

# Report for CPRE North West

## Analysis of the Manchester “Airport City” Enterprise Zone

Metropolitan Transport  
Research Unit

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# **Analysis of the Manchester “Airport City” Enterprise Zone**

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## Executive Summary

### Introduction

MTRU has been commissioned by CPRE North West to undertake an analysis of the outline proposals for an Enterprise Zone (EZ) at Manchester Airport, often referred to as “Airport City”. Although out for consultation, many of the details, including much of the land area, the mix of uses, and proposed conditions (if any), such as parking, are not available. To inform CPRE’s response, MTRU has reviewed the proposal under three main headings: economic impact, transport impact, and carbon impact. To understand the first two, an analysis of the true picture of aviation use at the airport over the last decade has also been set out. Finally, an initial assessment of the potential impact of HS2 Phase 2 has been included.

### Economic impacts

Using the consultation document, the experience of previous EZs, and parallel case studies, it is possible to review the likely economic impact of such a proposal. There is a strong likelihood, on the evidence so far, that development which would have gone elsewhere in the region, or already exists, may be attracted by the EZ. This effect, known “abstraction” means that jobs are not created but relocated.

The idea of attracting internationally mobile companies into the EZ which would otherwise locate elsewhere in Europe is not supported by any specific evidence in the consultation document.

The MAC-DIF and Manchester LDF do not target such uses, but rather propose a wide range of B1 uses (offices and light industry) such as are found on any Business Park. Even if they were to seek to narrow the range, the evidence is that they would not be able to prevail against commercial pressures.

The LDF and the City Council’s proposals for an EZ both involve much larger areas of land than the ‘Airport City’. However, the criteria for EZs require additionality, which means that the businesses catered for must be of kinds which would not be attracted by other existing locations.

Airport city developments elsewhere are mostly non-subsidised (apart from Bremen) and open market competition for land has tended to encourage airport-related uses.

Some other airports (Notably Zurich and Frankfurt) have created higher density airport-city development by minimising the land take of parking. This does not appear to be the intention in this case, and, even if it were, may not be possible if land use planning controls are removed.

The EZ location is within current Green Belt, which means there has to be some over-riding need which cannot be met in other ways. This has not been demonstrated.

The benefits to urban regeneration of Wythenshawe do not depend in any major way on the proximity of the Airport and associated developments, but rather on the efficacy of a wide range of other measures, particularly social mobility and training.

## **SEMMMS and highway schemes**

It is interesting to note that, while the aviation and traffic forecasts were out of date almost as soon as they were completed, the SEMMMS strategic framework, which in turn has underpinned the Local Transport Plan, is still of value. In particular, the clear links it makes between levels of demand, land use planning, and parking limits, continue to be highly relevant.

In fact, quite a number of initiatives have proceeded without the road schemes, and the core justification for them, that congestion would grow if they were not built, has faded as traffic has stabilised and fallen (not only as a result of the recession).

The am peak journey time surveys, undertaken as part of LTP monitoring, show a 5% improvement over the last five years. This covers all modes on a sample of 15 target routes. This suggests that the deterioration in journey time in the SEMMMS analysis, itself predicated on rising levels of traffic, has not and will not occur. This in turn means that the economic benefits, based on saving time, will not occur either.

Overall the SEMMMS highways schemes analysis has been overtaken by events including the success of many of the LTP actions in increasing the attractiveness and use of sustainable modes.

Resurrecting the scheme as part of a car intensive Enterprise Zone would undermine this success rather than supporting it. Such an approach would be against what is set out as the overall SEMMMS transport and land use strategy.

## **Aviation at Manchester Airport**

Passenger use at the airport has fallen over the decade, to 17.6 million in 2010, while other regional airports, despite the recession, are carrying more people than ten years ago. Use grew more slowly and has fallen more quickly than its regional neighbours.

Forecasts for Manchester based on the 2003 Air Transport White Paper are so high compared to current levels that they are no longer credible – a more than doubling of passengers in four years would be needed to achieve the 2015 forecast of 38 million.

The discrepancy between the forecasts in the ATWP and the actual passenger numbers set out in this report is immense. In 2010, for example, they were 22% lower than forecast in the ATWP (210 million instead of 270 million). The factors underlying growth, such as moderate oil prices, cross subsidy from business travel and the assumed consistent rise in disposable income, no longer apply.

Freight use has held steady over the period, and is regionally significant, although the big winner has been East Midlands airport, also owned by Manchester Airport Group. Between them, they carry the vast majority of freight outside London and the South East.

While some aspects of aviation are business related, passenger growth has been in the leisure market, which has a significantly negative impact on the national and regional economies.

## **Transport to and from Manchester Airport City compared to the city region**

Mode split for passengers is dominated by car and taxi, at 87%. For staff, the modes other than car amount to about 20%, despite active attempts to make travel to work more sustainable. This is expected to improve by between 4 to 8% when the new Metrolink extension is built.

Elsewhere in the city region mode split has been moving towards the sustainable modes of public transport, walking and cycling. In the city centre non-car travel in the AM peak is 69%. However, other centres have also made progress, the nine major centres in the city region averaging non-car travel at 48%.

This reflects the fact that the airport is not a surface transport hub, although it may be an aviation hub and it also has a direct motorway link. However, the key rail link is radial to the city centre. Rail links from other towns and cities from all directions come into the city centre before they are able to travel to the airport. Nearby centres through which they pass, such as Stockport, have no direct rail or rapid transit links to the airport for employees.

To be a hub the airport would have to be connected in a way that is not only multi-modal but multi-directional. This is not currently the case for public transport. For walking and cycling the key is to have people living close enough for these modes to be attractive. Airports by definition have to be some distance from populations and the impact of this is confirmed in the very low walk and cycle share of staff travel to the airport (1% and 2-3% respectively).

No plans are set out for improving this situation, although some mention is made of the SEMMMS road link. The forecasting and modelling for this has been difficult to access except in hard copy. It is clear that it is now out of date and not be relied upon. Work is being undertaken to update this, but results are not expected until later this year.

The overall conclusion is that travel to this site would continue to have far lower share of sustainable modes than other sites throughout the Manchester city region. There appear to be many such sites available.

## **Environmental impact of the EZ**

### ***Carbon***

The lack of up to date traffic generation forecasts and specific plans from the EZ promoters mean that detailed environmental or congestion impacts cannot be made at this stage. However, the promoters have given general forecasts for employment of between 7,000 and 15,000, and these can be used to calculate additional car journeys per job from the airport site compared to other centres in the city region.

In turn these can use Government figures for fuel use and costs to produce a minimum estimate of what additional carbon is produced. This includes an optimistic view that all car use will be zero carbon by 2050. While other pollutants may have local health effects, climate change impacts depend upon total amounts, wherever it is emitted. Thus we did not need to know where on the network it was produced. This would require more detailed knowledge of the airport plans.

This reveals significant increases in terms of passenger transport emissions, even at an extremely low trip rate per employee and assuming that the challenging targets for vehicle efficiency are met.

Any large scale activity which involved retailing or other high generation activities such as freight would rapidly escalate the carbon and other environmental and congestion costs.

Considering the clear possibility of abstracting retailing from other parts of the city region the fact that the low trip rate produces such significant disbenefits is a major concern since it contradicts the Government's key policy on addressing climate change and means the EZ cannot in its current form be described as sustainable.

### ***Other environmental issues***

The airport has been located in the Green Belt and has been allowed to expand in order to cater for airport related activities. Areas around the airport rapidly become rural in character, and there are some environmental issues on sites currently proposed immediately north of the airport which need to be fully investigated.

Given that air pollutants other than carbon are bound to increase, even if their precise impact on numbers of people is not known, it would be wrong to describe the location of large numbers of non-airport related jobs at this site as sustainable.

### **Potential impact of HS2**

#### ***In relation to an airport parkway station:***

By delaying or diverting trains services to the city centre, and not integrating with the rest of the region's public transport network, a parkway station would undermine the local objectives for sustainable growth in the region.

It would contradict the stated aims in the HS2 consultation document of providing an alternative to air and car travel

A parkway station is unlikely to be part of the final proposals and would weaken the overall economic case for the EZ.

#### ***In terms of other rail proposals***

The Northern Hub improvements will bring significant benefits to the region's rail network, but will not make the airport more accessible by sustainable modes.

### **Overall**

All the indications are that the proposed EZ would be a far less sustainable site than other locations for development. Without a clear statement on the extent of the EZ, apart from the part to the north of the airport, a full impact assessment cannot be carried out.



# 1 Economic Impact of Manchester ‘Airport City’ and Enterprise Zone

## Introduction

- 1.1 The overall aim of the Study is summarised in the Brief from CPRE North West, as follows:
- a) Whether there is in fact a robust case for basing a Strategic Employment Location or an Enterprise Zone at Manchester Airport, and
  - b) What the economic, transport and carbon implications for Manchester and the wider region are likely to be if it goes ahead, taking into account the current uncertainties as to the eventual size of the Enterprise Zone and the planning regime within the zone.
- 1.2 This Section focuses on the economic case and the economic impacts of the Manchester ‘Airport City’ and Enterprise Zone (MAC&EZ) in that context. It maps onto the set of tasks in the proposal from the Metropolitan Transport Research Unit (MTRU) as follows;
- a) The impact of Enterprise Zones in the past and elsewhere, assessing how these might apply in the current context of the Manchester proposals;
  - b) The case for and against the location in the strategic economic and spatial context of the wider city region;
  - c) The economic and employment impacts of the proposal, particularly the additionality and scale of economic benefit, and how this is reduced by impacts elsewhere.

## The impact of Enterprise Zones

### The original Enterprise Zones

- 1.3 Enterprise Zones (EZs) were first proposed by Peter Hall in the mid 1970s, drawing inspiration from the apparent success of ‘light touch’ regulation in places like Hong Kong. The concept was introduced in the UK by the Thatcher Government immediately after its election in 1979. The intention was to encourage new enterprises in depressed urban areas by removing normal planning controls and giving a 10 year holiday from local rates. Eleven enterprise zones were designated in 1980 and a further thirteen in 1982. A number of other countries in the developed world followed suit – notably in parts of the USA and in France – though the idea has not been a major feature of policy in advanced industrial economies since the mid-1990s.
- 1.4 Key points from the evaluation of the original programme of EZs in the UK are summarised below<sup>1</sup>:
- a) Nearly 126,000 jobs were located in EZs by 1990, 58,000 (46%) of which were additional; additionality was highest for manufacturing, lowest for retail and distribution<sup>2</sup>;
  - b) The cost per additional job, discounted to the year of take up, was £2,100 pa; on the standard assumption of a 10-year job life the cost per job was £21k at 1994/5 prices<sup>3</sup>;
  - c) Firms expected to lose on average 4% of employment on ending of EZs;
  - d) Landlords took advantage of rates relief (46% of total EZ costs) by raising rents: some businesses got as little as 10% of the net benefit (and the highest was only 55%);

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<sup>1</sup> ODPM (archived) *‘Urban Research Summary No 4 1995: Final evaluation of Enterprise Zones’*  
<sup>2</sup> office uses were not common on these EZs, and no evaluation is reported for this component  
<sup>3</sup> £37k per job in 2011 prices

- e) Much of the investment attracted to EZs by capital allowances (45% of total EZ costs) took the form of shares in property rather than in productivity (– 75% towards the end);
- f) While infrastructure and land acquisition accounted for only 9% of total EZ costs, about 80% of the available land was used in the EZs' lifetimes;
- g) Rates relief was the most important attraction factor, followed by capital allowances, the planning regime, and improvements in the environment;
- h) The leverage of private by public investment was in the ratio 2.3:1.

1.5 EZs were tried in the Greater Paris region from 1997 as a means of tackling high and persistent unemployment levels in certain deprived neighbourhoods. This worked by remission of payroll taxes, provided at least 20% of workers were recruited from the locality. A recent evaluation report<sup>4</sup> concluded that there was only a short-term impact on unemployment, and this impact had dissipated after about 6 years. This was a more limited and targeted approach than in the UK, and so of limited direct relevance.

### The current round of EZs

1.6 In the 2011 budget the Chancellor announced that 21 new EZs would be created in England. 11 broad locations have been identified, and bids invited for the remaining 10. EZs are described as being between 50 and 150 ha in extent. Four EZs are to be pathfinders, and the Manchester Airport City is the nucleus for one of these. Enterprise Zones will benefit from<sup>5</sup>:

- a) A business rate discount (up to £275,000 per eligible business over a five year period);
- b) All business rates growth within the zone for a period of at least 25 years will be retained by the local area, and shared to support the Partnership's economic priorities and ensure that benefits from Enterprise Zone growth are reinvested locally;
- c) Government help to develop radically simplified planning approaches for the zone using, for example, existing local powers to grant automatic planning permission;
- d) Government support to ensure that superfast broadband is rolled out throughout the zone, achieved through guaranteeing the most supportive regulatory environment and, if necessary, public funding.

1.7 Government has also committed to work with Local Enterprise Partnerships on additional options, to suit local circumstances, including consideration of:

1. Enhanced capital allowances (instead of business rate discounts) for plant and machinery, in a limited number of cases, where there is a strong focus on manufacturing;
2. Tax Increment Finance to support the long term viability of the area;
3. UKTI support for inward investment or trade opportunities in the zone.

### Purpose of the current EZ proposals

1.8 The original EZs from the early 1980s had quite limited objectives: to create jobs. Regional policy of the time was that *"employment imbalances between areas should in principle be corrected by the natural adjustment of labour markets"*<sup>6</sup>. The purpose of regional

<sup>4</sup> L. Gobillon, T. Magnacy, H. Selodz (2010) *'Do unemployed workers benefit from enterprise zones? The Greater Paris experience'*, University of Paris Economic Paper

<sup>5</sup> Report of Chief Executive to MCC Executive, 6 April 2011

<sup>6</sup> Dept of Trade & Industry (1983) *'Regional Industrial Development'*

industrial policies, including EZs, was to create local jobs that would ameliorate the harsh social impacts of this process.

- 1.9 The Government's 'Prospectus for EZs'<sup>7</sup> makes clear that the current round of EZs has a wider and more demanding set of economic purposes than the originals. In particular the intention is to help generate structural changes in the local economy. This will require:
- a) A focus on **genuine economic opportunity**, to maximise benefits to the wider area;
  - b) Seeking **long-term viability**, beyond the life of the business rate subsidy;
  - c) A **strategic fit** with economic priorities across the wider area;
  - d) **Minimising displacement** from other parts of the local economy.

## The strategic economic and industrial case

### Requirements

- 1.10 It is clear from the foregoing that the EZ component of the MAC&EZ proposal will need to pass a searching examination to establish that it:
- a) Meets the Government's economic objectives for the current round of EZs; while
  - b) Avoiding the pitfalls identified by the research on the original EZs.
- 1.11 Current economic and spatial planning policies are such that the 'Airport City' proposal needs to meet the same economic objectives as those set out for the EZ. Because of its location in Manchester's rural fringe (and mainly in the Green Belt) it must also meet the broader environmental and spatial planning objectives for the area.

### Key issues:

- 1.12 **The relationship to the wider local economy**, in particular:
- a) Does the proximity to the airport of Airport City and EZ confer such significant competitive advantages that it will attract businesses which would not otherwise come to the LEP<sup>8</sup> area (**'additionality'**)?
  - b) Given the light touch planning regime in Enterprise Zones, some 'by-catch' is inevitable: so how much **displacement** of activity will there be from other parts of the local economy?
  - c) How far could (and would) Manchester City Council and Manchester Airport as public landlords compensate for weak planning controls in terms of fostering additionality and limiting displacement?
- 1.13 **The scale of the proposal relative to levels of strategic need and market demands.** The current Airport City strategic site is about 32 ha, described as the 'core' of the potential EZ, which is in the size range 50-150 ha. This scaling up raises further concerns:
- a) Is there sufficient demand from targeted uses for the additional space not to exacerbate concerns about additionality and displacement. This is a serious risk given the scale of existing office vacancies in the Greater Manchester area<sup>9</sup> and of vacant brownfield land in the North West<sup>10</sup> ?

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<sup>7</sup> DCLG (2011) '*Enterprise Zone Prospectus*'

<sup>8</sup> given the far-reaching claims for extensive economic linkage, the 'local economy' must include at least the southern part of the conurbation and the north Cheshire fringe

<sup>9</sup> Some 8 million sq ft, see: Estates Gazette Research, <http://www.estatesgazette.com/blogs/focus/2011/03/egi-research-how-the-regional-cities-compare.html>

<sup>10</sup> 8040 hectares, 24% of the England total. For example see: [http://www.lancashire.gov.uk/office\\_of\\_the\\_chief\\_executive/lancashireprofile/main/brownfield.asp](http://www.lancashire.gov.uk/office_of_the_chief_executive/lancashireprofile/main/brownfield.asp)

- b) How far would the extension dilute the influence of public bodies on inappropriate tenancies by increasing the proportion in private ownerships?
- c) How far can the extension from 'Airport City' to EZ be accommodated in the locality without serious impact on environment and Green Belt?

1.14 **The balance between financial costs and economic benefits**, responding to concerns raised in the evaluation of the previous round of EZs:

- a) The cost per job was high (£37k at 2011 prices), which is of particular concern given the high proportion in retailing, which displaces activity within the local economy<sup>11</sup>;
- b) The business rate discount is the only Treasury input to EZs<sup>12</sup>, so the high proportion that accrued to the landlord rather than the occupying business is a cause for concern in terms of current economic policy aims;
- c) A similar concern is that the investment incentive was so heavily skewed towards property rather than production;
- d) It is possible that, as public landlords, the Greater Manchester Authorities and the Airport would put more resources into improving infrastructure and environment than in the first round EZs, but given the other pressures on them this can by no means be certain (the Blythe Valley Park example, discussed later (para 1.28), gives little cause for optimism).

1.15 Finally, there are the broader spatial strategy questions of social and environmental costs, including the effect on travel demand, carbon emissions, urban regeneration and Green Belt (travel demand and carbon emissions are dealt with separately).

#### **Relationship to the wider local economy**

1.16 The chain of reasoning for the development, as set out in the Manchester Airport City Development & Infrastructure Framework (MAC-DIF)<sup>13</sup> is essentially that:

- a) There are specific high value added uses for which the connectivity offered by a site directly linked to an international airport is critical to competitiveness;
- b) Such uses are internationally mobile, so that if Manchester does not offer a suitable location they will go elsewhere (Amsterdam, Barcelona and Dusseldorf are mentioned);
- c) Such uses would utilise the strengths of the Greater Manchester knowledge economy<sup>14</sup>, thus contributing 'cluster' benefits of competitiveness and productivity<sup>15</sup> to South Manchester, the City Region, and beyond;
- d) There would be employment benefits to depressed neighbourhoods in the vicinity (particularly Wythenshawe) as well as a stimulus to Manchester City Centre and the connecting corridor.

