the night, and the growth of the sector is likely to lead to increased demand for operations during this period. The SERAS document identifies (paragraph 13.12) a number of possible ways of meeting the possible demand for night-time movements. One measure proposed is the relaxation of the night-time movement cap at Stansted, although the DfT acknowledges that this might not be acceptable.

12.17 In Chapter 4 of this submission and in response to Question 16 we explain the measures we have developed, in conjunction with airlines and with NATS, to improve the general noise climate around our airports. BAA would not support the relaxation of the existing night movement cap for cargo operations at Stansted.

Rail/air substitution

12.18 BAA supports the development of the rail network and the potential for the railway industry to offer an alternative to domestic and short-haul European services. We believe that rail/air substitution offers the opportunity to airports to release valuable slots currently being used for short-haul domestic and European services so that they can potentially be used for short-haul and long-haul international routes where no alternative to flying exists. However, for reasons we set out below, we also believe that the impact of rail substituting for air services will have a negligible effect on the case for additional runway capacity in the South East.

12.19 There have been a number of recent studies on this, most notably by the Commission for Integrated Transport (CfIT) and the Strategic Rail Authority (SRA). The principal conclusion from those studies is that the potential for rail/air substitution is limited, and will depend on substantial rail investment to deliver much better reliability and much faster rail journey times than at present.

12.20 The accepted wisdom is that potential for rail/air substitution exists for rail journey times of between two and three hours. The SRA study suggests that even with significant investment in rail infrastructure delivering journey times of say 75 minutes between London and Manchester (compared to 2 hours 40 minutes at present) and 2 hours 50 minutes between London and Glasgow (compared to 5 hours at present), only around a quarter of the domestic air users within a three-hour journey time might switch to rail, amounting to fewer than 1 million passengers. BAA would agree with this analysis. We believe that even if the Government could deliver those kind of improvements to rail, there may be scope for, at the very most, 4% of the total domestic traffic at the London airports to transfer to rail.

12.21 Some commentators argue that rail/air substitution would bring environmental benefits because, overall, rail causes fewer emissions and less noise compared to air. On the other hand, a high-speed rail line requires considerably more land than an airport, causing disturbance, particularly from rail noise, among much wider communities than an airport does. The CfIT study was inconclusive on whether rail/air substitution would bring net environmental benefits. Therefore, if the Government were minded to adopt a bias towards rail/air substitution, BAA would encourage it to undertake further studies into the relative environmental impacts of rail and air travel, so that decisions relating to rail/air substitution are made on the basis of the best possible information.

12.22 In its response to the Government's "The Future of Aviation" consultation document, the Civil Aviation Authority (CAA) emphasised that all modes of transport should bear their respective external costs in order to minimise the impact of transport on the environment. It is for that reason that BAA does not accept the suggestion made by some commentators that additional taxes should be imposed upon air travel in order to subsidise investment in rail alternatives; public subsidy for rail should come from general taxation, to which aviation already contributes considerably.

Operational levers

12.23 For the Government to take a positive decision with regard to new airport capacity, it will be critically important to have confidence that the benefits assigned to that additional capacity can be realised. This will require the development and use of a number of operational levers, and slot allocation mechanisms in particular.

12.24 Slot allocation at UK airports is governed by European legislation. The existing slot allocation regulation has been in place since 1993 and a draft new regulation, containing largely technical amendments, has recently been tabled by the European Commission. BAA has separately provided the Government with its views on this new draft and has worked with other airports and airlines to improve the resulting legislation. Our objective has been to create a system of slot allocation which makes the best possible use of airport capacity to maximise the benefits for consumers, airlines and airports. We urge the Government to continue to influence the development of European slot allocation legislation, to ensure that the full benefits of new UK airport capacity can be achieved.

12.25 A slot allocation process will still be necessary with the advent of new capacity, and the governing legislation at that time either may be similar to today's, based on administrative mechanisms, or may change to incorporate some form of market mechanism.

12.26 There is a real danger, if the system remains similar to today's and if the Government takes no positive action, that the economic and social benefits expected from new capacity will not materialise. Half of the new capacity would be reserved for 'new entrants', as defined in the European legislation, but BAA, in common with a number of organisations, has pointed to the failure of the 'new entrants' priority currently existing to deliver efficient or effective use of airport capacity. BAA believes that the Government needs to be ready to take action to ensure that the full benefits of any new capacity can be realised. This might include:

- Creating a minimum aircraft size rule.
- Supporting local rules giving a degree of priority to certain types of traffic.
- Supporting local rules created to ensure that environmental limits are not breached.

12.27 While we strongly support regional access and have endeavoured to provide the capacity which would allow airlines to maintain a network of regional services if they wished to, we are opposed to the 'ring-fencing' of slots for regional air services. Our main concern has been that reserving a slot for a UK regional service means that the slot is not used for another service, yet this latter service may well have a higher overall value to consumers, and to the UK economy. BAA strongly believes that it is the provision of adequate airport capacity that will most effectively safeguard regional air services.

12.28 We therefore share the view expressed by the Government, in response to a Parliamentary Question in 2001, that ring-fencing slots for particular air services: "would introduce an element of undesirable rigidity into the slot allocation system. The current arrangement, where slots are not route-specific, allows changes in the routes operated by airlines in response to market developments. Without this flexibility there would be restrictions in the scope to develop new business and limitations on the development of competition on some routes."

12.29 We also note that there are some legal difficulties in seeking to ring-fence slots for UK regional services at airports such as Heathrow or Gatwick (see paragraph 9.2.7 of the Scottish consultation document). BAA therefore endorses the approach the Government is taking, as described in paragraph 9.2.8 of the Scottish document: "Given the strict criteria imposed by current Public Service Obligation (PSO) legislation, it is reviewing whether there are better ways to protect and improve regional air access to London."

12.30 The Scottish document also set out a number of potential measures, which would not require changes to European legislation. Two which BAA urges the Government to pursue are, firstly, to examine ways in which regional bodies or stakeholders could help an airline if it were considering pulling off a route (without contravening State Aid rules); and, secondly, for the Government to discuss with airlines how it could be involved early on when they are considering withdrawing from a regional route, and exploring whether it might be possible to introduce a formal or informal notice period of up to six months so that a PSO application could be considered.

12.31 It will become increasingly important that the slot allocation system can be used to manage the environmental impact of airports. At a simple level, this can be achieved through the use of local rules such as the ones in place at BAA's South East airports to manage the night noise quotas. However, the advent of further limitations may require grandfather rights to be removed to ensure the limitations can be met, and may also require local rules, which are given a greater priority in slot allocation than is usual today. We urge the Government to support possibly controversial steps, which seek to apply environmental standards while protecting an orderly management of slots at an airport.

12.32 The possibility of new traffic distribution rules is discussed in the documents supporting the SERAS consultation, particularly in relation to 'seeding' traffic to an airport. BAA believes that the legal, economic and practical difficulties rule out the creation of traffic distribution rules which seek to transfer blocks of traffic from one airport to another. In any event, as we point out in Chapter 11 on Cliffe, such rules have now all but disappeared from the Government's policy agenda. This has serious implications for the assumptions in the consultation document about 'seeding', suggesting that the build up of traffic may be slower than predicted at a new site, such as Cliffe.

12.33 The economic and practical difficulties also reduce the likelihood of large-scale voluntary moves by carriers from, say, Heathrow or Gatwick to Cliffe. The Government's own 'Commercial Trends' and 'New South East England Airport – Airline Development Strategy' studies point to the very large risks and costs which would be borne by the developer of such a new airport and airlines setting up operations at that airport. The former study concludes: "Indeed, the financial risks for airports and airlines associated with this scenario are huge and potentially very damaging to their respective commercial businesses."

12.34 However, we believe the existing traffic distribution rule should be retained. This prevents all-cargo and general aviation services from holding slots in the hours of peak congestion at Heathrow and Gatwick, and helps to make the most effective use of the limited capacity at those airports. BAA believes that the Government's conclusion in 1991 remains true today: that passenger services should take precedence over business aviation and all-cargo flights at these two airports.

12.35 BAA is keen to explore how market mechanisms might be incorporated into slot allocation and has already taken part in a number of studies. We strongly support the continuation of 'secondary trading' (the transfer of slots from one airline to another for monetary compensation), and the Government must continue to take robust action to ensure that secondary trading is not outlawed by European legislation. Secondary trading provides essential flexibility for airlines to adapt their slot portfolios to take account of changing market conditions. The situation regarding 'primary trading', whereby there is some form of auctioning of capacity, is less clear and the Government should ensure that all parts of the aviation industry are carefully consulted as part of studies in this area. The implications of auctioning in the short, medium and long-term on airlines, airports, and consumers are far from understood.

Airspace issues

12.36 The development of London's airspace will be a critical factor in the ability of airports to deliver additional passenger capacity. As recognised in the SERAS document (paragraph 18.3), the development of capacity on the ground will need to be matched by similar increases in capacity in London's airspace. The capacity of all elements of the airports and airspace infrastructure need to be kept in balance for the system to work safely and effectively to its full potential.

12.37 The interface between airport and airspace capacity is an important one, and BAA considers itself to be an important stakeholder in NATS' business. BAA and NATS have a long history of joint working to increase capacity at London's airports and BAA is now a shareholder in NATS. The increases in runway capacity achieved at Heathrow and Gatwick over the last decade, to the point where they are among the most intensively and most efficiently-used runways anywhere in the world, are tangible proof of the effectiveness of this partnership.

12.38 The development of major new airport capacity as outlined in the SERAS document would result in a series of significant step increases in air traffic movements in the London terminal area (TMA). Although NATS has invested in increasing the capacity of the London TMA over the last decade, the growth in aircraft movements over the corresponding period means that there is little spare capacity in the system to accommodate future growth.

12.39 The SERAS document (paragraph 18.6) points to the time and resources that NATS and others will need in order to commit to a sustained period of researching, developing and implementing new capacity. In March 2003, BAA announced an investment of £65 million in NATS, alongside an identical investment by the UK Government. These investments will be used to reduce NATS' existing debt and assist in a financial restructuring of the company.

12.40 Together with the other measures proposed by the CAA, the investment creates a sustainable long-term financial position for NATS and will enable the company to plan the investments in the infrastructure and resources required to handle safely the additional capacity required for future operations currently under consideration and also help to protect the wider interests of the aviation industry.

Airspace policy

12.41 As pressure on the capacity of the London TMA grows there will be an increasing pressure on NATS to make policy decisions about trade-offs between the provision of airspace capacity at different sites within London. NATS should not be responsible for making such policy decisions. Rather, the Government should provide, through the new White Paper, clear direction on the relative priorities to be attached to the development of capacity at different sites. The Government then needs to respond to the sequencing of airport development, so that the South East's airspace capacity is developed and brought into use in the most efficient order.

12.42 Following the publication of the new White Paper, the Government should direct the CAA and NATS to establish a strategy for delivering the increases in airspace capacity which would be needed to support the White Paper policies. The strategy would allow NATS to prioritise the developments in airspace capacity identified in the new White Paper, over and above developments at other locations.

12.43 It is BAA's understanding that, from an air traffic control perspective, it would be considerably easier to accommodate further capacity development at existing airports in London's airspace than to develop capacity at entirely new sites. We also understand that, for a given level of system traffic, it is more efficient to manage aircraft movements to and from a relatively small number of large airports, than a large number of small airports.

12.44 It is also easier to deliver a balanced development of capacity across a number of sites, than to concentrate the same amount of new capacity at one specific site. Collectively, these facts suggest that the most deliverable airport development strategy, from an air traffic control perspective, would be an incremental expansion of capacity spread across all four of London's existing main airports.

12.45 During the consultation period, NATS spoke publicly about the severe difficulties of integrating Cliffe into the London TMA without imposing severe restrictions on the number of aircraft movements at Heathrow, London City and Gatwick. In BAA's view, it would be unacceptable to compromise the present capacity of existing sites for the purposes of providing additional capacity at another location.

12.46 As the SERAS studies identified, the development of a major airport at Cliffe would also need to be integrated with Belgian and Dutch airspace. In the event that the Cliffe option is adopted in the new White Paper, BAA believes that the Government would need to begin work immediately with the relevant Belgian and Dutch authorities to secure the necessary changes to accommodate a new airport at Cliffe. In BAA's view, these discussions, and the resulting changes that would have to be made to airspace boundaries and procedures, would take a significant period of time.

12.47 BAA recognises the need to provide complementary alternatives for general and business aviation users. However, this should only be done where there is not a reduction in the present capacity or potential future capacity of the main airports in the South East. The development of smaller sites should not compromise the ability of larger sites to accommodate any increases in capacity outlined in the new White Paper.

Airspace modelling

12.48 Section 18 of the SERAS document discusses the airspace modelling that has been carried out to support the consultation. As a high-level analysis, with a common level of assumptions, BAA accepts that the work can be used to provide a relative evaluation of the airspace implications of the SERAS proposals. The overall conclusion from the modelling work carried out by the CAA and NATS was that no site could be ruled out on the basis of airspace capacity limitations. While BAA accepts this overall conclusion, it was clear from the modelling that the capacity offered by options at some airport locations would be significantly easier to deliver than the capacity of options at other locations. The Government should take this factor into account when judging the merits of providing capacity at the different sites.

12.49 The transfer from the relative evaluation between sites to a consideration of the specific issues for each site is not possible within the context of the SERAS research. The SERAS Appraisal Findings report acknowledges that a proper assessment of airspace capacity issues would require precise and detailed information that was absent from the modelling of the four scenarios considered by the CAA and NATS. This future assessment would also need to cover the environmental impacts resulting from the changes in airspace management.

12.50 Although the main SERAS document states that the DfT is confident that the difficulties in introducing new capacity could be overcome, the document also states that this will be considered in light of the policy framework set out in the White Paper.

12.51 To accommodate the new capacity at some sites it might be necessary to adopt operational procedures that would have significant environmental impacts. For example, there is an important trade-off between the noise benefits of continuous descent approaches for in-bound traffic flights and the requirement to adopt long low-level sectors by out-bound flights before they can be released for climb. The trade-off between these measures would need to be fully understood before runway developments were taken forward.

Chapter 13: Next steps

13.1 This final chapter of BAA's submission draws together those aspects which are relevant to the aviation industry's desire for a policy framework which will encourage and facilitate the integrated, safe and rapid delivery of airport infrastructure projects.

13.2 It identifies the measures which would help to achieve this, and the features which could act as obstacles or barriers to achievement. It describes who and what will be required to enable airport development to proceed in a timely fashion. BAA believes that this could best be achieved by the formation of a strategic, Government-led group of key stakeholders working within the framework provided by the new White Paper.

13.3 The Terminal 5 project provides the most recent lesson to the Government and to the aviation industry about what can happen in the absence of policy direction and planning reform. Terminal 5 had its origins in the 1985 Airports Policy White Paper. It was the subject of an outline planning application in February 1993. The proposals were examined at the longest public inquiry in UK planning history, lasting for three years and ten months between May 1995 and March 1999. The Inspector submitted his Report in November 2000 and the Government granted consent in November 2001. Work started on the project in September 2002, and Phase 1 is expected to be delivered in 2008.

13.4 While the Terminal 5 Inquiry could and should have been shorter, its length has distracted attention from the period of time which should have been the main focus, and which should be the main focus now: the period between the White Paper and the day of opening. On the basis of current expectations for Terminal 5, this will have taken 23 years. This is to provide a passenger terminal located within the airport perimeter road system and between two existing runways, on land which the 1985 White Paper had identified for airport development. This period of time is unacceptable and stands as a warning to the proposed 30-year strategy, during which it may be necessary to build up to three new runways in South East England.

13.5 The chapter begins, however, by considering what the assessment work to date will allow the Government to do, and what further work will be needed in order to support any future planning application.

The DfT assessment work

13.6 BAA believes that the appraisal work which has been carried out (and which is described in Annex B of the SERAS document), together with the comments which the Government will receive in response to the SERAS document, will allow the Government to take the strategic decisions and set the policy framework, allowing specific proposals to be taken forward.

13.7 However, before any specific proposals could be moved forward, a number of issues need further assessment and resolution. These include:

- The impact of our international obligations on aviation and the environment.
- The availability of adequate airspace capacity at the earliest possible time.
- The modelling of NO_2.
- Public transport schemes.
- Airport access schemes and strategic road improvements.
- The role of the SRA and the HA in helping to deliver the necessary infrastructure.
- Minimising the risks associated with taking schemes through the planning system.
- The viability and value of re-introducing traffic distribution rules for South East airports.
- The role of the regional assemblies and development agencies, and how the proposed new legislation to replace structure, unitary and local plans with local development frameworks could help deliver aviation policy, as well as providing benefit to targeted areas.

13.8 BAA expresses its views about how some of this work should be conducted later in this Chapter, but it is evident that once the policy framework has been set much will need to be done over a short period of time if the urgent need for runway capacity is to be addressed.

13.9 The other issue which needs to be dealt with by the Government as quickly as possible is blight. If the Government adopts the approach which BAA suggests in Chapter 3 of this response, and quickly rules out those options and locations where new runway development should not take place, then it will have done all it can to shorten the period of time during which local communities will have felt their homes and land to have

been blighted. At that location where the Government decides that a new runway is most urgently needed, BAA recognises that it would need to provide assurance to those directly affected in the local community that their interests would be seriously considered. We envisage that the best way to achieve that objective would be to enter into a dialogue with those concerned with the aim of developing and publishing a policy on this matter as soon as practicable.

13.10 At those airport locations where options are not ruled out, BAA would support the principle of land being safeguarded by the Government for airport-related development, but only when that can be done with confidence. That may not be until some time after the White Paper has been published, but BAA urges the Government to undertake the work needed as quickly as possible and to specify its objective for the time to be taken in the White Paper. BAA comments on possible mitigation and compensation packages for those affected by air noise in its response to Question 18.

From policy to planning application

13.11 The Government's aviation policy in the new White Paper is intended to span 30 years, but it also needs to support developments at airports which are urgently required in the shorter-term. As BAA has pointed out in Chapter 3, this means that the policy must not only be flexible and renewable, but it must also be specific about what sort of development is required and its location.

13.12 Up-to-date policy will help to shorten each of the stages identified in this chapter from policy to delivery. It will also give regional and local authorities and the third party providers of infrastructure the clarity and the mandate they need to support airport development. In this respect, BAA notes that the German Government, in its recent consultation on the long-term development of air transport, highlighted the importance of the roles and responsibilities that all levels of government have in delivering airports policy. Like the UK, the German Government has expressed a desire to streamline its planning processes to enable airport developments to be considered more quickly than in the past.

13.13 Policy needs to be clear to both airport developers and local communities alike. If, in the Government's words, 'doing nothing' is not an option, then as a result of the SERAS process the Government could be concluding that new runway infrastructure should be provided at an airport or airports in the South East where existing limits or undertakings may need to be relaxed or replaced. It will be vital that in these circumstances any such changes are fully justified and explained clearly in the White Paper. While airport development will always raise objections, a clear expression of Government policy can limit the time it takes to hear those objections. It can also clarify for the developer the prospects for delivering projects safely through the planning system.

13.14 The new White Paper must also take account of the fact that the timescale for providing a new runway and its associated facilities will be determined by the airport operator satisfying itself, with the other infrastructure providers, that the basic requirements of land and access can be funded, secured and delivered on time.

Land

13.15 In the case of land it may not be possible in the White Paper to identify definitively the area of land a particular option might need. BAA has made the point that once the Government has decided what sort of development is required and its location, the precise nature of the proposal will alter as design work takes place and as those who might be affected are consulted on the potential impacts. But sufficient work will need to be done to give developers and local communities the confidence that the land which has been identified for airport purposes would allow the project to be taken through the planning system.

Access

13.16 The matter of access will in some cases be even more uncertain. Such links are likely to have benefits to both airport and non-airport users and are also likely to have to fit in with the provision of other, non-airport schemes on the strategic road and rail networks. Potentially, this situation could cause delays to the preparation of detailed plans while the airport operator satisfies itself that it has a scheme that can be supported by road and rail schemes, and that those schemes can be funded. Even then, delays could occur to the delivery of the airport development for reasons which are outside the airport developer's control.

13.17 National aviation policy must therefore give direction to providers of strategic transport infrastructure (such as the Strategic Rail Authority and the Highways Agency and regional and local highway authorities) in order to ensure first, that funding is proportionate to the value that airport and non-airport traffic derives and, second, that the provision of infrastructure does not become a barrier to the delivery of airport development.

Regional and local planning issues

13.18 National aviation and airports policy must also cascade down into regional and local plans. The planning reforms which the Government is proposing would see Regional Planning Guidance replaced by Regional Spatial Strategies. These Regional Spatial Strategies will provide the strategic framework within which the local development frameworks and local transport plans will be prepared. These local plans will contain, among other things, site specific policies and land designations.

13.19 BAA welcomes the proposals to give independent inspectors or panels more power to control procedures at the examination of these plans, and that inspectors' recommendations will be binding. But BAA starts from the point that it will be the clarity and the firmness of the White Paper policy, and the Government's determination to see the policy accurately reflected at more local levels, that will be vital to delivering major infrastructure projects on time.

13.20 Conventionally, it would be for the regional planning bodies in those regions which contained the South East airports (the Greater London Authority for Heathrow, the South East Regional Assembly for Gatwick, and the East of England Local Government Conference (on behalf of the East of England Regional Assembly) for Stansted), to prepare strategies which were clear about how the national policies in the new White Paper would be adopted. It would then be for the local plans to reflect accurately the intentions of the White Paper for allocating land for future airport development.

13.21 Conventionally, and in general terms, the SRA and the HA would each engage with the principal stakeholders, including the regional authorities, before adopting new infrastructure measures and schemes into their ten-year strategic plans.

13.22 But the key question for the Government in drafting the White Paper is whether, for all the improvements which the Government is proposing to the system, these conventional approaches for the providers of strategic transport infrastructure and for regional planning are capable of helping to deliver the White Paper airport developments in time. BAA believes that a conventional approach would not be able to deal with proposals of such national importance with sufficient urgency, and an alternative way would need to be found.

13.23 We believe that the new White Paper should establish a sub-national, Government-led group of all the key relevant bodies (eg the DfT, Government Regional Offices, Regional Assemblies and Development Agencies, strategic transport providers, NATS and airport operators) which could work within the framework provided by the White Paper to agree, for example and among other things, the more detailed rail and road schemes which would need to be incorporated in all of the stakeholders' strategic plans in order to deliver the necessary airport infrastructure. This alternative approach would be better able to manage the regional and local controversy which Government policy would arouse at locations where new runway development was proposed. It would also be better able to recognise and orchestrate the complex inter-dependencies between the various stakeholders, including issues of funding, in order to allow planning applications for airport development to be made in time and in an integrated manner.

13.24 Finally, as well as being flexible itself, the aviation and airports policy also needs to be capable of withstanding changes in both other national policies of the Government and the UK's international obligations over the period. These could change at any time during the process of promoting a development, either pre-application, during a public inquiry or after an inquiry, but before a decision. We believe that the Government will need to address in the White Paper how potential delays and uncertainties arising from such changes in other policies and obligations can be managed.

From planning application to planning consent

13.25 BAA starts from the premise that a firm and clear airports policy will have been accurately reflected in the relevant Regional Spatial Strategies and Local Development Frameworks. Either in anticipation of a planning application or as a result of it, a National Policy Statement would have been published. These events would have laid the ground for the planning application for any new runway development on which an airport developer would have already consulted.

13.26 It would always be BAA's intention to try to agree matters locally, and the extent to which there would be an opportunity to do that would be influenced by how successful the Government and the regional and local authorities had been in forming and then adopting national airports policy. It is nevertheless more likely than not that whatever degree of agreement could be reached locally, a proposal for a new runway and its supporting infrastructure would be regarded as a major infrastructure proposal and would be considered at a local public inquiry.

13.27 The Government has recently published (Circular 2/2002) revised Inquiry Rules for conducting inquiries into major infrastructure projects. BAA welcomes the revised Rules as they reflect many of the points which BAA has made to the Government following its experience of the Terminal 5 Public Inquiry. Experience will show how effective these new Rules will be in streamlining the system. Those further measures which are being considered by the Government, especially the proposal to issue National Policy Statements would also help to give greater certainty and reduce time.

13.28 In its response to the Green Paper 'Planning: Delivering a Fundamental Change', the House of Commons Transport Committee urged the Government to press forward with many of the reforms it has proposed. It also made the point that in addition to savings which could be obtained by improvements to the current inquiry process, time savings could be made by improvements elsewhere.

13.29 Consequently, it recommended (Recommendation ll) that "the Government conducts a thorough formal review and reports upon both the pre-application and post regulatory approval stages of all aspects of major infrastructure projects." The Government agreed with the Committee (paragraph 70 of its response) that it would need to continue to keep the situation under review and said further (paragraph 72) that it shall be introducing statutory timetables for determining called in and recovered planning appeals.

13.30 BAA supports this approach. The Government is right to look at how every stage of the planning process can be tightened in order that decisions, consistent with national, regional and local policies, can be made clearly and quickly. Insofar as the major development of airports in the South East is concerned this would bring benefits to everyone engaged in the process.

