

Heathrow and surface transport stress

Introduction

This paper is not about airport expansion or possible increases in aviation capacity. Nor is it about air quality or noise, closely related though these matters often are to surface travel. It is only about surface travel to Heathrow and in the Heathrow area. But access matters – whatever the capacity for air passengers, Heathrow will only work if passengers, employees and deliveries are able to travel to and from the airport.

In planning the future of Heathrow, surface access is often neglected or only considered after decisions have been made about future capacity for aircraft and air passenger movement. But Heathrow is in an area where roads and public transport services are already often over-crowded. Surface travel already imposes limits on access to Heathrow and will remain a key constraint. Whether it is possible to provide for the surface travel needs of an enlarged airport must be considered before decisions on airport enlargement are made.

The structure of this paper is straightforward:

- First, it considers the situation of Heathrow in the most congested part of London, looking at conditions on the roads, then at public transport and proposals for public transport improvements and at the growth in background travel that will occur as a result of population and employment growth unrelated to Heathrow
- Second, the paper looks at the contribution which Heathrow makes to surface travel
- Third, it considers surface access aspects of the 2007-2009 consultation on Adding Capacity at Heathrow, the Government decisions made following the consultation and the final judgement in the judicial review of those decisions
- Fourth, it briefly addresses the surface transport implications of the latest Heathrow Airport Ltd proposal for a third and fourth runway and makes the case for adequate data to be gathered and made available on surface travel to Heathrow
- Finally the paper concludes that it is essential to study surface access aspects of Heathrow expansion proposals before decisions are made on those proposals

1. Heathrow is situated in a very constrained, congested part of the UK

Precise information about passenger and vehicle numbers, traffic flows and stress in the surface transport networks is not easily available. However, statements from Government departments and politicians and a number of studies and reports, based on data that is not necessarily in the public realm, confirm that the roads and much of the public transport network in the Heathrow area are already under serious stress from the weight of current travel demand.

Roads

Politicians and decision makers have repeatedly expressed concern about the impact of Heathrow on traffic congestion. In January 2009 Theresa Villiers, then shadow Secretary of State for Transport, said that: "Road congestion around Heathrow, as anyone who has travelled there will know, is already a major problem..."¹ More recently the Mayor of London's response to proposals for expansion at Heathrow said of the existing road network that: "These roads have some of the highest incidence of delay and poor journey time reliability in the UK. A variety of traffic management tools have been implemented on the M4 and M25 with some success, but their effectiveness in the longer run is likely to be limited as passenger numbers and non-airport traffic continue to grow and congestion intensifies."² Transport for London has confirmed that "in terms of delays and traffic levels" Heathrow is in the "most congested quadrant of London's road network".³

Both the Orbit and Thames Valley Multi Modal studies for the Department for Transport (DfT), which considered strategic roads in the Heathrow area, recommended that road capacities should only be increased if demand management measures were introduced otherwise, traffic would quickly grow to occupy (and congest) the enlarged space. Very few demand management measures have been implemented and the consequences are evident. The first parts of the M25 were widened in a scheme completed in 2005-06. Yet as *Action for Roads, a Network for the 21st Century*, published by the DfT in July 2013, shows, congestion by 2010 was already as severe again on that part of the M25 as on any part of the road network and the DfT predicts that the M25 will still be severely congested in 2040.⁴

¹ Theresa Villiers, then shadow Secretary of State for Transport, in the House of Commons, 28 January 2009, quoted in *A New Airport for London*, part 1, the Mayor of London, 2011

<http://www.tfl.gov.uk/assets/downloads/corporate/a-new-airport-for-london-part1.pdf>

² Developing a sustainable framework for UK aviation: scoping document. The Mayor of London's response, October 2011

<http://www.tfl.gov.uk/assets/downloads/corporate/developing-a-sustainable-framework-for-UK-aviation-scoping-document-full.pdf>

³ TfL response to the consultation on Adding Capacity at Heathrow, 2008

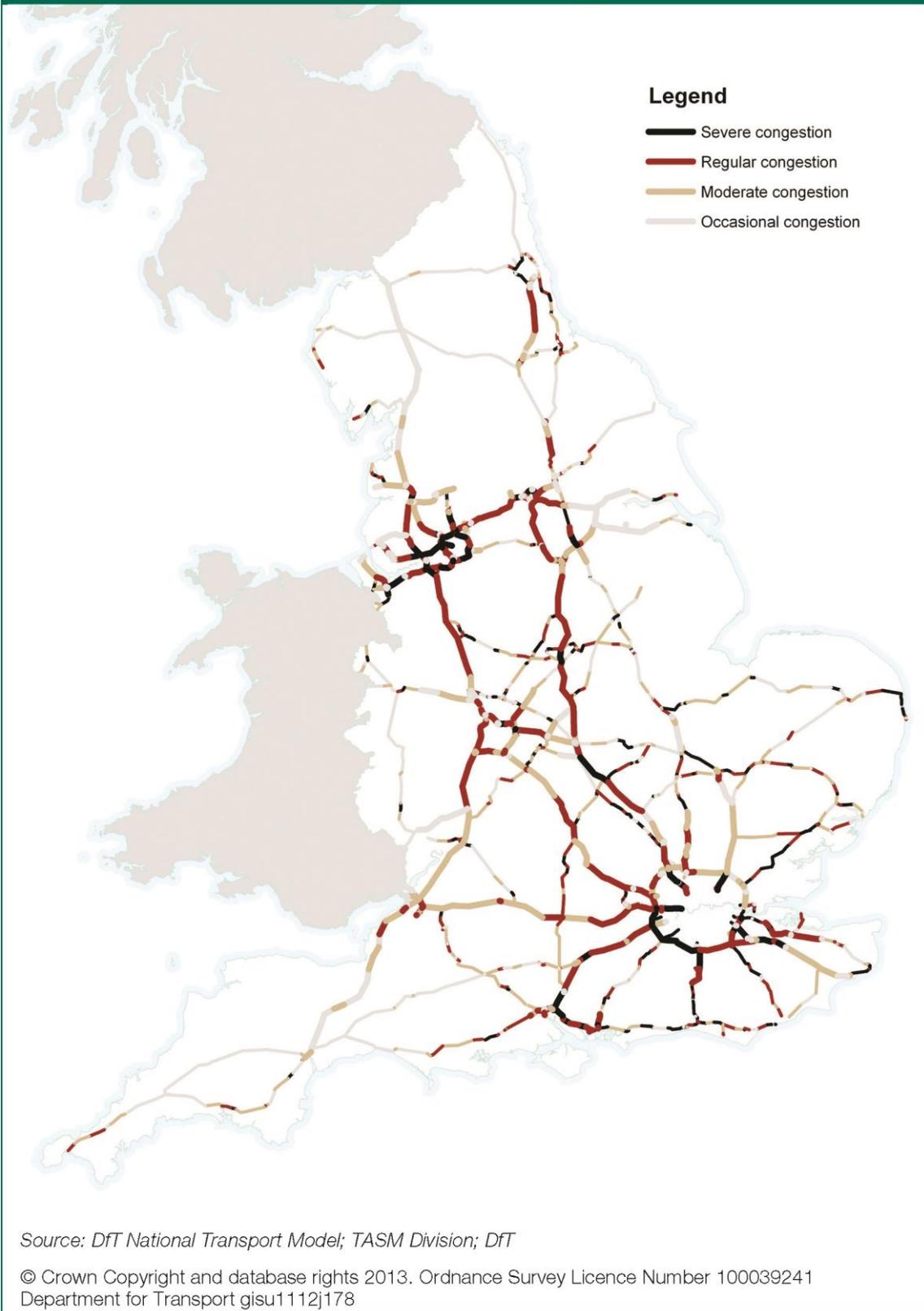
⁴ Figures 1.6 and 1.7, *Action for Roads*, DfT, July 2013

<https://www.gov.uk/government/publications/action-for-roads-a-network-for-the-21st-century>

Figure 1.6 – Congestion on the strategic road network in 2010



Figure 1.7 – Predicted congestion on the strategic road network in 2040



The Highways Agency website describes the position unambiguously:

“The M25 is one of Europe's busiest motorways, with some sections handling around 200,000 vehicles every day. It is at the core of our network and suffered from increasing congestion levels and journey times. Traffic moves slowly, especially at busy times of the day.”⁵

The M4 and M25 near Heathrow are typically operating during the day at traffic volumes where breakdowns in flow are commonplace. As the Highways Agency says in relation to the part of the M4 approaching Heathrow:

“There are numerous occasions where demand exceeds capacity and severe congestion can be expected.”⁶

The Government acknowledged in 2008, in consultation documents on Adding Capacity at Heathrow, that measures to tackle congestion in background traffic on the road network around the airport might be required regardless of the outcome of proposals for airport expansion.