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<sup>11</sup> Some of the largest developments in EZs were out-of-town shopping (eg Gateshead Metro Centre, Merry Hill in Dudley and Meadowhall in Sheffield/Rotherham), which had severe impacts on other shopping centres over a wide area. The CLG Guidelines (para 1.9) seem designed to avoid a repeat of this, but past experience (see later) suggests that such policy restraints can be feeble in the face of commercial pressures to recoup investment

<sup>12</sup> HMT (2011) *'Budget Policy Costings'*

<sup>13</sup> Drivers Jonas Deloitte (30 March 2011) *'Manchester Airport City Development & Infrastructure Framework'*

<sup>14</sup> Specific sectors referred to in MAC-DIF include financial and professional expertise, creativity in digital and new media; life sciences and healthcare; advanced manufacturing, digital/communications and business tourism

<sup>15</sup> as consistently endorsed by UK Government policy since Michael Porter's seminal work *'Competitive Advantage of Nations'*, Free Press, 1990

- 1.17 The validity of this chain of reasoning is heavily dependent on the first link: if the prevalence of ‘airport critical’ uses is limited, or their airport connectivity criteria are less exacting (e.g. a need to be within 15-30 minutes travel rather than physically contiguous), much of the cogency of the subsequent links falls away.
- 1.18 A further issue concerns the wider benefit to the local economy, which depends on the linkages between these ‘airport critical’ uses and other businesses in the Greater Manchester area. Clearly the kind of economic benefit sought requires uses with strong functional linkages both to the Airport and to the local economy. This might be quite a limited niche.
- 1.19 In contrast, the list of potential occupiers put forward in the MAC-DIF (page 9) is curiously broad and all-encompassing:
1. **co-located logistics** – *the expansion of the World Freight Terminal to provide accommodation for freight forwarders, integrators and other types of Airport logistics businesses;*
  2. **business space** – *high quality office accommodation, advanced manufacturing; R&D and health related uses attractive to global businesses looking for an integrated service offer;*
  3. **science and research** – *including companies and international corporates looking for north west representation in the marketplace; and*
  4. **land for other uses** – *further hotel development, ancillary leisure/retail uses and residential development, to service and support the enlarged workforce, passengers and delivery of the Airport City.*
- 1.20 For evidence in support of the economic importance of Airport City, MAC-DIF quotes the Manchester Independent Economic Review (MIER) as saying it is “...critical for [the Manchester City Region’s] aspirations of becoming a truly global economy...”, and that “...in comparison to other leading European airports, the potential to maximise opportunities for development, e.g. through exploiting and growing the adjoining Manchester Business Park, has not been fulfilled”. ‘Manchester Business Park’ is in fact the ‘other half’ of the ‘Airport City’ site, sandwiched between the Airport access road and Wythenshawe. Two comments are appropriate at this point, and will be picked up later:
- a) It is notable that Airport City is given only as an example of a relevant development; and
  - b) Though all loosely part of the ‘knowledge economy’, none of the three occupants of the existing Business Park<sup>16</sup> have an obvious need to be *on* rather than *accessible to* an Airport.
- 1.21 Surprisingly in the light of the weight placed upon the MEIR here, the accompanying report on ‘Innovation, Trade and Connectivity’<sup>17</sup> makes no reference to particular sites, or the Airport, but stresses rather the importance of linkages between businesses throughout the city region. In this respect it follows the well established ‘cluster’ literature already referred to.
- 1.22 No evidence is offered on the extent to which jobs at ‘Airport City’ (or the EZ) might be additional, in any of the senses of that word. The figures quoted in the documentation

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<sup>16</sup> Ericsson (telecom network equipment and services), Regus (international office brokers), PZ Cussons (head office for international soap/spa brand which manufactures in Salford)

<sup>17</sup> Volterra Consulting (2009) ‘Innovation, Trade and Connectivity’, report to Manchester Independent Economic Review

appear to be no more sophisticated than the ultimate amount of floorspace multiplied by an average employment density for Business Parks.

### Conclusions on the strategic economic and industrial case

- 1.23 We are driven to the conclusion that the 'Airport City' label is better seen as branding for marketing a development opportunity than as a specification for a targeted economic development measure. It is clear that the potential for displacement of activity from elsewhere has played little part in the specification of the development or the targeting of occupiers. It would therefore be difficult to substantiate a case that all or even most jobs on site are additional.
- 1.24 At best, any economic benefit would come from the increase in choice of Business Park style locations in the wider area. Given the range of such property already available in the area this benefit would be modest; against it must be set the disbenefits of displacement from locations better able to contribute to economic agglomeration and urban regeneration, and the impact on transport demand, environment and Green Belt. The comparisons between Manchester and other European airports in Annex A adds powerful support to the general strategic conclusion that development at Airport locations is best focused on activities with a stronger functional relationship than is proposed at Airport City.
- 1.25 The same objections apply with even more force to the proposed Enterprise Zone.

### Economic and employment impacts of the MAC&EZ

#### What would be the effects of going ahead with MAC&EZ?

- 1.26 There have been many attempts to capture the elusive prize of a strengthened local economy with airport-related development projects. However, even where serious attempts have been made to target those businesses with a particular need for air connectivity, the end result has been just another out-of-town Business Park (see Figure 1). Other sites, less damaging and better-integrated with the urban area, could have been found for the bulk of the uses that have been attracted to these locations.

#### Figure 1: Airport-related sites that became out-of-town Business Parks

##### Birmingham Business Park

Located just to the North of Birmingham Airport, this 60 ha site was planned in the early 1980s as a response to the perception that the West Midlands in general (and the conurbation in particular) had virtually no sites suitable for modern high tech businesses. In order to prevent undermining urban regeneration, a condition restricted occupation to companies engaged in specific high tech activities:

*"... scientific, commercial or industrial research and development; the production of any electronic or associated system, including fibre optics, view data systems, integrated circuitry, radio and telecommunications equipment, satellite equipment, robotics, computer aided design; micro-engineering and micro-electronics; or research and development or production in the field of biotechnology and pharmaceuticals)"*

This was found to inhibit development, and was overtaken by the creation of the B1 Use Class, which combined office and light industry classes, ostensibly to meet the requirement of high tech companies. It was recognised by the LPA (Solihull MBC) that unless modified, this would allow 'pure offices' to occupy the whole site, both frustrating its prime purpose and undermining office development in main centres. In 1990 Solihull therefore varied the condition to read:

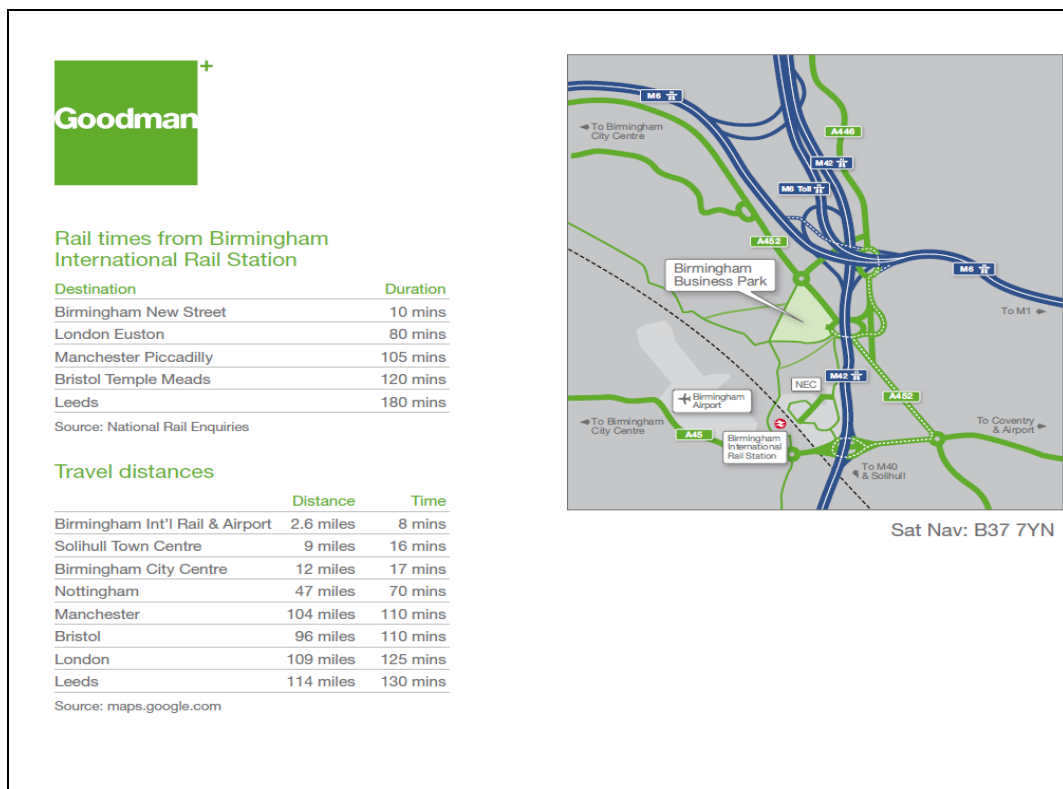
*"The buildings erected pursuant to this permission shall be used only for top quality industrial research or office uses falling within Class B1 of the Town and Country Planning (Use Classes) Order 1987, and in accordance with the requirements of PPG10".*

This attempt to limit the development of the site to purposes conforming to the strategic economic requirements of the conurbation has failed. It is evident from the list of current tenants of Birmingham Business Park that efforts to restrict uses in this way have failed, and the site is now fully occupied, virtually entirely by 'pure office' users. There are now about 100 firms on the site, the most prestigious include Orange, Beiersdorf, Hewlett Packard and Fujitsu.

There is already planning consent to develop further office accommodation on the site but in October 2010 Solihull Council gave consent a further 370,000 sq ft of industry / warehousing to 'widen the range of uses'.

Goodmans, the developer and manager of Birmingham Business Park, is also responsible for Manchester Business Park.

**Figure 2: Location of Birmingham Business Park<sup>18</sup>**



1.27 The wider lesson from the brief history of Birmingham Business Park is that office uses tend to crowd out high tech industries. The reason is that rental levels on such business parks are at the upper end of the spectrum for industrial users, but more mid-range for office users. In theory planning controls could discourage 'pure' offices', and the high rental levels might then select for industrial firms that really need the advantage of airport proximity. However:

- a) This implies more detailed control than the Use Classes Order (both light industry and offices are in Class B1), which would be entirely contrary to the spirit of EZs;

<sup>18</sup> Birmingham Business Park brochure

- b) Experience suggests that the planning system is unlikely to succeed in reserving sites for particular uses<sup>19</sup> against pressure from the property industry to achieve commercially advantageous lettings.

1.28 Would public ownership help override the market forces tending to general Business Park development? The environs of Birmingham Airport also offers an example of where this approach also has been tried – and failed (Figure 3).

**Figure 3: Can public ownership help secure strategic objectives?**

**Blythe Valley Park**

Another site near Birmingham Airport, Blythe Valley Park, was designated as a Premium Industrial Site as a result of the Secretary of State's Strategic Planning Guidance to West Midlands conurbation planning authorities (PPG 10, 1987). This site of some 50 ha was released from interim Green Belt status, and given planning permission in 1990 subject to the type of condition outlined above.

In this case, the fact that the LPA was a significant landowner was felt would reinforce the limited scope of planning controls (post B1) with the ability of the landlord to select developers and tenants. However, although the quality of development is undoubtedly much higher than at the earlier Birmingham Business Park, the occupiers are not in sectors for which an airport location offers obvious advantages. The site literature emphasises neither high technology nor closeness to the Airport: the focus rather is on prestige, attractive environment and on-site leisure and hospitality – general aids to recruitment of staff to an out-of-town location.

What has happened is that the financial realities of a large-scale development of this kind have overtaken the policy purpose. The infrastructure costs of Blythe Valley were very high (e.g. access to the M42 requiring a new bridge and extensive Motorway junction remodelling), while projects qualifying in policy terms are both rare and sporadic. The pressure to make some return on this outlay were not resisted.

There are now 10 major tenants on the site, which is about 30% developed. The largest occupiers are Infor and Oracle (both international business software and consulting companies) and the engineering consultancy Arup. Other tenants are mainly in various areas of business services (e.g. law, wealth management, and office space procurement). None are of a scale, or in a niche, that would suggest that access to the Airport is critical to their role in the local economy.

Although Goodmans is not developer and manager (as at Manchester and Birmingham Business Parks), it has a large office on site.

1.29 The Blythe Valley example suggests that even where there is a clear, high level policy from Government, the pressures on local authorities to recoup significant infrastructure investment will be high. If that was the case in the 1990s, it can be expected to be even more powerful in current and prospective conditions – particularly at a time when planning policies are given little weight against market pressures, and more particularly still in an EZ. The expectation must be that the occupants of the MAC&EZ will be businesses whose common characteristic is willingness to pay a premium for a prestige location, rather than the much more select group that would add significant value to the wider local economy by virtue of the location.

**Strategic impacts in the North West**

1.30 Though similar in scale and industrial structure, the situation regarding strategic sites in the North West differs in some respects from the West Midlands:

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<sup>19</sup> success at appeal is more likely on grounds of harm done than on grounds of waiting for a better alternative



- a) Historically there has been a much greater overall supply of land, and in particular of large, well-located strategic industrial sites<sup>20</sup>.
- b) Its industrial and social history has led to there being more large brownfield sites within the urban area and a looser Green Belt.
- c) Being further from the competition of London, Manchester Airport is larger than Birmingham and serves a wider range of destinations.

1.31 The issue of an appropriate supply of strategic sites in the North West has been a major topic of consideration for some decades. Some key points relevant to the present case are:

- a) In 1993 the North West Regional Association (NWRA) envisaged strategic concentration of resource and effort on ‘flagship’ sites, capable of attracting Foreign Direct Investment (FDI) in HQ functions, high technology and special uses (including those linking to the airport, higher education and R&D). 3 or 4 sites would be identified for use up to 2000, with a similar number planned for 2000-2010;
- b) In 1996 Regional Planning Guidance (RPG) from the Government Office set criteria and asked NWRA to produce a prioritised list. In the event it produced a non-prioritised list of some 60 sites;
- c) When the NWDA was set up in 1999, one of its first acts was to propose a more focused set of 11 immediate priority sites, followed up in 2001 by a forward programme of 14 more. These 25 sites (in total about 2200 ha, about 40% greenfield) were to be the focus of its own use of resources over the next 20 years, and constituted its ‘bid’ into the regional planning process;
- d) At the Regional Spatial Strategy (RSS) examination NWRA and NWDA put forward joint evidence in support of these sites, but the final RSS (2008) stopped short of identifying specific locations. However, it established a set of criteria for the location of major economic development, which (in the view of the EIP Panel) the airport would not meet<sup>21</sup>;
- e) NWDA nevertheless reviewed the strategic sites in order to guide its own priorities (including for ERDF funding). The review, published in May 2010<sup>22</sup>, produced a list of 36 sites (Table 1 – though several are broad locations or centres).

**Table 1: Strategic Sites and their purposes (NWDA, 2010)**

<b>Regional Strategic Site</b>	<b>Brief economic purpose</b>
Alderley Park, Macclesfield	Life Science Research & Development
Ashton Moss, Tameside	Deliver Employment in east Greater Manchester
Bailrigg, Lancaster	Computing and ICT. Knowledge Industries spin out
Barton (Port Salford)	Modern inter-modal exchange – logistics and strategic freight
Basford, Crewe	Flagship scheme for South Cheshire – railway and engineering
Birkenhead Docks, Wirral	Mixed Use housing knowledge and port related development
Central Bolton	Create a High Quality environment to attract knowledge industries
Carlisle City Centre	Focus for Economic Growth
Central Chester	Promote knowledge-based activity
Central Park, Manchester	Attract Knowledge based industries in a priority Regeneration area
Cuerden, South Ribble	Generic manufacturing; links with aerospace; knowledge industries

<sup>20</sup> A review carried out by NWDA in May 2010 identified 36 (20 retained from the previous list (and 5 deleted) plus 16 new sites – see Table 1) compared with about 15 in the West Midlands.

<sup>21</sup> RSS policy W2 and Panel Report paras 5.41, 5.42, 4.68, 7.48.

<sup>22</sup> Lambert Smith Hampton Property Solutions and Ekogen (May 2010) ‘Market outlook for strategic regional sites’, Report for NWDA

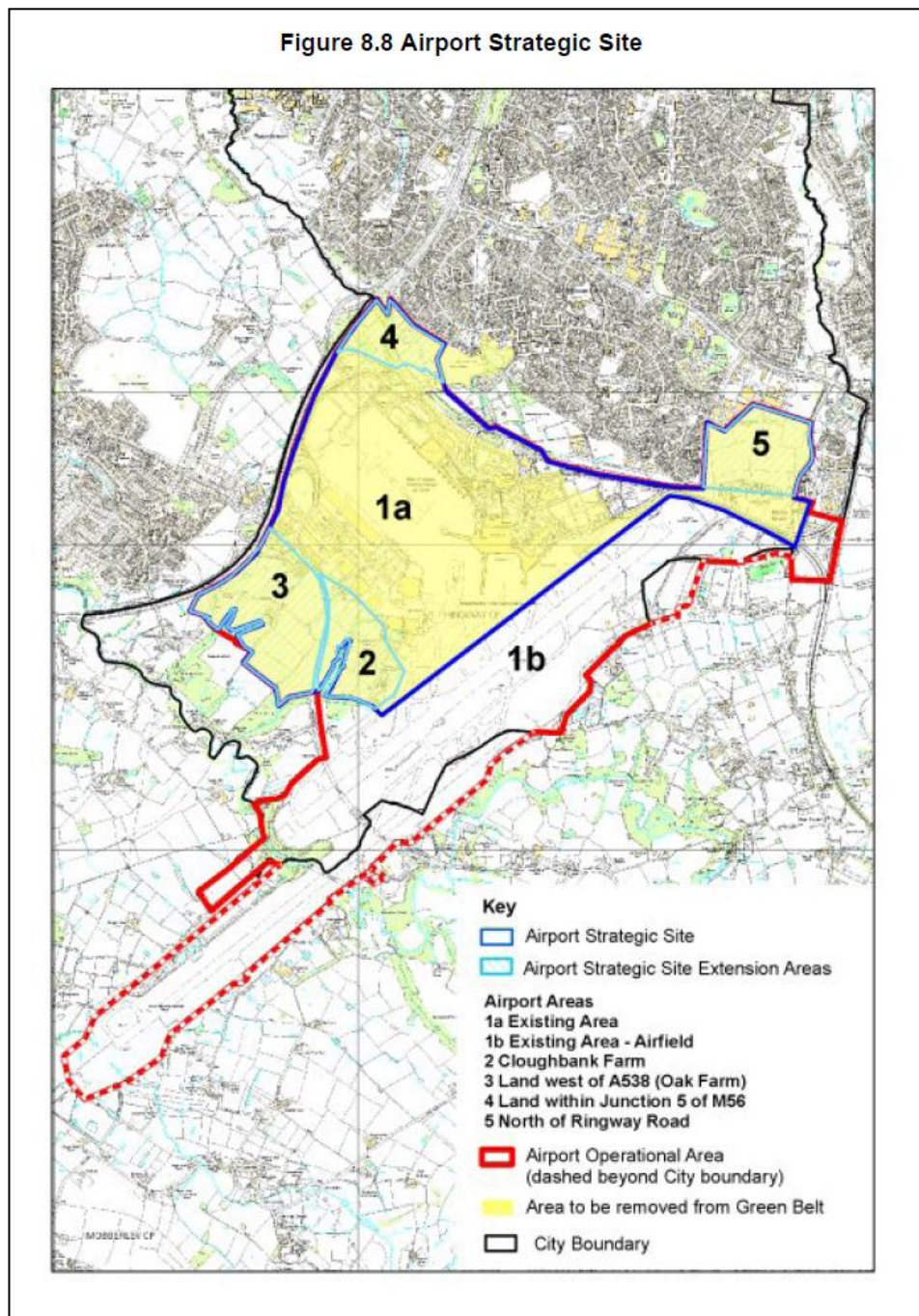
<b>Regional Strategic Site</b>	<b>Brief economic purpose</b>
Daresbury, Runcorn	Science based investment in R & D, plus leisure and offices
Ditton Modern	Inter-modal exchange; logistics and strategic rail freight
Dunningsbridge, Sefton	Freight handling and logistics
Estuary, Liverpool	Business Park – Life Sciences. Proximity to Liverpool JLA
Freckleton Street, Blackburn	High Quality environment to attract knowledge industries
Kingmoor, Carlisle	Focus for High Quality Indigenous Growth and investment
Kingsway, Rochdale	Flagship for Inward Investment and strategic distribution
Lillyhall	Focus for high quality indigenous growth and investment related to Nuclear Industry
Liverpool North Docks	Mixed use inc houses; offices; inward investment; port related and process industries
Liverpool Pall Mall	Attract nationally significant inward investment in the office sector
Liverpool Science Park (Edge Lane)	Provide grow on space for Indigenous high tech companies
Liverpool University Edge	Regional Focus for Knowledge Related jobs and people
Omega, Warrington	Emphasis on manufacturing and process inward investment
Parkside St Helens Modern	Inter modal exchange logistics and strategic freight
Central Preston	Promote knowledge-based development
ROF Chorley	Inward investment; manufacturing strategic distribution
Salford Quays	Mixed use framework building on the strengths of Media City
Samlesbury Lancashire	Nationally important centre for Aerospace and Advanced Manufacturing
Sportcity Manchester	Nationally important for Sport and Leisure development
Piccadilly Basin/ Oxford Road, M/c	Promote nationally significant inward investment and indigenous growth
Central Warrington	Bring forward knowledge based investment sites
Westlakes Science Park West, Cumbria	Knowledge based industry related to nuclear power and decommissioning
Whitebirk, Blackburn	Premier Employment Site for East Lancashire
Wigan, South Central	High Quality environment to attract knowledge industries
Wirral International Business Park	Investment manufacturing and process industries

- 1.32 A striking point about this list is that, after nearly 20 years of investigations and policy studies, Manchester Airport City does not appear on it. This was not for want of trying: the location has been put forward on a number of occasions, but has each time failed to make the cut. The fundamental reasons seem to be that the benefits of proximity were considered to be available to any location within 10-15 mins travel. At the same time Airport City has significant disbenefits in terms of traffic generation (see later in this report), environmental impact (including Green Belt), and poor fit with an overall spatial strategy favouring urban regeneration.
- 1.33 Manchester Airport is located within the existing Green Belt, and so the policy history of further Airport-related development is complex (Figure 4). While not central to consideration of economic impact, it is included because of its wider implications.
- 1.34 One implication is that the proposed EZ (50-150 ha), being much larger than the amount of land at the Airport City (30 ha), would involve development of a separate site – perhaps Davenport Green, which is also therefore considered in Figure 4. Another possibility might be to use land within the existing airport curtilage by re-locating some of the less functionally-related uses. It is likely that the Green Belt issue will become more focussed once details of the planned extent of the EZ are released.