Chapter 14: Conclusions

14.1 The provision of substantial new airport capacity in the South East of England is a critical issue for the UK economy and its competitive future. The UK Government has taken the right steps so far in bringing forward options for consultation. As soon as practicable following the closure of the consultation, and certainly by the end of 2003, the Government should publish its intended White Paper setting out a sustainable and deliverable 30-year aviation policy framework, so that work can begin on the complex issues which lie ahead.

14.2 In our submission, we have sought to provide the technical expertise and experienced commentary which will help the Government to reach conclusions about the feasibility and viability of many of the options which it is considering. We hope that we have helped the Government to eliminate options which are not realistically deliverable, so that it can release communities affected by these options from unnecessary blight at the earliest opportunity. Among the remaining options, however, it remains the responsibility of Government to select the developments it wishes to see proceed. Only Government can weigh up the many competing interests at stake in every location.

14.3 In our view the White Paper must set out a clear planning and economic framework for future airport development as well as a constructive and flexible future regulatory regime which will allow the full resources of the London airports system to be available to provide capacity at individual airports.

14.4 We regard the passenger forecasts which the DfT has produced as a sound basis for enabling the Government to take decisions about future airports policy and believe that air passenger demand should be met as fully as possible, as long as new capacity can be provided in a way consistent with the Government's airports policy objectives and a sustainable, deliverable and flexible approach. Some 100 mppa of additional capacity would need to be provided in order to meet the shortfall over the next 30 years. On that basis, any two new runways would be inadequate and any four new runways would over-provide capacity.

14.5 The White Paper should provide clear decisions on the following points:

- The airport location(s) in the South East where new runway development should not be provided.
- The airport location in the South East where a new runway is most urgently needed, and the type of runway development, along with its supporting infrastructure, which should be provided at that location.
- The other airport location(s) in the South East where new runways will, in all probability, be needed during the next 30 years, enabling land to be safeguarded, but not the sequence or the precise timing of when any new runways should be brought on-stream, since this will have to be judged in the light of actual trends in demand.
- The number of runways and the type of runway development, along with their supporting infrastructure, which might be provided at these other locations.

14.6 On the basis of our examination of the options set out in the SERAS consultation, we conclude that a sustainable aviation policy for the UK over the next 30 years will require the Government to choose up to three runway sites in South East England, from, in effect, a field of four: Heathrow (one), Gatwick (one) and Stansted (two). These expanded airports should continue to be operated as a single system, in order to obtain the maximum efficiency and flexibility from this expensive and vital national infrastructure. It will be for the Government to decide whether measures needed at these airports to reduce the predicted environmental effects can be delivered, and that fair and effective arrangements for mitigating and compensating for the significant local community impacts can be put in place.

14.7 In our view, taking everything we know now into account:

- A scheme for a new 2,000 metre runway at Heathrow should be included in the short list. It works from an aeronautical and operational point of view, and it would be financially viable and fundable, subject to the scale of the additional costs not calculated in SERAS, provided that the airport's users are prepared to accept airport charges broadly varying around the level which will exist following the increases for each of the next ten years recently approved by the regulator.
- A scheme for one new runway at Gatwick should be included in the shortlist. All of the three Gatwick runway options work from an aeronautical and airport operational point of view, although there are differences between them in terms of the scale of impacts and difficulties. One additional runway at Gatwick would be financially viable, subject to the scale of the additional costs not calculated in SERAS,

although the charges needed to remunerate the investment would be significantly higher if applied to Gatwick users only, rather than shared across users of the London system as a whole. An appropriate rail strategy has not been identified for delivering two new runways at Gatwick.

- A Stansted scheme for one and two new runways should be included in the shortlist. All of the three Stansted runway options work from an aeronautical and airport operational point of view, although there are differences between them in terms of the scale of impacts and difficulties. One or two additional runways at Stansted would be financially viable, subject to the scale of the additional costs not calculated in SERAS, although the charges needed to remunerate the investment would need to be shared across users of the London system as a whole. An appropriate rail strategy has not been identified for delivering three new runways at Stansted.
- A scheme for a new airport at Cliffe should not be included in the shortlist. While BAA also has no reason to believe that, safety concerns aside, a four- or five-runway airport at Cliffe could not work from an aeronautical and airport operational point of view, the considerable complexities of developing an airport at a wholly new site cast doubt on its ability to deliver capacity within the timescale stated in the consultation documents. We also seriously doubt whether Cliffe could be commercially viable without very considerable public subsidy.

14.8 Any new developments provided for in the White Paper must be sustainable, balancing the objectives of high and stable levels of growth, social progress, prudent use of natural resources and effective protection of the environment. BAA is in favour of the responsible growth of UK aviation. We suggest that eleven practical tests can be applied to an effective airport development strategy:

i Does it provide for the continuing growth of the UK aviation industry, which is important in its own right, and as a facilitator of the success and competitiveness of other industries, and in meeting the needs of consumers?
ii Is it economically efficient, making the best use of available airport capacity?
iii Is the airport development programme envisaged sustainable?
iv Does the Government's framework clearly identify the intended location of additional runway capacity?
v Has the Government convincingly set out a robust planning process, so that complex developments can be considered in a more timely manner, while remaining inclusive? Local agreements on optimal development should be encouraged wherever possible, including appropriate impact mitigation, compensation and control measures.
vi Is the Government confident that the airports industry will be able to attract private sector funding for the runway development programme?
vii Are all the developments envisaged consistent with maintaining or enhancing the safety and security of UK airports?
viii Is the strategy customer-led? Will the framework make it possible for UK airports to offer a wide range of high quality services to passengers, minimising delays, in conditions competitive with those found at other leading European airports? Does the policy provide for appropriate passenger-handling facilities, as well as runways?
ix Is the approach flexible, enabling the UK aviation industry to respond to rapid changes in the competitive climate?
x Can the Government give the necessary direction and certainty of funding to enable the strategic transport authorities to work with airport developers to deliver rail and road infrastructure required to support development?
xi Is the approach well-balanced, in terms of meeting the international needs of UK business, along with the reasonable expectations of businesses and individuals in the UK's nations and regions?

14.9 BAA believes that if the Government pursues a responsible approach which meets these tests, the UK will have a world-class airports system.

Chapter 15: BAA responses to the DfT's SERAS questions

Question 1:

Should new airport capacity be provided in the South East over the next 30 years and, if so, how much? What are the main reasons for your answer and how does it measure against the environmental, economic and social objectives of the Government's strategy for sustainable development?

Q1.1 The DfT's mid-point forecasts of unconstrained air passenger demand in the UK and in the South East to 2030 are presented in Figure 5A of the SERAS document. They show that unconstrained demand in the South East will reach 202 mppa in 2015 and 301 mppa in 2030. This is against a year 2000 demand figure of 117 mppa.

Q1.2 BAA has explained in Chapter 3 that it has considered the DfT's calculations and taken its own view about how the key drivers of air passenger demand will perform over the period covered by the White Paper. BAA accepts the broad order of magnitude of the Government's figures as a sound basis for policy making.

Q1.3 Air passenger demand should be met as fully as possible, as long as new capacity can be provided in a way which would meet the Government's airports policy objectives, which would be consistent with a sustainable, deliverable and flexible approach. BAA describes the context for this in Section 3 of this submission. So while we support the Government's forecasts for growth, we do so in the belief that it is possible for air transport to grow sustainably, and that growth without regard to the Government's four objectives of sustainable development is not acceptable. It is for this reason that we do not believe that unfettered growth would be responsible, and we would not support a policy of crude 'predict and provide', whereby maximum demand is predicted and maximum capacity provided, irrespective of impacts.

Q1.4 The additional passenger capacity which would be provided by each of the airport options is set out in the individual chapters of the SERAS document. The DfT's appraisal of the possible combinations of options is set out in Chapter 14, and comparisons of capacities against forecast demand are shown in Table 14.3.

Q1.5 The Government proposes (paragraph 14.17) that maximum use should be made of the existing number of runways at the main South East airports (Heathrow, Gatwick, Stansted and Luton), and BAA agrees with that objective. The maximum use case is shown in the second line of figures in Table 14.3. It is evident from Chapter 14 and Table 14.3 that, if demand is to be met as fully as possible, then some 100 mppa of additional capacity would need to be provided in order to meet the shortfall between the maximum use case capacity (201.5 mppa) and South East air passenger demand in 2030 (301 mppa).

Q1.6 For the purposes of what follows, in our response to this question and others, we assume that the maximum use case can be delivered. In circumstances where the capacity provided by the SERAS maximum use case was not forthcoming, the Government would need to decide how the shortfall would need to be addressed and so will need to allow for such an eventuality in the White Paper.

Q1.7 From the options and the figures which the DfT provides, there would appear to be three approaches to meeting demand as fully as possible: one which would concentrate development at Cliffe through the provision of four runways there; one which would concentrate development at Stansted through the provision of three new runways there; and one which would seek to provide capacity through the provision of a combination of runways at Heathrow, Gatwick and Stansted.

Q1.8 When compared with the shortfall in capacity of 100 mppa, Table 14.3 shows the following:

- Four new runways at Cliffe would provide an extra 113 mppa capacity.
- Three new runways at Stansted would provide an extra 94 mppa capacity.
- A combination of two, three or four new runways at Heathrow, Gatwick and Stansted would provide between an extra 44 mppa and an extra 143 mppa capacity, depending on how many runways were built and which ones were chosen (since their passenger capacities vary):
  - For two new runways the additional capacity would vary between about 44 mppa and 84 mppa.
  - For three new runways the additional capacity would vary between about 83 mppa and 116 mppa.
  - For four new runways the additional capacity would vary between about 110 mppa and 143 mppa.

Q1.9 On the basis of these figures, any two new runways would be inadequate and any four new runways would over-provide capacity (subject to our views earlier on the delivery of the maximum use case). Our view is that the most flexible way to meet this demand is to plan for up to three new runways at either two or three existing BAA airport locations. The combinations could be one runway at each of Heathrow, Gatwick and Stansted or one runway at either Heathrow or Gatwick and two at Stansted. Our views on why these four runway options should form a shortlist of sites are explained in the individual airport chapters for Heathrow (Chapter 5), Gatwick (Chapter 6), Stansted (Chapter 7) and Cliffe (Chapter 11) and in our responses to Questions 6, 7 and 8 later in this Chapter. We believe that these multiple site combinations offer a more flexible and therefore more attractive approach than the other SERAS options of building three new runways at Stansted or building a wholly new, four-runway airport at Cliffe.

Q1.10 In our view, this is the approach which would best respond to the key points for the Government's consideration which we outline in Section 3. It would generate the greatest economic benefits. It would in many respects most readily meet the Government's environmental objectives. It would maximise the use of existing airport facilities. It would minimise the loss of traffic from the UK airport system to continental airports, and it would provide the best service for customers, enabling them to choose between different South East airport services, based upon their own location and surface transport preferences. At the same time, this approach would ensure that the UK continues to have a major network hub airport, servicing the whole UK economy. In terms of safety and security, the Government would be building upon the solid track record of experience and performance at existing UK airports.

Question 2:

Should the Government aim to maintain at least one large hub airport in the South East? Is a second hub plausible, and if so, should Government seek to promote one, and what would it need to do to achieve this?

One large hub airport

Q2.1 The Government should aim to maintain at least one large hub airport in the South East, principally because of the substantial benefits that it would bring to airport users, local business, the national economy and tourism, as the DfT identifies in Chapter 4 of the SERAS report.

Q2.2 In Chapter 3, BAA has explained how Heathrow's type of hub operation differs from US and some major European airports and how Heathrow can best be characterised as a 'network' hub. This characteristic has developed because of the lack of sufficient runway capacity and suitable terminal transfer facilities for airlines at Heathrow. At a typical US-style hub, airlines have sufficient airport infrastructure to enable them to organise take-off and landing schedules in a way which maximises the potential of their route inter-connectivity. At Heathrow, the runways and other facilities are much more intensively used, making this type of wave operation impossible.

Q2.3 Although the opening of Terminal 5 in 2008 will improve terminal transfer facilities, in the absence of additional runway capacity at Heathrow airlines flying from there will experience erosion of their competitive positions. Faced with a seriously constrained Heathrow, alongside increased airport capacity available at some mainland European airports, airlines would be more likely to consider setting up some hub-style operations at one or more mainland European airports, in order to respond to moves by their competitors.

Q2.4 Passengers and airlines alike place very high value on Heathrow, principally because of its geographic location and strong local demand. Similar route premiums might be enjoyed at other South East airports in the future, but this could only be achieved over a long period of time, and once significant levels of additional airport capacity had been provided at another South East airport (see BAA's response to Question 8 on measures). But

for this to apply, BAA believes it would be very important that this other South East airport would have at least the extent of spatial planning and the number of surface access links with London that Heathrow has currently.

Q2.5 While a very large hub might provide additional benefits, the Government is not in its SERAS consultation envisaging providing at a single location the number of runways and runway movements that exist at the largest US hub airports (eg Chicago O'Hare has six runways (three parallel pairs) and, in 2001, 890,000 air transport movements and 66.8 mppa; Atlanta has four runways (two close parallel pairs) and, in 2001, 855,000 air transport movements and 75.5 mppa). What matters is that there is sufficient capacity to enable airlines to make their own choices about how to serve the market in the most efficient and profitable manner. In this respect, it is instructive to note that history has demonstrated that Heathrow has consistently delivered higher level of passenger throughput per air transport movement compared to other large airports in the US and Europe.

Q2.6 Given the advantages and qualities of Heathrow outlined above, BAA's assessment is that no other existing or new London airport could replicate these qualities. Furthermore, for reasons that are set out in its answer to Question 8, BAA questions the proposition that a major airline alliance would relocate voluntarily to another London airport if the policy was to concentrate hub operations at another South East airport. Importantly then, the optimal approach would be to provide capacity throughout BAA's London airports system. Such a policy would ensure that airlines gain maximum benefit from the geographical location and the strong local demand advantages offered by the South East airports and Heathrow in particular.

A second hub airport

Q2.7 From the analysis above, the scale of infrastructure is an important factor when considering the feasibility of a hub airport. Assuming that one reasonably large hub airport already existed in the South East, then consideration would need to be given to the extent of additional capacity that would be needed to sustain a second hub airport, and whether the type of capacity on offer overall in the South East would be consistent with the likelihood of growing a hub at a second location.

Q2.8 In theory, levels of scheduled traffic for the four main London airports taken together are already at a level where they might be capable of supporting a second major hub operation. However, no city in the world currently has two major global hub airports. This is principally because hubs are more lucrative to airlines if there is a unique catchment area where high route premia can be obtained. These premia would be dissipated if a second hub was to be introduced at the same city.

Q2.9 Moreover, experience in the UK has shown that airlines have been unable to generate satisfactory levels of route premia (or indeed any profit) when they have tried to set up hub-style operations at other South East airports. The natural response in all cases has been for airlines to prefer to locate a second hub in an alternative city or country where a strong local catchment area exists, rather than within the same city.

Q2.10 Even if a strong enough level of local demand existed for a second hub to be supported in the South East, the potential competitive behaviour of airlines would need to be considered. Heathrow currently supports the hub operations for two airline groups, for the reasons described above. Should sufficient capacity be provided to support a second hub airport, that airport would need to offer a distinct competitive advantage over and above Heathrow to tempt one of those airline groups away from Heathrow. In that context, it is sometimes suggested that a second hub would work in London, if there were a high-speed rail connection between the two hubs, for example between Heathrow and Gatwick or Heathrow and Stansted. This, however, is highly problematic in that the required train-paths are highly valued and not, in practice, available. The associated investment would be very difficult to justify given current or foreseeable levels of demand for this type of transfer operation. That is why this need is met currently by express coach services.

Q2.11 This analysis, and BAA's answer to Question 8 in relation to either Stansted or Cliffe operating as a hub airport, lead BAA to believe that before an airline group would move away from Heathrow it would have had to have been convinced that it would be gaining more from moving than its competitors would be gaining from the use of the additional capacity which its move would release at Heathrow. BAA acknowledges that some airlines may have indicated that if the Government enabled Cliffe to be built then they would want to be there. However, it is BAA's understanding that British Airways want to remain at Heathrow to maximise the competitive advantages that Heathrow offers. In addition, BAA believes that airline groups might prefer to remain at one airport rather than move and incur significant additional start-up costs associated with transferring operations to a completely new site.

Q2.12 In addition, the promotion of a second hub airport as a matter of policy also runs the risk of preventing additional airports capacity being brought on-stream as and when it is required by the aviation industry. In the absence of Government instruments (see Chapter 12 and BAA's response to Question 8), the uncertainty surrounding the build-up of traffic at a second hub airport would introduce financial risks both for airport operators of that airport and others in the South East system.

Q2.13 In Section 3 of this response, BAA identifies the recent trends in the aviation industry and concludes that it is not possible to be certain how the aviation industry might develop in the future. It is important, therefore, to have an airports policy that gives flexibility for the provision of additional capacity so that airlines can respond most efficiently to increases in demand, and so that additional capacity is effectively utilised. In that respect, BAA believes that a broad-based and flexible airports policy is more beneficial to the industry than one which is specifically based on particular segments of the market or which specifically promotes a single solution.

Q2.14 In short, the right approach is to allow Heathrow to continue to operate as an international hub, while providing for further growth at other South East airports, around which airlines can deliver an appropriate range of new services. The key advantage of operating the main South East airports in a system, as currently, is that this system can respond flexibly to unpredictable changes in the aviation industry.

Q2.15 It should be noted, however, that the case against two hubs is not a case against two large airports. A second multiple runway airport will certainly be necessary to meet growth in UK inbound and outbound traffic.

Question 3:

Are there any benefits of aviation to passengers, the aviation industry or the wider economy that the Government should aim in particular to secure through its airport policy? Are there any drawbacks it should aim to avoid?

Q3.1 The SERAS analysis identifies sizeable benefits that would result from the provision of additional airport capacity. These benefits are likely to flow to users of additional airport capacity, to those in the areas surrounding the locations that the White Paper identifies for development, and to the wider economy through enhanced productivity, competitiveness and investment.

Passengers

Q3.2 Benefits to passengers in the South East would be greater where development enabled a greater frequency of flights, a greater choice of destinations, fewer delays, and relatively low costs of capacity. These are all important in keeping air fares at reasonable levels. Substantial additional airport capacity would provide greater mobility for business and leisure passengers alike, and would generate the direct and wider economic benefits that the SERAS study predicts.

Q3.3 Passengers using regional airports would also benefit if capacity increases could be delivered at South East airports. This is because of the opportunities this would give to sustain or enhance the frequency of flights or choice of destinations for regional air services to the South East airports. Table 14.4 of the SERAS report shows that at higher amounts of capacity provision at South East airports, fewer passengers are lost to the UK system as a whole.

Q3.4 Failure to provide additional airport capacity in the South East would mean that those benefits to passengers would not be secured, that local and regional economies would be weakened over time, and that the competitive advantage which mainland European airports have over the UK's South East airports because of their additional available capacity would be increased. A system-wide approach to the provision of additional airport capacity in the South East can best enable airlines to provide a competitive range of flights that would be attractive to different types of passengers and so have the best chance of securing the most passenger benefits.

Aviation industry

Q3.5 The Government's central economic objective is to achieve high and stable levels of growth and employment so that everybody can share in higher living standards and greater job opportunities (SERAS document, paragraph 2.19). In relation to the aviation industry, many of the existing 180,000 direct jobs and twice as many indirect jobs would be threatened if there was no additional airport capacity in the South East.

Q3.6 The provision of new runways in the South East would not only ensure that current jobs would be protected, but it would also enable airlines to generate new direct and indirect jobs. As now, many of these new jobs would be high quality, highly skilled and well paid.

Q3.7 A system-wide approach is best able to deliver the aviation industry benefits in a manner which is most consistent with the Government's central economic objective.

The economy as a whole

Q3.8 The regional economies of London, the South East and East of England are vital to the health of the national economy. In terms of GDP per head, they are the top three regions in the UK. The importance of these regions is well documented in existing and emerging regional planning guidance and reflected in regional economic strategies.

Q3.9 These regions are important for another reason, as they attract a relatively high share of economic activities which are both knowledge-based and high value-added. These clusters of activity include sectors such as international banking and finance, research and development, advanced manufacturing, electronics and telecommunications, software development, biotechnology and pharmaceuticals.

Q3.10 Many of these economic activities are intensive users of air transport, falling broadly into two types: high-tech manufacturers who ship or receive a significant proportion of goods by air freight and for whom just-in-time production and freight services are important; and high intensity users of international air travel such as service sector companies with staff travelling abroad regularly.

Q3.11 Clusters are particularly important in knowledge-based sectors. The type of knowledge that creates sustained competitive advantage often requires proximity or regular face-to-face interaction. Innovation is a key component of the economic growth potential of clusters, and surveys have shown access to a major airport is an important locational factor. Inputs are not confined to local networks but include national and international inputs. These wider networks are evident in terms of inter-company research collaborations, external innovation inputs and scientific and professional labour markets. Early stages of innovative developments are likely to require frequent personal contact, so access to an international airport is a key requirement. Such access is represented by a convenient drive time of around one hour from the airport.

Q3.12 Government policy on a competitive economy, regional planning guidance and regional economic strategies seeks to support and grow the knowledge-based, high value-added activities and aid the deepening of existing clusters and the formation of new ones. These types of economic activity are also, relatively speaking, environmentally friendly, a point which needs to be kept in mind when considering the direct environmental disbenefits of airport expansion.

Q3.13 Currently, the UK is the number one place in Europe for attracting foreign direct investment and corporate headquarters to its regions, not just to London. Of the stock of foreign direct investment in the EU in 2001, the UK accounted for 19%, followed by Belgium/Luxembourg and Germany at 18%, France 12%, and the Netherlands at 11% (UNCTAD, World Investment Report 2002).

Q3.14 Also, almost 30% of the largest companies in Europe have headquarters located in the UK, compared to 18% in France and 16% in Germany. The UK's proportion of HQ companies within the EU represents almost twice its share of the EU's population and indicates the degree of concentration of these activities in the UK.

Q3.15 However, there is no room for complacency. Unless competitive advantage is maintained these economic activities will relocate out of the UK. Data for GDP per head in 1999 for the EU regions show that London was the fifth best performing region out of 77 regions for which data are provided (NUTS Level 1), while the South East was 22nd and the East of England 28th. This has to be compared, for example, with the goal of the East of England regional economic strategy which aims to place that region's economy within the 'top 20 wealthiest European regions by 2010'. Data on regional performance on a wider international scale indicate that London ranks 16th, the South East 34th and the East of England 38th (Global index of regional knowledge economies report for SEEDA).

Q3.16 Without the higher contribution of London, the South East and East of England regions, GDP per head within the national economy would have failed to reach the average for the EU. While increased economic contribution from other UK regions must be sought, it remains critical to underpin and enhance the performance of these three regions within an increasingly competitive global economy.

Q3.17 Heathrow is well placed to support and serve the high value-added economic activities of London and the western sector stretching into the Thames Valley. Gatwick and Heathrow together serve the western arc, additionally Gatwick's good links with the South Coast provide potential for supporting less well-performing coastal areas. Stansted serves London and connects the economically buoyant Cambridge sub-region and

areas along the M11 corridor with areas of North and East London, including the Thames Gateway. The latter areas all need regeneration; synergy with existing buoyant economic zones can only increase their potential, as can improved perception of an area through increased international accessibility.

Q3.18 A greater range of flights helps to achieve greater levels of outbound and inbound tourism with consequent wider economic benefits for UK companies. In addition, the benefits which aviation brings through employment, cultural exchange and opportunities are seen as important in developing the knowledge, skills and creativity of people which, in turn, enables businesses to be more productive and generate higher value goods and services.

Q3.19 Overall, the success of the aviation industry is integral to national competitiveness, economic development and social progress. The provision of sufficient, high quality and competitive aviation services is a prerequisite for the modern, sustainable, highly productive and competitive economy which the Government is seeking. Aviation services are also of direct relevance to key national regeneration projects and other social objectives including the employment and training of a wide range of people. The provision of additional airport capacity will enable the Government to give itself the opportunity to meet its wider economic and social objectives and help to maintain the UK's competitive position in relation to its European neighbours.

Question 4:

Should the Government seek to ensure that the potential employment benefits of aviation growth are spread to those people and localities which are most in need of such benefits? If so, what should it do to achieve this?

Q4.1 The principal function of an airport is to provide facilities to accommodate air transport activities. However, in so doing, airports and air transport activities directly create a demand for labour and help facilitate other economic activity.

Q4.2 The economic benefits of aviation growth can be experienced both at an individual airport level and across an airports system. In the former, benefits are experienced in areas that are within the catchment area of (and also at some distance from) an airport. For the latter, benefits are also experienced in areas surrounding an airports system, principally from the effective utilisation of the airport capacity in that system.

Q4.3 BAA's London airports provide a wide variety of job opportunities with an extensive range of skills from unskilled labour to qualified engineers and aircrew. Although generally situated in areas with buoyant local economies, there are nevertheless clearly identifiable areas exhibiting deprivation and levels of higher unemployment. Newly-gained experience of airport operators working in co-operation with multi-sector agencies has shown that such areas can be targeted in terms of both airport-related employment and regeneration, resulting in beneficial effects.

Q4.4 There are many areas within London and the South East that would gain benefit from aviation growth, including areas within the catchment of Heathrow, areas along the South Coast for Gatwick, and areas in North and East London for Stansted. It will therefore be important that the Government takes account of achieving an appropriate balance across London and the South East in formulating its policy for additional airport infrastructure.