“It may well be necessary to take some action to deal with congestion due to growth in road traffic unrelated to the airport or its expansion.”⁷

The Government has no plans for further major upgrades of the M25 and, although some of the M4 is due to have investment to deliver a “managed motorway” project with hard-shoulder running, this will address only the background traffic growth in the Thames Valley. It will not provide the capacity for an expanded Heathrow Airport. Assuming an expanded Heathrow has the current mode share for surface access of the current airport, the growth in passengers will result in serious gridlock on the M25 and M4.

Heathrow-related traffic also uses A roads and lesser roads which are part of the Transport for London and borough road networks but information about its effect on these roads is also difficult to obtain.⁸ The West Sub-Regional Transport Plan published by the West London boroughs of Hillingdon, Hounslow, Hammersmith and Fulham, Ealing, Brent and Harrow says that:

“Currently, existing parts of the road network across the west sub-region operate at capacity, with the inner areas being particularly affected. The population and employment growth planned for this area will lead to increase in economic activity. Even with currently funded public transport improvements (Tube, HLOS, Crossrail) it is likely that vehicle kilometres, particularly lorries and vans, will increase.”⁹

⁵ <http://www.highways.gov.uk/roads/road-projects/m25-junctions-16-23-widening/>

⁶ Impact Review of Heathrow Airport on the Highways Agency Network, unpublished, Highways Agency, 2013.

The Highways Agency wanted the following paragraph to be included at this point in the text: “Noting that the traffic demand generated by Heathrow Airport is significantly smaller than the demand generated by the wider strategic travel demand, the Highways Agency analysed the patterns of congestion (location and time of day) for the M4 against the demand profiles for the M4 Spur Road to assess the impact that Heathrow Airport has on the traffic conditions on the M4. The Highways Agency findings were reported as follows: ‘M4 - the patterns of congestion are distinct between directions; congestion is systematic towards London (which has a reduction of lanes on the approach to the elevated section), but only at sporadic/isolated occasions out of London. These observations are not consistent with the changes in traffic demand of the M4 Heathrow Spur Road. This would suggest that Heathrow Airport does not normally have a significant impact on the traffic conditions of the M4.’”

The view expressed by the Highways Agency appears to contradict the opinions of Heathrow Airport Ltd and TfL (quoted on page 14 of this report) that 25% of vehicles on the M4 and at least 15% of vehicles on the M25 are travelling to and from the airport.

⁷ Adding Capacity at Heathrow consultation, Chapter 3, DfT, 2008

⁸ The best source of information about the Transport for London and borough road networks may be the West London Highway Assignment Model. Transport for London, the owner, makes it available free of charge to the boroughs who apparently are likely to need to engage the services of a consultant with the appropriate software licenses and skills to understand it.

⁹ West Sub-Regional Transport Plan, Transport for London with west London boroughs, 2010

Public transport

Heathrow is currently served by the Piccadilly Underground Line and by the Heathrow Express and Heathrow Connect rail services. The Piccadilly Line is the most important.

The Piccadilly Line accounts for the bulk of the rail and tube journeys to Heathrow (42 per cent of all air passenger journeys to the airport by public transport and 16 per cent of all air passenger journeys to the airport by all modes).

Public transport access to Heathrow – passengers as percentage of all journeys¹⁰	
Coach	9%
Bus	3%
Rail	10%
Tube	16%
All public transport	38%

The West Sub-Regional Transport Plan describes the Piccadilly Line as “the most crowded line in the West region with severe crowding existing between South Ealing and Central London.”¹¹ It says that crowding on the Piccadilly Line eastbound from Northfields is particularly severe. East-bound passengers who boarded the trains at Heathrow and Heathrow-bound passengers who boarded in central London make up a substantial part of the passenger load.

TfL’s current business plan explains that the line relies on 1960s signalling and 40 year old trains.¹² Plans to upgrade the line, providing new trains and signalling and increasing capacity by 25 per cent, were suspended in 2011 when London Underground took over Tube Lines. LU still intends to make these improvements, they remain part of the Tube modernisation plan, procurement of new rolling stock is due to go to tender in 2015 but a start date has yet to be announced.

A 25 per cent increase in Piccadilly Line capacity could be quickly absorbed by increased demand from additional jobs and homes in the Heathrow area and south-west London.

Figures 19 & 20 of the Mayor’s Transport Strategy show that crowding on the Piccadilly Line will persist in 2031 even after the completion of Tube modernisation and expansion schemes.¹³

¹⁰ Derived from CAA Survey Data table in London Assembly Report, 2013, Airport Capacity in London

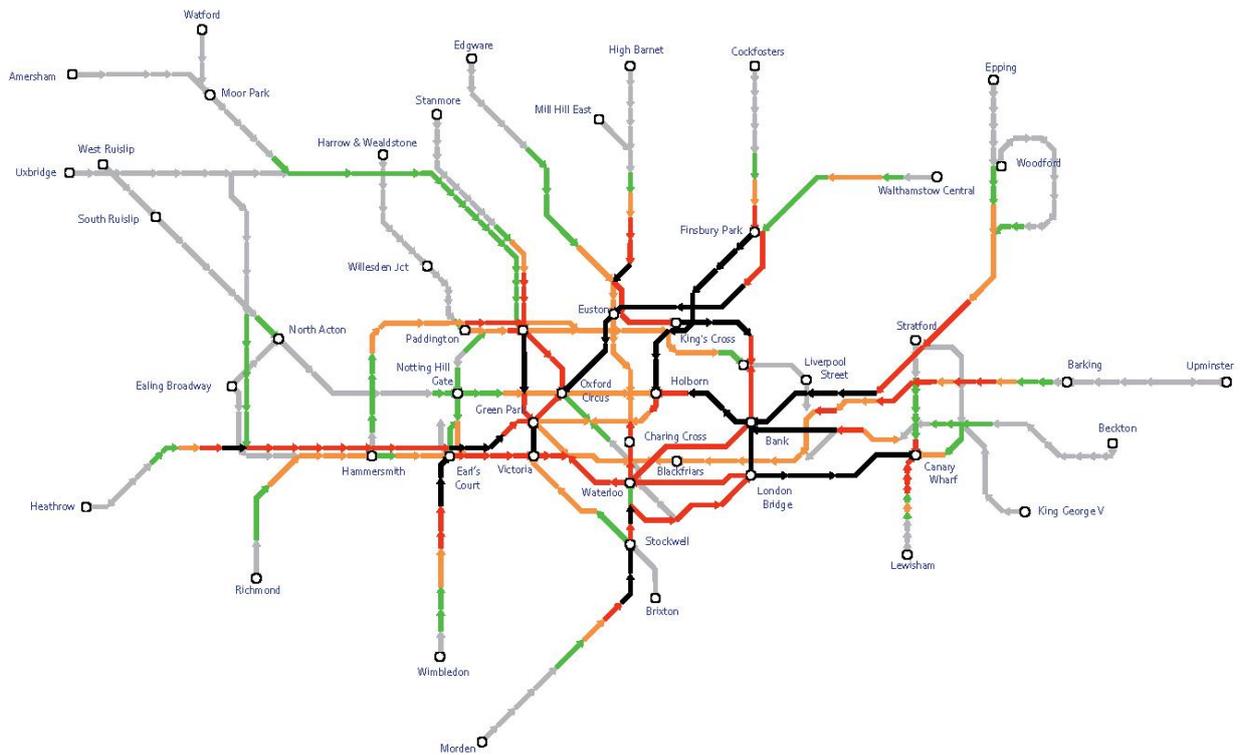
¹¹ West Sub-Regional Transport Plan, 2010, p33