#### **Figure 4: Manchester Airport in spatial and economic planning**

- 1. 2006 Regional Economic Strategy:** the Manchester Airport City site was not included, though the general location of Davenport Green was. The relationship is relevant:
  - The Airport City site is within the Manchester City Council boundary, immediately across the rail and road access to the Airport, but is hemmed in by the Woodhouse Park estate (part of Wythenshawe) and thus physically limited to the 32 ha referred to in the MAC-DIF;
  - The Davenport Green general location is in Trafford MBC, immediately across the M56 from the Airport, and comprises a much larger area of open countryside, in the Green Belt between the M56 and Altrincham.
- 2. 2007 RSS Examination Report:** while growth attracted by the presence of Manchester Airport was recognised and welcome, development at the Airport itself should be limited to that necessary in terms of the Air Transport White Paper (a much more restricted list of uses than put forward by MAC-DIF), and it “should not be identified as [a] node for major economic growth” (EiP Report para 7.48).
- 3. 2009 NWDA Strategic Industrial Sites Review:**
  - The Airport City site was put forward by Manchester City Council, but was not supported by NWDA;
  - The Davenport Green location was dropped by NWDA as a result of the Review, there having been little interest shown in it.
- 4. 2011 Trafford LDF Core Strategy PLI**
  - Trafford MBC do not consider that use of Davenport Green for Business Park purposes is ever likely to be necessary (given the wide range of other opportunities), or desirable in planning or economic terms (given the effect on urban regeneration and on realising agglomeration economies in the conurbation as a whole).
  - The LDF Core strategy therefore confirms its Green Belt status and rejects its identification as ‘safeguarded’ land (i.e. reserve).
- 5. 2011 Manchester LDF Core Strategy – consultation draft**
  - ‘Airport City’ is put forward as a Strategic Employment Location for high tech business, logistics, offices and warehousing (Policy EC11), to complement Manchester City Centre as an office location, and to help regenerate Wythenshawe by providing local jobs and supporting Wythenshawe Town Centre;
  - The Airport as a whole is defined as a Strategic Site, to be extended beyond existing operational areas to include most of the land between the M56 and the runway (Policy MA1),
  - The whole of this area would be removed from the Green Belt (PolicyEN13) as shown in Figure 5, Areas 2,3 4 and 5. The uses proposed for these areas include:
    - direct airport operations such as the terminal, taxiways, aircraft aprons and maintenance, ancillary operational and cargo facilities; and
    - a range of indirect purposes such as hotels, offices, surface access, car parking, commercial/cargo development and landscape mitigation.

Figure 5: Airport Strategic Site and Green Belt (Manchester LDF)



1.35 The description of the role of 'Airport City' and the Strategic Site is at odds with the economic objective of EZs, as defined by Government, because (as already discussed) no attempt is made to demonstrate additionality. The reference to compatibility with PPS4 is also flawed, since that states a presumption in favour of sites within centres, with a sequential test for out of centre sites. No such test is reported in the LDF, nor is there any suggestion in the MAC-DIF development should be delayed until sites in the City Centre and local centres have been exhausted. There is at present a large supply of sites and buildings in both types of location.

## **Regeneration of Wythenshawe**

- 1.36 The 'Airport City' site is contiguous with the Woodhouse Park area of Wythenshawe, thus any employment on the site would be physically accessible to its residents. On this basis, the proposal is seen as contributing to the regeneration. It is also suggested that Wythenshawe local centre would benefit from 'Airport City', though this seems to be by 'reflected glory' rather than anything more substantial. In fact it is far from clear that the proximity of 'Airport City' will be more effective in urban regeneration than development at other locations within commuting distance have been.
- 1.37 The experience elsewhere of Business Parks aimed at high-end 'knowledge economy' occupants is that the more specialised and higher-paid workers are drawn from an extremely wide catchment. Such people prize their home environment above proximity, and potential for exploiting the market value of their skills as widely as possible. While there will be less specialised jobs, these will also be much lower paid, thus the benefit of Airport City to workers living in Wythenshawe will be relatively limited. Benefits to local residents will depend on parallel social and training efforts, and on accessibility. Other opportunities (e.g. in the city centre and southern corridor) are more accessible by public transport from most of Wythenshawe, and so offer a more sustainable path to fuller local employment.
- 1.38 Whilst Wythenshawe does not have its own heavy rail station, residents can use local stations such as Heald Green, and in the near future will have the new Metrolink extension, to the city centre as well as the airport. This will also link to the Wythenshawe Hospital, which employs many local people and draws patients and visitors from a very wide catchment area, via the Roundthorn stop.
- 1.39 The general lessons from high quality business parks near Airports are not helpful to the economic case for 'Airport City'. It is apparent that planning powers are inadequate to limit uses to those that would not otherwise locate in the region or in the UK, and that uses with such a specialised need for immediate access to the Airport are in any case so rare that for a landlord to hold out for them would impose an intolerable financial strain.
- 1.40 The case that employment by tenants at 'Airport City' would be additional therefore rests on the much slimmer premise that an increase in the general supply of high quality Business Park sites will lead to a higher level of activity in the wider local economy. Given the very large supply of employment land already existing, this seems improbable.

## **Airport-related activity**

- 1.41 Functionally-related activities, which must be co-located with the Airport are relatively limited, including such activities as aircraft maintenance, freight forwarding, passenger facilities, baggage handling, etc. Employment in such directly-related activities is loosely related to the volume of traffic, but represents only a very small proportion of the overall economic impact of an international Gateway airport such as Manchester.
- 1.42 The presence of an international airport is likely to attract investment to the wider area by globally mobile businesses that are not functionally related to air transport. Current planning policy places Manchester Airport in the Green Belt, and when the issue of related development was debated at the RSS Examination, the conclusion was that regionally significant business development that is not required for the operation of the airport should be located elsewhere, in accordance with wider spatial strategy.
- 1.43 A form of airport related activity which had a brief vogue in the UK at the same time as the original EZs was the 'Free Port' concept. At Free Ports processing and transshipment can take place within the customs bonded area, which may be extended, and favorable

customs regulations and duties may apply. Extant examples are mainly around sea ports (the *locus classicus* being Hong Kong). Airports are less frequent as locations, perhaps because the relative portability and high value of air-freighted items reduces the handling advantages of co-location (while increasing the risk of losing customs revenue).

- 1.44 Free Ports, customs zones, or international zones at airports are now found mainly in the Middle and Far East. The concept of an 'Aerotropolis' – airports as nodes in an international supply chain – has been gaining currency in some parts of Asia and Australia<sup>23</sup>. For example, there are industrial locations in China which produce large volumes of internationally-traded high value electronics which are air-freighted direct to consumer nations, while components, design and commercial negotiations also come by air. The local labour force is the main earth-bound component, and it has been suggested that relative isolation and a repressive regime contribute to the competitiveness of this model.<sup>24</sup> Similar considerations may well apply to the other major concentration, Dubai.
- 1.45 The MAC-DIF does not in fact propose any novel forms of airport-related growth, and there is no evidence for arriving at a different conclusion than on the previous occasions that the issue has been debated. In a nutshell,
- a) There is a relatively small and well-defined group of businesses which must locate on the Airport site for operational reasons, and this is accepted in current planning policy.
  - b) The 'Airport City' proposal is not targeted at this group, but on a group of businesses which (it is asserted) prefer co-location to the extent that they will not come to the region unless it is available.
  - c) This group is not defined, except in the broadest and most generic terms, but is nevertheless asserted to be critical to the maximising the benefits to the wider local economy. However, it appears that their access to the Airport is more important to them than their access to other businesses in the region.

## Conclusions

- 1.46 Referring back to the Key Issues listed in paras 1.12-15, the conclusions from the evidence and argument presented in this Section can be summarised as follows:

### The relationship to the wider economy

- 1 The validity of 'Airport City' in terms of economic and spatial policy depends on its attractions to companies which are (a) internationally mobile; (b) would not come to Manchester without this location; and yet (c) have important linkages to industries in the wider local economy. If this was targeted, it would be a narrow niche market.
- 2 The MAC-DIF and Manchester LDF do not in fact target such uses, but rather propose a wide range of B1 uses (offices and light industry) such as are found on any Business Park. Even if they were to seek to narrow the range, the evidence is that they would not be able to prevail against commercial pressures.
- 3 It is of great concern that MAG Developments is already publicly calling for significant amounts of Government money beyond EZ status:  
*"There is a need to front-end investment to open these new enterprise zone areas of opportunity up with infrastructure to generate momentum and deliver the benefits they promise."*<sup>25</sup>

<sup>23</sup> John Kasarda and Greg Lindsay (2011) *Aerotropolis: The Way We'll Live Next*, Allen Lane,

<sup>24</sup> Executives of Apple are reported to refer to these facilities collectively as 'Mordor', W Self (2011) *'The frowniest spot on earth'*, London Review of Books, 28 April.

<sup>25</sup> John Atkins, MD, quoted in an article in *Property Week*, May 13 2011

Given the needs of the other town centres in the city region, any such funding would inevitably detract from regeneration initiatives in those locations and make abstraction more likely.

#### **The scale of the proposal relative to strategic needs and market demands**

- 4 The LDF and the City Council's proposals for an EZ both involve much larger areas of land than the 'Airport City'. However, the criteria for EZs require additionality, which means that the businesses catered for must be of kinds which would not be attracted by other existing locations – a point similar to 1. above.
- 5 The Airport City proposal as it stands (and still more so the EZ) would attract uses for which there is a wide range of attractive and suitable alternative locations, better located in terms of urban regeneration, sustainable transport and environmental impact<sup>26</sup>.
- 6 The EZ location is within current Green Belt, which means there has to be some overriding need/exceptional circumstance which cannot be met in other ways. This has not been demonstrated. It is also worth noting here that the Coalition Government have emphasised their support for the Green Belt<sup>27</sup> and subsequent Ministerial statements<sup>28</sup> have confirmed this.

#### **The balance between financial costs and economic benefits**

- 7 In addition to the points above, all with a bearing on the cost-benefit balance, the benefits to urban regeneration of Wythenshawe do not depend in any major way on the proximity of the Airport and associated developments, but rather on the efficacy of a wide range of other measures, particularly social mobility and training.

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<sup>26</sup> It was also obvious from the site visit that there are a number of vacant office developments close to the proposed Airport City, and that the existing Business Park has vacant plots.

<sup>27</sup> *"We will maintain the Green Belt, Sites of Special Scientific Interest (SSSIs) and other environmental protections, and create a new designation – similar to SSSIs – to protect green areas of particular importance to local communities."*

Coalition Agreement, Section 4, May 2010

<sup>28</sup> For example, DCLG Minister Greg Clark, 21<sup>st</sup> October 2010

*"One of the problems of the previous regional spatial strategies was the imposition on local communities. In my hon. Friend's area, the region forced green belt reviews on his community. The same applies to Manchester, Liverpool, West Yorkshire, Stevenage, Hemel Hempstead, Woking, Guildford, Harlow and Oxford. That is not the way to proceed. If one wants consent for development, one must involve local people and allow them to determine the character of their area."*

It is clear that local communities have yet to be involved in this process, since the EZ has not been defined, but if it is to expand beyond the small area immediately north of the airport (as appears inevitable), it is certain to encroach on the Green Belt.

## 2 Patterns of travel and the South East Manchester Multi Modal Study (SEMMMS)

### SEMMMS in context

- 2.1 As part of the series of multi-modal studies (MMS) which were beginning to draw to a close a decade ago, SEMMMS showed some of the recurring features of that process. Although they were supposed to be objectives led rather than problem led, they tended to be based on corridors which had already been studied in direct relation to a road scheme rather than starting without any preconceptions. This meant that surveys and modelling were often focussed on the road route related areas. The multi-modal elements could sometimes feel like add-ons rather than part of a fresh look at transport problems.
- 2.2 Thus the outputs tended to be packages with road schemes - in the case of SEMMMS a lower scale set of road schemes than first proposed, with a series of ideas for improving sustainable modes. However, in common with other MMS, there was an attempt to set out strategic objectives. In many ways the MMS process as a whole could be seen as transitional, in which road schemes were still the main output, but other modes were beginning to be considered, and this in turn suggested that new ways of forecasting and modelling would be required.
- 2.3 It is worth saying that policies such as travel planning, either at destinations (for example Green Commuter Plans) or resident based (such as the Sustainable Towns) had not yet been fully monitored or understood. Thus they were not included in any meaningful way in modelling terms, although they were present in many of the MMS strategies. The competition between sustainable modes and road transport was not well modelled either, in particular walking and cycling was often left out altogether. These modes did get some recognition in the MMS through the objectives led process. However, it was unusual for their improvement to be allowed to influence the level of road traffic demand. The current strength of the revival in rail use for passenger and freight had not been established and was not factored in to the MMS plans.
- 2.4 On the other hand, several MMSs considered road user charging, and it was sometimes seen as an essential prerequisite for the success of any package. SEMMMS prefers a strong land use approach to encourage sustainable travel, backed up with limits on levels of parking. This is also considered essential for the package to succeed.
- 2.5 The overall picture is of progress towards a more genuinely multi-modal approach, but with key elements missing in terms of representing sustainable modes, and significant compromise caused by the fact that the studies' key purpose was to deal with road schemes which had been on hold and then "remitted" to the MMS.

### The SEMMMS strategy and proposals

- 2.6 This picture is reflected in SEMMMS, for example the Final Report<sup>29</sup> is clear that,  
*"7.4 The genesis of SEMMMS was the removal of three road proposals from the Government's programme. These were:*
  - *the A6(M) Stockport North South Bypass;*
  - *the A555 Manchester Airport Link Road West (MALRW);*
  - *the A555/523 Poynton Bypass."*

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<sup>29</sup> SEMMMS Final Report, September 2001



It goes on to recommend lower scale versions for all three, but with important qualifications, saying in para 7.7,

*“Rather, it is recommended that the study area local authorities develop smaller and more appropriate scale road proposals along the protected alignments. These should be designed to provide relief for the study area communities affected by inappropriate through traffic, but not to provide a new strategic route of regional and potentially national significance.”*

2.7 These road schemes were put together in a package with:

- Improvements to Metrolink (including a link between Stockport and the Airport) and feasibility studies for further extensions
- Development and extension of Quality Bus Corridors and bus priority
- Small scale rail service improvements pending implementation of regional improvement
- “Taking forward” a Western Link from Manchester Airport, which would continue from the Airport rail spur, and pass under the Airport before joining the Chester — Altrincham Line
- A feasibility study of an eastern rail link to the airport

2.8 In addition, there are a set of proposals around “behavioural change” which include:

- Public information campaigns
- Co-ordination and promotion of travel plans
- Promotion of Safe Routes to Schools
- Proactive measures such as Travel Blending (similar to home-based travel planning)

2.9 In terms of managing demand, the report is very clear about the importance of land use planning, saying in para 7.62 that,

*“The transport strategy must be complemented by appropriate land-use policies that support the promotion of more sustainable travel patterns. Indeed, inappropriate land use developments have the potential to undermine some, or all, of the recommended strategy and erode the benefits will it bring.”*

2.10 On the subject of where development should take place, and the use of limiting parking in new developments to control demand, (and thus of specific relevance to the Manchester Airport EZ), it goes on to say, in paras 7.63 and 7.64,

*“There should be a presumption against development adjacent to the proposals for new roads along the protected alignments of the remitted schemes which form part of this strategy. Any developments that do proceed must be subject to rigorous sequential tests based on a hierarchy of national, regional and local economic and community importance that demonstrate that no alternative site is suitable and available and that transport impacts of the development are acceptable. The implication of this recommendation is that developer funding is not a suitable way of promoting the road elements of the strategy. There also is a concern that any inappropriate development (as defined, say, by a process of sequential tests) close to the M56 and/or M60 will result in traffic diverting from the motorway to local roads, which in turn could undermine the strategy. In this context, it is important to note that both the M56 and the M60 form part of the Network of Long Distance Strategic Routes defined in (draft) Regional Planning Guidance.”*