Q4.5 Policy frameworks addressing the creation of employment and economic development opportunities exist at all levels of Government and are cascaded through national and regional guidance, regional and local partnerships, as well as local authorities.

Q4.6 BAA recognises that it needs to play a role in helping to spread the economic benefits arising from airports as widely as possible. This includes continued support for areas which are buoyant as well as targeting areas where economic performance is less than desired. BAA also recognises that the airport operator is well placed to co-ordinate policies which benefit the airport community as a whole and to facilitate discussion between representatives of airport companies and other cross-sector agencies in order to utilise potential economic benefit from the operation of the airport.

Q4.7 The key to converting potential benefits into reality lies with effective participation within partnerships, the frameworks for which exist already. BAA staff provide membership at all levels within these partnerships as well as contributing support both in terms of finance and human resources.

Q4.8 There is a wide range of examples of the opportunities available within existing policy frameworks to ensure that the economic benefit generated by airport development can be used to create employment opportunities, especially for those people and localities in most need. The Government can help by framing policies which will enable the aviation industry to work more effectively at a local level to maximise the various employment benefits which aviation growth will bring.

Q4.9 The Government can also help by ensuring that public funding streams in airport localities are deployed with sufficient flexibility to allow employment programmes to be delivered in a co-ordinated manner across the private and public sectors. BAA is probably in a unique position as a private company where, as the airport steward, we have close working contacts with both public agencies and private companies and can therefore broker partnership arrangements which others would find more difficult. BAA has already developed some innovative funding and partnership arrangements with organisations such as the local Learning & Skills Councils and Jobcentre Plus, with further initiatives currently being pursued through the City Growth programme (sponsored by the Treasury) and with the regional development agencies. These arrangements should be replicated and extended as the aviation industry grows in order to facilitate the implementation of aviation-based employment strategies.

Q4.10 The involvement of BAA's airports in these actions is well documented in the sustainability reports published annually by each of the airports. Whether these actions will be sufficient in the future in order to achieve the Government's objectives remains to be seen, and it may be that BAA and others in the industry will need to do more.

Q4.11 Set out below is an indication of the activities undertaken to create employment opportunities:

- The initiation and hosting of Airport Employers Groups and Airport Employment Forums which establish employment needs and provide for cross-sector participation between airport companies and external agencies.
- The creation of employment initiatives.
- The introduction of skills training and support for those entering the airport labour market following long-term unemployment.
- The introduction and support of training packages within local education facilities to help those seeking airport-related employment.
- These activities are drawn together through adopted Employment Strategies.

Q4.12 Other activities related to increasing employment opportunities include membership of, and participation in:

- Learning and Skills Councils.
- Joint schemes with Employment Services to provide information on employment opportunities through job centres in association with airport companies.
- Joint local employment partnerships seeking to place in airport jobs and offer support to those who have experienced long-term unemployment.
- Local authority partnerships.

Q4.13 BAA airports and their staff also provide membership and input to:

- Regional development agencies.
- Regeneration partnerships.
- Local economic partnerships.
- Local chambers of commerce and trade

Q4.14 Additional support for business activity is provided by hosting events such as 'Meet the Buyers' (which allows local suppliers to meet airport company buyers with the potential of entering the airport supply chain at some level); the membership of local business partnerships; and recently the initiation and hosting of a Business Forum at Stansted with cross sector representation from business support organisations, regional development agencies, local authorities and airport companies to examine and formulate proposals for utilising economic benefit. Discussion includes:

- The means for marketing and sale of indigenous products to airport companies and passengers.
- Linking airport information systems with those serving wider business activity.
- Promotion of tourism opportunities within the airport region.
- Helping airlines to promote regional tourism opportunities, especially during the 'low seasons'.
- Raising awareness among business passengers of regional economic development opportunities, including those in regeneration areas.

- Examining, within local authority land use policies, whether some airport-related development might be located in regeneration areas.

Question 5:

To which criteria should the Government attach the most and the least weight in reaching decisions about the location of any new capacity, and why?

Q5.1 BAA set out in Section 3 the high-level approach which it believes the Government should adopt in framing its future aviation and airports policy. The approach should be built upon three main principles of sustainability, deliverability, and flexibility, and these should provide the context within which the Government should develop its policy objectives for airports in the South East.

Q5.2 In its response to Question 1, BAA considered whether new airport capacity should be provided in the South East, how many runways would be needed if demand was to be met, and then assessed what approach to meeting demand would best respond to the key tests outlined in Chapter 3 and would also allow new runway development to be undertaken in a way which would meet the Government's objectives for sustainable development.

Q5.3 BAA concludes that the best approach, if demand is to be met (and if the maximum use case capacities can be delivered), is to plan for up to three new runways at either two or three existing BAA airport locations.

Q5.4 With all of those matters in place, BAA suggests that the following factors will be amongst those which the Government should regard as important when reaching decisions about the location of any new capacity:

- A strong and healthy aviation industry.
- Meeting passenger demand.
- The delivery of surface access schemes.
- The effects on the sub-regional economies.
- The extent to which the schemes perform against the Government's priorities for tackling environmental impacts.

A strong and healthy aviation industry.

Q5.5 The Government should consider the extent to which the option or combinations of options contribute to the maintenance of a strong and healthy aviation industry. This means that locations should be favoured which would allow all airlines (full-cost carriers, low-cost scheduled and low-cost charter carriers, international and domestic carriers) to grow their businesses in a profitable, secure and flexible way. It would also encourage competition between airlines in the interests of the consumer, and would give UK carriers the best opportunity to perform well against their international airline competitors.

Meeting passenger demand

Q5.6 The Government should also consider the degree of certainty that any option provides about whether passenger demand in the UK and the South East can be met. The degree to which passenger demand is met where it occurs will influence the health and strength of the UK aviation industry and will most readily realise the economic and social benefits which aviation brings. This is not about which option or combinations produce the most capacity, but about where and when capacity needs to be provided. It is also about the locations at which capacity would be taken up soonest in order to make the best use of that capacity and to maximise passenger benefits at the earliest opportunity. Most weight should be given to locations which have the greatest attraction for passengers.

Delivery of surface access schemes

Q5.7 The SERAS document identifies a number of road and rail schemes which could accompany new runway capacity at the different locations. The Government should give consideration to the extent to which the rail services and schemes and the road schemes can be delivered and delivered in time.

Q5.8 It is crucial that at this stage of decision-making the extent of services and schemes and the potential difficulty of their provision should be a factor in the choice of locations for new runways. Most weight should be given to locations and to combinations of options where the rail and road requirements are better defined and, in the case of rail, are best able to co-exist with or enhance existing services.

Sub-regional economies

Q5.9 Although choice of airport development options should be based primarily on their effective contribution to the provision of air transport facilities, account should be taken of any economic benefits or disadvantages arising at regional and sub-regional level as a result of airport development.

Q5.10 Weight should be given to a development option or combination of options which may provide opportunities for an area experiencing high unemployment to supply labour to fill airport-related jobs or to attract the location of airport-related activities which could aid regeneration. However, realisation of such potential is dependent upon the degree of accessibility of that area to the airport and any infrastructure provision to improve such potential has to be taken into account when judging the benefit.

Q5.11 The national economy is heavily dependent on the continued success of high knowledge-based, high value-added economic activities which, by way of their performance, tend to be located in areas experiencing buoyant local economies (see response to Question 3). These activities are international in character, intensive users of air transport facilities, and compete successfully in the global market place through comparative advantage. Higher levels of productivity and greater wealth creation are realistic aspirations for these areas, which have yet to achieve the 'premier league' status of many other regions in mainland Europe. Any reduction in existing comparative advantage, when coupled with the multi-national nature of the companies involved, increases the potential for relocation abroad. These areas, therefore, need to be supported in addition to improving the economies of those areas performing below expectation. Current regional guidance is to develop positive strategies to overcome local constraints whether these are related to labour or land shortages and, in this respect, the sizes of the present labour market areas may well dilute such pressures.

Performance against priorities for tackling environmental impacts

Q5.12 The Government's priorities for tackling key environmental impacts are:

i To control and reduce the scale of the adverse impacts.
ii To take mitigation measures against the remaining impacts.
iii To provide compensation for those impacts which remain following the mitigation measures.

Q5.13 BAA supports this approach and applies it in the way it runs its business at the airports it owns and manages.

Q5.14 The reported impacts of the options vary in severity from scheme to scheme. Those schemes which show the greatest impacts could nevertheless remain candidates to be taken forward in the decision-making process if measures were available or in prospect which would enable impacts to be reduced, for mitigation to be put in place or for compensation to be paid.

Q5.15 But given that these three approaches are in order of priority, the Government should give more weight to those options or combinations of options where the impacts could be controlled and reduced rather than those options where compensation would provide the only answer.

Question 6:

What are the relative merits of these alternative combinations of possible airport development as set out in Chapter 14?

Q6.1 In its response to Question 1, BAA concluded that if demand is to be met then there were three possible approaches to the delivery of sufficient capacity: one which would concentrate development at Cliffe through the provision of four runways there; one which would concentrate development at Stansted through the provision of three new runways there; and a third which would seek to provide capacity through the provision of a combination of runways at Heathrow, Gatwick and Stansted. BAA's response to this question looks at some of the relative merits of these three approaches.

Maximum use case

Q6.2 BAA starts by considering the maximum use case against which the additional runway combinations are compared in Chapter 14 of the SERAS document. The Government proposes (SERAS document, paragraph 14.17) that maximum use should be made of the existing number of runways in the South East in order that some additional capacity could be available before a first new runway could be provided in any location. BAA agrees with this objective, but as we say in our response to Question 1, in planning for possible new runways in the South East the Government must have regard to the possibility that not all of the capacity provided by the maximum use case might be delivered. Here, as elsewhere, we assume that it is.

Q6.3 Table 14.3 shows for each SERAS combination of the South East airports the total potential amount of capacity and the forecast of traffic using each airport in 2030. It follows from the Government's priorities that, in this table, one of the merits of any SERAS combination is the extent to which the available capacity is taken up.

Q6.4 The maximum use case is favoured by the Government, and BAA, because it would make best use of existing resources and as such would be likely to perform well against the Government's objectives for sustainable development. In the maximum use case 92% of the available capacity is used. This percentage represents a significant success in the use of existing assets. Only the options for runways at Heathrow or Gatwick, or combinations of runways at Heathrow and Gatwick, show a more efficient use of available capacity. Most of the others achieve around 90%, while the options for three new runways at Stansted (87%) and four runways at Cliffe (86%) show the least efficient use of capacity.

Q6.5 But if demand is to be met as fully as possible then it is to the combinations of three new runways and more that the Government will have to look (see BAA's response to Question 1) and to consider how they perform against each other.

Three new runways combinations

Q6.6 The SERAS document assumes that three new runways would be provided in 2011, 2018 and 2024 (key appraisal assumptions, Annex B, page 166). The combinations could be one runway at each of Heathrow, Gatwick and Stansted, one runway at either Heathrow or Gatwick and two at Stansted, one runway at either Heathrow or Stansted and two at Gatwick, or three runways at Stansted. Once the net benefits estimated to arise from the maximum use case (£4.9 billion) have been subtracted from the other figures in the last column of Table 14.6, the following comparisons can be drawn.

Q6.7 Of all the packages tested, three are forecast to generate the greatest net economic benefits: Heathrow+1/Gatwick+2 (£13.4 billion); and Heathrow+1/Stansted+1/Gatwick+1 (£13.2 billion) or Heathrow+1/Gatwick+1/Stansted+1 (£13.1 billion), where the Gatwick runway is the wide-spaced option. Of these, the two three-airport combinations provide the greatest additional capacity (110 mppa against 96 mppa) and the better use of capacity in the South East (90% and 91% respectively, against 89%). After these, the greatest net economic benefits arise from the option which includes two new runways at Gatwick in combination with one new runway at Stansted.

Q6.8 Net economic benefits arising from Heathrow+1/Stansted+1/Gatwick+1 (£10.2 billion) or Heathrow+1/Gatwick+1/Stansted+1 (£10.1 billion), where the Gatwick runway is the close-parallel option, and Heathrow+1/Stansted+2 (£9.8 billion) are similar, as are the additional capacities provided (90 mppa–94 mppa) and the use of capacity in the South East (90–91%).

Q6.9 Stansted+3 adds no greater capacity (94 mppa) than any of these, provides smaller net economic benefits (£7.7 billion) and makes inferior use (87%) of South East capacity.

The four new runways option

Q6.10 The SERAS document assumes that four new runways would be provided in pairs in 2011 and 2021 at Cliffe.

Q6.11 The SERAS assessment shows that Cliffe adds as much capacity (113 mppa) as any other option, but its benefits (£3.6 billion) are significantly worse than any of the other combinations. Cliffe's use of South East capacity (86%) is worse than Stansted+3 and significantly worse than any of the other combinations.

Wider economic benefits

Q6.12 The greatest numbers of UK business trips (SERAS document, Table 14.7) in the two and three runway combinations are those where Gatwick has two runways or where one new runway is provided at each of Heathrow, Gatwick and Stansted.

Q6.13 In summary, on the basis of the information provided in Chapter 14 of the SERAS document, the approach to new runway provision in the South East which plans for up to three new runways at either two or three existing BAA airport locations would not only best respond to the key tests in Section 3 (see BAA's response to Question 1), it would also provide combinations which would bring higher direct benefits and greater wider economic benefits than the alternative approaches.

Question 7:

Giving reasons for your answer, which combinations do you prefer and which do you not favour?
If the combinations on which you comment include one new runway at Gatwick, please make clear if you have any preference for or against the two options for one runway (close parallel or wide-spaced) and why.

Q7.1 BAA's answers to Questions 1, 2, 5 and 6 have provided reasons why a combination of new runways at Heathrow, Gatwick and Stansted would be the best overall response to meeting demand over the 30-year period covered by the new White Paper. It has tried to show in its answers that such a combination would have the best chance of meeting what BAA believes should be the Government's objectives for a solution that is both sustainable and flexible.

Q7.2 BAA's response to this Question draws those points together and links them to the approach the Government should adopt for the decision-making process which BAA suggests in Section 3. This brings into play a third principle for Government policy, that of deliverability.

Q7.3 BAA explains in Section 3 that the Government's decision-making process in preparing the new White Paper should first of all rule out those options which, on the basis of the reported evidence and the comments on it, should no longer be considered as candidates. It should then consider, on the basis of a smaller set of options, which runway developments are required over the period covered by the White Paper.

Q7.4 On that basis, and on the basis of the conclusions it has reached in its responses to earlier questions, BAA now explains the degree of uncertainty which already exists about the delivery of some of the options. This is greatest where the solution is providing additional capacity only at Cliffe or by combinations which would require a third new runway at Stansted or a second new runway at Gatwick.

Cliffe

Q7.5 First of all, there are uncertainties around whether this single solution to air passenger demand in the South East over the next 30 years would be the right response to the way in which the aviation industry would want to shape itself in order best to meet passenger demand in the future. The consequences of opting for an inflexible solution which then proves to be the wrong solution would be extremely damaging for the aviation industry and the UK in general.

Q7.6 It is not clear at all, as BAA points out in Section 12, whether the Government could introduce and apply the operational levers that would be needed to force airlines to operate from Cliffe. Neither is it clear, in the alternative, what compelling financial incentives could be proposed in order to persuade airlines that the gains that they would achieve would outweigh the gains of competitors remaining at Heathrow or Gatwick.

Q7.7 The removal by whatever means of a large percentage of air services from Heathrow, Gatwick and Stansted in order to 'seed' Cliffe (SERAS document, paragraph 11.6) would have substantial unknown detrimental effects on the established local and regional economies around those airports.

Q7.8 The road and rail provision for Cliffe is very substantial. There are uncertainties too about whether such infrastructure could be provided on time or at all, raising doubts not only about the rate at which passenger demand could be met, but also about the extent to which regeneration would in practice take place in the Thames Gateway.

Q7.9 There is also uncertainty about the consequences of providing sufficient airspace capacity for Cliffe, as BAA points out in Section 12. The effects of Cliffe on the airspace capacity for Heathrow and Gatwick, and consequently their passenger handling capacities, are not known, and neither are the changes that would be necessary for international airspace.

Q7.10 Furthermore, there are deep concerns about safety. The recent report by the Central Science Laboratory and the British Trust for Ornithology which we refer to in Chapter 11 found that the risk of bird-strike at Cliffe would be three times the level at most, if not all, major airports in the UK and it concluded that 'Even with [such] world class management and mitigation measures in place it is not considered possible to reduce the risk to a level similar to that experienced at other UK airports.'

Q7.11 On top of all these uncertainties, the SERAS analysis of the direct and wider economic benefits shows Cliffe performing significantly less well than the three runway options which use the existing airports at Heathrow, Gatwick and Stansted (see our response to Question 6). Finally, the costs of developing Cliffe are enormous, around £13 billion, and there is at this stage no clear idea how it could be financed. BAA's preliminary financial appraisal, set out in Section 9, shows that the charges which would be needed to remunerate two new

runways at Cliffe would need to be around four times the current level of charges at Heathrow, and further incremental increases on that level could be expected where additional access and compensation costs needed to be financed.

Three new runways at Stansted

Q7.12 The uncertainties which surround the creation of a hub at Stansted are different from those at Cliffe. While BAA believes that it would not be right to try to replicate a US-style hub in the South East, it would agree that, if that was what the Government wanted to do, construction of a new airport (at Cliffe, or anywhere else) would provide the best opportunity of doing so. For an existing airport like Stansted, the incremental growth of capacity from one runway through to four runways could not provide the sudden and substantial additional capacity which a new airport could, and which would be the only way to allow an airline or an airline group to acquire slots that it could use in US-style 'waves'.

Q7.13 But the uncertainties for Stansted as a single solution to demand in respect of operational levers and financial incentives would be the same as those described above for Cliffe, as would the unknown detrimental effects of 'seeding' on the local and regional economies around Heathrow and Gatwick.

Q7.14 The other major uncertainty about the development of Stansted to a four-runway airport is the surface access schemes which would be required to support it. While we are confident that an appropriate rail strategy can be delivered for one and two new runways at Stansted, BAA has not so far identified an appropriate strategy for three new runways. For the reasons given in Chapter 7, this scenario is likely to require substantial new rail infrastructure significantly in excess of the package for the two new runways option.

Q7.15 Against this background of uncertainty, it is also the case that the option for three new runways at Stansted shows fewer direct and fewer wider economic benefits than other runway combinations of that size.

Two new runways at Gatwick

Q7.16 As with Stansted at its highest levels of additional capacity, a major uncertainty about the development of Gatwick to a three-runway airport is the rail schemes which would be required to support it. While BAA has identified a rail strategy and rail services and schemes which would be capable of supporting one new runway at Gatwick, it has not so far identified an appropriate rail strategy for the two new runways option. For the reasons given in Chapter 6, this scenario is likely to require substantial new rail infrastructure significantly in excess of the package for either of the wide-spaced runway options.

Q7.17 There are of course uncertainties of varying degrees around other locations and other combinations. But in all cases where those uncertainties exist, it is BAA's view that present knowledge holds out the prospect of a solution, provided that measures sufficient to reduce the environmental effects and to deal effectively with specific local concerns can be taken. BAA certainly cannot say that for Cliffe, and we are unable to say that for a third new runway at Stansted or a second new runway at Gatwick.

Q7.18 These conclusions reinforce the views which BAA has expressed in our main submission and in our answers to other questions. The best way for the Government to meet demand in the South East is by the provision of up to three runways at either two or three existing BAA airport locations. These three runways could be in the combination of one new runway at each of the three airports, or one runway at either Heathrow or Gatwick and two new runways at Stansted.

Q7.19 With regard to the alternative options for one new runway at Gatwick, BAA does not presently favour one option over the other. However, we note in Chapter 6 that the close-parallel option was conceived as one which would have fewer environmental impacts than the southern wide-spaced scheme, and that is evident from the material reported in the SERAS document. Otherwise, the other aspect on which BAA would comment is the greater confidence that can be attached to the provision of a rail and road strategy to support the close parallel option.

Question 8:

If you think either Gatwick, Cliffe or Stansted should be developed as a hub airport, should the Government take action to ensure such development can be financed and subsequently fully utilised and if so what form should any action take?

Q8.1 Chapter 3 of BAA's response explained that an airport should enjoy several key advantages to operate successfully as a major international hub. These are:

- An attractive geographical location.

- Sufficient airport capacity.
- Strong local demand.
- An airline that is committed to pursuing a hub strategy.

Q8.2 The application of these factors in the South East airports system has meant that Heathrow has developed more as a 'network' rather than a 'US-style' hub. Indeed, largely because of these factors, BAA's answer to Question 2 explained that airlines are unlikely to want to develop 'network' hub operations at two large airports in the South East as they are more likely to focus on one large airport and compete with each other there.

Q8.3 A policy decision to develop Gatwick, Stansted or Cliffe as a hub airport would mean that a policy of capacity growth at all of the airports in the South East airports system had been abandoned. Even if it was thought suitable to base aviation policy for the next 30 years on a hubbing strategy, consideration would need to be given to the extent to which airlines currently located at Heathrow could and would re-locate all of their operations to Gatwick, Stansted or Cliffe.

Q8.4 BAA's answer to Question 2 explained that at levels of capacity provided by a two-runway airport, Heathrow is always likely to maintain a sizeable number of 'network' hub operations, largely due to the scale of operations and the strong local demand.

Q8.5 Furthermore, a possible outcome of constraining Heathrow to two runways could be that some of the major airlines (both UK and non-UK) currently operating at Heathrow might relocate a sizeable part of their operations to a mainland European airport where they would be better able to exploit the key advantages outlined above. It would therefore be unrealistic to assume that airlines could and would re-locate all of their operations from Heathrow to Gatwick, Stansted or Cliffe.

Q8.6 A policy of encouraging the provision of capacity across the South East airports system not only allows airlines to maximise the relative advantages of Heathrow, but also allows enough capacity to be made available for airlines to exploit the relative advantages of other South East airports. It could be, for instance, that greater capacity at Gatwick, Stansted and Luton would enable charter and scheduled airlines alike to increase the number of point-to-point flights, differentiating them either on 'low-cost' or other grounds. This market-led approach to airports policy would also then allow enough capacity to be made available to enable airlines to compete with each other.

Q8.7 Moreover, a policy of encouraging a balanced provision of system capacity would give the best fit with the criteria outlined in BAA's answer to Question 6. These criteria point to the fact that the incremental growth achieved from a system-led approach would best secure a future airports policy that is sustainable, flexible and deliverable. A policy that only pursues growth at one particular airport, whether it is Gatwick, Stansted or Cliffe, to the exclusion of other airports in the South East, would have to recognise the substantial risks in that airport's ability to attract the necessary demand.

Q8.8 BAA does not believe that the new White Paper should specify that Gatwick, Stansted or Cliffe should be developed specifically as a hub airport. But in the event that the Government chose to make such a significant decision then strong forms of action would need to be taken and each would have its own challenges and consequences. These are discussed in the following paragraphs.

Traffic distribution rules

Q8.9 In the past, the UK and other countries have used the concept of traffic distribution rules for the purposes of implementing policy and influencing the type and amount of air traffic using specified airports. The UK Government abandoned its 1986 traffic distribution rules in March 1991. While it may in theory be possible to draft traffic distribution rules which would have the effects necessary to ensure that Gatwick, Stansted or Cliffe developed as a hub, such measures may no longer be feasible under EU competition rules.

'Carrot and stick' measures

Q8.10 Incentives for airlines to re-locate their operations might come from a preferential charging regime, which in theory should enable airlines to provide discounted fares. The likelihood of success for this measure is very small. Assuming the internationally accepted 'cost-related' principle is applied, the level of charges required to remunerate such airport development would be high (such as at Kansai in Japan) and this would have consequences on the competitive effectiveness of the airlines that did relocate. Even if it was possible to keep the level of airport charges artificially low (for example, lower than at Heathrow), airport charges as a percentage of airline costs are very small (typically less than 5%), and so lower charges at Gatwick, Stansted or

Cliffe would be unlikely to allow airlines to provide the level of discounts in fares that would be required to generate the volumes of passengers to offset any reductions in profitability they would experience during the early years of operation.

Public subsidy

Q8.11 The approach most likely to succeed at Gatwick, Stansted or Cliffe is for the Government to provide public sector finance, possibly for the following purposes:

- To enable airport developers to pre-fund the developments.
- To keep airport charges low enough in the early years of operation (when the profile of airport operations is very peaky) so that airlines are able to transfer their operations with some confidence that they would be financially viable in the early years.

Q8.12 This approach would have ramifications for the Government's public sector borrowing, and would also be likely to cause significant distortions in the South East airports market, both before and after the development opens. The Government would therefore need to satisfy itself that privately-financed options could not achieve the same policy goals.

Closure of existing South East airports

Q8.13 Even the action of closing one or more existing South East airports would be likely to require high levels of Government subsidy. Experience from Hong Kong (where the Government took the decision to close Kai Tak Airport and construct Chep Lap Kok Airport), suggests that the direct replacement of one airport by another could only be achieved through high levels of Government subsidy. Furthermore, there would be enormous regional planning implications of closing an existing South East airport. There is, in any event, no guarantee that airlines would relocate from the existing South East airport that had been closed, mainly for the reasons listed in Q8.10, possibly preferring instead to relocate a sizeable part of their operations to airports with spare capacity in mainland Europe.