¹² http://www.tfl.gov.uk/assets/downloads/corporate/tfl-business_plan-2012.pdf

¹³ Mayor’s Transport Strategy, 2010

http://www.london.gov.uk/sites/default/files/MTS_Chapter_4_0.pdf

Figure 19: Tube and DLR crowding, 2006

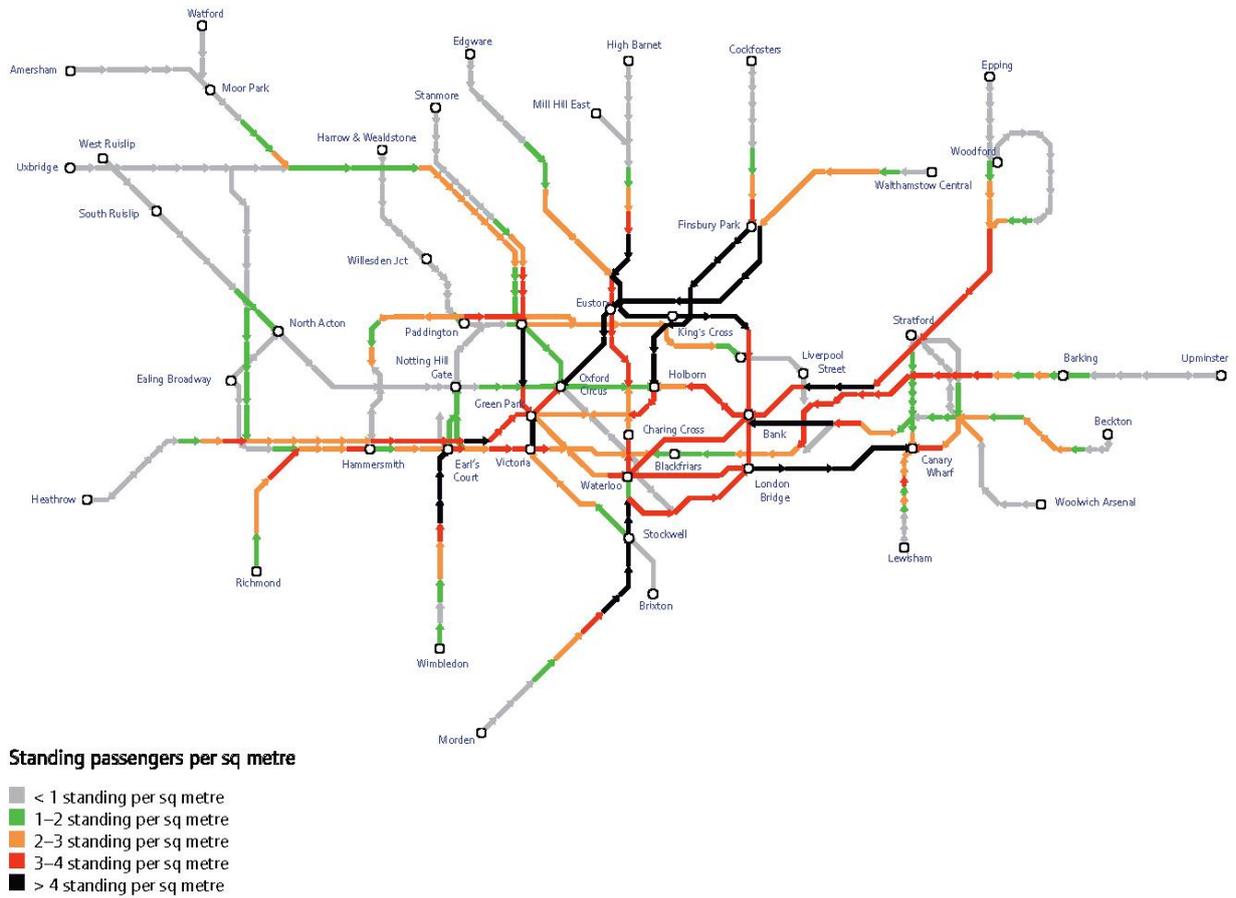


Standing passengers per sq metre

- < 1 standing per sq metre
- 1–2 standing per sq metre
- 2–3 standing per sq metre
- 3–4 standing per sq metre
- > 4 standing per sq metre

This schematic map does not include all details of the network

Figure 20: Tube and DLR crowding, 2031 (with committed funding/reference case)



This schematic map does not include all details of the network

Recent additions to public transport capacity: Heathrow Express, Connect and Crossrail

Some expansion of surface transport capacity has occurred in the last 15 years. Heathrow Express, operating four trains an hour, opened in 1998. Heathrow Connect, a slower, stopping service offering two trains an hour also connecting Paddington and Heathrow, was initially intended for Heathrow employees and residents of West London but is now used as a cheaper, alternative rail service to the airport. It was launched in 2005.

Crossrail, due to open in 2018, will provide four trains an hour that serve Heathrow, to destinations such as Paddington, the West End, the City, Canary Wharf and east London. Crossrail is intended to replace Heathrow Connect but not Heathrow Express which, it is planned, will continue to operate four trains an hour. At this level of service Crossrail's contribution to meeting present, let alone future expanded demand will not be significant and in addition it will not serve Terminal 5. The DfT's own modelling shows that Crossrail services will increase the public transport modal share by 'roundly' one per cent.¹⁴

The opening of Crossrail services may affect the competitiveness and viability of Heathrow Express. It is unlikely that most business travellers, for whom Heathrow Express was largely designed, will continue to use this service, which entails changing at Paddington to complete the journey to the City or Canary Wharf, when the whole journey could be made by Crossrail more quickly and without having to change.

BAA itself has said that "Crossrail has limited benefit for Heathrow."¹⁵

And the Mayor has said,

"Work is ongoing to improve surface access to Heathrow and when it opens towards the end of the decade, Crossrail will provide useful additional connectivity for destinations in London. The net increase in rail capacity for airport passengers will, however, be limited – and certainly insufficient to support any step-change in airport capacity implied by expansion."¹⁶

Figures 21 & 22 of the Mayor's Transport Strategy show that rail crowding in the Heathrow corridor will remain, and even increase, in 2031 despite the addition that Crossrail will have made to public transport capacity.¹⁷

¹⁴ Adding Capacity at Heathrow consultation, Chapter 3, DfT, 2008

¹⁵ Heathrow Airport Interim Master Plan, June 2005

http://s3.amazonaws.com/zanran_storage/www.baa.com/ContentPages/46733357.pdf

¹⁶ Transport for London, May 2013. <http://www.tfl.gov.uk/assets/downloads/corporate/airport-commission-short-and-medium-term-proposals-tfl-response.pdf>