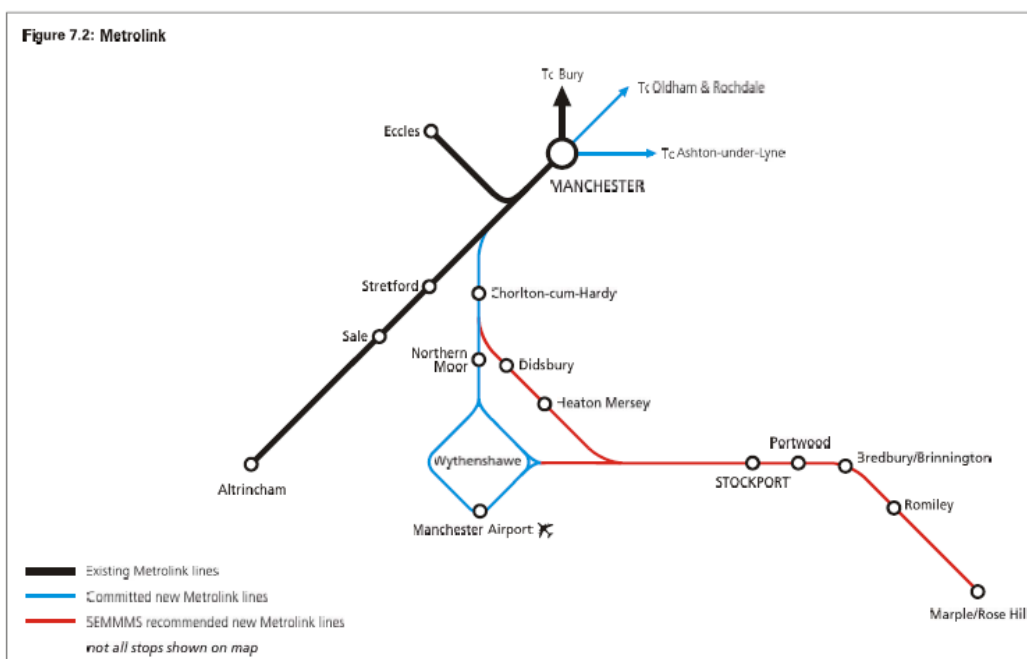
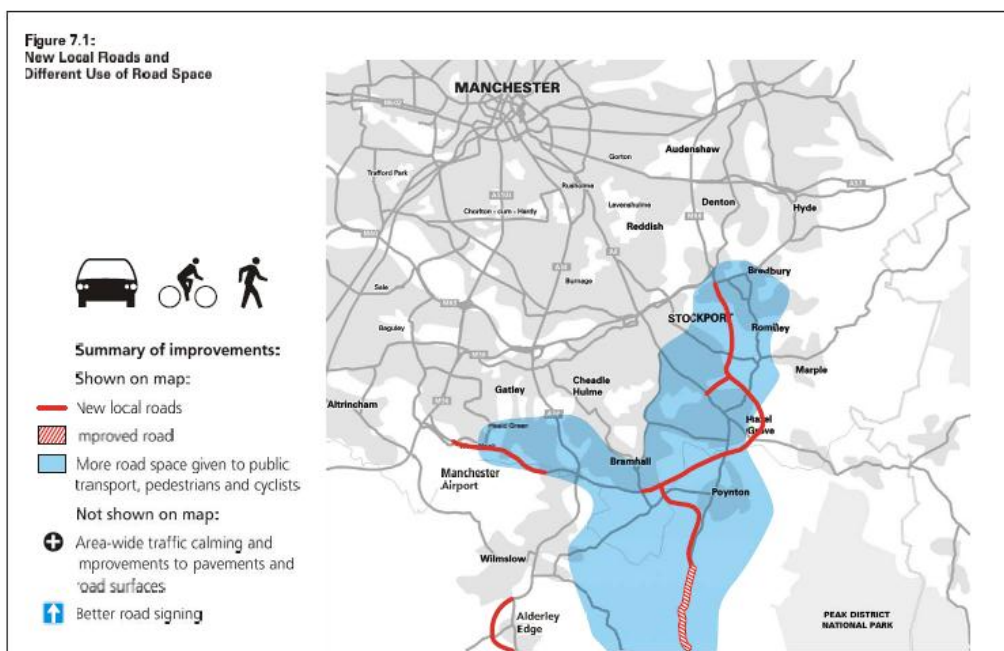
*Accompanying land-use policies to support the strategy, there should be a consistent set of parking standards applied to new developments across the study area, framed within the conurbation and regional context, to seek to minimise the use of the car and promote the use of public transport, walking and cycling.”*

2.11 Finally it recommends regeneration through town centre action plans, saying in para 7.65,

*“The promotion of established village, district and town centres offers the opportunity to encourage a more sustainable pattern of movement by encouraging the use of local facilities. Underpinning current national planning guidance and policy is a view that there is a causal link between the extent that urban centres are used, and their accessibility and intrinsic quality: if people use local centres more frequently, accessing them on foot, cycle or by bus, they will use car-dependent centres and facilities less and thus travel less by car.”*

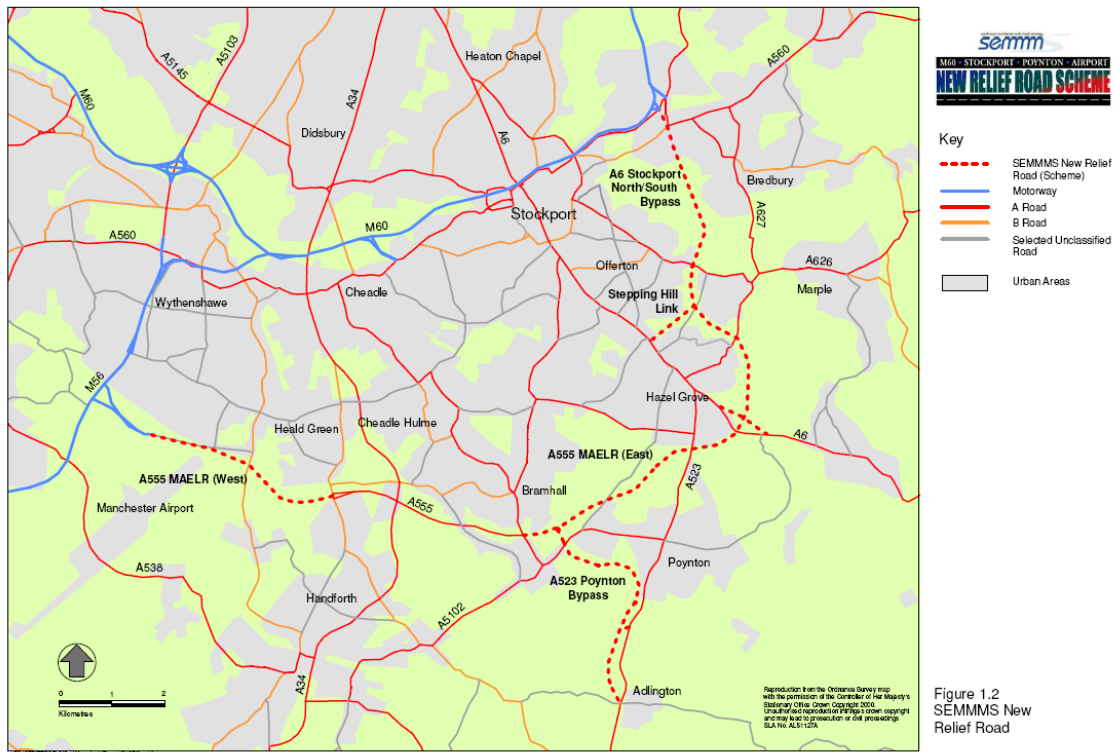
2.12 Overall the SEMMMS message is clear: the highways have been reduced in scale and should not play a regionally significant role, this is combined with a wide range of proposals, both to promote sustainable modes and to avoid strategic road capacity being created. Locational policy is seen as a key part of the transport policy.

2.13 Maps showing first the road based proposals, and then the firm Metrolink proposals, are reproduced below.



## SEMMMS modelling

2.14 The SEMMMS Strategy was approved by Government in March 2002 and there followed a large scale highway modelling and forecasting exercise based on the road schemes for detailed submission to DfT. This was in relation to what is referred to as the “New Relief Road” (NRR) scheme, and is shown on the map below, reproduced from the 2005 Local Model Validation Report (LMVR).



2.15 The model did not include a validated mode split model or any pedestrian or cycling elements. The results were used for an economic appraisal and then submitted to the DfT for funding. These documents are not readily available (some only in hard copy) and we are grateful to Stockport Metropolitan Borough Council for providing full access to them.

2.16 The original reports were completed for submission in 2004, but there were serious issues raised by the DfT with the accuracy of the model in reproducing today’s traffic flows. This was confirmed for this report by inspecting the validation data in the LMVR. The traffic forecast also seemed unrealistically high. DfT asked that a review should be undertaken on both. This was done, and new model validation and forecasting reports were produced in 2005. The new forecasts are considered later in this section.

2.17 In fact, funding was not made available for the NRR, but in the pre-budget report of November 2008, a sum of up to £165million was identified, “dedicated to creating a new road link between Manchester Airport and the A6”<sup>30</sup>.

2.18 It is not, however, in the DfT’s current major scheme Development Pool, and thus has no central Government funding allocated. Local authority led work is continuing on modelling for this proposal, but it is not expected to be available before the end of the

<sup>30</sup> SEMMMS Progress Report 2006/7 to 2007/8, jointly produced by the six local authorities

year. The airport also has some modelling capacity, but has not responded to requests for further details in relation to the MAEZ.

2.19 There is thus a shortage of up to date modelling and forecasting information, but the available reports from 2005 have been reviewed. As with all large scale models, there appear to be remaining validation problems, although not to the extent of 2004. Since the model should not be used without a further validation against more recent traffic data, and may require significant changes in other ways, it has not been the major focus of this report. However, items which would need to be included in any future modelling exercise would be:

- Highway network and accompanying zones better suited to sustainable modes and town centres
- Full consideration of trip generation from different employment and housing locations
- Incorporation of travel plans (Smarter Choices) in the demand management effects
- Recognition of the growing public transport role and its competition with travel by car
- Understanding of how traffic growth has slowed down (even before the recession) and what the implications are for any future schemes
- Understanding of the residual traffic generation, either by changing destination (redistribution) or making more trips (generation).

2.20 To illustrate why this is necessary, the traffic forecasts in SEMMMS, which covered 2003 to 2011 (made in 2005) have been compared to actual traffic flows as recorded for the GM Local Transport Plan<sup>31</sup>. Before doing so, it is worth saying that the 2004 traffic forecasts were clearly far too high, based on national trends and already out of line with local data available at the time, and LTP predictions. These showed that flows were, and would continue to be, relatively stable. In order to provide what was called a “*half way house*”, half the growth in the 2004 report was assumed for the 2005 report<sup>32</sup>.

2.21 The Airport was treated, however, as a special case. This was for the reason that passengers were expected to grow strongly and were based on a throughput of 30million by 2013. Thus the original 2004 Airport growth forecast was rolled forward into the 2005 report.

2.22 It is very clear that this compromise does not reflect what actually happened:

- Nationally
- In Greater Manchester overall
- In Stockport town centre
- At the airport

Nor is this a product of the recession, as an examination of the traffic data illustrates.

2.23 In the SEMMMS report, it is difficult to find precisely comparable areas with the LTP monitoring. Stockport town centre appears very similar, so data have been used from SEMMMS 2005 and GMTU 2010 reports. These are shown in the chart which follows.

2.24 In addition, the trend across the whole of Greater Manchester has been included, to show how far it has also diverged from the SEMMMS 2005 forecasts. It should be noted that this is for all time periods, thus should be within the two SEMMMS trend lines if SEMMMS was accurate.

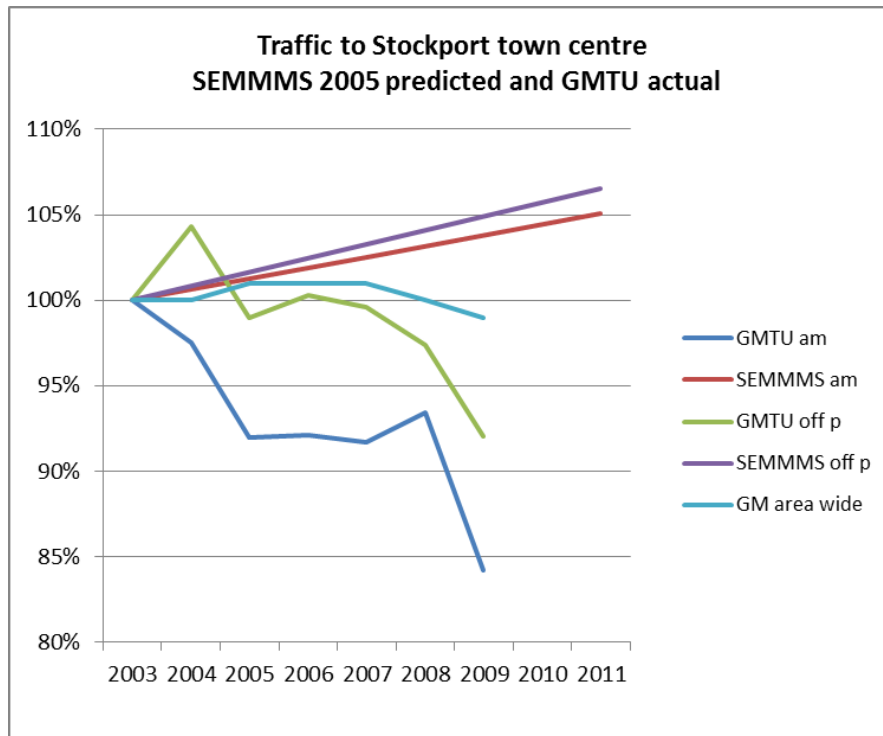
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<sup>31</sup> A series of monitoring reports by the Greater Manchester Transportation Unit, including *GMTU 1580* (overall) and *GMTU 1587* (Stockport)

<sup>32</sup> *SEMMMS3 Forecasting Report June 2005*, Section 5.8

2.25 What is clear is that at 50% of national forecasts, the SEMMMS prediction for Stockport steadily rises, while the real data shows a decline (apart from a blip off peak in 2004). The Greater Manchester regional total also show little growth. As for the centre of Manchester, public transport has moved from a 60/40 split with car use to 65/35 between 2002 and 2010<sup>33</sup>, approximately the same time period as the SEMMMS forecast.

Chart 1



- 2.26 This reflects a change in circumstances which is only partly caused by the recession. There are several important factors, none of which are likely to return to pre-recession conditions in the foreseeable future.
- *Direct cost of road use:* oil prices have raised the marginal cost of motoring, without introducing road pricing, but mimicking some of its impact. Over the next 20-30 years this effect will slowly decline as much more fuel efficient vehicles are purchased, but this is outside most of the current model periods.
  - *Local mode switching:* congestion, travel planning, and an improved public transport offer, have supported a clear switch of mode for many car users. This is true across all GM town centres as well as in the city centre. It represents a success for LTP2.
  - *Longer distance mode switching:* while car traffic has grown slowly then declined, rail use has continued to grow, linked to more reliable and frequent services, including the intercity route between London and Manchester.
  - *Non-motorised modes:* cycling was 17% higher in 2009 than in 2005 (LTP2 baseline). Walking seems to have declined by about 3% over the same period, although this is an NTS derived figure and thus sample sizes were low.
  - *Airport passengers declining:* the Aviation White Paper forecasts are clearly far too high and the long term effects of the oil price rise have yet to fully work through the system.

<sup>33</sup> GMTU 1580, Table 3.8

Manchester Airport passenger traffic will be well below the levels assumed in the SEMMMS forecasts, and in 2011 not much different from 2003.

### **Conclusions on SEMMMS and highways**

- 2.27 It is interesting to note that, while the aviation and traffic forecasts were out of date almost as soon as they were completed, the SEMMMS strategy, which has underpinned the Local Transport Plan, is still of some value. In particular, the clear links between levels of demand, land use planning, and parking limits, continue to be highly relevant.
- 2.28 In fact, quite a number of initiatives have proceeded without the road schemes, and the core justification for them, that congestion would grow if they were not built, has faded as traffic has stabilised and fallen (not only as a result of the recession). The am peak journey time surveys, undertaken as part of LTP monitoring<sup>34</sup>, show a 5% improvement over the last five years. This covers all modes on a sample of 15 target routes. This suggests that the deterioration in journey time in the SEMMMS analysis, itself predicated on rising levels of traffic, has not and will not occur. This in turn means that the economic benefits, based on saving time, will not occur either.
- 2.29 Overall the SEMMMS highways schemes analysis has been overtaken by events including the success of many of the LTP actions in increasing the attractiveness and use of sustainable modes. Resurrecting the scheme as part of a car intensive Enterprise Zone would undermine this success rather than supporting it. Such an approach would be against what is set out as the overall SEMMMS transport and land use strategy.

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<sup>34</sup> *GMU Report 1580, Table 1.21*

### **3 Patterns of travel and the role of Manchester Airport**

#### **Introduction**

- 3.1 This section of the report fulfils the task of reviewing the traffic, economic and greenfield versus brownfield impacts, and assessing the traffic generation prospects of the airport itself, especially in relation to the 2003 Aviation White Paper. We had assumed that the South East Manchester Multi-Modal Study (SEMMMS) work, and most importantly the updating work following the 2008 offer of part funding from DfT, would be available. The previous section described in detail why SEMMMS was out of date and new work was not yet complete. The latter should be able to cover the issues raised in the previous section.
- 3.2 This section deals with the issue of how Manchester airport has fared in terms of passenger numbers – critical in terms of its overall use – as well as freight. It goes on to analyse mode share to the airport using much more recent data than SEMMMS. In Section 4, which considers the carbon and other external costs of the Airport City proposal, instead of using SEMMMS related data, the predicted number of jobs and current information on mode split to the airport, particularly for staff, and other Manchester centres has been used. This has made Section 4 more technically challenging than anticipated, but a robust estimate for carbon has been produced. Congestion impacts are difficult to assess in anything other than broad terms. It will be critical that proper impact assessments, and any modelling or assumptions behind them, are provided as soon as possible by the promoters.
- 3.4 For this study it has so far been impossible to assess fully the impact of any link road proposal in conjunction with the EZ. In addition, in view of the lack of any impact assessments, the conclusion must be that the EZ should not proceed without them.

#### **Patterns of aviation use at Manchester airport**

- 3.5 When considering the importance of Manchester Airport to the city region and the whole of the North West it is essential to distinguish between its different economic impacts. The first are transport related, in terms of:
- Supporting the Manchester city region (including other town centres within it)
  - Playing a role in the North West region's accessibility to international air services
  - Acting as a direct source of local employment
  - Attracting non-airport related businesses to the immediate local area.

The second is how use of the airport itself contributes to, or detracts from, the local economy as a whole. This is separate from the impact of the EZ as discussed in the previous section.