Q8.14 So even if it was thought that Gatwick, Stansted or Cliffe should be developed as a hub airport, BAA would doubt whether action could be taken by the Government to provide sufficient certainty to developers and those who would finance the project for any of the airports to be fully utilised.

Question 9:

Should the Government encourage the development of smaller airports to meet as much of the demand as they can attract?

Q9.1 The SERAS analysis shows that if no further runway capacity is provided in the South East, the region's first tier airports (Southampton, London City and Norwich) would face significant demand overspill from the constrained main airports. For example, in the case of Southampton, if there are no further runway developments in the South East the airport is forecast to handle 7.1 mppa by 2030, and 3 mppa if three new runways are provided.

Q9.2 As stated in Chapter 10, BAA believes that regional airports have an important role to play in meeting the demand that arises regionally in their areas. Given the significant economic benefits to regional economies, regional airports should be supported by central and local Government in meeting the demand they can reasonably be expected to attract, subject to the achievement of other social and environmental policy goals.

Q9.3 However, BAA believes the region's smaller airports have a limited contribution to make to meeting the region's overall demand for air travel. As a consequence, they should not be considered in the new White Paper as providing an effective substitute for additional capacity at London's main airports.

Question 10:

Should support be given for a specialised low-cost/freight and maintenance facility at Alconbury?

Q10.1 BAA's views on the Alconbury development are provided in Chapter 10. The conclusion of BAA's analysis is that the Alconbury development would require substantial public support, in the form of public grant or subsidy, to make the development viable. BAA's analysis suggested that such public support would need to be in the order of several hundreds of millions of pounds.

Question 11:

If so, what conditions, in broad terms, should be attached to this support?

Q11.1 BAA's response to Question 10 suggests that several hundreds of millions of pounds of public support would be needed to make the development viable. Given the scale of Government support required, BAA has not considered the conditions which the Government might regard as necessary in order for the project to proceed.

Question 12:

What views do you have about the six sites identified in the SERAS study as having the potential to cater for the demand for business and other general aviation?

Q12.1 BAA's response to this issue is provided in Chapter 10. It indicates that development at these sites should generally be supported to the extent that it does not compromise the present or future airspace capacity of the region's main airports. BAA supports the Government's view that such airports have no role to play in providing satellite runway capacity for either Heathrow or Gatwick.

Question 13:

How far should the Government make specific provision for the air freight sector in its decisions about future airport capacity in the South East? What might this involve in practice?

Q13.1 As BAA indicates in Chapter 12, the Government should take full account of the freight industry's increasing needs over the next 30 years when preparing the new White Paper, and deciding how much airport capacity should be provided. The Government should also take into account the long-term trends in the freight industry, including the growing share of all-cargo flights and the growth in the express freight sector.

Q13.2 BAA supports the Government's consideration through the SERAS consultation of how airports both in and around the South East region might contribute to meeting the rising demand for air freight. The South East region will continue to dominate the UK market for air freight, driven by the diversity of facilities at the South East airports, the range and frequency of scheduled services, and the opportunity for freight operators to operate the three main airports as a system. Consequently, access to London and the South East market is particularly important for express freight operators, who compete with each other on the ability to offer the best possible 'next day delivery' services.

Q13.3 Experience from the UK and other countries has tended to show that dedicated freight airports are not financially sustainable unless they are part of a global logistics network attached to one of the major distribution companies. This suggests that the growth in demand for air freight will probably be met at airports where there are also significant passenger operations. BAA's views on the Government's option for development at Alconbury are contained in Chapter 10, and in answers to Questions 10 and 11.

Q13.4 Where possible, the Government should seek to provide sufficient airport capacity to allow airlines to offer a combination of passenger and all-cargo services to meet the overall needs of the air freight industry. However, where this is not possible, the Government should permit the market to make appropriate trade-offs between the use of scarce airport capacity for passenger and freight operations. Given that these market mechanisms do not currently exist and that the Government has decided that priority should be given to passenger operations, then the principles behind the Government's decision to prevent all-cargo flights operating in peak hours at Heathrow and Gatwick remains correct, and the current traffic distribution rule should therefore be retained.

Q13.5 The Government should continue to work constructively with airlines, and operators of all-cargo flights in particular, to minimise the specific environmental impacts associated with the air freight industry. As the SERAS document explains, these environmental impacts are increased by the need for freight integrators and consolidators to operate during the night in order to achieve the required levels of service. In framing policies which incentivise the aviation industry to minimise and mitigate its environmental impact, the impacts of passenger and all-cargo aircraft should be treated equally. Policies or measures which gave special dispensation to either passenger or freight traffic would not be appropriate.

Q13.6 BAA would support the overall future growth of freight traffic at Stansted, subject to two important caveats, one relating to the use by cargo operators of the runway at peak periods and the other regarding a suggestion in the SERAS document that the relaxation of the night-time movement cap for the airport might be a way to address the forecast demand for such movements.

Q13.7 In respect of the first, and as stated previously, the market should normally be allowed to determine the appropriate allocation of capacity between passenger and freight movements. In the absence of an effective market mechanism for airport capacity the Government might need to consider the introduction of a traffic distribution rule at Stansted to prevent all-cargo flights operating in peak hours, as is the case at Heathrow and Gatwick.

Q13.8 In respect of the second, in Chapter 4 of this submission and in response to Question 16 BAA explains the measures it has developed, in conjunction with airlines and with NATS, to improve the general noise climate around its airports. BAA would not support the relaxation of the existing night movement cap for cargo operations at Stansted.

Question 14:

Are there any specific conditions that you feel should be attached to any or all of the airport options described in Chapters 7–11?

Q14.1 The new White Paper should set the policy framework within which specific proposals from the private sector can be taken forward. This approach will allow promoters to develop schemes which may differ in some aspects from those described for each airport in the SERAS document.

Q14.2 In addition, as the SERAS document acknowledges (paragraph 2.23), it will be for the relevant airport developer to carry out project design, to consult all concerned on the impacts and how to mitigate them, and to seek approval for any projects through the planning system. Discussions and negotiations with third party providers, such as the SRA and the HA, would be necessary. In preparing the planning application the developer would have to undertake an environmental impact assessment to comply with the 1999 Regulations. Any one of these activities could cause a scheme to change in important respects, including its environmental impact. During these periods of time everyone who is involved in the process or who is consulted will have a role to play in framing ideas about what conditions might be needed to control the possible effects of the development.

Q14.3 Even for the most urgent new runway scheme which might be identified by the new White Paper it is likely to be some years before an airport developer will have completed all the work necessary to enable it to make a planning application for such a scheme and its associated infrastructure. Additional schemes may be brought forward later in the 30-year period to be covered by the new White Paper.

Q14.4 Future developments will have to be limited by a number of controls. BAA accepts this in principle and recognises the value which local communities place on the imposition of conditions for development. BAA has itself proposed controls on the developments which it has promoted at its three South East airports over the past 25 years.

Q14.5 But conditions can only be proposed and considered once information is known about the details of any development and its potential effects. BAA imagines that future airport developments of the kind contemplated in the SERAS document would be subject to a comprehensive set of conditions and voluntary restrictions, covering areas such as noise, measures to reduce emissions, public transport and surface access schemes, but it is too early to say what they might be.

Question 15:

Are there any impacts reported in the chapters on individual airport options that you consider unacceptable?

Q15.1 The scale of all of the individual airport runway options is exceptional, and as such the Government will need to take a broad view on how new runway development would meet its sustainability objectives for the UK as a whole. The approach which the Government says it intends to take (SERAS document, paragraph 2.4) on whether or not an airport option can fit with a sustainable airports policy is one which seeks to give proper consideration to economic, social and environmental factors. Where impacts are substantial there can also be substantial economic and social benefits.

Q15.2 As such, impacts need not be unacceptable nor unsustainable as a matter of principle, and the use of effective controls on impacts, of mitigation measures and arrangements for compensation could result in a scheme which meets the Government's airports policy objectives and consequently its objectives for sustainable airport development.

Q15.3 The conditions imposed upon the Terminal 5 and the Stansted Phase 3 planning consents demonstrate that, where large benefits are in prospect, controls can be set at levels which would allow consents to be granted. For the four runway options which BAA thinks should form the shortlist of sites for inclusion in the White Paper, we believe that the process involved in previous planning consents provides an appropriate basis for dealing with the relevant issues involved.

Question 16:

How can local noise and air quality impacts in particular, best be reduced, controlled and mitigated?

Local noise impacts

Q16.1 In paragraph 144 of its consultation document, 'The Future of Aviation', the Government says that it is keen to ensure that noise improvement measures continue to be pursued at airports at all times of the day, and that the control of noise at airports should be agreed locally as far as possible. This reflects the localised nature of the noise impact from airports, which lends itself to local initiatives and local agreements that aim first to control, then to mitigate and finally to compensate those affected, in accordance with the priorities which the Government favours (SERAS document, paragraphs 16.25–16.26). The principle of controlling airport noise at the local level is enshrined in the balanced approach advocated within directive 2002/30/EC.

Q16.2 BAA supports this approach to the management of local noise and air quality impacts, and this response is intended to reflect that support.

Q16.3 The Government itself has over the years implemented or maintained noise mitigation initiatives at BAA's three South East airports. These include:

- The phasing out of Chapter 2 aircraft by April 2002 (under international agreement).
- The introduction of a new noise-related certification (known as Chapter 4) which will ensure aircraft certificated after 2006 are quieter than Chapter 3 aircraft (under international agreement).
- Regulations to limit the number of movements and the types of aircraft operating at night at all three of BAA's London airports.
- Noise limits on departure during the day (94 dBA), in the late evening and early morning (89 dBA), and at night (87 dBA) at all three of BAA's London airports. Aircraft can be fined for infringing these limits.
- Segregated mode operations and runway alternation on westerlies at Heathrow.
- The 'Cranford Agreement' at Heathrow.
- The use of noise preferential routes at Heathrow, Gatwick and Stansted.
- Statutory noise insulation schemes at Heathrow and Gatwick.

Q16.4 BAA has also developed measures, in conjunction with airlines and NATS, which have been designed to address particular local issues. Examples of these measures include:

- A voluntary ban on scheduled QC4 night movements at Heathrow since 1996 and at Stansted since 2000.
- Arrival/departure procedures at all three South East airports to minimise the noise of aircraft at landing and take-off.
- Departure track-keeping trials at all three South East airports to ensure aircraft keep to noise preferential routes in order to limit noise impact on the ground to areas beneath those routes.
- Promotion of 'continuous descent approach' procedures which reduce noise from arriving aircraft.
- As far as possible consistent with flight safety, no use of reverse thrust on landing at night at all three South East airports.
- Measures to manage high-power engine running at all three South East airports.
- Fines for infringements of the noise limits by departing aircraft (see fourth bullet of Q16.3 above) at all three South East airports.
- Day and night time differential landing fees according to aircraft noise categories at all three South East airports to encourage airlines to use quieter aircraft.
- Voluntary noise insulation schemes at Heathrow and Stansted.
- Restrictions on the use of ground power sources at all three South East airports and the promotion and provision of fixed electrical ground power on new, fully operational stands.

Q16.5 All of these initiatives are kept under constant review and further measures could well be brought forward to contribute to the noise management of the existing or future runway operations at the South East airports.

Q16.6 In addition to measures agreed voluntarily between airport operators and their airlines, each of the three London airports has had noise mitigation measures imposed by planning conditions. These have generally followed major local public inquiries, such as Gatwick North Terminal, Heathrow Terminal 5 and Stansted. The conditions imposed have often been those which BAA had itself volunteered. Other noise-related planning conditions have been imposed as a result of planning applications determined by the local planning authority (most notably, Stansted Phase 3).

Q16.7 In addition, there have been voluntary agreements between the airport operator and the local planning authority for developments under the airport's general purpose development order (GPDO) powers for which planning consent has not been required.

Local air quality impacts

Q16.8 Airports affect local air quality, as does road traffic. Area-wide improvements to air quality require the effective management of all significant emission sources through the combined efforts of all those whose activities impact upon local air quality.

Q16.9 The main airport-related emissions which affect local air quality are by-products of fuel use which increase levels of nitrogen oxides (NO_x) and particulates (PM_{10}). The main sources of these pollutants are:

- Aircraft operations close to and on the ground.
- Road vehicles at airports.
- Road traffic to and from airports.

Q16.10 BAA recognises that local air quality impacts are an important issue for residents who live near to its airports and that overall levels of certain pollutants need to be within the standards set out in the EU daughter directive on air quality. To that end, BAA has developed air quality strategies at each of its South East airports, setting out objectives and annual targets to reduce the impact of the airport on local air quality. These need to be mirrored in strategies by central Government and local authorities to reduce emissions from roads and other sources of emissions which contribute to background levels in the UK. In general, the objectives of BAA's air quality strategies aim to develop:

- Air quality management strategies, measurement and action programmes, including the promotion of alternative fuels and emissions abatement technology for vehicles operating at the airport.
- Incentives to encourage low emissions technology for aircraft, together with trials of operational measures, and active lobbying for improvements in aircraft emissions performance through changes in aircraft engine design.

Q16.11 Examples of the existing initiatives designed to reduce fuel use, which in turn reduce emissions at BAA's South East airports are:

- The introduction of fixed electrical ground power units at all three South East airports to reduce the time aircraft keep their auxiliary power units running and to eradicate the use of ground power units.
- A trial installation of pre-conditioned air units on stands at Heathrow's Terminal 4 to control the temperature, humidity and ventilation on-board aircraft while aircraft are being prepared for departure.
- Working with airlines and air traffic control to reduce taxi and hold times by optimising routes for aircraft around the airfield, allocating aircraft to the nearest appropriate stands, and minimising aircraft hold times around the airfield by better scheduling and air traffic control procedures.
- The introduction of safety and emissions testing for all airside vehicles at the three South East airports to ensure that they meet Euro 2 emissions standards and are not too old.
- Undertaking various trials of alternatively fuelled vehicles to evaluate the potential for their use both in airside and landside locations.
- The use of liquid petroleum gas buses for coaching passengers and staff in airside and landside locations at Gatwick.
- Reducing the growth in trips to and from and at the airport by introducing surface access initiatives to encourage public transport use by passengers and to encourage staff to use public transport, car share, cycle or walk.

Q16.12 BAA's preliminary conclusions from its assessment of the SERAS proposals suggest that improvements in aircraft engine technology will provide the main reductions in future levels of NO_2 emissions at airports. In recognition of the central role that improvements in aircraft engine technology will make to reducing NO_2 emissions, BAA is currently consulting with airlines on proposals to introduce a system of differential landing charges such that airlines operating aircraft that have low NO_2 emission engines would pay less.

Q16.13 But other measures will count. Material reductions are also required in auxiliary power units and taxiing emissions, emissions from airside vehicles, and emissions from airport-related and non airport-related vehicles. For its part, BAA will ensure that for those activities within its control, it will adopt all of those measures from the existing trials which will contribute to reducing emissions. The Government's analysis shows that the industry will be expected to go beyond the measures which it has employed to date, as on the basis of measures employed so far, there is forecast to be a worsening of impacts.

Q16.14 Any improvements made to airport air quality emissions must be viewed in the context of the overall improvements to air quality in the local areas surrounding the airport and in relation to general background levels of air quality. The Government decision letter on Terminal 5 recognised that air quality around Heathrow is by no means solely influenced by factors attributable to Heathrow Airport. Future work undertaken by the regional and local authorities to reduce air quality emissions would be as important as the airport-specific initiatives outlined above. For its part, BAA will continue to work with its local authorities to assist them in developing their action plans and any future area-wide initiatives (eg surface access) that have merit.

Question 17:

What are your views on the following points on the control of noise impacts:

a) Do you think that caps on the size of noise contours are the best way to determine a noise limit for an airport? If not, what other limits might you suggest?

Q17.1 As BAA's response to Question 16 explains, BAA is committed to continue to develop and to implement initiatives in conjunction with airlines and NATS designed to reduce the noise impact on local communities. However, in the context of future development proposals, particularly new runways, BAA recognises that some more general form of control, such as an air noise cap, could be appropriate to limit the effects of air noise. Such a cap would help to define the effects of air noise which (along with other environmental effects) would be weighed in the balance with any benefits of a particular airport development.

Q17.2 BAA accepts that the principle of air noise contour caps would help to give local communities the confidence that overall air noise levels would not be exceeded. There are, however, a number of specific points which need to be kept in mind when applying the principle in practice.

Q17.3 First, in the SERAS context, any prospective air noise cap is likely to start to apply (or become potentially constraining) some years after it has been imposed. It would be necessary then, when setting the level of any cap, to have taken into account the uncertainties inherent in both aircraft fleet forecasting and aircraft noise forecasting.

Q17.4 It would also be necessary in these circumstances to ensure that, with the passage of time, any intervening policy change in the way in which noise impacts are expressed (eg from a 16 hour day as now, to a 17.5 hour day or a 24 hour day), or which indices are used (Leq as now, or Lden), did not unfairly penalise either the airport operator or the local community by making the cap more or less onerous. This principle would also need to recognise the fact that, over time, routine developments to modelling techniques can alter the output of a noise index (ie the area of a contour) significantly.

Q17.5 Second, any air noise contour cap must reflect Government policy which in turn needs to be underpinned by assessment and survey. Current Government policy establishes community annoyance starting at 57 LAeq (16-hour), based upon assessment and survey. So while it is legitimate, at the present time, to impose an air noise cap related to the area of a 57 LAeq (16-hour) contour, it would not be legitimate to impose an air noise cap based upon the 57 LAeq contour for any other period such as one, four or 12 hours, or for any other 16-hour period than the one (0700–2300) which is current Government policy.

b) If you agree with the concept of contour caps, what size of noise contours might be desirable and feasible for each option?

Q17.6 The Terminal 5 Public Inquiry received a large amount of evidence on whether 57 LAeq (16-hour) represented the onset of annoyance, and whether or not the Leq index accurately reflected the actual experience of those living around Heathrow.

Q17.7 In this regard, the Secretary of State announced in May 2001 his intention to conduct a new three year study of aircraft noise, focusing on how people perceive the relationship between noise levels and annoyance (or sleep disturbance at night), and how they would value lower noise levels relative to other environmental factors.

Q17.8 There is also the June 2002 EU Directive 2002/49/EC on noise assessment and management, due to come into force in 2006, which the Government must take account of in any future policy it adopts. This directive proposes that Lden and Lnight should replace the Leq measurement.

Q17.9 We think that the size of contour cap that might be appropriate in the future for the SERAS options is a matter for debate in relation to any future planning application. That application would be made in the context of the outcome of the current Government study on aircraft noise and any existing and emerging international regulations and obligations, such as EU directives.

c) How do you think a contour cap might be regulated and enforced?

Q17.10 In circumstances where BAA was promoting a runway scheme, BAA would expect (as was the case with its consent for Terminal 5) an air noise cap to be imposed as a planning condition which would be monitored and enforced by the local planning authority. The cap would be managed through the slot allocation process at the airport scheduling committee in such a way that the local planning authority could be assured that the seasonal schedules as planned would at any time deliver schedules as flown which would comply with the terms of the air noise cap.

Question 18:

What views do you have on the following possible measures:

a) Should any residential property which suffers an increase in noise of 3 dBA or more as a result of any of these options, and which would be exposed to a noise level of 63 dBA daytime or more, be eligible for acoustic insulation?

b) Should acoustic insulation for households be extended to other noise-sensitive buildings not normally eligible, such as schools and hospitals, depending on detailed circumstances?

c) Should those eligible for insulation be given the choice of either having the insulation work done or accepting a cash payment of an equivalent amount?

d) Should assistance with relocation expenses be offered to households subject to very high level of noise (such as 69 dBA) or more?

e) Should offers be made to purchase those properties which would be subject to both a very high level of noise and a large increase in noise?

f) Should cash compensation be offered to those households suffering a significant increase in noise to a level greater than 57 dBA but less than 63 dBA – and therefore not qualifying for insulation?

Q18.1 Government expects aviation to meet its external costs. In addition, the Government favours a hierarchical approach to addressing environmental impacts (paragraph 16.25 of the SERAS document). BAA supports both the policy and the approach. Any consideration of these possible mitigation and compensation measures should be seen in the context of those policies and in the context of BAA's responsible track record in developing and implementing local initiatives to control and reduce noise impacts at its airports.

Q18.2 BAA notes the Government's view on mechanisms for raising the necessary finance to fund potential mitigation and compensation measures. BAA's response to 'The Future of Aviation' stressed the importance of having local schemes that were capable of ameliorating any future noise impacts that may arise. BAA's traditional funding mechanism would be to internalise its costs by including them as part of the airport's overall costs. This could then allow them to be funded by airlines through airport charges.

Q18.3 BAA has not ruled out any future consideration of a 'ring-fenced' funding mechanism that the Government refers to in the SERAS document (paragraph 16.53). But that kind of mechanism would need to have clearly defined objectives and goals in order for it to succeed. In any event, BAA believes that it is important for the Government to note that any future mitigation and compensation packages, and the associated funding mechanisms, would be matters on which BAA would wish to consult its airline customers and local stakeholders.

Q18.4 In addition to uncertainties surrounding the precise package of mitigation and compensation measures for any future airport development proposals, and the funding mechanisms that may be required, there is also the technical issue concerning the levels of increase in air noise that would determine compensation to local residents.

Q18.5 The current Government study into local community perceptions of annoyance may produce findings relevant to its consideration of mitigation and compensation packages for future airport development proposals, as well as some guidance on whether 3 dBA is the appropriate increment on which to base such a package.

Q18.6 The DfT's SERAS noise assessments are a reasonable basis on which to make relative broad comparisons between the noise impacts of the different runway options. However, they should only be regarded as indicative of the noise climate that might exist for each option. At the appropriate time, BAA would carry out a full noise impact assessment to support any particular development proposal. However, BAA believes that it is not possible to draw any firm conclusions now about the possible mitigation and compensation measures in the absence of particular development proposals, agreement on funding from the airlines and understanding of the specific local community perceptions of additional noise impacts. BAA has already introduced noise insulation schemes at Heathrow and Stansted and, in principle, would be minded to do so again if that were a relevant part of future airport development proposals. The table below has been prepared to illustrate a possible range of packages from those measures listed in the question, and to indicate how much each might cost to implement in relation to the Government options identified in the main SERAS document.

Q18.7 The table shows three hypothetical air noise mitigation/compensation scenarios for each of the SERAS options for Heathrow, Gatwick, Stansted and Cliffe. The notes below the table explain the measures and the monetary values which have been assumed.

Q18.8 Columns one and two show the costs associated with different permutations of the measures identified by the DfT which have, for convenience, been labelled a 'mitigation-led' approach and a 'compensation-led' approach respectively. The notes to the table explain how these two scenarios differ.

Q18.9 Column three shows the costs which would arise if all of the possible future measures, identified by the DfT at the end of Chapter 16 of the SERAS document, were to be implemented at each location for the different runway options.

Table 18.1: Costs of hypothetical mitigation and compensation measures for SERAS options – 2030

	Mitigation-led approach	Compensation-led approach	SERAS measures
Heathrow			
+1 runway	£290 million	£550 million	£1,200 million
Gatwick			
Close parallel	£4 million	£13 million	£45 million
Wide spaced	£12 million	£30 million	£60 million
+2 runways	£20 million	£50 million	£125 million
Stansted			
+1 runway	£20 million	£30 million	£250 million
+2 runways	£30 million	£45 million	£270 million
+3 runways	£35 million	£55 million	£390 million
Cliffe			
+2 runways – 2015	£4 million	£7 million	£25 million
+4 runways	£20 million	£30 million	£60 million

Notes

- Mitigation-led approach assumed to comprise:
  - Relocation expenses to households subject to noise levels greater than 69 dB(A), at a cost of 2.5% of the market value of the house.
  - Noise insulation for households subject to noise levels of 63 dB(A) daytime or more, at a cost of £8,000 per house.
- Compensation-led approach assumed to comprise:
  - Relocation expenses to households subject to noise levels greater than 69 dB(A), at a cost of 2.5% of the market value of the house.
  - Noise insulation for households subject to noise levels of 63 dB(A) daytime or more, at a cost of £8,000 per house.
  - Cash compensation for households subject to noise levels greater than 57 dB(A) but less than 63 dB(A), at a cost of £2,000 per house.
- SERAS measures approach assumed to comprise:
  - Purchase of households subject to noise levels greater than 69 dB(A) at market value, together with additional payments for home loss and disturbance (10% and 2.5% respectively).
  - Noise insulation for households subject to noise levels of 63 dB(A) daytime or more, at a cost of £8,000 per house.
  - Cash compensation for households subject to noise levels greater than 57 dB(A) but less than 63 dB(A), at a cost of £2,000 per house.
  - Noise insulation for hospitals and schools at an average of £200,000 per property.
- For the purposes of the calculations, BAA has assumed an average property value of £180,000 around Heathrow, £210,000 around Stansted, £196,000 around Gatwick and £125,000 around Cliffe. The numbers of hospitals and schools affected at each location assumed in the analysis are notional. A total of 30 buildings were assumed to be affected at Heathrow, and 15 buildings each at Gatwick, Stansted and Cliffe.
- The values of cash compensation of £2,000 and noise insulation of £8,000 are notional, as is the average cost of £200,000 for hospitals and schools.