¹⁷ Figures 21 and 22, Mayor's Transport Strategy, 2010

http://www.london.gov.uk/sites/default/files/MTS_Chapter_4_0.pdf

Figure 21: Rail crowding, 2006

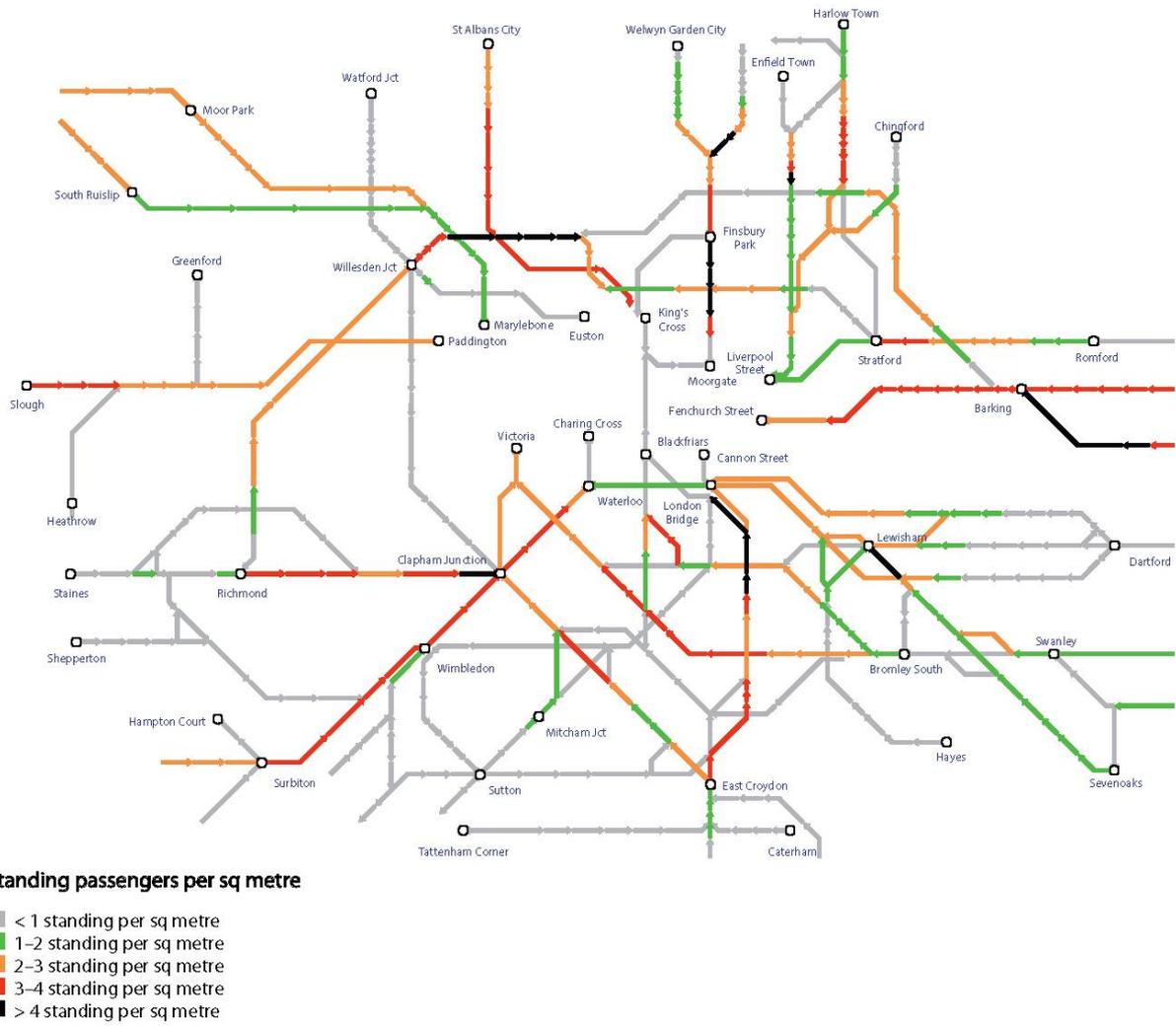
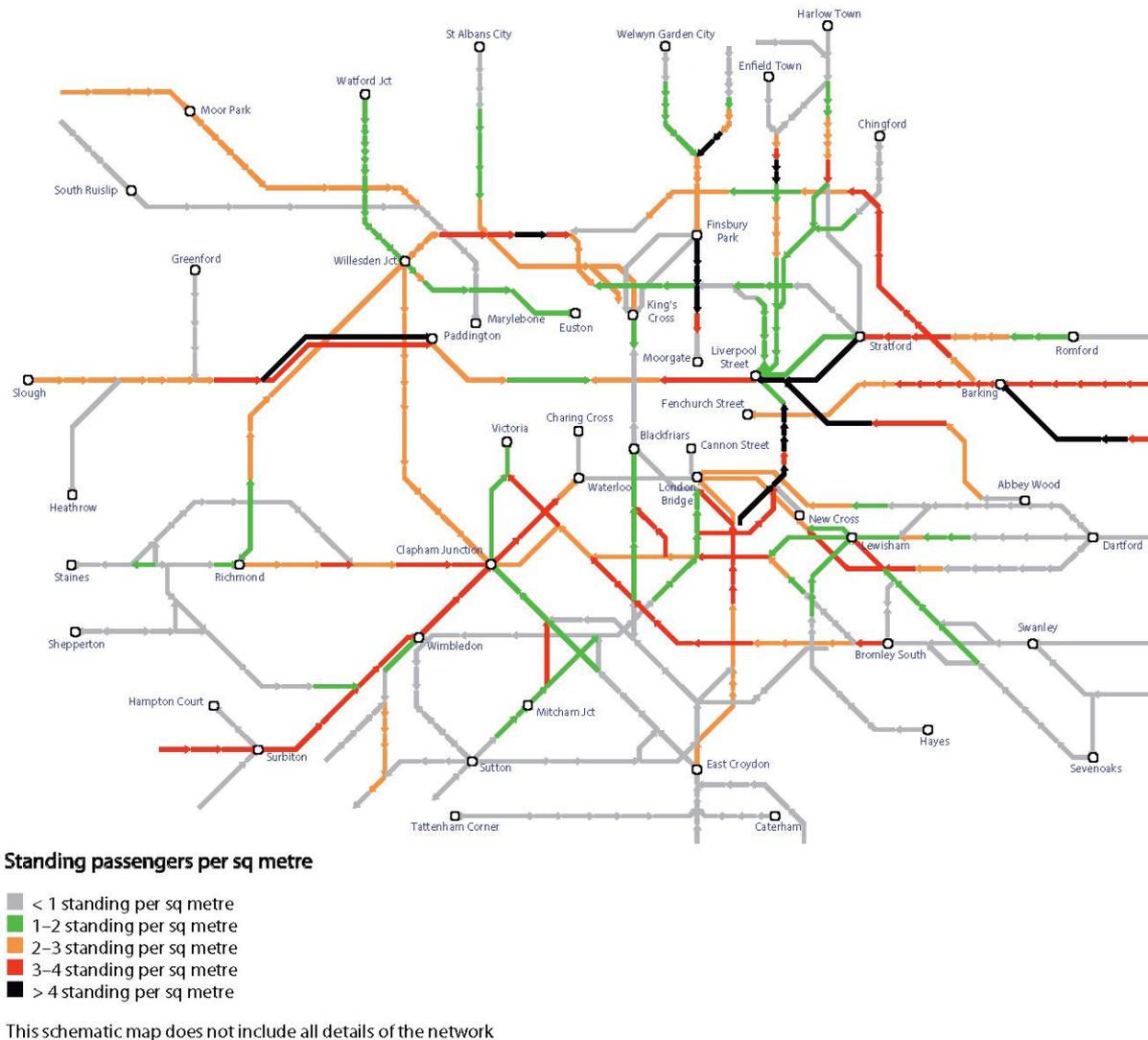


Figure 22: Rail crowding, 2031 (with committed funding/reference case)



Unfunded proposals: High Speed 2 and Airtrack

At one stage it was suggested that Heathrow could become a major rail hub for High Speed 2, Crossrail, Heathrow Express and the Western Main Line as well as the Piccadilly Line. Although Heathrow will be linked by Crossrail/Heathrow Express to HS2 at an interchange at Old Oak Common in west London as part of the first phase, the Government has made no commitment to a direct spur to Heathrow and has now halted work on this until after the Airports Commission has reported.¹⁸

¹⁸ Documents released as part of the judicial review hearings into HS2 reveal HS2 Ltd’s analysis that a Heathrow connection would have a negative BCR (0.3:1) returning significantly fewer benefits compared to the costs of construction. See para 562 of <http://www.judiciary.gov.uk/Resources/JCO/Documents/Judgments/hs2-judgment.pdf>.

Proposals have also been made for a scheme called Airtrack and its successor Airtrack-Lite, a rail service connecting Waterloo with Heathrow via a number of stations in south-west London. Neither has yet proved acceptable to various local authorities on or near the route because of the effect that the necessary longer closure of level crossings would have on traffic congestion. However, alternative solutions are being pursued with a view towards resolving these problems.

Population and employment – the growth in background travel

“Public transport crowding and road congestion will worsen significantly by 2031 as a result of population and employment growth, despite the implementation of Crossrail. Of particular importance are the ‘hub and spoke’ corridors serving the region’s growth areas and key places, where high levels of demand are likely to be generated, eg for highway congestion the M4/A4 and Uxbridge Road corridors and for public transport crowding, the Hounslow – Waterloo and Ealing – Paddington corridors. Together, these serve the Heathrow, Southall, Wembley and White City Opportunity Areas. Public transport crowding is likely to affect the Hounslow-Waterloo and Ealing-Paddington National Rail corridors and the Piccadilly and Jubilee lines as they approach central London.”¹⁹

Any additional demand which Heathrow may place on the road or the public transport networks must be seen against the background of an increase in general travel demand from a London population that was forecast in the London Plan to grow to around 9 million by 2031 and which will place its own additional strains on the transport system. The additional pressure on the underground network and on the Piccadilly Line has been recognised by the DfT, citing the Mayor of London:

“The pressures on London’s underground network are well documented. The Mayor expects a 50 per cent growth in demand for London underground services in the period to 2020. The PPP programme anticipates delivering a 25 per cent increase in capacity on the Piccadilly line by the end of 2014.”²⁰

According to the West London Sub-regional Transport Plan, west London is in middle position among the five London sub-regions for forecast population growth. Heathrow is one of two areas in the sub-region where forecast population growth, and one of five ‘opportunity areas’ where forecast employment growth, will be concentrated.