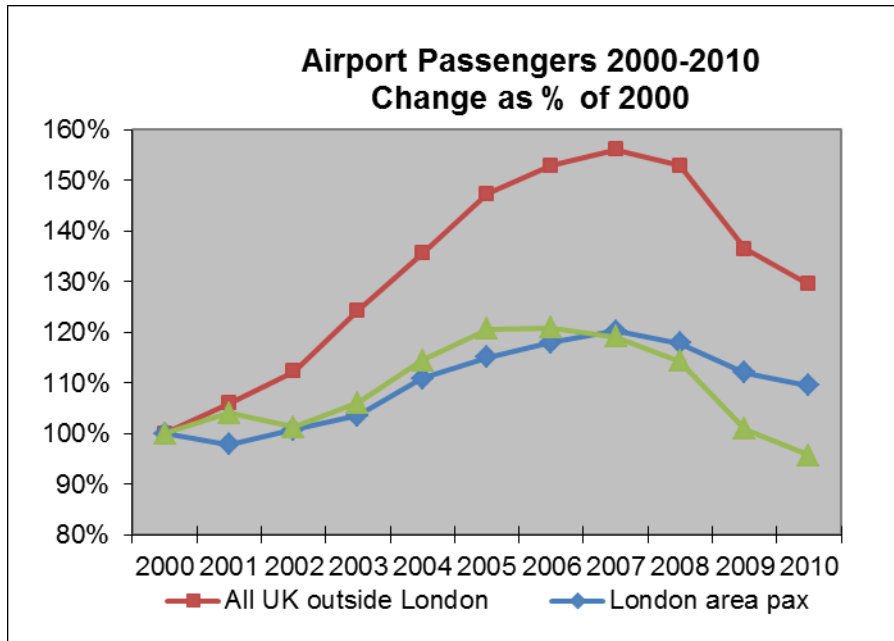
#### **Passenger**

- 3.6 In terms of passenger numbers, Manchester is important nationally, with slightly lower passenger throughput (17.6 million) than that at Stansted (18.6 million) in 2010. In common with many other airports outside the South East, it has lost a significant amount of business during the recession and now carries fewer passengers than in 2000.
- 3.7 Manchester numbers appear to have been influenced by 9/11 but did not recover in line with other regional airports. In recent years rail services have improved significantly, and this is believed to have had an impact on domestic air passenger flows. There have been other local factors, for example the withdrawal of Ryanair services in October 2009. Many of these are to be restored in summer 2011, generating up to 600,000 passengers, but

mainly for holiday purposes. On its own the latter is not sufficient to explain the comparatively weak performance in the charts which follow.

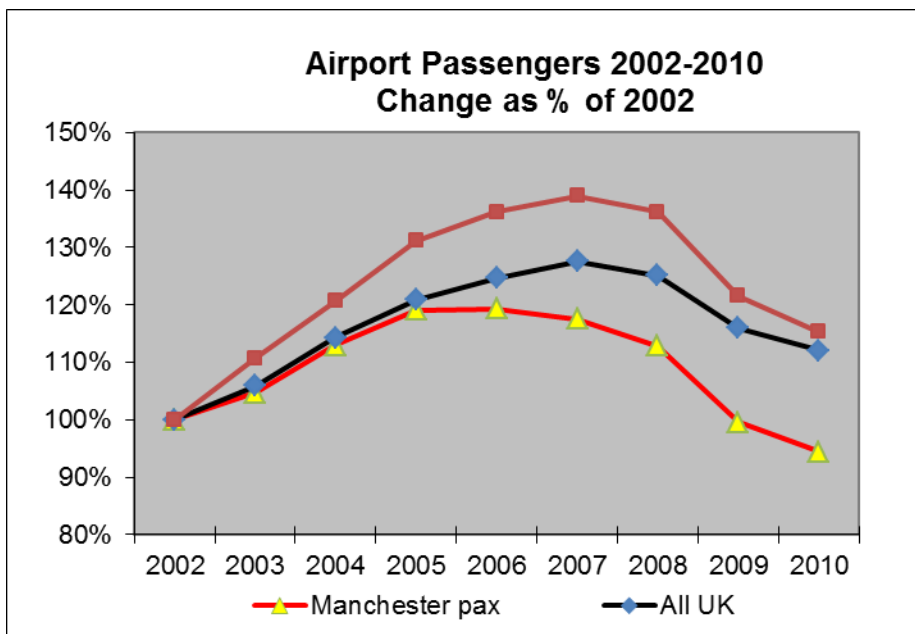
3.8 Other regionally significant airports, such as Liverpool John Lennon and Birmingham, have fared better in terms of expanding and then maintaining passenger numbers. This has been the case for most non-London area airports. This is shown in Chart 2 below.

Chart 2



3.9 It is interesting to note the 9/11 impact on both Manchester and London area airports, and how they have some similarities in patterns of growth after 2002, until the recession, when Manchester passenger use falls far faster. Rebasing to 2002 removes the 9/11 effect and shows how Manchester performed compared to the national picture as well as regional airports.

Chart 3





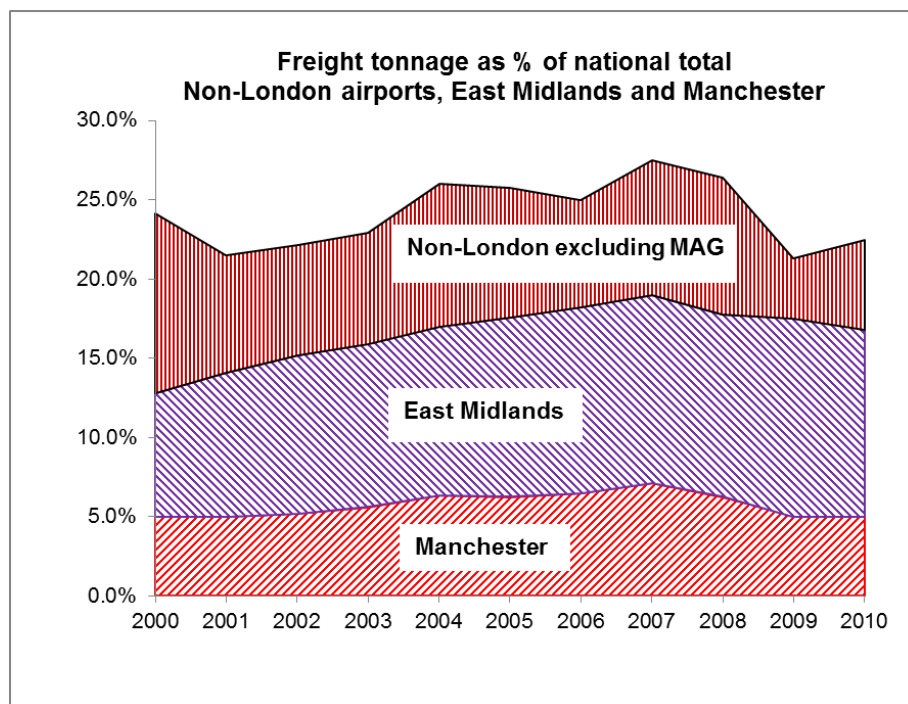
3.10 Overall, on most indicators, Manchester airport passenger numbers have grown more slowly than other major regional airports, and fallen faster. Since 2005 they have declined, possibly through rail competition, and then fell faster during the recession, by regional or national benchmarks<sup>35</sup>.

**Freight**

3.11 As can be seen in the chart below, Manchester has played a consistent and important role in air freight outside the London and South East airports. In national terms it carries around 5% of air freight tonnes.

3.12 It is second only to East Midlands airport, which has always been the strongest performer outside London, and has grown significantly over the last decade. This airport is also owned by the Manchester Airport Group (MAG).

**Chart 4**



**Aviation and the Airport’s economic role and impact**

3.13 The airport directly employs about 16,500 full time and 2,000 part time people. However, there are support services, for example air travel companies and catering suppliers, who employ up to another 23,000 people across the region<sup>36</sup>.

3.14 In terms of the city region, previous strategic plans have all recognised that the Airport is an important international Gateway and also has a wider regional role. These same plans, and in particular the Examination in Public (EiP) of the Regional Spatial Strategy, recognise that the Airport should not be an independent source of major expansion. The EiP Report supports the “dual approach”<sup>37</sup> which is,

<sup>35</sup> All data in this section and the charts are from CAA monthly and annual data sets

<sup>36</sup> See Manchester City Council, Economy, Employment and Skills Overview and Scrutiny Committee December 2010.

<sup>37</sup> EiP report on the RSS, Para 10.10

*“to support growth in in those parts of the City Region that are already performing strongly while generating additional growth in those parts that are lagging. It will be essential to monitor development to ensure that delivery in the regional centre and inner areas is at the level anticipated, and that it benefits those “who are most in need”. (Para 10.12)*

Specifically in relation to airport sites, including Manchester, the panel was clear that,

*“They should not be identified as nodes for major economic growth in the RSS.” (Para 7.48)*

In relation to their suitability for development it said,

*“We have not indicated the airports as particular centres for growth, though operational development will clearly take place there on a substantial scale. In general however their edge of town locations, and surrounding Green Belts, do not fit with our spatial principles for most forms of development”. (Para 4.68)*

The Report suggest that criteria are set out to guide development, and concludes,

*“...it is no longer appropriate to plan for a dispersed pattern of development, in which new employment uses are provided on extensive greenfield sites, remote from labour supplies, and dependent largely on access by car. Rather, employment development should contribute to the regeneration of urban areas, help ease problems of deprivation and worklessness, and make full use of existing and proposed public transport facilities. This would make best use of existing assets, ease congestion, help limit carbon dioxide emissions and improve public health.” (Para 5.41) <sup>38</sup>*

This would appear to be entirely in keeping with current Government policies, and indeed would be hard to contradict on social, economic, or environmental grounds.

- 3.15 As regards airport related development, the core business is fundamentally split between business and leisure travel, and between the type of destination:
- domestic (within the UK);
  - to and from the European region (includes neighbouring countries such as North Africa); and
  - international long haul.
- 3.16 In general terms, business may contribute to the local economy, while leisure trips draw significant amounts of money out of the local economy, mostly to other countries. The overall impact has thus been changing in line with changes to composition and volume of leisure passengers. Thus the UK trade deficit in tourism was £20 billion in 2008 (exceeding the deficit on food, drink and tobacco and second only to the deficit in manufactured goods). But in 2009, as people in the UK chose not to fly and holiday abroad, the deficit was reduced to £15 billion <sup>39 40</sup>.
- 3.17 In terms of the local economy, business trips may be seen as part of the need for businesses to communicate and interact. For example, businesses may find advantages in having frequent direct flights from a locally accessible airport to destinations in Europe and beyond, as would visitors to businesses already located in the region.
- 3.18 In economic terms this would be one of several contributory factors in terms of choosing where to locate a business which needs international connections. Labour availability, cost and skills; local environmental quality; housing quality, availability and cost; neighbouring

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<sup>38</sup> All quotes from the EiP Report on the RSS for the North West, 2007

<sup>39</sup> *Aviation in the recession & beyond: impact on the UK balance of payments & the tourism deficit, the Staycation effect & changes in Business Travel*, MTRU, June 2010

<sup>40</sup> Strongly negative regional impacts were identified in an earlier report for CPRE: *The Economics of Aviation: a North West England perspective*, Whitelegg, Professor J, April 2003

businesses (this can be positive or negative); and leisure/shopping facilities (to attract and retain key staff) are examples of other key factors. Government intervention may be important in some cases, but this is complicated by the need to work within EU competition rules.

- 3.19 However, business travel has a minority share in terms of airport passengers, and one which has grown less quickly than non-business travel<sup>41</sup>. In 2007 it represented 45% of passengers on domestic scheduled flights, 27% of those on short haul<sup>42</sup> and 24% of long haul. Overall it fell from 42% in 1996 to 30% in 2007. Manchester was pretty much in line with overall national trends with the business share of total passengers falling from about 45% to just over 30% over the same period. It retained its share of national business travel at 7%.
- 3.20 Business travel has also been changing in response to the recession<sup>43</sup>. First there has been a drop in overall demand, between 2008 and 2009 it fell by 25% to the EU region, 17% to North America and 20% to the rest of the world. Importantly its patterns of use also changed, with an acceleration of the move from First and Business Class seats to Premium Economy and Economy.
- 3.21 This is important because business travel income has in previous years helped to drive the rise in international long haul passengers. As the CAA put it, airlines at Heathrow have, *“...have either cut back their domestic and/or short-haul operations or replaced some of them with long-haul services to capture the higher yield business passengers (compared with shorter haul business passengers) with greater frequency of services. However, this also attracts more leisure passengers onto these flights as the airlines seek to fill up the back cabin with discounted economy fares.”*
- 3.22 The long term impacts of this change in revenue streams is not yet clear, however, it means the previous trends based on high business fares cross subsidising leisure flights are no longer reliable. The extent of the change can be seen in Table 1 below.

**Table 2**  
**Cabin choice by UK business travellers**

	1996	2007	2009
<b>North America</b>			
First/Business	38%	27%	16%
Premium Economy	N/A	14%	17%
Economy	62%	59%	67%
<b>Other long haul</b>			
First/Business	33%	24%	13%
Premium Economy	N/A	8%	8%
Economy	67%	67%	79%
<b>Short haul</b>			
First/Business	41%	9%	5%
Economy	59%	91%	95%

Source: CAA, 2010

- 3.23 Overall the conclusion must be that the airport faces extremely challenging times and that the growth previously envisaged will not occur for the foreseeable future. The Air Transport White Paper of 2003 has been undermined by the legal ruling that subsequent

<sup>41</sup> UK Business Air Travel, CAA, May 2009

<sup>42</sup> Broadly speaking Europe and immediately neighbours including North Africa

<sup>43</sup> Flying on Business, CAA, December 2010

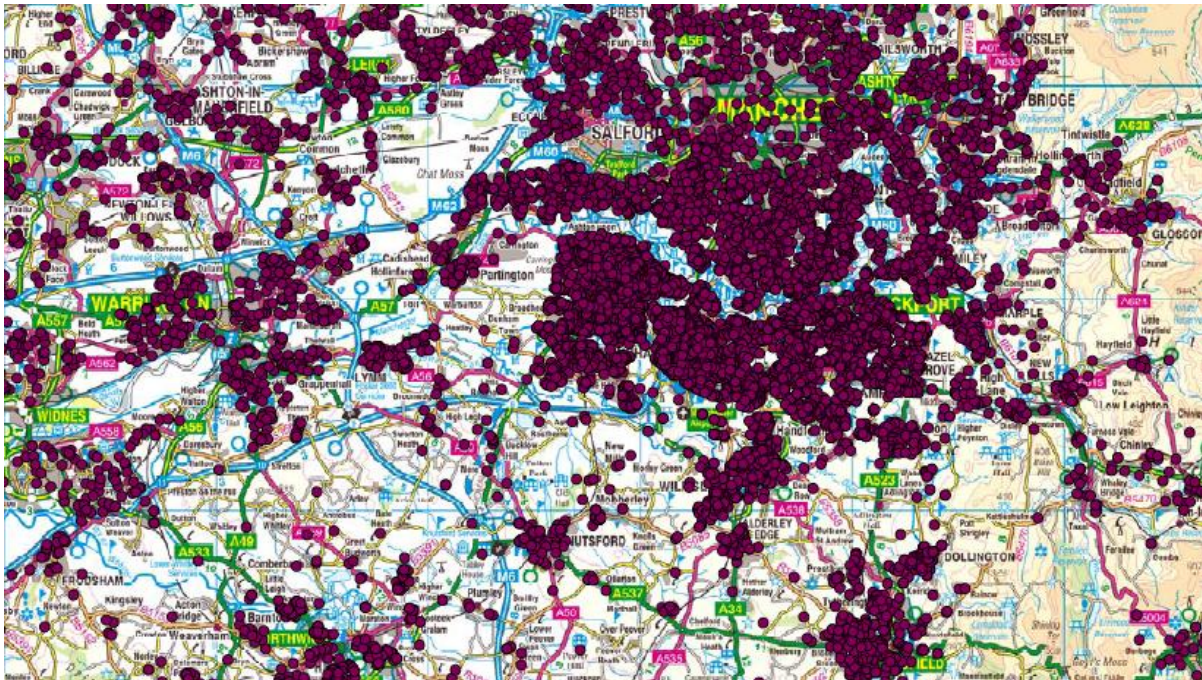
policies, such as the Climate Change Act, need to be considered. The real changes in patterns of aviation now render the underlying ATWP evidence base completely out of date.

## **Ground transport issues and patterns of travel to the airport**

### **Is Manchester Airport a sustainable transport hub?**

- 3.24 The airport is often described as a “hub” but this term appears to be used very loosely and needs to be defined carefully. The idea of a transport hub is clear from the title. It should be multi-modal and multi-directional. In relation to international travel, Manchester airport is clearly a type of aviation hub, with a variety of domestic and international locations served.
- 3.25 In relation to surface access, it has a direct motorway link to the M56 which is also close to the M60, Junction 5. About 2 miles away at Junction 3 on the M60, there is a dual carriageway road (A34) running from there to South of Wilmslow. Looking at the employee and passenger demand (see the next section on patterns of travel) there is reasonable road access from most directions. The only issue is congestion, but this is not a problem for most of the day.
- 3.26 For public transport, the picture is one of a reasonable radial rail link to the centre, with direct services to other parts of the region. However, all of these run through the city centre first. Bus services fill in some of the gaps but journeys are slower than car and only carry about 10% of employees.
- 3.27 In terms of cycling and walking, both require close by centres of population, within a mile or so for walking (depending on quality of route) and up to 5 miles for cycling. In both cases, the distances are not cliff edge points, but use declines as distance increases. For these reasons, very few people walk to work at the airport (1%), and low numbers cycle (2-3%).
- 3.28 In summary, the airport cannot be described as a surface transport hub. Its best claim in this regard is for road transport: public transport is dominated by the city centre link, walking catchments are not available, and cycling, despite strong efforts in the travel plan, is still low for parallel reasons. The city centre, by contrast clearly is a surface transport hub, in terms of the city region and the wider region, and has a fast link to the airport.
- 3.29 Airports generally have to be sited away from densely populated areas and this clearly creates a range of problems for access by non-car modes. Manchester is no exception. There is some problem in identifying precise mode splits for employees, since the LTP target is framed as “vehicle trips per air passenger”. Clearly there are issues with this, since employee numbers are likely to change more slowly than year to year changes in passenger numbers.
- 3.30 The CAA has some recent data for 2009 for passengers, showing that 87% of the total, and 89% of those from the North West, chose private means of transport. The airport Ground Transport Plan of 2007 uses 2005 data from the same source.
- 3.31 Manchester Airport was asked for more recent data, and data on off airport parking, but have been unable to provide anything outside the published documentation.
- 3.32 Most employees live in the region, as might be expected with a strong concentration in the southern sectors of Greater Manchester. There are also clusters in Wilmslow and

Macclesfield. This shown in the following map reproduced from the 2007 Ground Transport Plan.



- 3.33 Employee car use is high at present at 80% and public transport use is low. This is because the airport's only current rail link is, as might be expected, radial to the centre. Services are very frequent because trains to the airport from other destinations all have to travel through Manchester Piccadilly, but there are several possible intermediate stops and according to which are served, the journey time is quite variable, from 15 to 24 minutes.
- 3.34 The need to travel through Piccadilly makes these services unattractive for centres outside the city core which they pass through, such as Stockport. To get from there to Manchester airport by train would take 33 minutes (half hourly service), the crow fly distance is about 10 miles. This is a pretty unlikely choice since there is a bus service (Skyline 199) which takes 15-20 minutes. Outside Greater Manchester, train journeys from the East, South and West are also indirect, for example driving from Warrington (17 miles) takes less than half the time of the train<sup>44</sup>.
- 3.35 The proposed Metrolink tram extension is also radial, but stops more frequently and will be able to serve some areas along its route particularly Wythenshawe. There will be 23 stops between the city centre and the airport. Thus it is not expected to take many passengers from the centre or other towns in Greater Manchester and is forecast overall to attract approximately 4-8% of airport staff and 1-3% of passengers by 2015<sup>45</sup>.
- 3.36 As part of the comprehensive Ground Transport Plan (GTP), there has been a very active airport travel plan in place since 1998, which has performed well and reduced single car use by about 20% between 1998 and 2005<sup>46</sup>. However, car use started at a very high level, and it is still short of its original target that 25% of all journeys should be by alternatives to the car. In addition, parts of the GTP refer to strong demand management and higher levels of investment in public transport than currently planned.