Q18.10 Costs for noise mitigation and compensation were excluded from the financial appraisals that the DfT consultants undertook of the various SERAS options (as were other forms of compensation not directly related to the option layouts). Consequently, some or all of the costs in the table would need to be added to the costs

already identified in the SERAS document when any financial appraisal of future developments at these airports is undertaken. Section 9 provides a indication, at a generic level, of the impact on the long-term increases in airport charges of remunerating an additional £500 million of costs for mitigation and compensation purposes.

Q18.11 In order to accord with the full list of measures identified in the SERAS document, the table includes allowances for acoustic insulation for schools and hospitals. BAA recognises the importance of providing appropriate mitigation for noise sensitive buildings, however BAA does not currently possess any evidence on the level of impact that air noise has on these buildings, nor does it have definitive information on the costs of the acoustic insulation which might be provided. If the Government was minded to include measures for part- or fully-insulating schools and hospitals in its new White Paper, then BAA presumes that an appropriate criteria and funding mechanism would need to be identified.

Q18.12 The range in the costs associated with the three approaches shown in the table is substantial, and it should be remembered that these costs exclude other possible sources for compensation costs such as those which might occur from air quality or surface access effects or claims of any other kind. The White Paper will need to take account of how such costs would influence the attractiveness of new runway provision for airport developers, or affect the delivery of any particular option.

Question 19:

Do you think that a five-yearly review cycle for the night restrictions regime for Heathrow, Gatwick and Stansted is appropriate or should some other review cycle be considered and, if so, what would you suggest? Are specific night noise restrictions needed at any other airport, and if so how should these be determined?

Q19.1 The current practice is to review the night noise restrictions regime for Heathrow, Gatwick and Stansted approximately every five years. In April, the Government put out for consultation proposals to extend the night restrictions regime for Heathrow, Gatwick and Stansted for a further 12 months until October 2005.

Q19.2 The current quota count night restrictions regime is relatively simple in concept, and its operation since 1993 has allowed it to be understood and effectively monitored by virtually all of the stakeholders with an interest in night noise. In that context, BAA's view is that the five-year review cycle has broadly been the right length of time for all parties concerned to discuss issues that may have arisen.

Q19.3 In the future, there may be pressures to align with European standards and practices (as yet undefined), which may determine that the review cycle period should be other than five years. Assuming that only modest changes to the regime would be planned, and whatever the length of a new review cycle, BAA believes that it would be beneficial to have a minimum period of a year separating the announcement of a new noise restrictions regime and the commencement of that new regime.

Q19.4 However, complex changes to the night restrictions regime would demand significantly more notice than the current five-year review period if they were to be successfully implemented. For instance, if the Government wanted changes to the regime that required changes in aircraft technology or airline fleet plans, then even a five-year horizon would be too short a time. BAA therefore thinks that, whatever the length of a new review cycle, there should be a clear indication of any substantial changes to the night restrictions regime at least five years before they are intended to be introduced.

Question 20:

Are there specific surface access improvements that should be made a condition of any airport option and any that should not be included?

Q20.1 BAA has undertaken a preliminary review of the surface access measures set out by the DfT's consultant for the airport options in the SERAS document.

Q20.2 In respect of options for the development of Heathrow, Gatwick and Stansted airports, BAA has sought expert advice from consultants familiar with the rail industry, regional highway strategy development and the delivery of airport development strategies. In addition, BAA has worked jointly with the SRA to share understanding of rail issues at Heathrow, Gatwick and Stansted. A joint position statement by the SRA and BAA is appended to this response.

Q20.3 BAA's response to Question 20 takes, as a starting point, the information on the indicative surface access measures set out within the consultation document itself, together with the results of BAA's subsequent studies mentioned above.

Q20.4 Identifying surface access conditions for runway development can only take place when detailed surface access strategies have been formulated and tested. However, on the basis of BAA's present review of the surface access measures set out in the SERAS document, it is possible to make certain comments concerning the appropriateness, or not, of identifying future conditions at this point in time. These are set out below separately for Heathrow, Gatwick and Stansted.

Heathrow

Q20.5 BAA believes that a derivative of the long-standing Airtrack scheme, which involves the provision of a new rail line connecting Heathrow to Waterloo via the South Western 'Windsor' lines at Staines, together with the possible re-instatement of a former chord at Staines, has the potential to provide for the development of an acceptable surface access strategy for the runway development option set out in the consultation document. Such infrastructure, together with improvements to Airport Junction on the Great Western mainline, could support the provision of the potential Waterloo – Heathrow – Paddington service at four trains per hour, described in Section 5 of this submission.

Q20.6 Crossrail has the potential to become a valuable addition to the rail network serving London and the South and East of England. However, as at May 2003, the detail concerning possible future Crossrail services to Heathrow is not clear to BAA. In addition, there can be no certainty concerning the outcome of applications for procedural powers, funding approvals and the timing of any subsequent delivery for such a major scheme, for which services to Heathrow would form a minority part.

Q20.7 The SERAS document suggests that Crossrail could provide an alternative connection between the airport and central London to that previously sought to St Pancras. BAA pursued the objective of a further Heathrow Express service to St Pancras over a six-year period before acknowledging that it was incapable of delivery by the rail industry. BAA believes that alternative rail strategies for Heathrow, with lower levels of delivery risk, are possible, and these could be compatible with any eventual delivery of Crossrail services. In these circumstances, BAA believes that it would be inappropriate for Crossrail to form part of any conditions package in the new White Paper in respect of any decision to provide a new runway at Heathrow.

Q20.8 The concept of a possible new open air station, serving longer distance regional and inter-regional diesel services is an objective of the SRA and has been put forward in the consultation document. BAA is working with the SRA in considering how such services could be integrated within a rail strategy for Heathrow and the wider South East of England Western Policy Area. BAA supports the SRA's interest in understanding the full potential of this scheme. However, on the basis of the demand forecast information for airport-related use set out within the material supporting the SERAS document, BAA does not consider that the likely scale of airport use should mean that it should form part of any future condition package for infrastructure provision relating to new runway development at Heathrow.

Q20.9 BAA does not believe that the case has yet been made for the incorporation of a new link to Heathrow from the M3. BAA is aware of the difficult history associated with the provision of such schemes and is not yet convinced that the concept is deliverable. Similar concerns are expressed in a technical report commissioned by the South East of England Regional Assembly (SEERA). SEERA's report was undertaken by Roger Tym and Partners and WS Atkins. The latter consultant acted for both the HA and BAA during the Terminal 5 Public Inquiry and was responsible for the Thames Valley Multi Modal Study.

Q20.10 BAA believes that these concerns require further consideration and that alternative highway access schemes, building upon the main M25 and M4 access systems, may well prove more appropriate, particularly if the additional terminal capacity needed to support a new runway is located in the central terminal area, at Terminal 5, or north of the Bath Road.

Q20.11 BAA believes that the surface access strategy for Heathrow would be likely to include a need to manage the level of demand for road users. An important tool for this would be road user charging. It is absolutely imperative, however, that revenues are ear-marked for transport improvements included within the final, Government-led, but stakeholder driven surface access strategies for the development of the airports referred to above.

Gatwick

Q20.12 The publication of the Second Edition of the SERAS document at the end of February 2003 has meant that the SRA and BAA have only had time to conduct a preliminary review of the surface access proposals for the SERAS Gatwick options and form an initial view of the potential surface access strategy that might be required. From its initial analysis, BAA has identified a potentially different level and distribution of surface access demand from that outlined in the SERAS document (see Chapter 6). The following paragraphs should therefore been seen in that context.

Q20.13 In common with comments in Chapters 5, 6 and 7 of this document about the attractiveness of airport express rail services, BAA believes that the dedicated Gatwick Express service would be a vital element of a surface access strategy for all of the SERAS options, including the maximum use case. The Gatwick Express service is a cornerstone of Gatwick's good rail mode share.

Q20.14 For the SERAS maximum use case and the close-parallel one new runway option, BAA agrees with the analysis reported in the First Edition of the SERAS document, namely that no additional rail services or infrastructure, beyond those currently planned, would be required. In particular, our initial analysis for these options indicates that increasing the length of the Gatwick Express service up to 12 cars should provide appropriate additional capacity, with the option to increase the number of carriages on some other selected services should that not be the case.

Q20.15 For the SERAS wide-spaced one new runway option, BAA's initial high level review has identified the need for a strategy that creates some additional rail services either through more efficient use of the trainpaths, or some small infrastructure improvements at particular pinchpoints along the London-Brighton mainline, or a combination of the two. BAA has identified a number of schemes that have the potential to deliver capacity increments of the kind identified. The SRA and BAA believe that these schemes have the capability of being delivered individually, with minimal disruption to existing users, and for the benefit of both airport and non-airport passengers. Both the SRA and BAA believe that the Croydon underpass scheme identified in the SERAS documentation would not be required.

Q20.16 In relation to Gatwick Station, BAA's initial review indicates that there may well be a need for infrastructure improvements to be made to this known capacity pinchpoint along the London-Brighton mainline. The precise nature and scale of these improvements would be dependent on the respective magnitude and timing of growth at Gatwick and for the region as a whole. BAA believes that, as the recent South Central franchise discussions identified, some improvements would be required for non-airport reasons in any event.

Q20.17 For the two new runway option at Gatwick, BAA's preliminary studies have so far not been able to identify an appropriate rail strategy to accommodate the likely level of demand associated with it. The SRA and BAA believe that substantial new rail infrastructure, significantly in excess of the package considered for the one new runway options, would be required to support an option with two new runways.

Q20.18 In relation to road schemes, BAA agrees with the SERAS analysis that no additional road infrastructure beyond that currently planned would be required for the maximum use case.

Q20.19 For the addition of one or two new runways, BAA believes that both the airport access and the strategic road infrastructure identified by the SERAS needs further review. In particular, the Government's regional policy envisages housing and economic development in the area surrounding Gatwick. BAA's preliminary view has identified the need for a co-ordinated approach to assess the level of improvements to the M23 that would be required to support increased levels of activity at Gatwick, over and above what would in any event be required to deliver an appropriate regional strategy.

Stansted

Q20.20 BAA's review of the surface access measures for Stansted, shown within the consultation document, has underlined the need for further more detailed work. Such work would need to include consideration of wider regional development issues concerning housing, economic growth and regeneration.

Q20.21 BAA believes that such work would show a regional requirement for the improvement of the M11 and certain connecting regional routes to serve all levels of further runway provision at the airport. BAA's studies of rail strategy, undertaken jointly with the SRA, have shown the potential for alternative improvements to the West Anglia mainline. These alternatives include the incorporation of a new line from the Harlow area to link directly with the airport and, potentially, form part of a new Cambridge – Stansted – Harlow – London connection offering improved regional connectivity. All of these issues require further, Government-led, consideration before any final access strategy could be developed.

Q20.22 BAA considers it essential for the successful delivery of any further runway capacity that, following the White Paper, the Government leads the identification of the necessary detailed surface access strategies to support runway development. BAA believes that such detailed strategy development should be undertaken with appropriate stakeholder participation. For the reasons made clear in the Government's White Paper, 'A New Deal for Transport', it is vital that programmed and budgeted integrated strategies are developed with the relevant delivery agencies to cover both airport development and surrounding regional economic growth objectives.

Question 21:

How should any surface access schemes that are required for a particular airport development be funded?

Q21.1 Many surface access schemes associated with major airport operations have the potential to be profitable in their own right, eg coach operations and busy bus networks, as well as certain well-used rail services, which have not required the provision of massive infrastructure works. Wherever possible, future Government-led development of detailed surface access strategies for airport development should seek to maximise the potential for profitable schemes and, where not possible, to maximise value for money.

Q21.2 Surface access schemes which are essential to the functioning of future airport development should be funded by users of the transport systems and/or the aviation sector, to the extent that it benefits from the access capacity provided. BAA believes that it is essential that the regulatory system permits investment in such vital schemes with the provision of certainty for the full recovery of costs by the airport operator.

Q21.3 BAA also believes that surface access strategies for major airport development may need to manage the level of demand for road users. For the provision of further runway capacity at Heathrow such a need is considered likely. This means that the grant of road user charging powers to BAA to be exercised as required at any of its South East airports should be considered for inclusion within the new White Paper. BAA believes that the Secretary of State has the powers to grant such powers to BAA. BAA would consult all relevant stakeholders in developing any subsequent airport road user charging schemes. BAA would also ensure that, where appropriate, the proceeds from such schemes were invested in the elements of the future Government-led airport access strategies for which the airport received direct benefit. BAA envisages that the Secretary of State would, of course, retain ultimate rights of approval both to any subsequent airport charging scheme and the airport access schemes that it would fund.

Appendix 1: Joint statement by the Strategic Rail Authority (SRA) and BAA plc: rail access to Heathrow, Gatwick and Stansted

Introduction

1. Following publication of the Government's consultation document setting out options for the provision of further runway capacity within the South East and East of England, the Strategic Rail Authority (SRA) and BAA plc agreed to meet to consider rail access to Heathrow and Stansted airports. The SRA and BAA have reviewed the indicative strategies for rail set out within the consultation document and have undertaken some initial technical work in order to inform both parties response to the Government's consultation. Following publication of the Second Edition of the SERAS document, the SRA and BAA have liaised further to consider the options presented for Gatwick. This statement sets out the principal conclusions reached by the SRA and BAA as a result of their preliminary joint consideration of rail access issues and identifies the further work that is required before schemes can be brought forward for detailed consideration.

Context

2. The Government's consultation document, at Question 20, asks: *"Are there specific surface access improvements that should be made a condition of any airport option and any that should not be included?"* The Government's consultation also states that: *"Further work will be required to identify in more detail the level of surface transport investment required to deliver any airport development proposals put forward in the White Paper and the allocation of costs between the airport and the transport network providers."*

3. The Government's consideration of airport capacity covers a 30-year horizon. The development of rail strategy within the UK is led by objectives set by Government. The SRA responds on behalf of the rail industry through its Strategic Plan revised and published annually. This Strategic Plan identifies priorities for the next ten years and, for the longer-term, sets out the leadership role of the SRA and the processes that require to be considered. In addition to any growth in airport related rail demand associated with the SERAS options, new housing is needed and is expected to be constructed in the South East, some of it near to airports and some for airport workers. The infrastructure and housing elements of the Government's regional strategy for the areas surrounding the main South East airports will lead to growth in non-airport rail demand. It has been against this background that the SRA and BAA have considered rail access to Heathrow, Gatwick and Stansted.

Airport rail services

4. The SRA is working with airport operators to identify opportunities to provide improved rail services to airports and is keen to do so in ways which can benefit both airport and other users of the rail network. A priority of the SRA is therefore to identify the 'fit' between enhanced airport rail services designed to respond to expected growth in airport usage and improvements in services for other rail passengers. The railways around Heathrow, Gatwick and Stansted airports are already very busy at peak periods. The rail routes themselves are congested and trains at peak times are crowded. Under its Capacity Utilisation Policy, the SRA is seeking to make the best use of existing railway infrastructure capacity. However, it is clear that significant investment in new rail infrastructure will be necessary to cater for significantly increased demands for airport traffic.

5. BAA's view is that, since the establishment of the Gatwick Express service in 1984, airport rail links have developed to become cornerstones of BAA's airport surface access strategies. They have high brand visibility, are a premium product attractive to air passengers and are very competitive. The SRA's view is that London's airport express services have achieved world-class standards for air passenger surface access but variations in demand through the day and operation on heavy commuter networks raise questions about network utilisation. The key features of airport express are short journey time, clear identity backed by branding and information, high standards of performance and security, good frequency, on-train baggage facilities and an in-town terminal. Trains do not need to be exclusive to airport passengers (Gatwick Express has a small established commuter market, for instance) because through tickets could be priced differentially. The SRA policy is that it will seek to retain and nurture airport express services, but wants to examine ways to make better use of network capacity by improved integration with other services and do so without losing public transport mode share to airports.

Heathrow

Background

6. For some time now there has been much discussion about the development of proposals for rail service improvements to Heathrow. As part of the Terminal 5 decision, BAA are currently extending the Paddington – Heathrow Express service and the Piccadilly Line to the new Terminal 5. BAA are also developing proposals for local services from West London into Heathrow. A scheme to link Heathrow with Waterloo, Clapham Junction, South West London, Surrey and Berkshire, has been the subject of some examination by the SRA and BAA. London Crossrail could link the West End and the City directly to Heathrow. There may also be an opportunity for a new western connection for Heathrow, linking the Great Western Mainline (GWML) to a new station linked into Terminal 5 (now under construction) and onwards via Staines to London Waterloo and to other South East destinations

7. The SRA has a particular objective to understand the most effective way for providing better connections between Heathrow, the Western Policy Area (the sub-region defined in Regional Planning Guidance) and key regional destinations. BAA's objectives for the development of rail strategy for Heathrow are two-fold. BAA wishes to work towards a higher share of the surface access journeys by air passengers and staff being made by public transport. BAA also wishes to identify rail improvements that can underpin successful airport development strategies and be deliverable with respect to required opening dates, environmental effects and public and private sector finance.

8. For the longer-term, following public consultation and subject to a satisfactory case being established and funding being identified, a preferred option for the provision of infrastructure and service patterns for Crossrail will be identified with the intention that parliamentary powers be sought. At this stage it is neither known precisely what service patterns will be provided, nor their potential delivery dates. In addition to Crossrail, the SRA has identified the potential for improved regional and inter-regional links to Heathrow and to destinations in the wider Western Policy Area.

9. Government has given approval to the provision of additional terminal capacity at Heathrow. Preliminary work is underway for the construction of Terminal 5, which is expected to open in 2008. The design and construction of the rail station at Terminal 5 will permit a future four-platform operation on the Heathrow Airport rail infrastructure, with the potential to serve a range of additional services. In addition, as part of the consent process for Terminal 5, a comprehensive rail safeguarding strategy has been developed which seeks to ensure that a significantly increased number of rail services could use the rail infrastructure within Heathrow Airport in an effective manner. In the Government's SERAS consultation on the future of aviation, the option for the provision of a new Heathrow runway has been described.

10. The SRA and BAA believe that plans for the use of the rail network in the Heathrow area is likely to evolve throughout the 30-year horizon considered by the Government in its runway studies. The SRA and BAA note, however, that the Government's Consultation document states that, *"against a background of growing demand for air travel, new runway capacity in the South East will be needed soon."* It may therefore prove necessary to demonstrate how rail would be capable of serving further runway development within a relatively short timescale and how it fits with the eventual full rail strategy.

Strategic overview

11. Against the background above, the SRA and BAA believe that a structured approach to the provision of rail services to Heathrow is required and this was reflected in the SRA Strategic Plan for 2003. Within the strategic overview given in paragraph 5 above, 'building blocks' for potential future services have been identified and are set out in the paragraphs below.

12. The SRA's approach to Heathrow has four aspects, (in accordance with the principles set out in paragraph 6): –

- It wishes to facilitate the development of Heathrow Express as a high quality link to central London, increasing its role through better integration, in particular, through Crossrail.

- The SRA aims to provide for further rail links to Heathrow from places other than central London, with an important sub-objective of having new services that are free from subsidy. Selection of services will take account of the catchment area of Heathrow and in particular the role of the Western Policy Area and the airport's natural catchment area across regions beyond the South East.

- The SRA wishes to establish a long-term plan capable of adaptation as Heathrow develops which provides the necessary infrastructure for airport services and for best capacity utilisation of the adjacent rail network.

- The SRA intends, within the long-term part of its strategy for the rail network at Heathrow, to provide for possible introduction of a link to a future North-South High Speed Line and for the development of air-rail freight links.

13. A substantial majority of Heathrow's passenger surface access trips will continue to be made on the routes between the airport and London. Important flows also link Heathrow to its local non-London catchment area and over longer distances within the South East and into other regions. The great majority of airport and non-airport trips from the wider south east currently take place by road. The SRA and BAA believe that any strategic view of public transport surface access improvements should consider the needs of these different markets. Rail services between Heathrow and London will need to be strengthened to provide sufficient capacity for an expanded airport. The rail planning for enhanced Heathrow links into London should allow them to complement and be compatible with the development of improved regional and inter-regional links.

Principal infrastructure proposals

14. Rail developments to serve traffic between Heathrow and London would be built upon the base provided by the existing infrastructure of the Heathrow Express railway and the new capacity – track and platforms – to be provided as part of the approved project to construct Terminal 5. The SRA proposes that wider regional and inter-regional services may be served by provision of a new north-south line from the Great Western main line near Iver to Heathrow then on to connect to the South Western Waterloo to Reading lines by east and west-facing connections at Staines.. The proposed line may follow the rail route proposed as part of the LIFE freight terminal project and the Airtrack proposal, together with a new link from Colnbrook/Poyle crossing the M25, in effect to re-establish the route of the Staines West branch now straddled by the M25. A key advantage of this proposal, besides the direct benefits it would bring in terms of new services with access to Heathrow from a wide range of regional origins, is that it would allow the diversion of some services, including freight trains, off the critical Airport Junction to Acton section of GWML. This in turn could make possible the expansion of direct Heathrow – Paddington (and onwards into Crossrail) services, above the currently planned level of six trains per hour, to eight trains per hour, allowing increases in capacity to serve Heathrow without the very substantial infrastructure investment which otherwise would be required on GWML.

15. The north-south line would be able to serve both Terminal 5 and a new open-air station on the west side of Terminal 5. This new station would be capable of accepting diesel-powered trains, which for safety reasons cannot be operated in the tunnels under Terminal 5 and through the Central Area. Such a station – with the working name of 'Heathrow Cross' – would, with appropriate connections, provide for a range of regional and longer distance services linking Waterloo, Heathrow and destinations in the South East, South West, Wales and the West Midlands. Heathrow Cross station would be closely linked into Heathrow via Terminal 5.

Train services to Paddington

16. Under the project to construct a fifth terminal, the Heathrow Airport rail infrastructure will be extended westwards from Terminal 1, 2, 3 station into Terminal 5. The Heathrow Express service can then link Terminal 5 at Heathrow with Paddington at a frequency of four trains per hour. Beyond this, the opportunity exists to link local stations between Ealing Broadway and Hayes to the airport, providing a half hourly stopping service. Improved interchange facilities at Hayes would create an opportunity for rail access to Heathrow from local Thames Valley services without the need to travel in and out of London (Paddington). A further expansion of services on this route would not be possible without the provision of substantial additional infrastructure in the Hayes – Acton area and could also (without Crossrail) require additional platform capacity at Paddington.

Role of the southern part of the proposed north-south line, providing a new Heathrow – Staines – London rail connection

17. Regional and inter-regional trains via Heathrow Cross or local services via Terminal 5 could provide a new rail service giving Heathrow connections to intermediate points such as Staines, Richmond, Clapham Junction and Waterloo. The service would provide new capacity for travellers between south west London and an expanded Heathrow. The full practicality and precise nature of such a service will depend on the level of alteration to existing and proposed service patterns on the Waterloo 'Windsor' lines and would be subject to assessment of the need for additional revenue support. If consideration is to be given to linking services from the South Western lines through Heathrow into Paddington then, of course, there will need to be a full operational assessment of the risk of importing delay from one part of the network to another.

Services utilising the northern part of the proposed north-south line, providing a new Heathrow – Slough rail connection

18. A range of destinations including Birmingham, Oxford, Bristol, Cardiff and the South West could be served by direct trains on the route from Reading via Maidenhead and Slough. Infrastructure changes on the Great Western mainline would be needed, as well as the link to the existing Colnbrook freight line, in the form of a grade separated junction west of Iver.

Bringing together the benefits of the building blocks in providing wider regional and inter-regional links

19. With the construction of the new north-south railway and re-establishment of a former north-to-west chord at Staines, some potential exists to provide further train services, which establish useful links for both airport and other domestic rail passengers. Services could operate to Woking, Guildford and Gatwick; and, via Woking and Basingstoke, stations in Hampshire. These destinations might be served by extensions of inter-regional trains from the Midlands operated via Reading and Heathrow, or by trains starting at Heathrow. However, the capacity of a west chord at Staines is likely to be limited and for such services to be fully developed it would be necessary to contemplate a second substantial new alignment parallel to the M25 to access the GWML.

20. The SRA is to consult during 2003 on the concept of a new North – South High Speed Line (HSL). The SRA's development work has indicated that a Heathrow branch of the HSL would improve the overall HSL case. Trains from the HSL could run into Terminal 5, providing an alternative to some domestic flights.

Service patterns to follow East-West Crossrail

21. Crossrail to Heathrow would provide excellent direct links to the West End, City, East London and Docklands. The detailed proposals to be set out in a future Bill seeking parliamentary powers for Crossrail cannot yet be known. BAA are awaiting consideration of the mode share implications for Heathrow of the chosen Crossrail option.

22. Any further development of Crossrail west of Heathrow will need to ensure substantial segregation from other services to maintain operational integrity. In particular, the SRA considers it undesirable, for reasons of operational performance, to link Waterloo or other South Western services via Heathrow into Crossrail. However, a option the SRA may consider is a westward extension of Crossrail to Windsor via Datchet. Such an extension could also interchange with the possible north-south line at 'Heathrow Cross' depending on alignment details.