The London Plan designates Heathrow as one of London’s ‘opportunity areas’ – those with significant potential to accommodate new homes or jobs or a combination of the two. For Heathrow the Plan prescribes a minimum of 9,000 new homes and an ‘indicative capacity’ for 12,000 new jobs. Regardless of what happens at the airport, this growth will place an additional burden on transport systems and take up some proportion of any additional capacity.

The Mayor’s Transport Strategy and the London Plan are based on forecast growth in London’s population from a present figure of almost 8 million to 9 million in 2031. That forecast is now out of date and the latest projection for London’s population in 2031 is nearly 10 million.²¹ The pressure on London’s transport will increase, in west London as elsewhere, even without an expansion of Heathrow.

¹⁹ West Sub-Regional Transport Plan, 2010

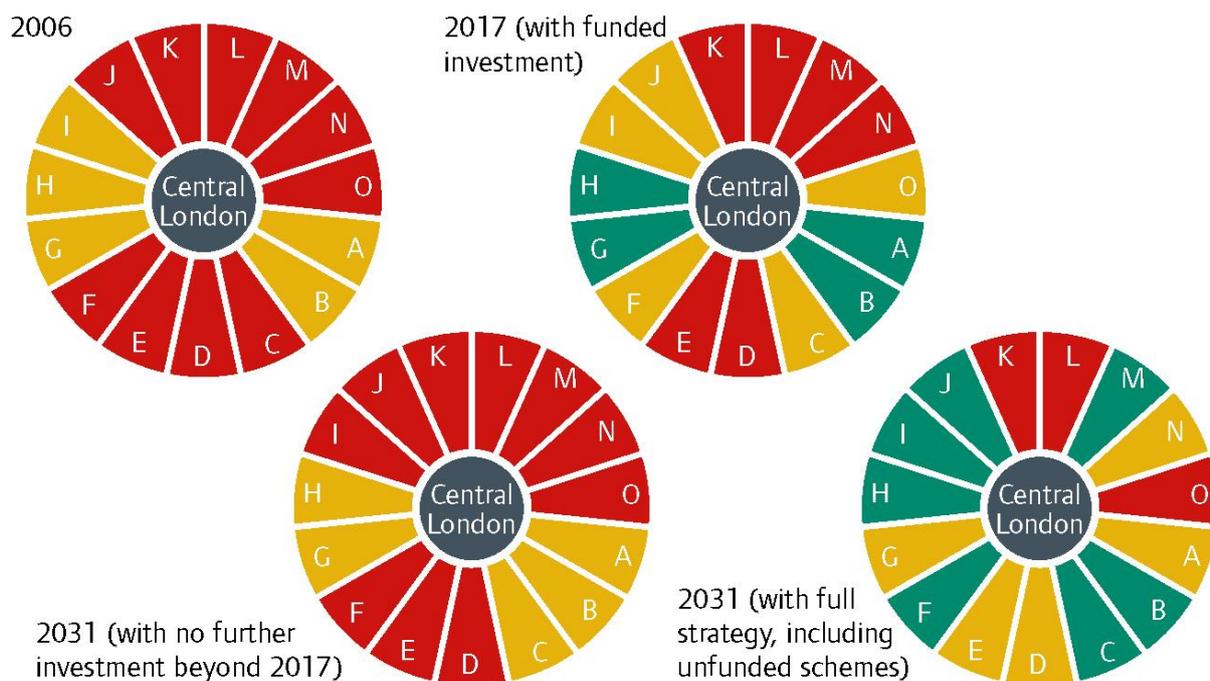
²⁰ Adding Capacity at Heathrow Airport consultation, chapter 3, DfT, 2008

²¹ GLA 2012 Round Population Projections, February 2013

<http://www.london.gov.uk/sites/default/files/Update%2005-2013%20GLA%202012%20round%20population%20projections.pdf>

In summary, much of the existing public transport and road networks in the Heathrow corridor are already operating at or beyond capacity even before any expansion in population and employment or use of Heathrow occurs. The West London Sub-regional Transport Plan, already quoted, expresses concern that population and employment growth will add to pressure on parts of the road network already operating at capacity.²² Figure 32 of the Mayor's Transport Strategy shows that stress on national rail and tube services in the Heathrow corridor to central London will persist to 2031 and beyond even if the strategy is

Figure 32: National Rail and Tube 'stress' on radial corridors into central London



Moderately 'stressed' corridor	On average residents in the corridor experience moderate levels of crowding on rail public transport on their way to central London during morning peak for some part or all of their journey
Highly 'stressed' corridor	On average residents in the corridor experience high levels of crowding on rail public transport on their way to central London during morning peak for some part or all of their journey
Severely 'stressed' corridor	On average residents in the corridor experience severe levels of crowding on rail public transport on their way to central London during morning peak for some part or all of their journey

Note: Corridor letters correspond to corridors in Figure 8

implemented in full, unfunded schemes are included and no growth occurs at Heathrow.²³ The public transport corridor to Heathrow (Corridor G) will still be 'highly stressed'.

The Heathrow corridor matters not just for journeys to and from the airport but also for journeys to and from the south west and Wales to London. Adding to localised congestion on rail and road will have knock-on effects further afield.

²² See page 5

²³ Figure 32, Mayor's Transport Strategy, 2010

http://www.london.gov.uk/sites/default/files/MTS_Chapter_5_pt1_0.pdf

2. Contribution of Heathrow to surface travel

Once again, precise information about the pressure placed by Heathrow on the road and public transport networks is not easily available but there are a number of discussions of this in reports from central government, Transport for London and Heathrow's operators. The Future of Air Transport, the 2003 White Paper, said that:

“Further expansion of Heathrow will place pressure on already congested road and rail networks.”²⁴

Since the White Paper was published, the number of passengers using Heathrow has increased by almost 11 per cent; from 63,200,000 in 2003 to 69,984,000 in 2012.²⁵

Reports vary about the proportion of traffic on the road network around Heathrow that is attributable to the airport. Heathrow Airport itself for example has said that: ‘Around 25 per cent of vehicles on the M4 and at least 15 per cent of the vehicles on the M25 near Heathrow are travelling to and from the airport.’²⁶

The same figures are used by Transport for London and the Mayor:

“In the immediate vicinity of the airport, around 25 per cent of vehicles on the M4 and at least 15 per cent of the vehicles on the M25 are travelling to and from Heathrow. These roads have the worst delays and reliability record in the UK.”²⁷

Elsewhere in the same document, the Mayor states that “BAA reports that airport-related traffic represents up to 30% of all traffic on major routes around Heathrow.”

Demand for surface transport

Some of the basic facts about Heathrow are well known and available. A cap of 480,000 has been placed on the number of flights at Heathrow and the airport is using virtually all of that allowance. There were approximately 476,000 air transport movements (ATMs) in 2011, an average of about 1,300 a day.²⁸

In discussions of surface transport, attention is normally focused on air passengers. There are two other elements of airport related traffic: employees of the airport; and the traffic, mostly business and goods vehicles, that services the airport and its related activities. This section of the report discusses all three.

Passenger travel to and from Heathrow

The number of passengers who arrived or departed from Heathrow in 2011 was just under 70 million or about 192,000 on an average day. Some of these are transfer passengers changing flights but the majority have origins or destinations in the UK and therefore make surface journeys. Unlike the number of flights, the number of passengers who can use the airport is not capped (though is obviously limited by the total capacity of the aircraft using Heathrow in any period).