<sup>44</sup> AA route finder, East Midlands train timetable  
<sup>45</sup> Manchester Airport Ground Transport Strategy 2007, Summary of Targets, page 31  
<sup>46</sup> As above, page 19

- 3.37 This can be contrasted with peak period (07:30 to 09:30) trips to the city centre, which have a non-car mode share of 69.4%, up from 63% in 2002<sup>47</sup>. Importantly, the other centres in the city region also perform well on this indicator, the average non-car share achieved is 48.2% (41.9% in 2002).

## Conclusions

- 1 This section has explored the state of aviation at Manchester Airport and concludes that its freight business has fared considerably better than its passenger side. This has not performed as well as other regional airports or London. Business travel has declined over the last decade.
- 2 The prediction based on the Air Transport White Paper<sup>48</sup>, that Manchester would carry 38 million passengers a year by 2015, would mean a doubling of use in the next 4-5 years. This is no longer credible.
- 3 The discrepancy between the forecasts in the ATWP and the actual passenger numbers set out in this section is immense. In 2010, for example, they were 22% lower than forecast in the ATWP (210 million instead of 270 million). The factors underlying growth, such as moderate oil prices, cross subsidy from business travel and the assumed consistent rise in disposable income, no longer apply. The relevance of new material in relation to the ATWP was established by Judicial Review<sup>49</sup>.
- 4 This means that predictions of increases in activity in the EZ related to growth in the demand for business travel are unlikely to materialise.
- 5 In terms of surface access, some recent data is available, but much of the modelling and forecasting was carried out before actions taken under the Local Transport Plan. The work undertaken for the South East Manchester Multi-Modal Study (SEMMMS) is based on even older data from 2001.
- 6 This means that there are no network based estimates of items such as congestion, emissions, accidents and other environmental impacts. The EZ should not proceed without a properly constructed impact assessment.
- 7 Despite this it is possible to estimate changes in carbon emissions caused by locating in the proposed EZ rather than elsewhere in the city region. This is described in Section 4 which follows.
- 8 The airport cannot be described as a sustainable surface transport hub. Its best claim in this regard is for road transport: public transport is dominated by the city centre link, walking catchments are not available, and cycling, despite strong efforts in the travel plan, is still low for parallel reasons.

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<sup>47</sup> GMTU Report 1580, November 2010

<sup>48</sup> *The Future of Air Transport White Paper*, DfT, December 2003.

<sup>49</sup> *R (LB Hillingdon and Others) v. Secretary of State for Transport* [2010] EWHC 626 (Admin)

## 4 Carbon and air quality implications of the Enterprise Zone

- 4.1 Undertaking an assessment of emissions has been complicated by the lack of recent modelling and forecasting data. The SEMMMS work is based on 2001 data and an overview of the problems was set out earlier in Section 2 of this report. As stated earlier, there is no network based analysis of items such as air pollution, noise, or congestion. However, it is possible to undertake an estimate for carbon, because greenhouse gas emissions do not vary in impact according to where and at what time they are emitted. The approach uses a spreadsheet model based on the most recent data available. The details of this approach are set out in the section which follows.

### Creating a carbon forecast: data sources

- 4.2 A spreadsheet model has been created to give a more up to date assessment of the difference between locating jobs in the proposed EZ, and locating them elsewhere in the city region, using a range of more recent data. This includes the job estimates from the proposers of the zone, and data extracted from the published reports of the Greater Manchester Transportation Unit (GMTU) including emissions, mode share for different centres in the city region, and average commuter trip length. The key sources and relevant dates are summarised below.

#### Figure 6

##### *Data sources for the carbon forecast:*

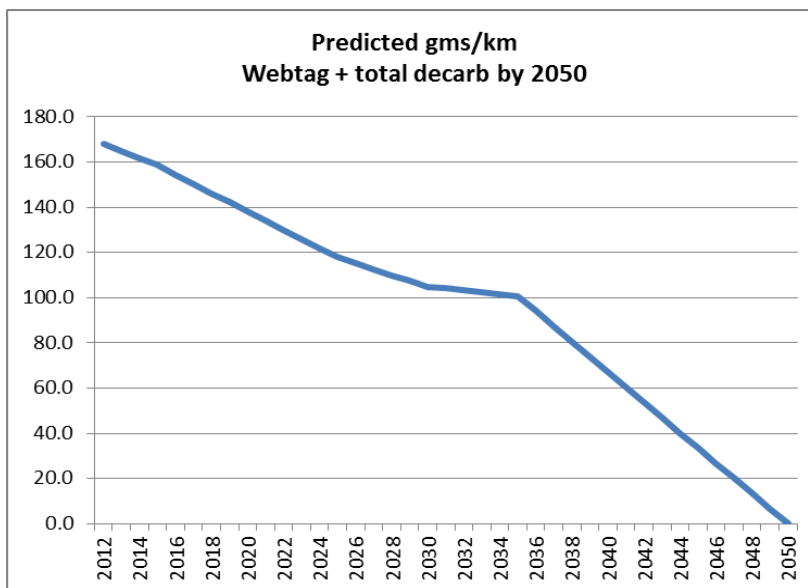
Regional centre emissions:	2006 (Updated EMIGMA database)
Average car commuter distance:	2001 (Census)
Mode split for city region centres:	2010 (GMTU annual March survey)
Average emissions per car:	2011 (MTRU based on SMMT data for 2009 <sup>50</sup> )
Change in emissions per car:	Webtag (covers from 2010 to 2035)

- 4.3 The Webtag figures include a challenging pace of improvements in efficiency but stop at 2035. From 2035 to 2050 a straight line reduction has been used to achieve zero carbon from cars by 2050, which is what the Government is seeking to achieve. This is also hugely challenging. Overall the spreadsheet assumes rapid progress in early years, slowing down for a brief period prior to total decarbonisation of the private car fleet by 2050. It does not include light or heavy goods vehicles. The forecast efficiency is shown in the graph below and is compliant with Government guidance until 2035, and with Government policy thereafter.
- 4.4 It is important to remember that the efficiency referred to here is that for the whole UK car fleet (often called the “parc”). It is not the same as the average efficiency of new cars sold, which receives much publicity but forms only a small part of the whole parc. About 2 million new cars are sold each year and the total number of cars in the UK is over 30 million. New cars sold have to be significantly better than the current average, and indeed some cars being sold now will still be in use in 2030. The average for new cars

<sup>50</sup> 2009 data from *New Car CO2 Report 2011*, SMMT, March 2011

sold last year was 144.2 gms/km, while the average for the existing parc was 172.8. The chart below shows the average for the whole parc until 2050.

**Chart 5**



- 4.5 Previous motor manufacturer voluntary targets for reducing emissions (to 140 gms/km by 2008) were missed by a significant margin<sup>51</sup> and the EU is trying enforce new limits, phasing in 130 gms/km between 2012 and 2015. There are proposals for more stringent limits and these will be needed quickly if they are to work their way through the total car fleet (the parc). In the context of the above graph, the EU targets look modest.
- 4.6 There are other issues concerning the extra “flexibility” allowed to individual manufacturers, particularly those producing larger cars, and the treatment of car auxiliary equipment. Air conditioning, for example, can increase consumption by over 10%<sup>52</sup>. The gms/km test itself has been subject to criticism for not representing real world driving conditions. Finally, the change towards hybrid and stop start cars, will itself significantly reduce the emissions from congested conditions, but not from free flow driving. This has yet to be fully reflected in DfT modelling and forecasting.
- 4.7 Despite these challenges, the prediction is made simpler because so many cars sold today and in the next 5 years will stay in use over the next 20 years. Secondly, the exercise is to make a comparison between locations, thus the absolute values can be subject to some variation with a modest impact on the results. The final issue that of total decarbonisation. This is clearly an ambitious target and thus the calculations may well underestimate total emissions.
- 4.8 The approach adopted is to assume a mode split similar to today for the airport and other centres in the city region. The difference between the two is easily calculated. This can be multiplied by the number of jobs. Using data on the average car commuting distance allows this number to be transformed into car kilometres. These can then be multiplied by the average fuel consumption to provide tonnes of carbon per year. The use of averages is considered reasonable, given that the journeys to other centres use the same

<sup>51</sup> See *A low carbon transport policy for the UK*, Buchan, November 2008

<sup>52</sup> This can vary greatly between vehicles and type of equipment, but is most often in the range 10-15%. Electric vehicles have particular problems with auxiliary equipment reducing their effective range.



assumptions as that used for the airport. The key assumptions are set out in Table 3 below.

**Table 3**

**Assumptions for calculating carbon emissions**

Employees	7000 rising to 15000 by 2020
Daily car trip rate	3 (10 also used to represent retail content)
Days worked a year	233
Ave trip kms	9.7
Ave fuel used gms/km 2011	168.3
Difference in mode split	0.3

Sources:

**Employees:** Enterprise Zone consultation document;

**Trip rate:** MTRU assumption (see below);

**Days worked:** Webtag working days less 20;

**Average trip length:** GMTU reporting 2001 Census;

**Average fuel used:** SMMT 2009 vehicle parc average gms/km adjusted downwards.

4.9 Perhaps the most difficult assumption was how to translate the employment figures given in the consultation document into daily trips. The normal approach is to use a standard database (usually TRICS) which contains various trip rates for different types of development: residential, offices, retail, etc. in different locations. These are set out in terms of trips per 100 square metres or per household.

4.10 In this case we have a figure for employment, but no precise allocation between different uses. In terms of businesses, there are major differences between office and retail, with the latter up to an order of magnitude greater than the former. There are also important differences between types of offices, for example, some have more visitors than others, or may have significant courier or light goods vehicle deliveries. Manufacturing and logistics operations will also have greater requirements for heavy goods vehicle traffic, and retail will have its own particular patterns of goods deliveries.

4.11 The Airport City is intended to be mixed use, and those listed include:

- Logistics
- High quality office
- Advanced manufacturing
- R&D and health related
- Hotel, ancillary leisure retail
- Residential.

4.12 For this reason, in order to produce a cautious estimate, a very low trip rate per employee was assumed of 3 per working day for the first estimate. This is only marginally higher than would be expected from a daily commute.

To illustrate the sensitivity of the carbon emissions to the type of development which would be permitted, a higher rate of 10 trips per employee was used. Retail alone clearly can have

higher numbers of visitors per employee than this, but the figure is used to represent a mix with high retail content.

The spreadsheet was constructed using these figures to calculate the differential impact of locating jobs in one of the existing Greater Manchester town centres (including the city itself) and at the airport site. Basically this depends on differences in mode split between the airport and the centres. The centres included and the non-car mode shares for each are shown in the Table below.

**Table 4**

**GM centres and non-car mode share**

	Non-car mode share
Bolton	45%
Bury	63%
<b>Manchester</b>	<b>69%</b>
Oldham	45% (2009)
Rochdale	44%
Salford (Eccles town centre)	57%
Stockport	42% (2009)
Tameside	44% (2009)
Trafford (Altrincham)	49%
Wigan	62%
<i>Average excluding Manchester</i>	<i>48%</i>
<b><i>Average assuming Manchester is 10%</i></b>	<b><i>50%</i></b>
<b><i>Manchester Airport</i></b>	<b><i>20%</i></b>

*Note: includes public transport, walking and cycling*

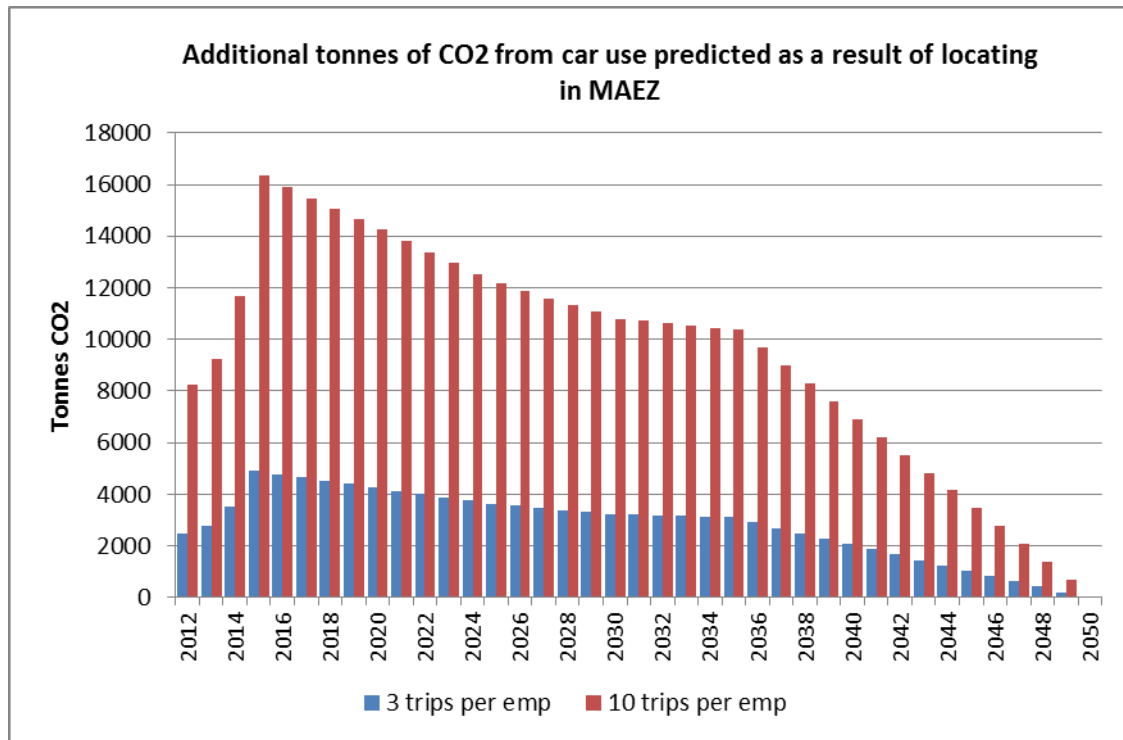
*Source: Table 1.3.1, and Tables 3.1 to 3.30, GMTU report 1580; MAG Ground Transport Plan*

**Creating a carbon forecast**

**Results from the MTRU spreadsheet**

- 4.13 The results from the spreadsheet model are set out below. The DfT also provides a carbon worksheet and the figures have been entered into this to create total costs. This uses standard discounting and works in 2002 prices. The worksheet was adjusted to produce costs at present day prices, also discounted in line with Treasury guidance.
- 4.14 As can be seen, there is a build up as employment increases, followed by a decline in the impact as the car parc becomes more efficient. This applies to carbon alone and does not include any other external costs such as congestion, noise or air pollution.
- 4.15 Over time, the environmental cost associated with congestion will fall, as cars become quieter and emit less (or zero) in slow moving or stop start conditions. Factors such as visual intrusion and severance will continue to be related to high levels of traffic.

Chart 6



**Summary of impacts to 2050**

4.16 The spreadsheet calculates total carbon emitted and this can be compared to totals produced by all car traffic produced for the Manchester area<sup>53</sup> by the local model (EMIGMA). The summary results are as follows.

**Figure 7**

**Total excess carbon emitted to 2050**  
Between 110,260 and 367,534.40 tonnes CO2

**Total excess carbon emitted as % of Manchester City District**  
Between 1.9 and 6.4% at 7,000 jobs, 4.1% and 13.7% at 15,000 jobs

**Total excess carbon emitted as % of South Manchester**  
Between 0.9 and 2.9% at 7,000 jobs, 1.9% and 6.3% at 15,000 jobs

**Other air quality issues**

4.17 This approach cannot be used for other emissions which are not usually calculated using averages and for which new and future car performance is not available. In addition, pollutants tend to have a far more local impact. Thus total emissions are suitable for

<sup>53</sup> Source: GMTU Report 1830, base line total excludes motorways

assessing the climate change impact, without identifying specific populations affected. This is not the case with other pollutants.

- 4.18 It is worth remembering, however, that the improvement in fuel efficiency is at least in part achieved by increasing use of diesel cars. In London, for example, the predicted falls in roadside nitrous oxides and particulates have not been achieved and this has been assumed to be because of increasing diesel car use.
- 4.19 Insofar as increased vehicle kilometres mean more emissions, it is safe to say that these will increase. Without more detailed modelling, it is not possible to describe the effects or place standard DfT costs to them. These would clearly be significant, particularly in the period to 2020, when many cars which do not meet the highest environmental standards will still be in use.

## Conclusions

- 1 It has been possible to construct a robust method, based on recent available data, which is able to calculate additional carbon emissions from locating on the airport site rather than elsewhere in the Manchester city region. This has used Government guidance wherever possible.
- 2 This reveals significant increases in terms of passenger transport emissions, even at an extremely low trip rate per employee and assuming that the challenging targets for vehicle efficiency are met.
- 3 Any large scale activity which involved retailing or other high generation activities such as freight would rapidly escalate the carbon and other environmental and congestion costs.
- 4 It should be noted that is entirely separate from any assessment of the buildings themselves, or additions such as high standards of insulation or solar or wind energy equipment. These carbon impacts are all in the traded sector, not transport, and cannot be included in the same carbon account. It is also true that development elsewhere should be meeting the same high standards in any case, and these are not exclusive to the EZ.
- 5 Considering the clear possibility of abstracting retailing from other parts of the city region the fact that the low trip rate produces such significant disbenefits is a major concern since it contradicts the Government's key policy on addressing climate change and means the EZ cannot in its current form be described as sustainable.

## 5 Possible impact of HS2 on Manchester Airport

### Manchester Airport EZ, the Northern Hub, and HS2

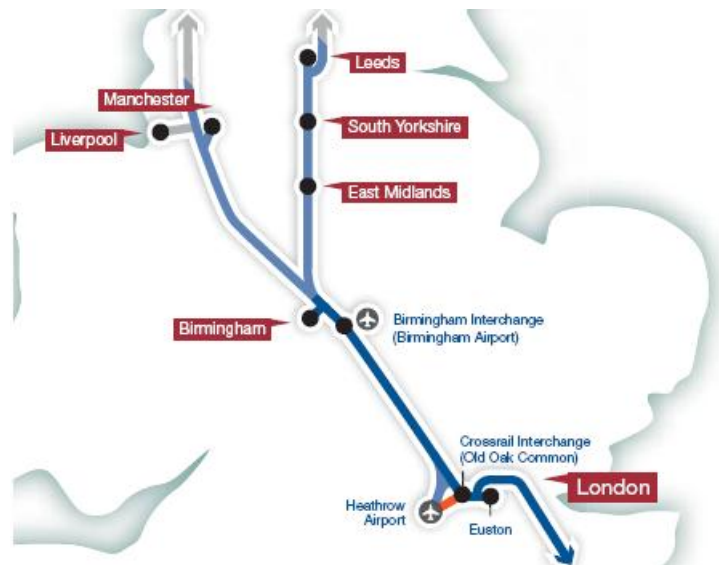
- 5.1 The proposals for HS2 as far as Birmingham are currently out for consultation, and the “Y” option for routes further north is at an even earlier stage. However, it was considered useful to review whether this might have an impact on the EZ, in particular in the longer term development of the city region. It is recognised that this is complicated by uncertainties over the site of a Manchester city centre station.
- 5.2 However, there are much more imminent improvements to the regional rail network, often described as the £700million proposals for the “Northern Hub”, which was endorsed by the Northern Route Utilisation Strategy published in June 2011. This includes a major upgrade to Manchester Victoria station, both in terms of the building<sup>54</sup> and a new rail link to Manchester Piccadilly<sup>55</sup>. The line between Liverpool and Manchester is also due to be electrified by 2014<sup>56</sup>, cutting journey times from 45 minutes to 30 minutes. Other links will be electrified by 2016, allowing trains to run from the south and east through Manchester and on to the West Coast main line.
- 5.3 These schemes will of themselves make major changes to the rail connectivity in the region within the next five years. However, they do not improve the direct rail connections to the airport, for example from Liverpool or Chester.
- 5.4 The Government sees rail connections as key to economic success in the major cities of the midlands and the north, both in terms of access to London and the south east, and to each other. In the HS2 consultation document it states that,  
*“This lack of connectivity between cities in the Midlands and the North is an important reason why their economies continue to function more as isolated units than as a coherent whole.” (Para 2.17)*
- 5.5 It goes on to propose the second phase of HS2 will be a Y shape, allowing connections from Birmingham on a branch towards Manchester, and another towards Leeds. Extra capacity will allow new services on existing lines as well as allowing greater use of the West Coast main line for freight.
- 5.6 The document also appears to suggest that passengers bound for Heathrow’s longer distance flights will travel from Manchester or Glasgow city regions (and elsewhere with a high speed connection) through to Heathrow, without having to use their local airport for a connecting flight, saying that,  
*“There were around two million passenger trips by air between Heathrow and Manchester and Glasgow in 2008. The wider market from other regions potentially served by the high speed rail network is around double this. If an attractive alternative to flying were available, and especially if services were integrated into flight schedules and through-ticketing and baggage check-in were provided, a significant proportion of passengers could switch to high speed rail.” (Para 3.15)*
- 5.7 Exact details of the route and stations are not given, the document says that,  
*“In respect of the proposed second phase to Manchester and Leeds HS2 Ltd will provide its advice to Government on route options later this year.” (Para 3.46)*

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<sup>54</sup> A £20million new station, subject to consultation but complete by the end of 2014  
<sup>55</sup> The Ordsall chord, £85million approved in the budget, due to be completed in 2016  
<sup>56</sup> Estimated at a cost of £124million

- 5.8 However, there is some indication of where stations will be located for the northern part of the Y, the cities of Manchester, Liverpool, and Leeds are included, together with interchange stations serving South Yorkshire and the East Midlands. These are shown on the map below. Birmingham airport is shown, and there is some suggestion that passengers from London and the south east could use it as a substitute for other south east airports. Manchester Airport is not shown, and even with the northern section of HS2, journey times from the south east make a similar enhanced role to that contemplated for Birmingham airport unlikely.