Next steps

23. The SRA and BAA note, however, that identifying a smooth transition from one building block to another is not straightforward. The SRA's focus is on developing a strategy which both improves services on the national rail network which supports Heathrow as the UK's global gateway airport (enhanced by good surface links from a wide regional and inter-regional catchment), and providing benefits for rail passengers who are making domestic non-airport journeys. BAA supports this strategic direction and, in noting the Government's comments about the need to provide additional airport capacity soon, sees the need for a strategy setting out the priorities for a phased delivery of surface access improvements, prioritising the development of the level of sufficient rail capacity on the most congested corridors – to London and in the M25 area. Further consideration of complex issues relevant to demand, train pathing, physical alignment of new infrastructure, passenger circulation capacity at Paddington and onwards distribution into London and costs is required in the next phase of work.

Gatwick

Background

24. The London-Brighton mainline railway is one of the busiest commuter railway operations in the UK. At present the SRA's priority is to oversee the replacement of the Mark 1 rolling stock, the upgrading of the power supply to provide sufficient electricity for the new rolling stock, and various ancillary infrastructure improvements to be implemented by the end of 2004.

25. In comparison with Heathrow and Stansted Airports, Gatwick Airport is uniquely positioned for rail services in that it is located on the London-Brighton mainline, compared to Heathrow and Stansted Airports which are connected to their respective rail network via branch lines. For most hours of the day, there are some 14 trains per hour between London and Gatwick providing an average seating capacity of around 5,000 seats per hour for most hours of the day. Currently, air passengers make up only a small percentage of total passengers using these rail services to London, and so the vast majority of demand for the London services is from commuters and other non-airport rail passengers.

Strategic Overview

26. As part of its Capacity Utilisation Policy, the SRA is currently reviewing the pattern of services on the London-Brighton mainline. This review is taking account of options to extend the length of certain train services. Rail services between Gatwick and London will need to be strengthened in the future to provide sufficient capacity for an expanded Gatwick Airport and also to serve an increasing demand from non-airport passengers.

27. The SRA and BAA's review of Gatwick SERAS options has taken place against this backdrop of a likely change to the pattern of services currently operating. In particular, the guiding principle of this review has been to identify deliverable schemes that provide both airport and non-airport benefits, that are consistent with the principles of the SRA's Capacity Utilisation Policy, and which could be implemented independently without prolonged disruption to day-to-day rail operations.

28. BAA has undertaken some initial analysis of the rail demand for the SERAS options. Further work will be required, but early indications suggest that there is the possibility of a lower and different distribution of rail demand on the key routes to London to that identified in the SERAS analysis. In any event, the total volume of airport related passengers using the rail services and infrastructure between London and Gatwick is likely to be small in comparison with current and future non-airport passengers, particularly in the peak periods.

29. Building upon the Capacity Utilisation Policy principles adopted by the SRA as described in paragraph 26, the initial review conducted by the SRA and BAA has identified a two-stage strategy. Firstly the strategy seeks to maximise the capacity of the existing and planned train services, for example by lengthening of some trains. Secondly the strategy looks to make more efficient use of the trainpaths and/or implement some infrastructure improvements to particular pinchpoints. What follows is some information about the principal issues and schemes associated with that strategy.

Principal Infrastructure Proposals (maximum use and one new runway)

30. As a starting point, the SRA and BAA conducted a preliminary review of the known rail infrastructure proposals, many of which had previously been identified by the SRA and Network Rail. These proposals are not unique to any future rail demand associated with additional runways at Gatwick, and may in any event be adopted to satisfy growth in non-airport rail demand on routes to London. Based on this preliminary review, the SRA and BAA believe that a package of rail infrastructure works can be developed to accommodate both the additional airport and additional non-airport related demand that is likely to arise in the context of the SERAS one new runway options at Gatwick.

31. In relation to the first component of the strategy outlined in paragraph 29, BAA has carried out a preliminary analysis of the potential demand associated with the close-parallel one new runway option. This initial analysis suggests that the potential airport demand for the close-parallel option can be accommodated by maximising the capacity of existing and planned services, particularly in the off-peak period, and the lengthening of some train services. The SRA's view is that the lengthening of train services could trigger the need for platform works, further power supply upgrades and signal re-locations.

32. For the second component of the strategy outlined in paragraph 29, the SRA and BAA have reviewed the train service pattern and infrastructure constraints on the rail routes south from Victoria and southwest from London Bridge. In particular, the review has examined the potential for implementing some train service changes to enable more efficient use of the train paths along those routes, and the potential of some infrastructure improvement schemes at the known London area pinch points such as the East Croydon area. The initial analysis suggests that the implementation of some train service changes and some infrastructure improvements would accommodate the airport demand associated with the wide-spaced one new runway option. Further elements of this package may be required dependant on the level of growth in non-airport demand. Based on this initial analysis, the SRA and BAA believe that more effective and efficient track improvement schemes exist for the East Croydon area than the Croydon underpass scheme mentioned in the SERAS document.

Train Services Towards London (maximum use and one new runway)

33. The initial review has not identified a need to provide additional services and infrastructure for the maximum use of Gatwick. This is consistent with the transport assessment supporting the legal agreement for Gatwick to grow to 40mppa, a position that is reviewed every three years by BAA and the principal local authorities.

34. In relation to the first component of the strategy outlined in paragraph 29, BAA believe that a strategy which firstly seeks to create additional rail capacity by the judicious lengthening of trains, specifically increasing the Gatwick Express service to 12 cars, has the potential to support the close-parallel one new runway option. The

SRA are carrying out a holistic review of the pattern of services on the London-Brighton mainline, considering how best use can be made of the infrastructure capacity by integrated planning of all trains on the route – including Gatwick Express.

35. The initial review conducted by the SRA and BAA has also taken into account the Thameslink 2000 project. In relation to the first component of the strategy outlined in paragraph 42, the Thameslink 2000 project has the potential to increase the range of destinations served from Gatwick and provide additional capacity along those routes by increasing the train lengths to 12 cars. In the light of the recent Office of the Deputy Prime Minister's decision to ask that the Thameslink 2000 TWA inquiry be re-opened to re-consider some aspects of the project in Central London, the SRA and BAA have ensured that their analysis and the strategy outlined in paragraph 29 is capable of accommodating a future decision about this project.

Implications of increased passenger numbers at Victoria and other London termini

36. The SRA and BAA recognise that at peak commuter times the concourse and onward travel arrangements at Victoria rail station are currently under great pressure. There is also some congestion at London Bridge.

37. The SRA and BAA have initially concentrated on getting a better picture of the likely levels and distribution of demand for the SERAS options and so have not yet undertaken any assessment of the implications of increased passenger numbers at Victoria and other London termini. Based on BAA's initial analysis of rail demand for the maximum use and the one new runway options, the additional airport passengers are likely to be modest in relation to the total number of passengers using these rail stations. Consequently, the SRA and BAA believe that the one new runway SERAS options are unlikely on their own to be the cause of overall concourse and onward travel congestion problems at Victoria and London Bridge. Further analysis will be required on this issue once a better understanding about the likely levels of demand is achieved.

Other train services

38. Currently, some 11 trains from Gatwick serve around 50 destinations to the south, at least hourly during most hours of the day. These services provide an amount of capacity throughout the day that is likely to be far in excess of the demand for them generated by new runway options at Gatwick.

39. In addition, one train per hour serves destinations to the north west of Gatwick such as Guildford, Reading, with connections to Oxford and the West and South West of England. The SRA is working to ensure that there is an hourly through train between Gatwick, Reading, Oxford and the West Midlands from 2005. One train per hour serves destinations to the east of Gatwick such as Tonbridge, with connections to Maidstone and also to Ashford including to the Eurostar service. If required and to the extent that the future demand may exist, it is feasible to provide additional capacity on these routes to support new runway options at Gatwick.

Gatwick Airport Station

40. Gatwick Airport station is a known capacity bottleneck along the London-Brighton mainline and is recognised as such in the SRA's Strategic Plan. In the context of the one new runway options at Gatwick, it is possible that future enhancements are likely to be required to Gatwick Airport station both for airport and non-airport related reasons. The extent and nature of these enhancements will depend very much on the timing of and relative growth in airport and non-airport traffic.

41. The initial review conducted by the SRA and BAA has identified a package of options to enhance Gatwick Airport station to serve the different one new runway SERAS options at Gatwick. These range from enhancements to the present rail station, to the provision of a new station to be incorporated with a new terminal that would be required to serve the wide-spaced one new runway option. Further study is required to understand the optimum arrangements for the different scenarios considered.

Two new runways

42. The SRA and BAA have not so far identified a rail strategy to support growth in airport and non-airport related demand for the two new runway option. Based on their initial review, the SRA and BAA believe that substantial new rail infrastructure, significantly in excess of the package considered for the one new runway options above, would be required to support an option with two new runways. Such major new infrastructure would be designed to provide wider benefits than simply to serve a two new runway option. In these circumstances, with the likely need for provision of substantial new railway infrastructure, consideration of the definition of rail requirements would need to be integrated with Government's view on regional development issues.

Next steps

43. Overall, the SRA and BAA consider that the strategy and schemes set out above are likely to provide sufficient rail capacity and could be phased in to match airport expansion commensurate with the provision of one additional runway (both the close-parallel and wide-spaced options). The preliminary studies have not so far identified a strategy and schemes that might be capable of supporting a two new runway option. Should the Government decide to add new runway capacity at Gatwick Airport, the SRA will ensure that in its holistic review of the services to London from the south that the essence of the strategy and schemes to support one new runway option at Gatwick is addressed along with the key needs of local communities and wider development of the area in a way where both airport users and domestic non-airport rail passengers benefit. The SRA and BAA agree that further work will be needed to identify the optimum combination and timing of the developments with respect both to airport development and growth of traffic in the wider rail corridor.

Stansted

Background

44. As at Heathrow, the development of rail strategy in the Stansted area is the subject of ongoing studies. The present train companies operating out of Liverpool Street are to be combined into a single new Greater Anglia franchise, which the SRA expects to deliver significant operational and reliability improvements. In addition service patterns will be under review as part of the SRA's Capacity Utilisation Policy. Consideration of the potential form that enhancements to the West Anglia Main Line which links Liverpool Street, Stansted and Cambridge and access arrangements to Stansted Airport might take are continuing, irrespective of the potential for further runway provision at Stansted.

45. In September 2002, Uttlesford District Council's Development Control and Licensing Committee agreed that permission to develop the airport to serve another 10mppa, beyond its present consent of about 15mppa, should be granted subject to the satisfactory completion of a Section 106 Agreement. BAA Stansted has agreed a train plan and improvements with the SRA to meet anticipated increased rail use associated with the approved development together with the monitoring and review of the rail network serving Stansted.

Strategic overview

46. In considering the indicative rail strategies set out within the Government's consultation document, the SRA and BAA have sought to focus on a number of key issues. These have included the key constraints on the West Anglia mainline, the overall role of that railway route in serving destinations of special importance to emerging regional strategies and the need to minimise disruption to existing users. In particular, Government has identified the London-Stansted-Cambridge corridor as an area for major population and housing growth.

Principal infrastructure proposals (maximum use, one and two new runways)

47. Preliminary technical work undertaken for the SRA and BAA has identified the need for consideration to be given to enhancements to increase capacity on the West Anglia route from Liverpool Street. The most significant of these is a new route from the West Anglia mainline, north of Harlow, direct to the existing airport station. BAA is investigating route options for this proposal. There would be no intermediate stations. The new line would give several advantages, including eliminating the significant constraints posed by operating a mix of stopping and non-stopping trains through the Bishops Stortford area. It would also enable Stansted Airport trains to overtake Cambridge trains earlier, rather than following them through Bishops Stortford. The route would be constructed for a maximum speed of at least 110 mph, enabling significant journey time reductions between London Liverpool Street and Stansted Airport. Overall, it is anticipated that all trains, with only one stop, would achieve a 40-minute (or less) journey time, significantly better than today's schedule.

48. The SRA and BAA have also considered the impact that could be achieved if improvements to the existing infrastructure between London and the Harlow area are made. A wide range of schemes have been examined, including additional tracks on key sections of line, together with extra platforms, revised layouts at junctions, and longer platforms to allow train length and capacity to be increased. This work has identified various ways of running extra trains to Stansted. The next stage will be to draw up a short list of the most effective schemes to be subject to more detailed costing. The SRA and BAA are confident that an efficient project, to be implemented in stages, can be developed to enable extra rail capacity to be provided to match both the growth in Airport business and within the rail corridor in general.

49. The SRA's Strategic Plan 2003, published in January, recognises that "a more substantial expansion of the airports and population growth, for example at Harlow, would need significant further expenditure, including the creation of new rail alignments, since the existing route cannot easily be widened in some areas."

Train services towards London (maximum use, one and two new runways)

50. The main rail service to London would continue to operate to Liverpool Street. One of the schemes that has been identified is additional infrastructure to enable a new Stratford to Stansted Airport service to be introduced. Stratford has the potential for connectivity to a wide range of London destinations as well as Channel Tunnel Rail Link domestic and international destinations, and would usefully complement Liverpool Street. The new service could call at selected stations along the Lea Valley and Harlow Town. It could significantly increase the accessibility of the Stratford area (and Canary Wharf) from the Lea Valley. Although it would improve airport access, the service is likely to attract a majority of non-airport users, travelling from the Lea Valley to Stratford and beyond. It could be a good example of how airport development can act as a catalyst to introduce new services that benefit a wide range of passengers, not just those going to an airport.

51. As an interim measure, a scheme to operate a local service between Stratford and Tottenham Hale could be developed. It also requires some additional investment, but it could prove a useful improvement prior to introducing a through service. Additional trains between Stratford and Tottenham Hale could continue to operate alongside the through service to provide additional journey opportunities.

52. The possibility exists to extend the Stansted to Stratford service south along the North London Line to the Royal Docks. The SRA suggests that if Crossrail proceeds with an Abbey Wood/ Ebbsfleet branch, Stansted trains could then be sent via the Crossrail Thames Tunnel into North Kent. With the Thames Gateway an area designated for major housing growth, Stansted trains would be a valuable additional link.

Implications of increased passenger numbers at Liverpool Street

53. Expansion of Stansted Airport will lead to additional passengers using Liverpool Street. Whilst the new service to Stratford will divert some demand – for example commuters and air passengers to Canary Wharf will travel via Stratford – there will still be an increase into Liverpool Street. A number of measures have been considered to improve passenger flows. One of these would introduce a regular platform for specific services so regular passengers would know which platform was used. This would increase flow through the concourse and may require additional infrastructure to enable trains to arrive in the right order to form departing trains. Arrangements for circulation of passengers at Liverpool Street station and distribution of passengers from Liverpool Street on foot, by taxi, train or underground will require detailed consideration. Further consideration of the Stansted/West Anglia train service options described above will need to be carried out at the same time as the examination of circulation and onward distribution issues at Liverpool Street.

Train services north and east from Stansted

54. Stansted Airport has a significant catchment area in East Anglia and consideration has been given to how services to the north could be improved. At present, there is an hourly service to Cambridge and Peterborough with most trains going on to Birmingham, and some to Liverpool. Among the options examined are proposals to run a faster Peterborough service and extend the recently introduced Norwich-Cambridge service to the airport. This could enable a half-hourly service to Cambridge to be introduced, whilst creating new through journey opportunities from Norfolk. Further route and train service developments may be considered as the airport develops including associated infrastructure enhancements, as outlined below.

Further infrastructure and service enhancements with a new railway to the north of the airport

55. As the airport expands further, there could be a case for extending the new airport line from Harlow (see paragraph 47) north of Stansted Airport to rejoin the existing Cambridge mainline south of Newport. This would enable some lengthened Cambridge trains to operate via Stansted, and be integrated with the existing Stansted Express service. This would offer significant capacity benefits, substantially improved frequency and a range of connectivity benefits, whilst also achieving a small improvement in throughout journey times. The potential for a range of new service options has been identified as part of the preliminary technical work undertaken. This proposal is believed to warrant more detailed consideration, and the advantages could justify bringing forward this northern connection in support of an earlier stage of the airport development.

Stansted Airport station

56. A key issue in the expansion of Stansted Airport will be the ability of the station to handle both the increased number of trains and numbers of passengers. As part of the Section 106 Agreement mentioned in paragraph 45, BAA has agreed a series of improvements at Stansted station to improve passenger flow, passenger-handling capacity and to increase the number of trains the station can handle. This will significantly raise the capacity of the station and is likely to be adequate for significantly larger numbers of rail movements.

Three new runways

57. The SRA and BAA have not so far identified a rail strategy to support growth in airport and non-airport related demand for the three new runway option. The SRA and BAA believe that the strategy and supporting schemes identified for the one and two new runway options outlined above will need to be considerably expanded to accommodate the growth in airport and non-airport rail demand for the three new runway SERAS option. The SRA view is that this is possible but that further work will be required to assess the exact package of options that would need to be in place to facilitate such growth. For three new runways, the SERAS document has identified the option to provide substantial new rail infrastructure including a new railway line to Stansted. Such major new infrastructure would be designed to provide wider benefits than simply to serve a large Stansted. The SRA and BAA believe that further consideration of this concept would need to be integrated with a Government view for future regional development issues.

Next steps

58. Overall, BAA considers the improvements set out above, when taken together, are likely to provide sufficient rail capacity and could be phased in to match airport expansion up to the provision of one and potentially two additional runways. The preliminary studies have identified the need for significantly enhanced infrastructure to support a four-runway option. A wide range of service options has been identified for Stansted, which BAA believes, would provide adequate rail surfaces access for the one and two additional runways development scenarios considered. The SRA considers that the range of rail improvements identified will provide considerable additional rail capacity, but the precise number of air passengers requiring rail travel will depend on decisions about the size of the airport and the nature of air services. The SRA will ensure that in further stages of project development the key needs of local communities and wider development of the area will continue to be protected in a way where both airport users and domestic non-airport rail passengers benefit. The SRA and BAA agree that further work will be needed to identify the optimum combination and timing of the developments with respect both to airport development and growth of traffic in the wider rail corridor.

Timing and funding

59. The rail access options described in this paper may involve significant changes to existing train services and the provision of additional rail capacity – both rolling stock and infrastructure. Should Government decide to proceed with expansion of airport capacity, the timing of the provision of any new rail services will need to be considered in the light of expected traffic levels arising from the implementation of the additional airport facilities.

60. Key issues for an acceptable economic transport assessment and the resultant funding requirements will need to be resolved before the SRA and BAA can commit to implementation of rail projects. Under the Government's proposals, aviation is expected to contribute to the funding of airport access rail projects to the extent that it benefits. If the SRA is to be a partner funder of such projects it expects to support the benefits, which will arise to users of the network who are not on airport access journeys. The calculation and treatment of benefits such as highway network de-congestion arising to non-users needs to be considered further.

Conclusions

61. Preliminary technical work undertaken for the SRA and BAA has identified a number of issues that merit further examination before decisions are taken in respect of the White Paper. The SRA will further consider the new options for the rail strategy development issues identified above and advise Government and stakeholders accordingly. BAA will continue to provide relevant technical assistance in support of this effort. If more information is available by the end of June 2003, the SRA and BAA intend to issue a further joint statement.

May 2003

Appendix 2: Detailed results of BAA's air quality modelling assessment

Heathrow

Figure 1: Locations of air quality monitoring sites near Heathrow

Figure 2: Comparison of modelled and monitored NO_2 concentrations at monitoring locations near Heathrow Airport

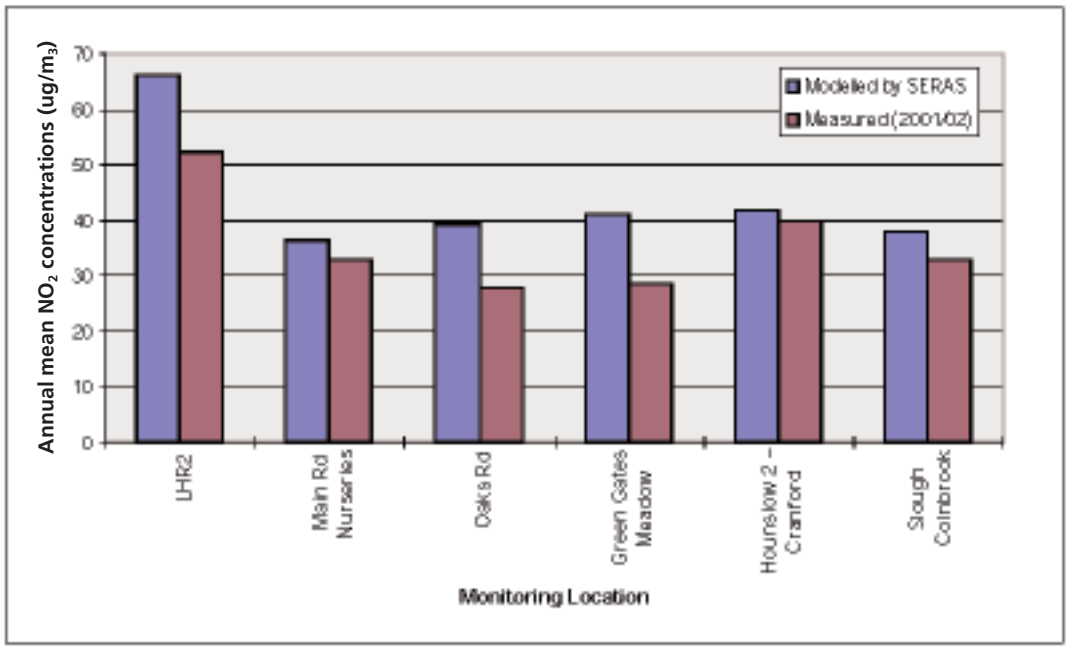
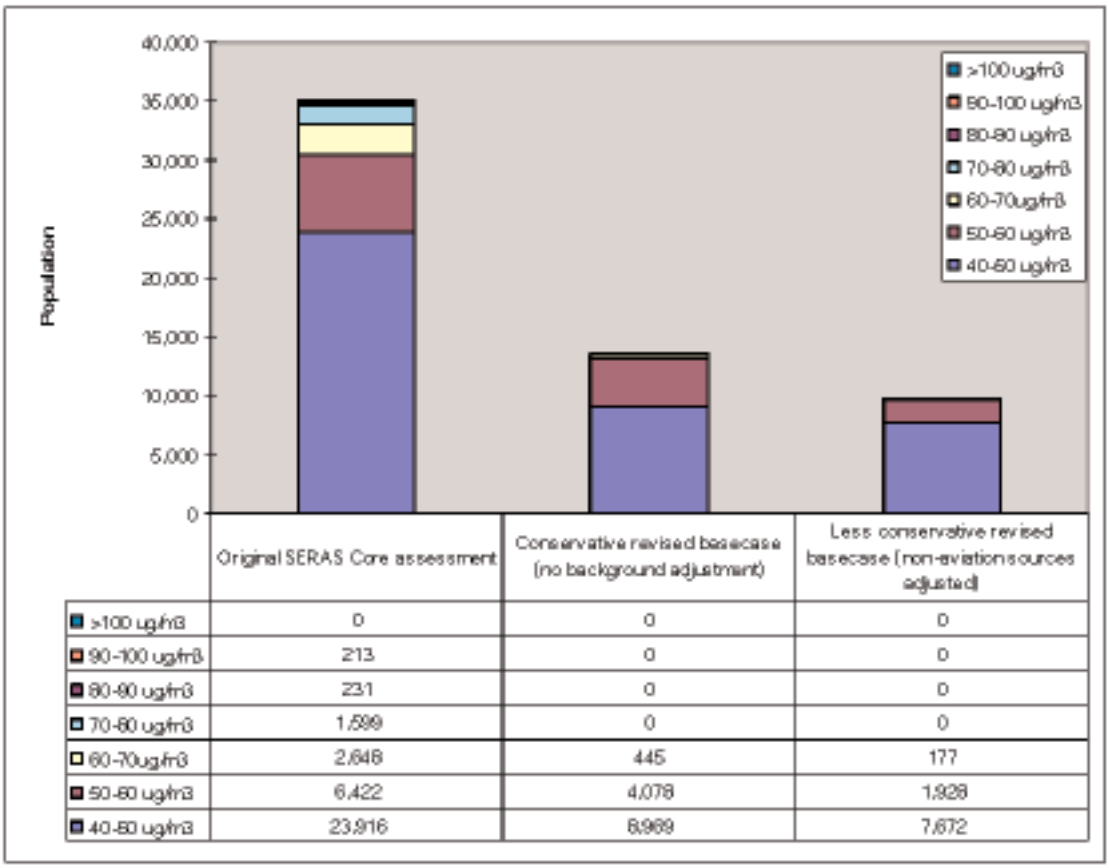
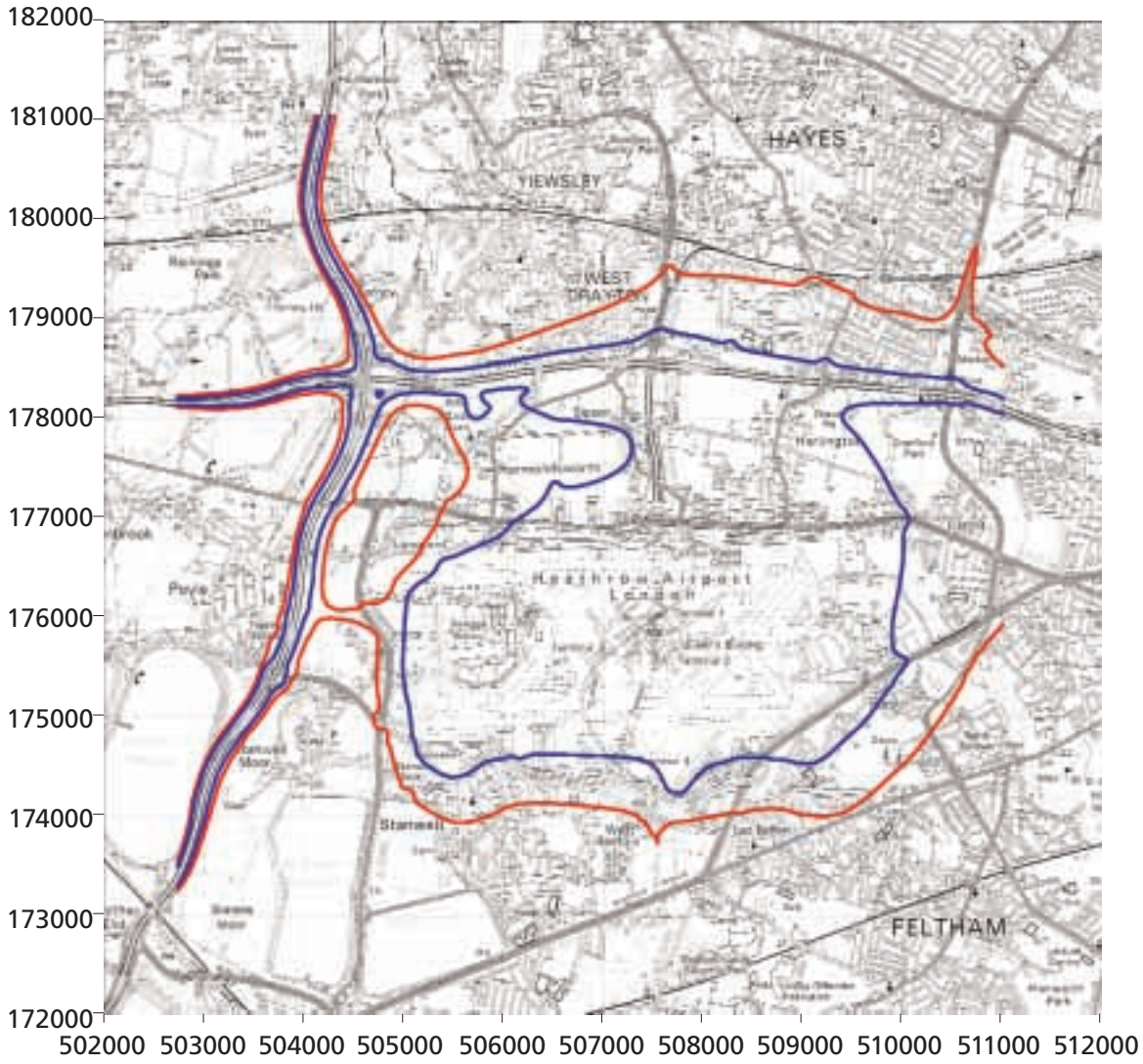