As a general rule, it is said that air passenger travel to Heathrow breaks down roughly 60:40 car and taxi to public transport. In more detail the division by mode is as follows:

²⁴ The Future of Air Transport, White Paper, 2003

<http://webarchive.nationalarchives.gov.uk/20070110013802/http://dft.gov.uk/pgr/strategy/whitepapers/air/thefutureofairtransportwhite5694>

²⁵ http://www.heathrowairport.com/static/HeathrowAboutUs/Downloads/PDF/10-year-record-of-statistics_2003-2012.pdf

²⁶ http://www.heathrowairport.com/static/Heathrow/Downloads/PDF/HEATHROW_AIR_QUALITY_2010.pdf

²⁷ A New Airport for London, Part 2, Mayor of London, 2011

<http://www.tfl.gov.uk/assets/downloads/corporate/a-new-airport-for-london-part2.pdf>

²⁸ <http://www.heathrowairport.com/about-us/company-news-and-information/company-information/facts-and-figures>

Heathrow Airport Total		2012					
		Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Total	MAT
Base	Non-transfer passengers	9,753,454	10,778,273	12,330,967	11,087,384	43,950,077	43,950,077
		%	%	%	%	%	%
Mode	Private car	29.4	27.7	30.3	28.6	29.0	29.0
	Hire car	2.1	2.5	2.5	2.4	2.4	2.4
	Taxi/ Minicab	27.3	27.9	27.1	28.8	27.8	27.8
	Bus/ Coach	12.4	12.4	14.1	12.2	12.8	12.8
	Tube	17.8	19.2	17.7	17.8	18.1	18.1
	Rail	10.8	10.2	8.0	10.0	9.7	9.7
	Other	0.2	0.2	0.2	0.2	0.2	0.2

29

Heathrow and associated employees

The airport is also a powerful magnet for journeys for other purposes. It has been described as the largest employment site in the UK.³⁰ 76,600 people work within the airport boundary on activities directly related to Heathrow. A further 7,700 work outside the airport in employment directly related to the airport such as freight services, airline services and hotels. 11,100 work in firms indirectly related, supplying goods and services to businesses at the airport. 18,600 are employed in so-called induced activities supported by employees in the other three categories, a total of 114,000.³¹ There is obviously a wide range of airport related activities. A smaller proportion of employees than passengers travel to Heathrow by public transport. BAA is credited with producing and implementing a model workplace travel plan but also finds it necessary to provide parking space to employees as a benefit of employment and a recruitment incentive. Simply as a workplace, Heathrow has an enormous transport and traffic impact.

The following table shows the breakdown for mode of travel to work by airport staff and does not include data for those employed in other airport related business inside or outside the airport boundary.

²⁹ Table provided by email from the Sustainable Travel Manager, Heathrow Airport Ltd, 3 July 2013

³⁰ NBTN CASE STUDY: Better Travel Choices at BAA Heathrow

³¹ Optimal Economic, 2011, Heathrow Related Employment

<http://www.heathrowairport.com/static/Heathrow/Downloads/PDF/Heathrow-Related-Employment-Report.pdf>

Heathrow Staff Survey 2011

Main Mode of Transport	Total	
	Count	%
Car driver travelling alone	43062	58.8%
Local bus	10402	14.2%
Underground	6068	8.3%
Air	3063	4.2%
Car passenger	2475	3.4%
Car driver with passenger[s]	2397	3.3%
Work bus/Company transport	2191	3.0%
Motorcycle [More than 125cc]	724	1.0%
Heathrow Connect	672	0.9%
Heathrow Express	438	0.6%
Motorcycle [125cc or less]	381	0.5%
Coach	377	0.5%
Bicycle	362	0.5%
Walked from home	203	0.3%
Train	202	0.3%
Taxi/Minicab	191	0.3%
TOTAL	73208	

³²

Travel to work at Heathrow is much more likely to be by car or motorbike than is travel in London generally. 67 per cent of journeys to work at Heathrow are made as a driver or passenger in a car or on a motorbike compared to 38 per cent of journeys in London as a whole. Even in outer London 50 per cent of all journeys are made by car or motorbike and in inner London the figure is 24 per cent.³³

Freight traffic

The figures above do not include any goods vehicle traffic to Heathrow to collect or deliver freight, provide materials for aircraft maintenance and repair, stock the shops and restaurants or for many other journey purposes. Heathrow flights carried 1.48 million metric tonnes of cargo in 2011, mostly in the holds of passenger aircraft.³⁴

These matters were considered by a Heathrow Freight Movement Study³⁵, whose scope included air cargo, courier and express mail, the servicing of airport terminals, hotels, offices and other premises and the servicing, cleaning and maintenance of aircraft. Based on data from 2007/8, the executive summary of the report estimated there were “some 1.9 million (one way) annual freight and servicing-related trips currently to Heathrow Airport.” In the following paragraph the summary stated that the “estimated total Heathrow related freight and servicing vehicle kms (two way) are around 247 million kms per annum.” This seems ambiguous:

³² Table by email from the Sustainable Travel Manager, Heathrow Airport Ltd, 3 July 2013

³³ Percentage of trips by main mode, average day (seven-day week) 2007/08 to 2009/10, Appendix B, Travel in London report 3, TfL

<http://www.tfl.gov.uk/assets/downloads/corporate/travel-in-london-report-3.pdf>

³⁴ Figures also from Heathrow Airport

³⁵ Aecom, 2009, Heathrow Freight Movement Study

it is not clear to us whether the overall number of trips is double the 1.9 million one way journeys, a total of 3.8 million outward and return trips.

The Freight Movement Study also estimated that the Heathrow freight and servicing traffic represented only 0.4 per cent of total vehicles, 4.9 per cent of Heavy Goods Vehicles and 1.6 per cent of vans within a wider study area bounded by the A40/A406/A316/M3/A322/A329/M4/A404/M40. But this is a substantial area that appears to include all the east/west traffic on the A40/M40, the M4 and the M3 as well as the traffic on the A406 and M25 and a whole network of lesser roads enclosed by these boundaries. Within a smaller area defined by a cordon screen line around Heathrow, freight and servicing vehicles represented 46 per cent of all HGV activity, 23 per cent of van activity and 5.7 per cent of all motor vehicle activity. The balance of 54 per cent of HGVs and 77 per cent of vans were presumably servicing around 100 industrial estates that are located within a 5 mile radius of the airport, of which only 40 per cent are directly related to the airport.³⁶ In any case it is certain that a large number of trips by the type of vehicle with the largest environmental impact – HGVs – are attributable to airport activities.

Heathrow's Surface Access Strategy

Since at least 1999 the Government has encouraged all airports with more than 1000 aircraft movements a year to maintain an Airport Transport Forum and produce a Surface Access Strategy. The requirement was set out, for example, in The Future of Air Transport of 2003 and reiterated in The Aviation Policy Framework of 2013

“4.16 All airports in England and Wales with more than 1,000 passenger air transport movements a year are currently advised to set up air transport forums (ATFs). This concept was introduced in the previous administration's white paper *A New Deal for Transport: Better for Everyone* and reiterated in the 2003 Air Transport White Paper.

4.17 The primary role of the forums is to serve local communities through:

- identifying short- and long-term targets for increasing the proportion of journeys made to airports by public transport;
- devising a strategy for meeting these targets; and
- overseeing implementation of the strategy.”³⁷

Heathrow has an Airport Transport Forum and there are references to its Surface Access Strategy in various documents though the Strategy itself has been difficult to obtain. BAA has set targets for increasing the proportion of journeys made to Heathrow by public transport and reducing the proportion by car but progress towards the redistribution of air passenger journeys from road to public transport has not impressed the London Assembly.