**Figure 8**



- 5.9 One reason for this is that any intermediate station on a high speed line has a detrimental effect on journey times, because there has to be a reasonable rate of deceleration, and acceleration, and these become more significant the higher the speed. These times have to be added to the stopped time to allow for passenger access and thus the “penalty” for intermediate stops becomes significant.
- 5.10 In the case of “parkway” style stations, the configuration can avoid delays if the stations are treated as alternatives. This may turn out to be the case for the Birmingham Airport/NEC HS2 station. The city centre is in fact a branch from the main HS2 line. In phase 1 of HS2, trains could stop at both stations, although there would be time penalty for the city centre travellers, probably about 10-12 minutes. The latter is the current time penalty for the extra stop and given the rates of acceleration and deceleration it is unlikely that higher speed could be attained between the NEC and the city centre.
- 5.11 In relation to Manchester, it is considered that it would be unlikely that a parkway station would be proposed in addition to the city centre. This would detract from the centre and not fit with the stated aim of reducing domestic flights to Heathrow. A parkway station alone would not be compatible with the Government’s stated objectives for improving city connectivity and regeneration.
- 5.12 This view was supported by the independent examination into the previous regional plan. This was concerned about South Manchester attracting a disproportionate amount of development to the detriment of northern town centres in the city region. It recommended a “dual” approach, not trying to over restrict development in the south,

but also pursuing regeneration to the north to prevent any north/ south divide<sup>57</sup>. It supported this, “*whilst recognising its dangers*”. It goes on to recommend accessibility for all parts of the city region to new employment, plus measures outside the plan, in particular training “*to match jobs to people*”. In reality of course this means matching people to jobs, in particular through training.

- 5.13 The key problems in terms of planning and regeneration if an HS2 station were to be located at Manchester airport can be summarised as:
- Failing to integrate with the existing transport networks, both in the city region and the wider north west region
  - Accelerating the move towards a south Manchester/ North East Cheshire economically dominated city region, weakening the northern town centres
  - Undermining the current strength and focus of the city centre and media city
  - Removing the advantages of centres such as Stockport, Wilmslow and Macclesfield which currently have journey times to London slightly below those to Manchester
  - Creating jobs, leisure and other activities where they are hard to serve by sustainable modes
  - Generating demand for car parking for those who wish to use the train to London, and thus more pollution and congestion in local areas and on the motorway network.
- 5.14 There are clearly engineering issues which also need to be considered. A central Manchester location for an HS2 station is challenging. It seems that Manchester, like Birmingham, would be on a spur (see map above). Choices such as these make it very difficult to judge the merits or demerits of HS2, phases 1 or 2.
- 5.15 However, if the line does go ahead, a failure to link city or town centres and to have parkways instead, or to have them in addition to central stations, has huge impacts in terms of undermining city centres and failing to integrate with their public transport networks. Providing new networks to ensure equal levels of sustainable travel to parkways is unlikely to be funded as part of HS2 and would be very expensive, if possible at all. For this reason the road network pressures would be severe.
- 5.16 It should be noted that the Manchester Airport Group (MAG) has argued, to the Transport Select Committee, for a parkway station at the airport, in advance of any link to the centre<sup>58</sup>. This is understandable in terms of trying to draw development out of the city to boost MAG profitability, but would be severely detrimental to the city region’s existing centres if pursued. Despite local authority involvement in the ownership, this proposal does not appear well integrated with, for example, the Core Cities<sup>59</sup> evidence (including Manchester) said,
- “Ensuring that HSR is properly integrated into the classic rail and public transport networks in the city regions will mean that the maximum number of people benefit from the advantages of the network, reducing journey times for business and leisure. The regeneration benefits of HS2, the first stages of a full network, will ripple out into a much wider catchment area, creating jobs for people living in towns, villages and cities in the surrounding areas”* (Para 6.2)
- 5.17 It is also unlikely that potential operators of HS2 would be willing to provide such an airport or parkway station. The experience with HS1 is salutary. The regeneration effects hoped for at Ashford failed to materialise, and the services stopping there have been cut

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<sup>57</sup> Report of the EiP for the RSS for the North West, para 10.10

<sup>58</sup> MAG Written Evidence to the Transport Select Committee, (HSR 68) May 2011

<sup>59</sup> The Core Cities Group is a network of the local authorities of England’s eight largest city economies outside London: Birmingham; Bristol; Leeds; Liverpool; Manchester; Newcastle; Nottingham; and Sheffield.

back to a minimum (3 per day from Paris, none from Brussels). Even at Stratford, where there are major interchange opportunities and regeneration already underway, no HS1 trains currently stop. Ebbsfleet Parkway station is accessed almost entirely by car, generating traffic on an already crowded road system. The fact is that high-speed trains can only economically serve major centres of population. Heathrow airport is not receiving a dedicated station on HS2 in phase 1, so there can be no reasonable expectation of such a facility to serve the much smaller Manchester airport, even in Phase 2.

- 5.18 In fact, Phase 1 of HS2 might reduce passenger use at Manchester, because Birmingham will become attractive as part of the London airports network, gain services, and thus become more attractive as a regional hub.

## **Conclusions**

### ***In relation to an airport parkway station:***

- 1 It would undermine the local objectives for sustainable growth in the region
- 2 It would contradict the stated aims in the HS2 consultation document of providing an alternative to air and car travel
- 3 It is unlikely to be part of the final proposals and would weaken the overall economic case for the EZ.

### ***In terms of other rail proposals***

- 4 The Northern Hub improvements will bring significant benefits to the region's rail network, but will not make the airport more accessible by sustainable modes<sup>60</sup>.

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<sup>60</sup> There may be a slightly shorter journey time on the existing service from Liverpool



## Annex A

### Benchmarking Manchester with other city airports

#### Key points

1. Accessibility by modes other than the car is relatively difficult to provide. Airport sites almost without exception, and almost by necessity, are peripheral sites, and consequently lack the “centrality” needed for concentrated movement corridors. This is the logic behind the sequential test for locating new non-residential development. **Manchester** airport demonstrates this, with a high car mode share for travel to the airport.
2. The policy corollary to this should be that non-residential development at peripheral locations should be restricted to that which needs to be there. In airport terms, this means the airport itself, and uses directly associated with its function, such as aircraft maintenance, freight forwarding and logistics. **Bremen** and **Copenhagen** provide examples where most development near the airport is related to that function.
3. General industrial or office development should be directed to locations where there is a need for brownfield regeneration, and especially where there are areas of high unemployment. The **Dusseldorf** airport city could be questioned in this regard, since there are much needier (and more accessible) areas within the city. The **Manchester** airport city also appears not to fit with regeneration priorities.
4. Displacement of development to the airport from other locations is not automatically bad. If employment is attracted to a more accessible airport location away from a less accessible location, that could be a benefit in terms of traffic generation.
5. Parking is a key determinant of mode split. All airports provide copious amounts of parking, no doubt as a direct response to the accessibility problem identified in point 1 above. **Manchester** and **Dublin** have large areas of surface parking around the terminals
6. However, the manner of the provision has a huge impact on the compactness of the airport development, and hence its walkability and suitability for public transport. **Copenhagen** and **Zürich** demonstrate that a much more compact layout can be achieved when parking is concentrated in multi-storey garages. The issue for **Manchester** and **Dublin** is whether to make more intensive use of the surface parking areas, and whether this will lead to a more favourable mode split overall. An even better mode split could be achieved by developing elsewhere in the city.
7. The provision of public transport to airports is difficult because of the peripheral location. Those that have had the greatest success tend to be those where the airport is on the way to some other significant destination. Examples include **Copenhagen** and **Schiphol (Amsterdam)**. Airports that are “out on a limb” have struggled to secure high public transport accessibility. Examples include **Brussels, Dublin, Edinburgh, Manchester, Vienna**.
8. The airport city concept is frequently presented as if a new city and urbanity can be constructed around the airport. There is scope for this if the airport is large and diverse enough, and especially where, as with **London Heathrow and Schiphol**, it is located fairly centrally within a densely developed urban region. The airport itself can be a significant employer, and if the employment levels are increased further by airport city developments, this can add critical mass, which in turn can justify higher investment in public transport access from a wider area. However, this effect should not be over-estimated, because employment levels will still be low compared to the city centre. For example, employment at **Manchester** airport including the proposed airport city will be around 25,000, which is around one tenth of the city centre employment.
9. There is a general difficulty in that airports occupy a vast swathe of land which is impenetrable as far as transport is concerned. Airport city developments are therefore always on the “terminal side” of the airport. This one-sidedness limits the degree of

centrality that can be achieved. In fact the pattern of development can be likened to a coastal port situation, but the sea is replaced by the runway and apron areas. Thus even when an airport is located within an urbanised area, such as **Dusseldorf, Heathrow and Schiphol**, the development on the “far side” from the terminal is relatively inaccessible.

10. Achieving a low car mode share will mean investment in non-car modes (the carrot) and restrictions on parking (the stick). At peripheral locations this is extremely difficult, and relatively costly compared to central or inner city sites locations.
11. Lowering the car mode share can also be achieved if there is a good supply of good housing within walking or cycling distance of the airport. **Bremen and Copenhagen** benefit in this respect, both with good cycle connections. **Manchester** also has housing close to the airport, but it is separated by major transport infrastructure, parking areas and the proposed business developments, making access on foot untenable. Cycle provision is weak. In addition the nearby population has a socio-economic profile that does not match the new employment requirements of the proposed airport city.
12. Strategy is important because of the relationship with and impact on the wider urban area. **Manchester** sees airport city as a key economic driver for the south of the city and wider region, but this does not address mode split targets or the issue of whether development would be better located elsewhere. The skills mis-match between Wythenshawe residents and employment at the airport is identified in the Wythenshawe Regeneration Framework.<sup>61</sup>

Finally, it should be emphasised that the key points interact and require consideration together, especially:

- Mode split,
- Parking provision,
- Centrality in relation to potential catchments,
- Proximity in relation to staff catchment,
- Development volume,
- Close relationship of development to the airport function.

## Introduction

The aim of this Annex is to consider the Manchester EZ and “Airport City” proposals in the light of experience from other European airports. It focuses on certain airports in the same size range as Manchester (15-25 mppa) and/or with some experience of “airport city” style developments.

European airports with similar number of passengers (15-25 mppa) include national hubs such as: Athens, Stockholm, Brussels, Dublin, Milan (Malpensa), Oslo, Vienna, Copenhagen, and regional hubs such as Düsseldorf, Palma, Antalya and Zürich. Also in this size range are big-city satellite airports such as two Moscow airports (Domodedovo and Sheremetyevo, both around 20mppa), London Stansted and Paris Orly, although their functions are somewhat different.

Airports that are known to be promoting the concept of “airport city” developments include:

- Amsterdam Airport Schiphol
- Bremen Airport
- Dublin Airport
- Düsseldorf Airport
- Frankfurt am Main Airport (“The Squire” and “Gateway Gardens”)
- Manchester Airport

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<sup>61</sup> Wythenshawe Strategic Regeneration Framework, BDP for Manchester City Council, December 2004

The main drivers appear to be a mixture of expanding the range of services and facilities to serve the airport function, and exploitation of land and accessibility assets to provide additional revenue or to diversify the revenue base. The former is likely to accompany airport expansion (passenger and/or freight), while the latter could be seen as a hedge against a flat or even a declining trend. Depending on the airport and land ownership, the profit motive will be strong, but so too will be the perceived need to be competitive.

The rest of this annex is in four main parts

1. Benchmarking criteria
2. Manchester baseline
3. Other airports
4. Comments on performance against the criteria

## 1 Benchmarking criteria

The aim is not just to compare other airports with “airport city ambitions”, but also to consider airports that appear more content to be just airports. The benchmarking exercise addresses the following:

- a) Links to the host **city centre**, such as the quality of the link, journey time taken or proximity
- b) Links to or proximity of **other significant centres** or employment locations
- c) **Accessibility** from other areas, in particular the range of locations served by quality public transport (fast, frequent).
- d) Availability of **workforce** with easy reach, and its suitability for employment requirements at the airport development
- e) The availability of **parking** at the development zone and the airport.
- f) The **impact of parking** on walkability and compactness (including impact on access to public transport)
- g) Whether activity in the development zone is **related to the airport function**.
- h) The **potential** of the development zone to become an accessible multi-use centre with low car mode share.
- i) Airport or city **mode split**
- j) **Strategic** context

## 2 Manchester airport baseline

### **Manchester airport in context**

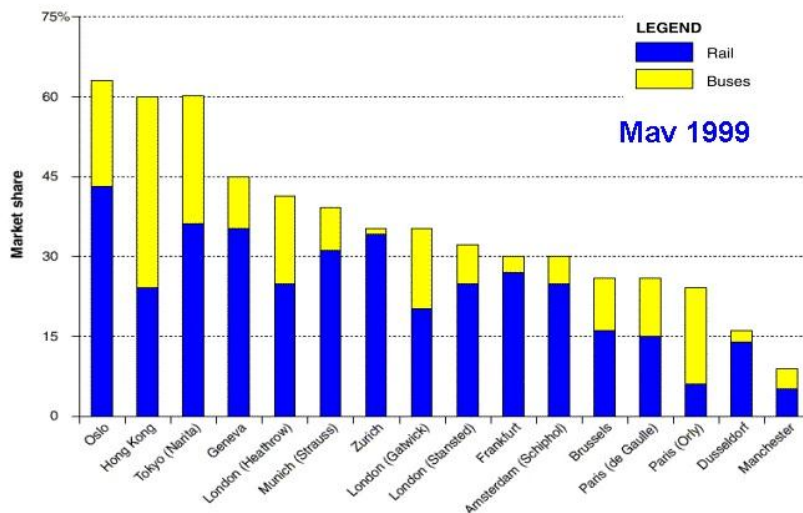
Manchester airport is the largest (in terms of passenger numbers) outside the South East, with around 18 million ppa (2010). It is the 24<sup>th</sup> largest airport in Europe. Like other UK airports (and those in other countries with struggling economies), passenger numbers were down from 2009.

### **Mode of travel to Manchester airport**

Most people using the airport get there by car. Manchester airport has historically had a low public transport mode share, and while the position has improved, so too has the position of other similar sized airports.

Data for 1999 shows the relatively poor position of Manchester in terms of public transport mode share. (See Figure A1)<sup>62</sup>

**Figure A1: Public transport mode share of passengers at selected airports, 1999**



The position had markedly improved by 2004, when according to the CAA the mode share of public transport (excluding taxis) had doubled to 20% for passengers. The share for employees was 8%. It would appear that Manchester remains at the bottom of the league in terms of public transport mode share for airport access.

Access to Manchester airport is as follows:

- Cycle - cycle routes, though not high quality
- Tram - route planned in medium to long term, although not fast
- Bus - 8 services to various parts of the conurbation, including two routes to the city centre
- City rail - direct trains to city centre, fairly frequent, but not regular
- Regional Rail - regional trains to most key destinations in the north west at least hourly.

Despite what appears on paper to be a fairly comprehensive public transport offer, the mode share has not matched the level achieved by some other major European airports (20% compared to Zürich 46%, Munich 40%, Schiphol 34%, Frankfurt 33%).

### **Parking at Manchester "Airport City"**

The business park has a pre-existing planning permission, and the promotional literature boasts that provision is "unrivalled" at a ratio of 1 space per 20 square metres gross floor area. This is 50% more

<sup>62</sup> [http://www.isocarp.net/Data/case\\_studies/cases/cs01\\_4552/index.htm](http://www.isocarp.net/Data/case_studies/cases/cs01_4552/index.htm)

parking than would have been allowed if the planning permission had respected the Government's former maximum parking standards (PPG13). The 1:20 provision is generally regarded as sufficient for all employees to drive to work, thus removing any incentive to choose an alternative mode. A key question is whether this parking ratio is intended also for the areas yet to be built?

### ***The proposed Manchester "Airport City"***

The airport is promoting a business park, just north of the terminal buildings, and an "airport city" which is now proposed to become one of the Government's approved Enterprise Zones. The sites of these two development areas overlaps to the extent that the undeveloped parts of the business park are absorbed into the somewhat larger Enterprise Zone.

Given that the business park was established some years ago, it would appear that commercial demand has been low, otherwise it could have been built out without the need for EZ assistance. A quick look at rents suggests they are around a third below those in the city centre for modern office space.

The size of the EZ is given variously as 24 or 30 hectares, which is much smaller than other EZs, but which is of comparable size to some "airport city" developments elsewhere (e.g. Frankfurt's "Gateway Gardens is 35 hectares; Dusseldorf Airport City is 17 hectares). The Manchester Core Strategy<sup>63</sup> document refers (page 39) to four major employment growth locations totalling 173 hectares, including 50 hectares at "Manchester Airport and the surrounding area".

The notion that major transport infrastructure can be funded from s106 contributions from new businesses in EZs seems implausible. These businesses, almost by definition, will have fragile profit margins, or (if diverted) will be looking to increase them by going to a subsidised site. Asking them to contribute large sums for infrastructure would probably remove any expected benefit of going to the EZ.

Major growth at the airport location is part of the emerging Core Strategy for the City, which points to a lack of land for development in South Manchester (within the city), and hence the need for development around the airport. The uses are expected to include 55 hectares of "B1a offices, B1b/c research and development and light industry and B8 logistics and distribution". It elaborates the Airport City location as suitable for "aviation related development and a mix of economic development uses including offices, high technology industries, logistics, warehousing and airport hotels".