Figure 3: Populations falling within exceedence contours for original and revised base case by NO_2 level at Heathrow



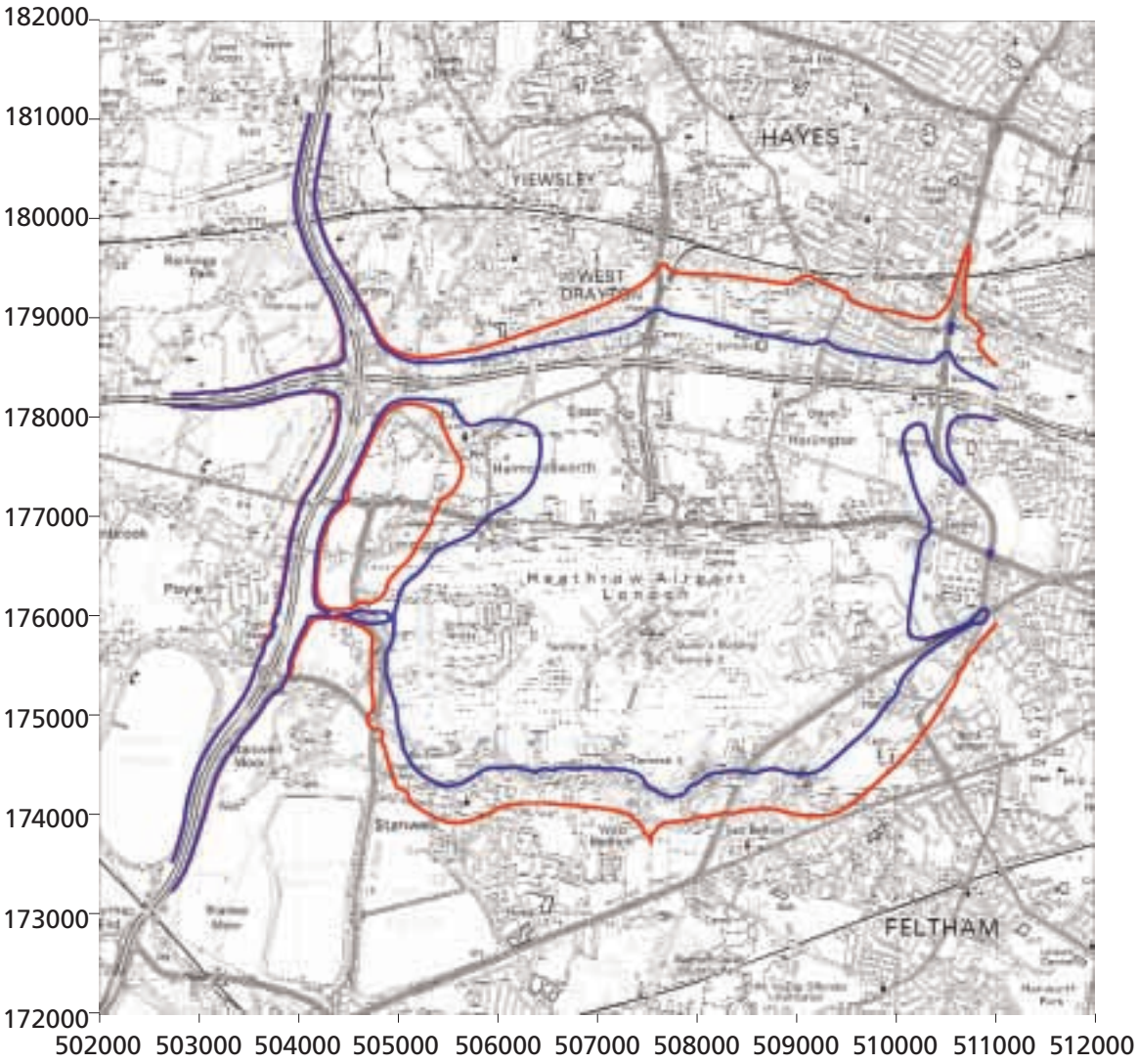
	Original SERAS Core assessment	Conservative revised basecase (no background adjustment)	Less conservative revised basecase (non-aviation sources adjusted)
>100 ug/m3	0	0	0
90-100 ug/m3	213	0	0
80-90 ug/m3	231	0	0
70-80 ug/m3	1,599	0	0
60-70ug/m3	2,648	445	177
50-60 ug/m3	6,422	4,078	1,928
40-50 ug/m3	23,916	8,969	7,672

Figure 4: Annual mean NO_2 concentration contour plot for the 2015 Heathrow third runway option, comparing the location of the exceedence contour for the revised less conservative results (including background adjustment) with that from the original SERAS assessment



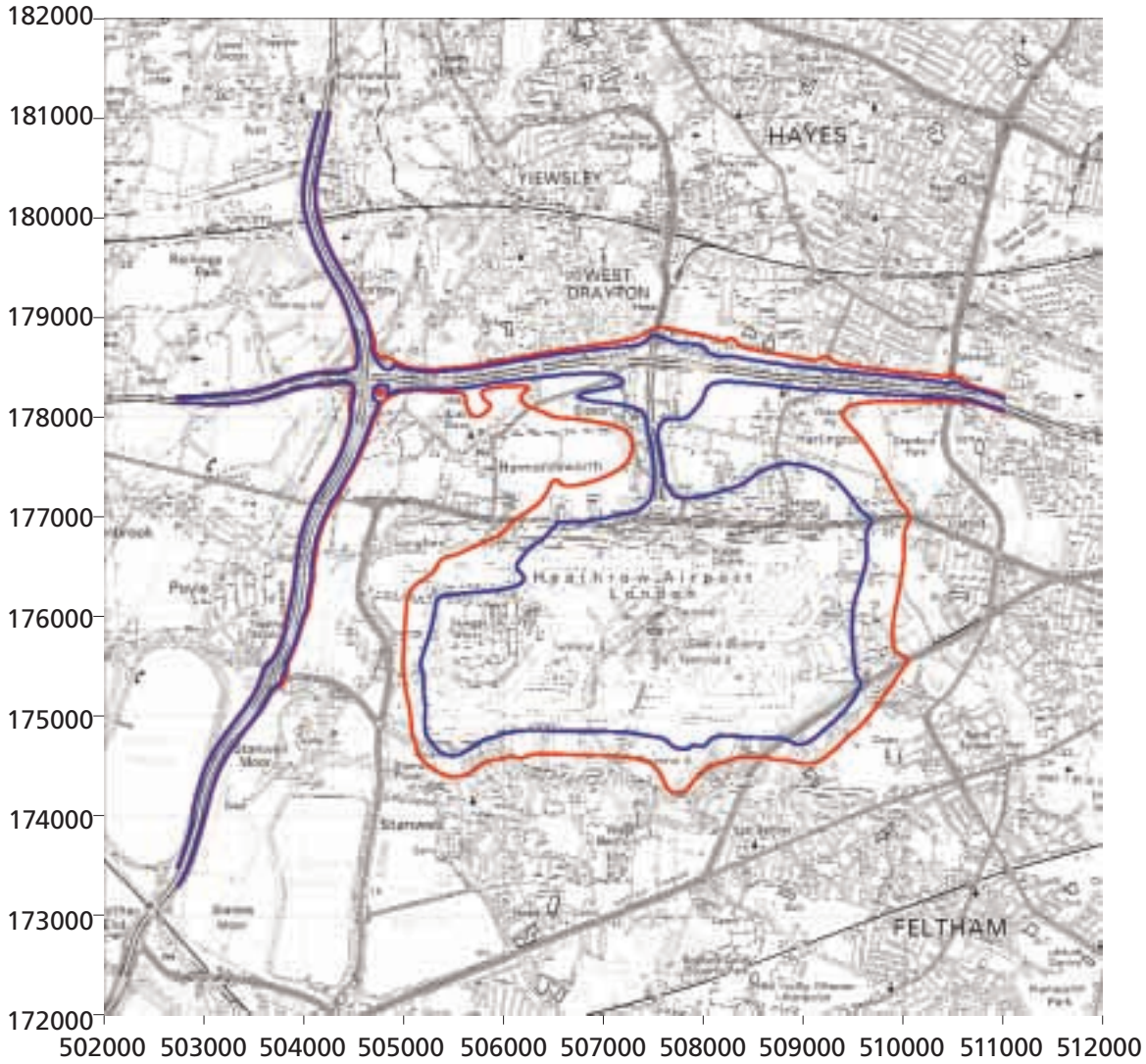
Revised less conservative assessment with background adjustment: 9,800 people
Original SERAS assessment: 35,000 people

Figure 5: Annual mean NO_2 concentration contour plot for the 2015 Heathrow third runway option, comparing the location of the exceedence contour for the revised conservative results (without background adjustment) with that from the original SERAS assessment



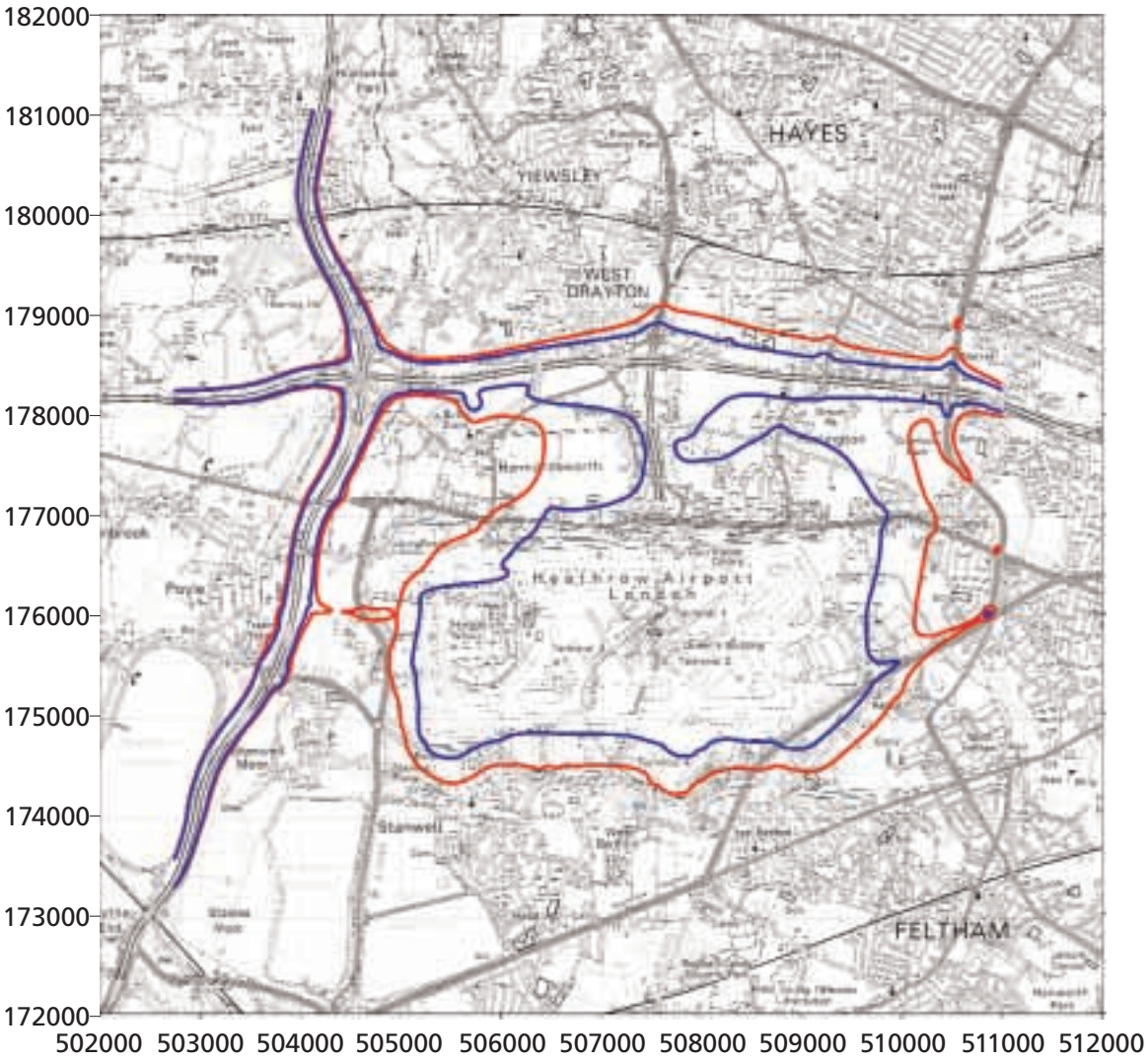
Revised conservative assessment without background adjustment: 13,500 people
Original SERAS assessment: 35,000 people

Figure 6: Annual mean NO_2 exceedence contour for revised baseline (red) and 20% better than CAEP 4 scenario (blue), with background adjustment



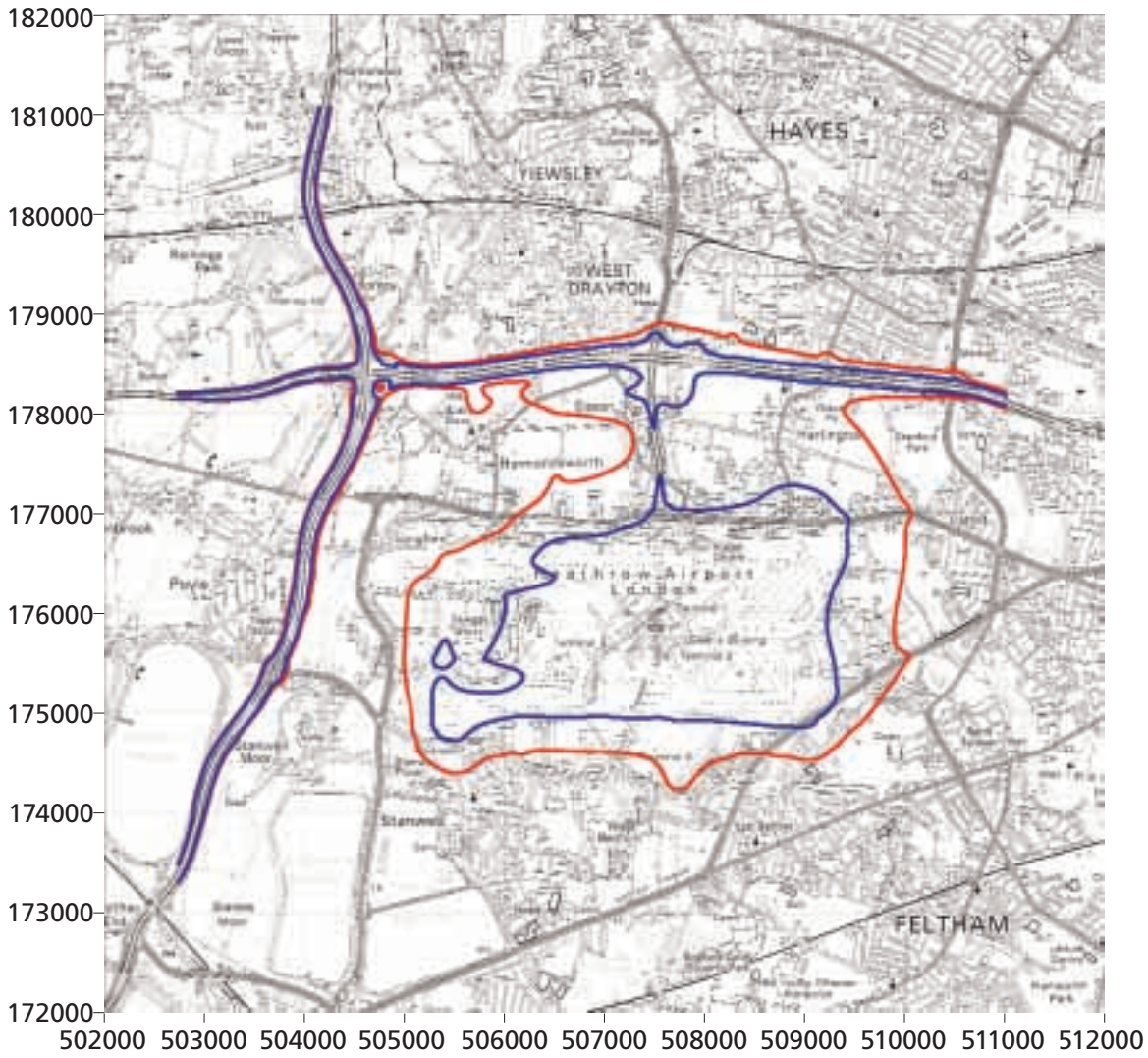
Mitigated option to 20% below CAEP4 with background adjustment: 4,010 people
Revised less conservative assessment with background adjustment: 9,800 people

Figure 7: Annual mean NO_2 exceedence contour for revised baseline (red) and 20% better than CAEP 4 scenario (blue), without background adjustment



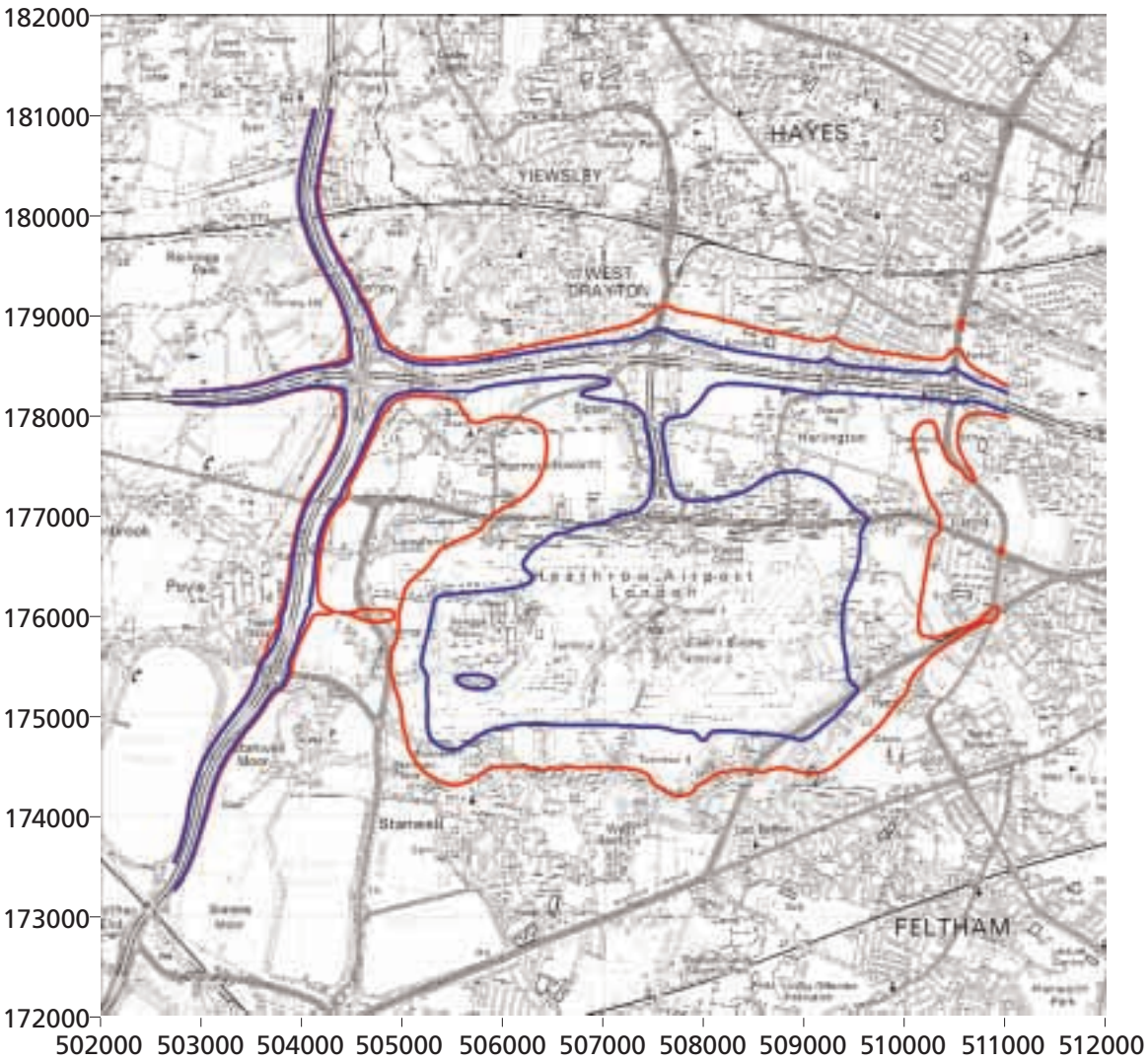
Mitigated option to 20% below CAEP4 without background adjustment: 8,100 people
Revised conservative assessment without background adjustment: 13,500 people

Figure 8: Annual mean NO_2 exceedence contour for revised baseline (red) and 40% better than CAEP 4 scenario (blue), with background adjustment