“3.13 Progress on increasing public transport mode share is slow; it increased just five percentage points over a five-year period (2003-2008), up from 35.5 per cent in 2003 to 40.4 per cent in 2008. Since then the mode share has increased approximately one percentage point each year, and is now around 42 per cent. The Committee acknowledges Heathrow Airport Ltd's early achievement of the target set in its Surface Access Strategy (SAS), to achieve 40 per cent of passengers travelling to and from the airport by public transport by 2012.”³⁸

Heathrow also has a workplace travel plan for airport employees and, at one time at least, this enjoyed a good reputation. References to it are made in a brief document, called Heathrow Commuter, jointly published by Business in the Community and BAA Heathrow in June 2011. This mentions “the airport's car share

³⁶ West London Sub-Regional Transport Plan

³⁷ Aviation Policy Framework, DfT March 2013

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/153776/aviation-policy-framework.pdf

³⁸ GLA, 2012, Plane Speaking: Air and noise pollution around a growing Heathrow Airport

http://www.london.gov.uk/sites/default/files/Heathrow%20airport%20-%20Final%20version_0.pdf

scheme, the largest in Europe, an Airport Travelcard that gives up to 50 per cent discount on rail/bus services, the only free bus/rail travel zone in the UK and 75 per cent discounted travel on the Heathrow Connect rail service' and a target of having 'no more than 65 per cent of airport staff coming in a single-occupied car by the end of 2012."³⁹

However, again it has been impossible to find a full version of the plan on the internet and, again, the London Assembly has been disappointed with Heathrow's performance.

"(The Committee) also notes the ten percentage point reduction in the number of staff travelling to work in single-occupancy vehicles. Presently 61.4 per cent of staff (less than the 65 per cent target set), travel to work in this way. However we remain concerned by the continuing slow trend in transfer to public mode share."⁴⁰

³⁹ Business in the Community and BAA Heathrow, June 2011, Heathrow Commuter - here to help staff make better travel choices.

⁴⁰ *ibid*

3. The consultation on Adding to Capacity at Heathrow

In the Future of Air Transport White Paper in 2003, the Government explained that any expansion in demand for surface transport to Heathrow would have to be met by public transport:

“Further expansion of Heathrow will place pressure on already congested road and rail networks. The Government has no plans for further motorway widening in this area beyond that which we announced in July 2003. The solution will need to be based on improvements to public transport, which is likely to require the airport operator spending several hundred million pounds on new rail infrastructure. The prospects for the introduction of some form of road user charging, either by means of charges to enter the airport or pricing across a wider area, should also be considered.”⁴¹

The White Paper stated that Government support for a third runway at Heathrow would depend on three conditions being met, the third of which was improvements in public transport access to the airport.⁴²

Five years later the Government consulted on various means of adding capacity at Heathrow including a third runway, making more use of existing runways through mixed mode or allowing taking off and landing on the same runways. These might permit 605,000 air traffic movements in 2020, rising to 702,000 in 2030, in the case of a third runway and around 540,000 in the case of mixed mode according to the method chosen.⁴³

In the consultation documents on Adding Capacity at Heathrow, the Government, having conducted what it called a ‘high-level assessment’ of possible changes in surface access demand, explained that, although public transport improvements would be necessary, some were already in prospect including improvements on the Piccadilly Line, the introduction of Crossrail and other rail, bus and coach improvements. It therefore concluded that “there is potential to meet the likely demand for public transport if a third runway is built” and went on to state that if the Government confirmed its support for a third runway “it would be for the airport operator, as part of a comprehensive transport assessment, to develop a surface access strategy as part of preparing for a planning application.”⁴⁴ It was later successfully argued in court that this abandoned the condition for Government support for a third runway (of improvements in public transport access) that the Government itself had set in the Future of Air Transport.

In a long, detailed and unusually critical response to Adding Capacity at Heathrow, supported by comprehensive technical notes including one on surface transport, TfL on behalf of the Mayor of London made clear its fundamental disagreement with the Government position.⁴⁵ It considered that the Air Transport White Paper’s third condition for Government support for a third runway had been “abandoned” and did not believe that, even with the improvements planned, public transport capacity would be adequate to meet the extra demand created by a third runway.

TfL’s response explained many “significant concerns regarding the robustness of the surface access forecasts” and found serious fault with the Government’s position on numerous critical surface access issues, for example:

- There were no meaningful proposals to improve public transport access to the airport beyond the schemes that had been planned and designed for a five terminal two runway configuration

⁴¹ The Future of Air Transport, 2003 White Paper

⁴² The Future of Air Transport, paragraph 11.62

⁴³ Adding Capacity at Heathrow, Consultation Document, DfT 2008

<http://webarchive.nationalarchives.gov.uk/20100202110633/http://www.dft.gov.uk/consultations/archive/2008/heathrowconsultation/consultationdocument/executivesummary.pdf>

⁴⁴ Adding Capacity at Heathrow Airport, Chapter 3, Heathrow in Future: Meeting the Environmental Tests

<http://webarchive.nationalarchives.gov.uk/20100202110633/http://www.dft.gov.uk/consultations/archive/2008/heathrowconsultation/consultationdocument/hcchapter3.pdf>

⁴⁵ Adding Capacity at Heathrow, The Mayor of London’s response to the consultation, February 2008

- There was no consideration in the consultation material of the road traffic congestion and public transport overcrowding that would result from the expansion proposal in the most congested quadrant of London's road network
- Inputs, such as population and job forecasts, were out-of-date and led to underestimates of traffic forecasts, vehicle emissions and increases in congestion
- It was questionable whether the DfT's traffic model complied with the DfT's own validation guidelines and was fit for purpose
- The limited information provided on public transport crowding in the consultation material was too focused on the area immediately around Heathrow and did not consider the wider network impacts
- The consultation document stated that with a third runway, Heathrow would use approximately 39 per cent of current tube capacity into and out of the airport but took no account of significant additional crowding towards inner London caused by this increase.⁴⁶ The increased unreliability of the Piccadilly Line, would deter passengers and encourage transfer to the highway network
- TfL calculations showed that in order to prevent an increase in the number of highway trips to Heathrow a public transport mode share of 70-73 per cent would be needed for the third runway option by 2030. But instead it was possible that the difficulty of serving six terminals by public transport would mean that public transport mode share would decrease and car use increase
- Robust modelling work had not been undertaken to examine additional levels of demand on the rail network. Heathrow Express was already running at maximum length with little scope to increase frequency and while Crossrail trains were unlikely to be full on leaving Heathrow they would be crowded by the time they reached major suburban stations such as Hayes and Harlington and Ealing Broadway⁴⁷

Following the consultation on Adding Capacity at Heathrow, and without responding to the Mayor and Transport for London's comments in any detail⁴⁸, the Government published a Decisions paper in January 2009 which declared that:

- The Secretary of State is satisfied with the Department's analysis that by 2020 there should be more than enough public transport capacity to meet peak hour demand for Heathrow
- The Department is clear that a detailed surface access strategy is not a prerequisite for a policy decision and would be a matter for the airport operator as part of a planning application in due course

The Secretary of State then confirmed Government "support for adding a third runway at Heathrow with additional passenger terminal facilities, but subject to an aggregate limit of 605,000 annual movements, which would be subject to review in 2020."⁴⁹

The legality of the Government's decision was challenged in the High Court the following year by a group of local authorities opposed to a third runway with Transport for London as an interested party. The judge agreed with the local authorities: contrary to the Secretary of State's claim, the Government's third condition for supporting a third runway (improvements to public transport access) had been not been met. The judgement also referred to fundamental weakness in public transport improvement plans and implicitly accepted that no adequate assessment had been made of public transport improvements to serve an enlarged airport.

92 "In my view the claimants' criticisms of the reasoning of this part of the 2009 Decisions are justified. I find it impossible to determine precisely what the Secretary of State ultimately understood to be the

⁴⁶ The figure of 39 per cent had already been accepted by the DfT which stated in a consultation document that "Under a third runway scenario Heathrow would use approximately 39 per cent of the current tube capacity into or out of the airport" though the situation would improve with the planned increase under the PPP. Adding Capacity at Heathrow Airport consultation, chapter 3, DfT, 2008

⁴⁷ Adding Capacity at Heathrow, The Mayor of London's response to the consultation, February 2008

⁴⁸ Final Judgement para.89, London Borough of Hillingdon and others v. Secretary of State for Transport, 2010

⁴⁹ Adding Capacity at Heathrow: Decisions Following Consultation. DfT, 2009

scope of the third condition, or what if anything he has decided about it. It is equally impossible to ascertain what if anything he has made of the points raised by Transport for London. It is difficult to see how a concluded view of any significance could be arrived at without addressing directly their concerns, as the responsible statutory authority. The most likely interpretation, as it seems to me, is that he has decided nothing of significance. He has implicitly recognised that this is an issue which can only be resolved at a later stage, in the context of a detailed strategy prepared by the operator as part of a planning proposal, including a commitment to expenditure ("several hundred million pounds on new rail infrastructure") as described in the ATWP.