The airport also features in the Wythenshawe Spatial Framework, which emphasises the need for better connectivity to areas of employment, especially the airport with the proposed tram extension, and identifies two north-south "development corridors" through Wythenshawe, both terminating at the airport. These are intended to "provide the backbone to future development through the heart of East and West Wythenshawe, acting to balance the priority of regeneration and service provision on either side of the M56."<sup>64</sup>

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<sup>63</sup> Manchester's Local Development Framework, Core Strategy, Development Plan Document Publication consultation, Manchester City Council, February 2011

<sup>64</sup> Wythenshawe Strategic Regeneration Framework, BDP, December 2004

### 3 Other Airports

#### Amsterdam Schiphol

Schiphol is Europe's 5<sup>th</sup> busiest airport which generates 2% of the Netherlands GDP (€8 billion every year). The Schiphol cluster currently provides 60,000 jobs in around 600 businesses. Companies include many logistics firms and service providers, but also some international head offices, including Citigroup and Microsoft.

[http://www.iamsterdam.com/en/business/who\\_is\\_here/testimonials/schiphol](http://www.iamsterdam.com/en/business/who_is_here/testimonials/schiphol)

Figure A2 Schiphol (Amsterdam) airport site



The airport is well provided with public transport including local, regional, international trains, buses and coaches to all main destinations, and a new busway (Zuidtangent) which links the airport with Haarlem in the west and the poorer housing areas south east of Amsterdam. Despite this high level of provision, public transport accounts for little more than a third of access to the airport. It is likely that the figure for the business developments around the airport (which do not have such direct access to the rail station and bus stops) will be lower still.

The layout of the airport facilities and nearby industrial and commercial developments is fairly dispersed and complex, which is not helpful to public transport accessibility, although the terminal arrangements focus passengers directly at the public transport hub.

**Mode split in 2003 for passengers was:**

Bus/rail	34%
Car (kiss and fly)	35%
Car (parking)	10%
Taxi, hotel bus, rental car	21%

(18,500 airport parking spaces)  
(source ATAG)

**Bremen**

As part of a city rejuvenation project using (city) state funds, Bremen established an “airport city” in 2000. This is adjacent to the airport. A newish tramline links the airport to the city centre in 12 minutes, and passengers have been increasing steadily since it opened. Most of the employment near the airport is within a 10 minute walk of a tramstop.

**Figure A3 Offices (right) opposite Bremen airport terminal showing tramstop**



In the Airport City West (distance to the airport > 1 km) industrial usage is allowed. In the Airport City Central, East and South (around the airport terminal) only offices are allowed. Large areas north and north-east of the airport terminal have been occupied for some years by aerospace industry (Airbus) and logistics undertakings, which are closely associated with the airport function, and not easily located elsewhere. A large area to the north is occupied by a huge tram and bus depot. There are, however, new offices, which are not necessarily tied to the airport function, including a major new block opposite the terminal building. This has underground parking despite being adjacent to the tram stop (city centre 3.5 km).

The airport’s proximity to the city centre is unusual, and would be difficult for an airport serving a major city. The city (state) population is around 550,000, and the whole region has a population of 1.8 million and the airport handles around 2.6 mppa. The Manchester metropolitan county has around 2.6 million, but its airport passenger total is seven times bigger than Bremen, emphasising its importance as a regional hub serving a wide area with other large cities.

Bremen has pursued successful environmental transport policies for many years. For the city as a whole, over 60% of trips are made by environmentally friendly modes:

Walk	20%
Cycle	23%
Public transport	17%
Car drivers	33%
Car passengers	6%,
Other	1%

There are no mode split data for access to the airport. However, the mode split is probably favourable, because of the airport's proximity to the city centre, served by tram, and housing areas a short distance by cycle. All roads are equipped with cycle paths. Also, a compact layout is achieved by accommodating parking in multi storey garages. On the other hand, there is a lot of parking serving the airport (at least 4,500 spaces) and Airport City and new offices, and there is dependence on the one tram line (there is only peripheral bus line in addition).

Bremen is conscious of the need for public transport accessibility, for example by locating its Messe (exhibition area) next to the main station.

Some of the economic sectors in which Bremen traditionally was strong have managed to adapt to new technological requirements and perform successfully e.g. airplane/aerospace engineering, car manufacturing, logistics and trade. The aircraft and aerospace industry and its suppliers employ 12,000 in Bremen and another 6,000 in the region (Tholen/Schekerka, 2003). This economic restructuring has been significantly aided by Federal funds in the late 1990s, with airport city one of four investment sectors. "The Airport City office and industrial park development, opened in 2000, and houses 500 companies with a combined workforce of 13,500." (Meurer, 2005).

## **Copenhagen**

Copenhagen, as a national hub for Denmark, handles somewhat more passengers than Manchester, 21.5 million in 2010.

The majority of development opportunities at Copenhagen airport are on land associated with the airport itself. The airport owners, which include the City Council, specify which uses can occupy the sites, and the amount of floorspace. Generally, the uses will be associated with the airport function. However, there is a large office site (Scan Port) on the other side of the motorway for 95,000 sq metres of office space. This is only 400 metres from the Kastrup Metro station (one stop) and about 800 metres from the airport terminal on foot. It is offering bespoke offices and a hotel with views over the Sound and the Øresund Bridge. This is shown in Figure A4 on the following page.

In conjunction with the construction of the fixed link (bridge and tunnel) across Øresund Sound between Denmark and Sweden, the airport purchased a large, reclaimed piece of land (420,000 m<sup>2</sup>) along the coast, immediately east of the airport. A good portion of this is given over to a "Cargo City" - 200,000 m<sup>2</sup> of covered floor space for logistics, service and offices – all to companies which conduct aviation activities or associated.



**Figure A4 The Scanport proposal near Copenhagen airport, with 95,000 m<sup>2</sup> office space.**



The rest comprises up to 220,000 m<sup>2</sup> of aviation-related office, storage, distribution and production facilities. The sites or buildings are leased to airport-related companies such as a veterinary centre, cargo handling terminals, distribution warehouses, airline kitchens, Danish Customs and Excise Authority.

In the northern part of the airport up to 70,000 m<sup>2</sup> of office space and one more hotel may be constructed. This may not be so strictly have to be airport-related, but it is likely that the cost the site would deter companies without such a requirement.

Most development in Copenhagen is carried out on the principles of “transit oriented development”, with higher densities and mixed use focused on stations. For several decades there has in addition been a major emphasis on the promotion of cycling. The result is a fairly favourable mode split with a much smaller role for the car than in other comparable size cities. The car mode share is one of the lowest in Western Europe.

***Mode split for all trips in the city:***

Walk and cycle	59%
Public transport	13%,
Car drivers	21% ,
Car passengers	3%,
Other (e.g. motorcycle)	4%.

It is likely that the mode spit of trips to the airport is also favourable. The airport is served by cycle ways, Metro and commuter, national and international trains, and 3 local bus routes. There is good quality housing within easy reach of the airport.

The airport is part-owned by the City, and control is exerted over end-users of airport development sites, and so most uses are air-related. It seems unlikely that development at the airport would divert development from more needy areas. Other sites are available elsewhere in the city, but these have similar levels of accessibility by Metro or suburban rail.

## Dublin

Dublin is roughly the same size as Manchester with 18 million ppa. According to an article in April 2008 by Jonathan Brasse:

“The Dublin Airport Authority has revealed plans for a €4bn (£3.1bn) business park aimed at becoming Ireland’s ‘new premier location for international business headquarters.’ The Dublin Airport City project will be built over 15-20 years on a 350 acre site to the east of the existing airport. It will include nearly 6.5m sq ft of offices and 430,000 sq ft of retail, hotel and conference space. The scheme is expected to provide approximately 30,000 jobs, including up to 2,000 construction and fit-out jobs a year over the construction lifetime of the project.”

The airport city would be developed on land currently used for surface parking see parking benchmarking (Figure A8).

## Düsseldorf

The airport handles a similar number of passengers to Manchester, and its accessibility is also similar. As with Manchester, the tram is not a fast and direct route to the airport, and the main city centre link is by rail.

An “Airport City” is being developed, with completion expected in 2013. The area is 17 hectares, and it is located south west of the terminal building. It is the biggest development site in Dusseldorf apart from the Rath area nearby, with 23 hectares. There appears to be sufficient demand for both. The city mode split is not as favourable as in Bremen:

Walk	17%
Cycle	5%
Public transport	21%
Car drivers and passengers	57%
Other (e.g. motorcycle)	1%.

The mode split at the airport for air passengers in 2003 was (ATAG):

Rail	18%
Bus	4%
Taxi	21%
Car	51%

(Parking including underground in 2003 was 10,500 spaces for the airport)

**Figure A5 Dusseldorf “Airport City”**



The airport city site infrastructure is being developed by the airport with private investors developing the individual buildings. There is no apparent requirement for users to be linked to air activity, and opportunities are advertised on the open market. However, the uses are specified in the development code. As is common in Germany, parking must be accommodated underground, while surface parking and access must not comprise more than 10% of the site. Such details are specified in the development code.

It is possible that the airport city will divert demand from other more needy areas, where brownfield land remediation costs are higher. An example would be Oberbilk, which has high levels of deprivation and unemployment. Also the large former Derendorf railway yards, much closer to the city centre and better connected, are in need of redevelopment, and close to areas of unemployment.

There are other sites that will be in competition with airport city. Major regeneration sites in the nearby district of Rath are being developed (former Mannesmann steelworks) and these currently are less accessible than airport city.

The Dusseldorf airport city has similarities with Manchester, especially in accessibility outcomes, and in the questionable development priorities when there are more centrally located sites in need of investment.

### **Frankfurt am Main Airport**

Frankfurt is Europe’s third busiest airport, with 53 million ppa in 2010.

Despite strong public transport connections, car and taxi account for a stubbornly high car mode share of around two thirds, with public transport at one third.

**Mode split in 2006:** 68% car/taxi, 32% public transport/other  
([http://en.wikipedia.org/wiki/File:Fraport\\_Anreise\\_modalsplit\\_2006.png](http://en.wikipedia.org/wiki/File:Fraport_Anreise_modalsplit_2006.png))

This is almost the reverse of **Hong Kong**, which has: 29% car/taxi, and 70% public transport.

Frankfurt is promoting two major “airport city” style developments: one which is an iconic new building located over the long-distance train station, and the other a more conventional business park.

**Frankfurt: The Squire (formerly Airrail centre)**

A single 9 storey building over the long distance train station

Total rental area        140.000 sq m

Offices                      94.500 sq m

Hotels                        34.500 sq m

Retail & gastronomy       5.900 sq m

Atria                         13.000 sq m

Car parking spaces:       600 within the building and 2.500 in the adjacent parking garage

**Frankfurt: Gateway Gardens**

A business park development of 35 hectares near to Terminal 2.

“Featuring modern architecture and plenty of soothing greenery, it opens up diverse possibilities in a high-quality urban atmosphere.”

[http://www.gateway-gardens.de/en/vision/airport\\_city.html](http://www.gateway-gardens.de/en/vision/airport_city.html)

By 2020, it will include:

- Space for offices and services
- Hotels
- Space for conferences, trade shows and exhibitions
- Recreational facilities
- Restaurants, bars and shops
- Educational and Research Institutions

**Figure A6 Frankfurt “The Squire” - an airport city at the airport in one building**



### **Vienna**

Vienna airport is comparable in size to Manchester, with 20 million ppa.

Mode split data have not been found, although only 9% of foreigner arrivals continue their journey from the airport by public transport.

**Figure A7 Vienna “Airport City”**



An “office park” has been developed near the airport with 70,000 sq metres of floor area now fully let. These offices were available on the open market and were not apparently controlled as to the end user.

An “airport city” is now being built opposite the main terminal building, on land previously used for surface parking. It is not known what alternative provision will be made for parking.

## Zürich

Zürich is somewhat busier than Manchester with 23 million ppa, and ranked 12<sup>th</sup> largest in Europe. Office space is provided in the airport complex, including some for non-air-related users, but the industrial/office/business areas near the airport are predominantly for uses related to the airport (services/hotels etc).

The modal split indicates the relative proportions of people using public transport and private vehicles based on the total traffic volume of passengers, visitors and staff. It has been conducted on a regular basis for Zurich Airport since 1994. In that year, it stood at 34%, but has constantly risen since. It reached 38.6% in 1999, 43.2% in 2003 and 46.3% in 2009.

([http://www.zurich-airport.com/desktopdefault.aspx/tabid-43/74\\_read-3209](http://www.zurich-airport.com/desktopdefault.aspx/tabid-43/74_read-3209))

This reflects the general situation in the city as a whole, which probably has the highest public transport mode share in Western Europe. In 1990 the public transport mode share of all residents' trips stood at 38%. Which was 50% higher than in London. Zürich city has been investing strongly in public transport since that time, so the figure is expected to be much higher today.

A striking feature of Zürich airport is its compact layout, with uses clustered around the airport terminal. One of the ways in which this has been achieved is by placing almost all parking in multi-storey garages. The low amount of surface parking can be seen in the comparative parking Figure A8 at the end of this Annex.

The growth of the airport and related development has been planned as part of the spatial development plan for the Canton of Zürich.

## 4 Comments on performance against the criteria

### **Mode split**

The mode split of passengers to airports provides some indication of the likely mode split of “airport city” developments. There are important factors that need to be taken into account, however. A high public transport mode share for passengers (e.g. Zürich at 46% of all passengers, visitors and staff, and excluding taxis, 2009) demonstrates that it is *possible* that an equally high public transport mode share could be achieved at developments close to the airport’s public transport hub(s). This will not be achieved, however, if the developments are beyond a short walking distance, have high levels of dedicated parking provision, or if the walking environment is unpleasant or unclear or inconvenient.

It should be noted, however, that the availability of public transport and a high public transport mode share by airport passengers does not automatically translate to a similar mode split for staff and visitors to “airport city” developments. This is primarily because of the different parking circumstances. Long stay parking charges (and locations) provide passengers with a major incentive to not bring their car to an airport, whereas airport city employees (daily commuters) may be less deterred by charges, and in many cases will be provided with dedicated free parking (as at Manchester business park). It is common for the public transport share of trips by airport employees is low than that for passengers.

The issue of differing modal split for passengers and airport employees has been addressed by Humphreys and Ison:

*“The private car share of the modal split for employees is considerably higher than for passengers, possibly due to most having a car available, starting their trip from a home address and many public transport links failing to serve the full range of employment locations dispersed around an airport. Potential to improve the employee share by public transport should be seen as a priority area since these trips do not involve the carriage of baggage and to a degree are perceived to be more susceptible to the control and influence of airport management.*

*On closer examination the airport management-employee relationship is complex with only 7-10% of employees directly employed by the airport management, the rest are working for third party contractors. This means that to achieve mode shift the airport cannot simply dictate terms but has to work in partnership with the variety of companies on site. Take **Manchester** airport, over 100 different companies on its site are employing around 15,500 people.”*

*Paper for 82nd Annual Meeting of the TRB 2003, Committee on Airport Terminals and Ground Access A1J04, “Ground Access Strategies: Lessons from Uk Airports?”, Dr Ian Humphreys and Dr Stephen Ison (2002), Transport Studies Group, Loughborough University.*

The highest public transport mode shares for passengers are to be found in the most densely populated cities (Hong Kong, London Heathrow, Tokyo) with over 60% of passengers travelling to and from the airport by public transport. There are a few other smaller airports that also achieve a very high public transport share of over 45%, including Oslo, Geneva, Munich and Zürich. Again, these airports tend to be developed in a compact way, which is essential for convenient public transport access.

### **Parking impacts**

There are two key impacts of parking which must be considered.

1. The quantity and availability (controls and charges) of parking is probably the biggest factor determining the mode split of people accessing the airport city.
2. The manner of parking provision has a direct impact on the proximity of activities and hence the walkability of the airport city environment.

All airports have controlled parking and charges related to proximity to the terminals and length of stay. The restrictions on supply and the attendant charge levels act as a deterrent to car use for passengers where good public transport facilities are provided. Despite this, the public transport mode share may be well below what is achieved for travel to the city centre.

Business parks on the other hand typically have large amounts of dedicated free parking for employees. If such parking is located near an airport, then controls are needed to keep out airport users. **Manchester** airport business park boasts about its high provision of parking in the planning consent, but this in effect is boasting about a high car mode-share, which runs against transport and environmental planning policy.

The provision of surface parking inevitably means that activities are more spread out, and also that walking routes are unattractive. Where parking is in multi-storey garages a much more compact and walkable spatial arrangement can be achieved, as at **Zürich**, and this is a major contributor to public transport competitiveness. Where large amounts of surface parking are provided, as at **Manchester** and **Dublin**, other uses are inevitably pushed further away from the terminal and from the public transport facilities. (See Figure A8) In both these examples, however, it is proposed to use some of these surface parking areas to build and “airport city” developments.

The issue therefore arises as to what provision will be made for parking, and what impact this will have on travel to and from the airport area. No details are provided in the current Airport City consultation, but the following scenarios seem possible:

- Retain the same amount of parking, but compress it into multi-storey garages, thus releasing land for development. The additional demand arising from the development would in effect mean a lower proportion of travel could be by car.
- Retain the same amount of parking, but provide it underground, below the new development. The mode split impact would also be to suppress car travel overall.
- Provide additional parking capacity (as well as building multi-storey or underground) to cater for demand arising from the airport city. This would continue and exacerbate the existing high car mode share.

Whatever solution is adopted, there will be issues as to the relationship with existing business park developments at the airport, which have been built and marketed as car-based developments. Moreover, the EZ is likely to apply relaxed planning controls, which could make it difficult to plan the existing surface parking areas as an integral part of the airport area strategy. It may be impossible, for example, to insist on placing parking underground.

### ***Airport-related uses***

In general it appears that the majority of development close to airports are occupied by uses with a direct relationship to the airport function. For users without such a relationship, there would appear to be few commercial advantages from locating near an airport. There will be a need to compete for both land and workforce with those businesses that need to be near the airport, whereas this competition could be avoided at other city locations. However, if incentives (subsidies) are offered, such as at an EZ, this will distort such competition, and create the risk that companies locate there to take advantage of the subsidies rather than any particular advantages of an airport location. If this happens, it will be more likely that the enterprises will be already “out there” and simply relocating rather than providing genuinely additional jobs. This begs the question as to why such incentives should be provided at the airport location, especially when there are other parts of the city in greater need of jobs and regeneration.



**Table A1: Summary of assessment against criteria**

Criteria	Schiphol	Bremen	Copenhagen	Dublin	Düsseldorf	Frankfurt	Vienna	Zürich	Manchester
a) City centre access	++++	+++	+++	-	+++	++	++	+++	++
b) Other centre access	+++	-	+	-	++	++	+	++	+
c) Wider access	+	-	+	--	++	+	+	+	-
d) Local workforce relevant	-	++	++	-	+	-	--	+	--
e) Parking supply	?	-		--	-			-	---
f) Parking impacts	+	+	++	--	+	+	+	++	---
g) Related uses	+	--	++			+	?	+	--
h) Potential centrality	-	--	--	---	-	--	--	-	-
i) Mode split	+	n/a	n/a	n/a	-	-	n/a	+++	--
j) Strategic context	+	+	+					+	+

+ = positive judgement  
 - = negative judgement

**Figure A8 follows**

**Figure A8 Area devoted to surface parking at selected airports**  
(Note: all images to the same scale)

Surface parking at airports with 17-30,000 ppa