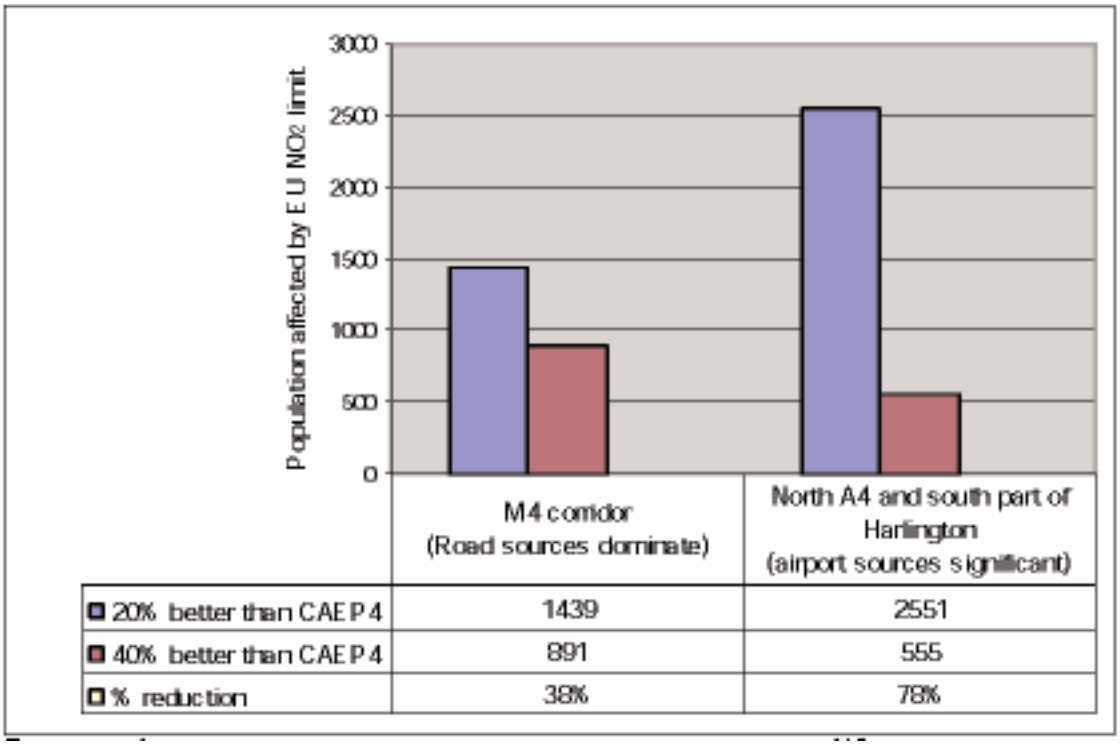
Mitigated option to 40% below CAEP4 with background adjustment: 1,450 people
Revised less conservative assessment with background adjustment: 9,800 people

Figure 9: Annual mean NO_2 exceedence contour for revised baseline (red) and 40% better than CAEP 4 scenario (blue), without background adjustment



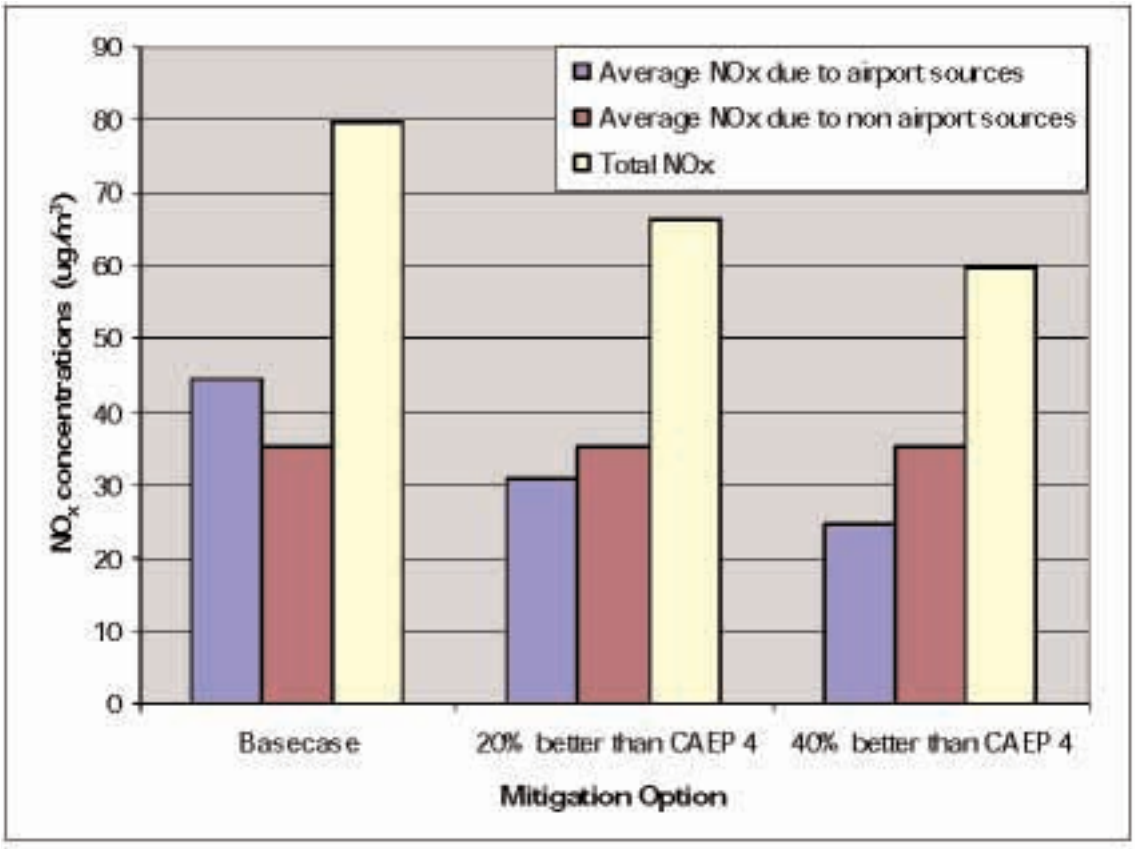
Mitigated option to 40% below CAEP4 without background adjustment: 4,300 people
Revised conservative assessment without background adjustment: 13,500 people

Figure 10: Contribution of airport and non airport sources under increasing mitigation to population affected by NO_2 in excess of EU limit (based on with background adjustment)



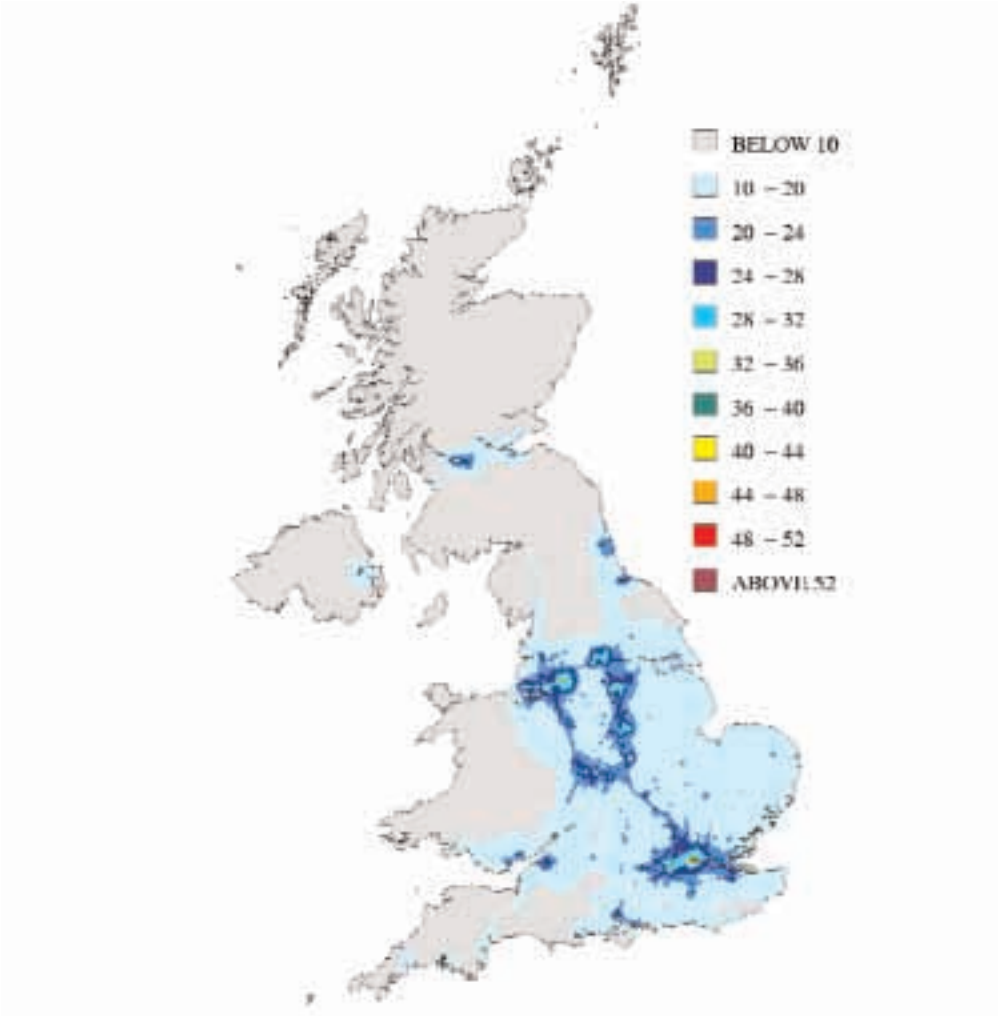
	M4 corridor (Road sources dominate)	North A4 and south part of Harlington (airport sources significant)
20% better than CAEP 4	1439	2551
40% better than CAEP 4	891	555
% reduction	38%	78%

Figure 11: Average contribution of airport and non airport sources to NO_x concentrations at near airport locations under increasing mitigation



NOx is presented here since modelling of source contribution is carried out in terms of NO_x and not NO_2

Figure 12: Annual mean background NO_2 concentrations in 2010

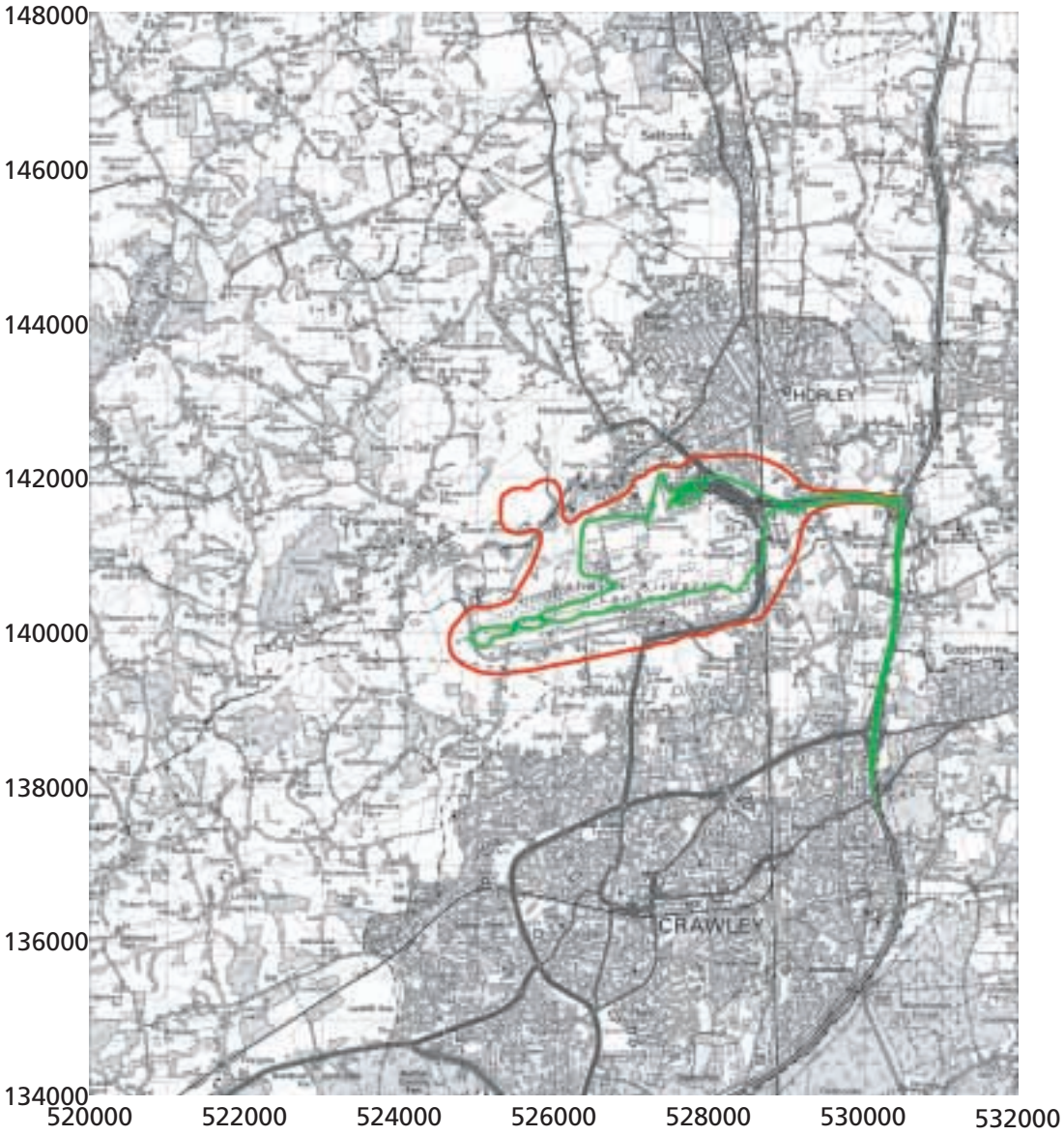


Source: DEFRA, "Air Pollution Abatement Planning in the UK", presented at the International Workshop, Air Pollution Abatement Planning in Europe , 1 - 3 April 2003 in Berlin.

Gatwick

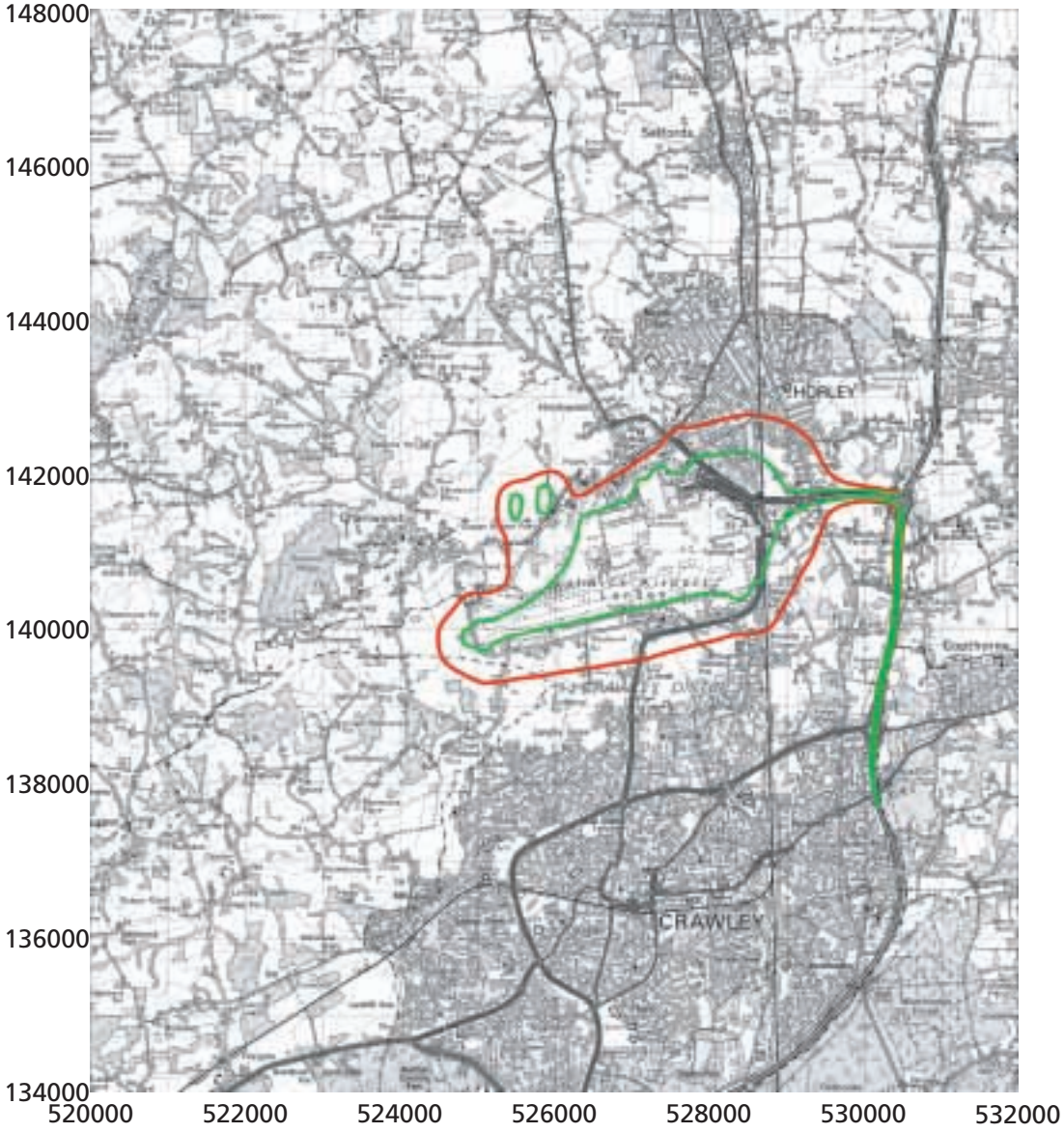
Figure 13: Locations of air quality monitoring sites near Gatwick

Figure 14: Annual mean NO_2 concentration contour plot in 2015 for close parallel runway built in 2011, comparing the location of the exceedence contour for the revised results with that from the original SERAS assessment



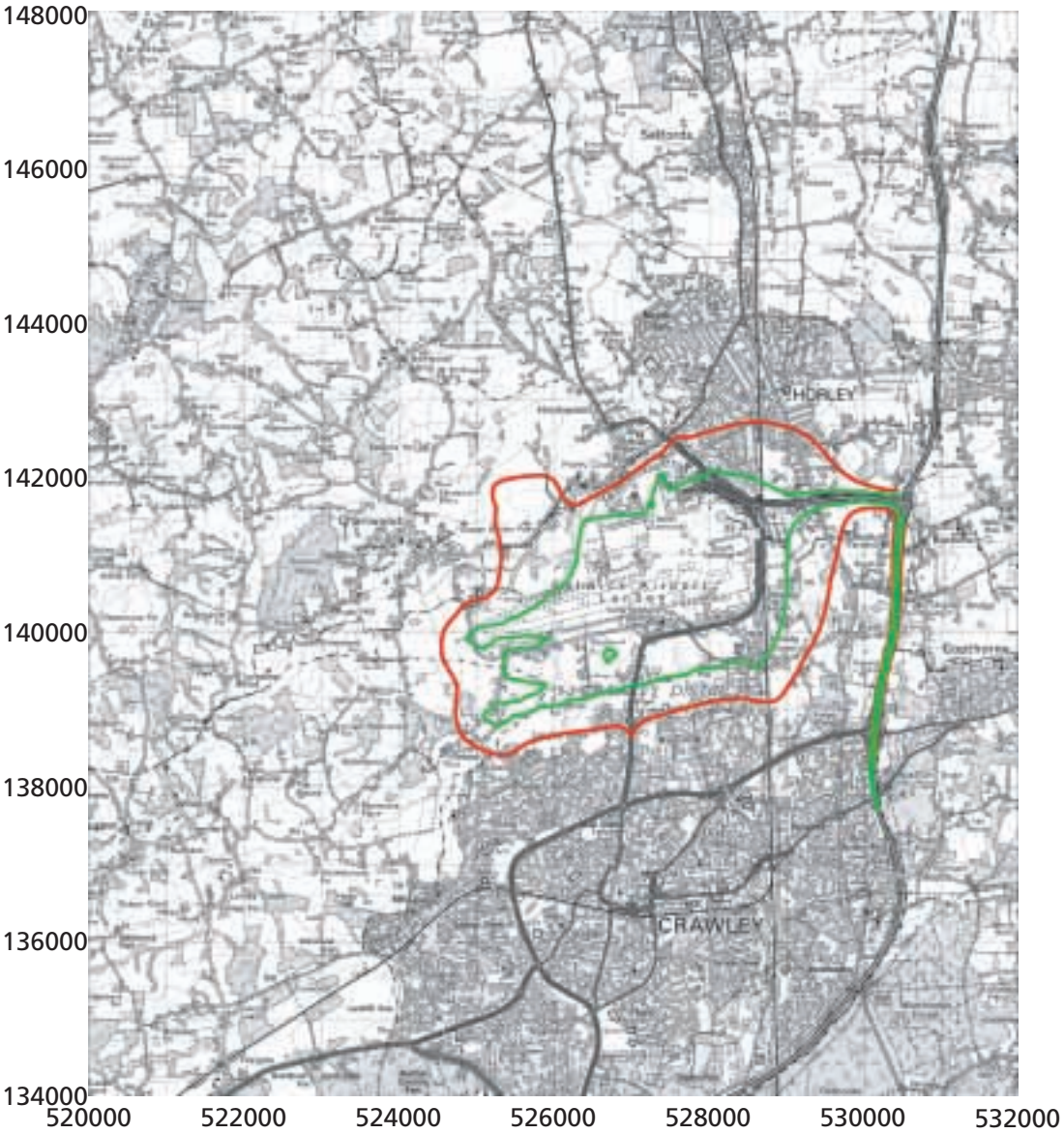
Revised improved assessment
Original SERAS assessment

Figure 15: Annual mean NO_2 concentration contour plot in 2030 for close parallel runway built in 2011, comparing the location of the exceedence contour for the revised results with that from the original SERAS assessment



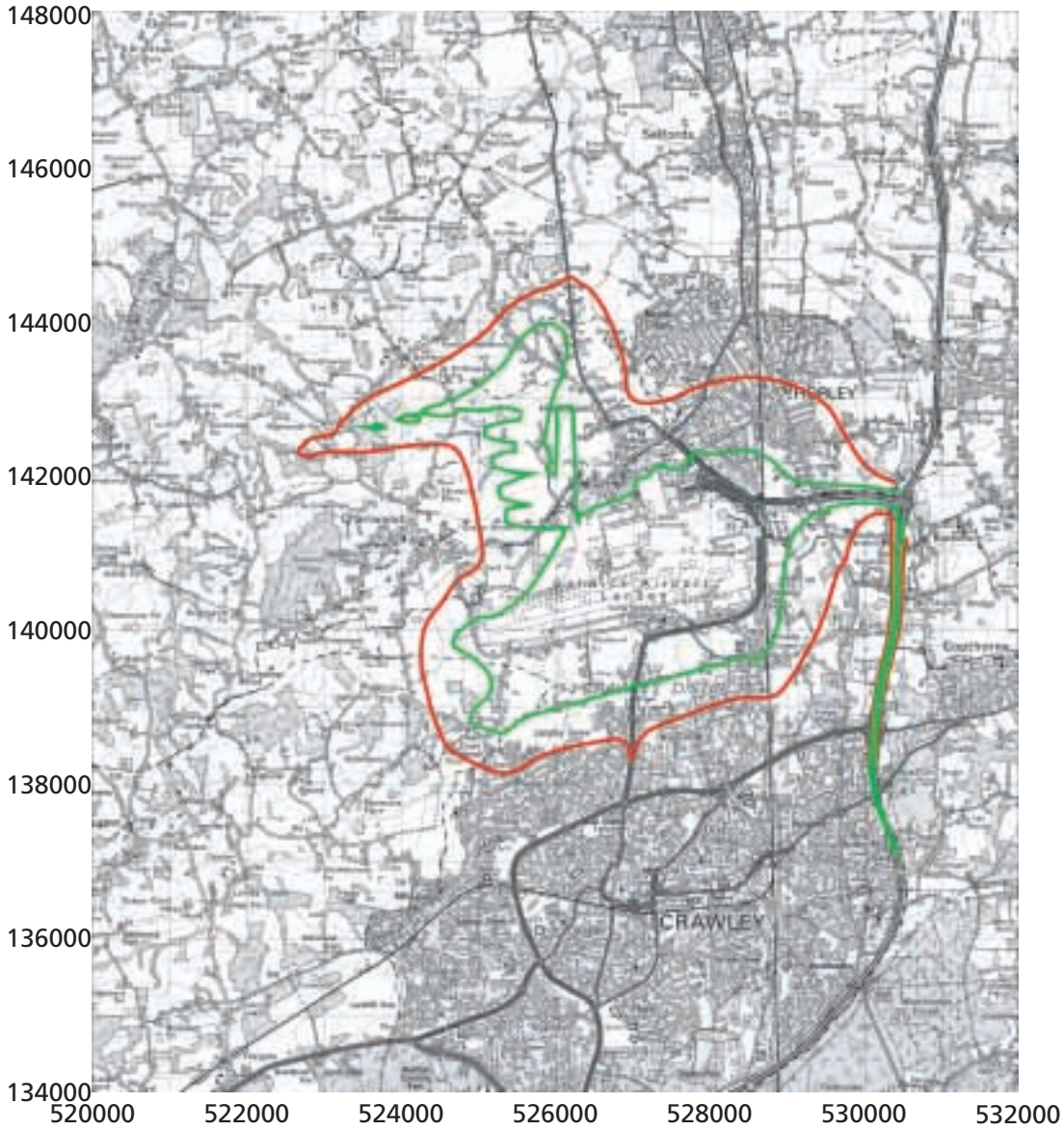
Revised improved assessment
Original SERAS assessment

Figure 16: Annual mean NO_2 concentration contour plot in 2030 for southern wide-spaced runway built in 2024, comparing the location of the exceedence contour for the revised results with that from the original SERAS assessment



Revised improved assessment
Original SERAS assessment

Figure 17: Annual mean NO_2 concentration contour plot in 2030 for southern wide-spaced runway built in 2011 and northern wide-spaced runway built in 2018, comparing the location of the exceedence contour for the revised results with that from the original SERAS assessment



Revised improved assessment
Original SERAS assessment

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