93. "This conclusion is reinforced by some of the points made by Mr Chamberlain on behalf of TfL. I need only mention one. He says that the Secretary of State's reliance on the improvements already planned for the Piccadilly Line is based on a misconception that increased capacity is already committed. Planned improvements to that line are indeed expected to increase capacity by some 25 per cent, but growth in demand apart from the third runway proposal is estimated significantly to exceed that. So the pressure on the Piccadilly Line will be worse in 2020 than it is now, even without the third runway. Although I pressed Mr Swift (the lawyer representing the Secretary of State for Transport) on this point, he was unable to provide a convincing answer."⁵⁰

The judgement therefore accepted that no view of any significance could be arrived at without addressing the concerns expressed by Transport for London, that the Secretary of State had not addressed them and that therefore he had decided "nothing of significance". By implication, policy support for airport expansion at Heathrow should in future be based on detailed assessment of the surface transport implications.

The judgement frustrated the Government's intention of supporting a third runway but later in 2010 there was an election and the new Government was, at least for the time being, opposed to the expansion of Heathrow.

⁵⁰ Final Judgement, London Borough of Hillingdon and others v. Secretary of State for Transport, 2010

4. The latest Heathrow expansion proposal

Heathrow Airport Ltd has just submitted a new proposal for a third, and later possibly a fourth, runway to be considered by the Airports Commission.⁵¹ A third runway, it claims, would allow a total of:

- 570,000 ATMs and 100 million passengers per annum by 2030 and
- 740,000 ATMs and 130 million passengers per annum by 2040.

Even the smaller of these expansion proposals represents a substantial increase on the 2011 figure of 476,000 ATMs and 70 million passengers.

According to Heathrow Airport Ltd's proposal, improvements to public transport infrastructure will include Crossrail, Piccadilly Line upgrade and Western Rail Access (providing a rail connection to Reading, Slough and the Thames Valley), which are said to be 'committed' projects and High Speed 2 and Southern Rail Access (presumably Airtrack) which are not. Heathrow will continue to be served by Heathrow Express and Heathrow Connect. Heathrow Airport Ltd argues that together these will allow 15 million more passengers to use public transport to access Heathrow. Passengers travelling to the airport by public transport will increase from 19 million per year today to 34 million in 2030 and public transport's share of Heathrow journeys will grow from 40 per cent to 50 per cent. It will be possible, it is claimed, "to deliver a third runway without increasing airport-related traffic on the roads."⁵²

These claims will inevitably be contentious. As noted previously, background growth in public transport demand from London's increasing population and employment will take up much of any new capacity. Even if all the increases in public transport set out above were to take place it would still leave Heathrow passengers fighting for space on very crowded trains taking others to and from work or on other journeys. Additional capacity on the Piccadilly Line is likely to be absorbed by growth in transport demand unrelated to the airport. It is not certain that the second phase of HS2 will include a Heathrow spur or that a Southern Rail Access scheme will come to fruition.

These doubts point again to the overriding need to address surface access issues before aviation capacity increases can be considered. Claims about public transport and road shares of journeys and the absolute numbers of journeys made by each mode will need to be verified and measured against the capacities of the public transport and road networks.

Data about present and future capacity of the surface transport networks

Except for freight movements, an up-to-date figure for the number of journeys does not appear to have been available, or at least we have been unable to find it. The Heathrow Airport Interim Master Plan gives a figure of 112,000 vehicles entering Heathrow every day which includes those carrying air passengers, airport staff and vehicles supporting airport operations but the plan dates from June 2005. In an email of 3 July 2013, the Sustainable Travel Manager of Heathrow Airport Ltd expressed the view that "traffic movement is pretty constant so the figure of 112,000 as an approximation is not far off".⁵³

Despite being critical to the feasibility of any Heathrow expansion proposals, it appears that surface transport capacity has never been examined and assessed in the necessary detail.

Information about surface travel to Heathrow, present or prospective, is often provided as mode shares and percentages of journeys. It is not normally presented in absolute numbers of passengers and vehicle journeys, either for current or future travel patterns under different expansion proposals, so that these can be measured against present and future capacities, in absolute numbers of passengers and vehicles, of the

⁵¹ Airports Commission, Long-term hub capacity options. Heathrow Airport Ltd, July 2013

⁵² Airports Commission: Long-term hub capacity options, Heathrow Airport Limited response, 17th July 2013

⁵³ Email from the Sustainable Travel Manager, Heathrow Airport Ltd, 3 July 2013

public transport and road networks. It would appear that some information essential to a basic understanding of surface access issues is not even gathered. For example, Heathrow Airport Ltd has said:

“The total number of journeys into Heathrow by road and rail is slightly more complex as we do not directly capture this data and any figure would be factored from our mode share data.”⁵⁴

Where this information has been gathered it is not readily available.

Information about various aspects of surface travel should be gathered, where this has not already been done, and made available. This should include:

- Traffic volumes and capacity of the road network serving Heathrow
- Capacity of the public transport network serving Heathrow
- Present contribution of Heathrow and non-airport travel to passenger and vehicle volumes
- Anticipated growth in non-airport travel and its impact on road and public transport networks
- Current proposals for expansion of public transport and road capacity
- Additional demands in passenger and vehicle journeys on road and public transport networks from any Heathrow expansion proposals
- Any expansion required in public transport or road capacity to meet a proposed increase in airport-related demand

⁵⁴ Email from the Sustainable Travel Manager, Heathrow Airport Ltd, 3 July 2013

5. Conclusion

Adequate surface access assessments of Heathrow airport and the proposals for its expansion have yet to be carried out. The airport is located in the most congested quadrant of London's road network. The road and public transport infrastructure is under considerable stress and is set to become more stressed as London's population grows even if the airport is not expanded. Road journeys from London to the West Country and south Wales are already made more costly and unreliable by congestion on the country's main west-bound routes. Capacity created by expansion of the existing Piccadilly underground line and the construction of Crossrail will be quickly filled by the growth in employment and population in London and the areas around Heathrow. Even with Crossrail and without more runways at Heathrow, TfL predict that rail crowding in the Heathrow corridor will be worse in 2031.

Expansion of the airport in the middle of this high-pressure setting is under discussion again. The surface transport implications of expansion will have to be clearly explored and set out. When expansion at Heathrow was last backed by central government, the Department for Transport proposed to leave it to the planning process to deal with how passengers, employees and indeed freight would travel to and from an expanded Heathrow. Now in 2013, Heathrow Airport Ltd in its latest proposal leaves it to others to deal with the effects of expansion and presumes that all rail and tube projects will go ahead and that passengers travelling to and from the airport will effectively have priority over others on London's crowded trains and tubes.

Heathrow is a difficult site to serve by public transport and TfL predicted that more runways and terminals would make serving it by public transport more difficult. In contrast to Heathrow Airport Ltd, the evidence from TfL's professional transport planners is that access by public transport as a share of all journeys would go down with expansion. Expanding capacity on the road network would not be feasible due to its layout and the environmental implications. Previous capacity increases have not brought significant, if any reductions in congestion.

How people arrive in London matters. Both tourists and businesspeople are attracted to London as a world city. But expanding Heathrow risks bringing the road network, including the M4 and M25, to a standstill and producing conditions on public transport that would not be acceptable. Tourism and business would be seriously harmed if trains do not have the capacity to cope. Those promoting expansion at Heathrow claim that London's economy would benefit. But the difficulties of surface access to the airport and the costs from road congestion and overcrowding on public transport that would result, would be likely to outweigh any benefits.

Whether it is possible to provide for the surface transport needs of Heathrow under different proposals for its aviation and air passenger capacities is a question that must be considered and answered before those capacities themselves are determined.

September 2013

Richard Bourn
Campaign for Better Transport

Campaign for Better Transport's vision is a country where communities have affordable transport that improves quality of life and protects the environment. Achieving our vision requires substantial changes to UK transport policy which we aim to achieve by providing well-researched, practical solutions that gain support from both decision-makers and the public.

16 Waterside, 44-48 Wharf Road, London N1 7UX
Registered Charity 1101929. Company limited by guarantee, registered in England and Wales: 4943428