



Transport Friendly Towns

February 2009



Background

Five years ago we examined the development potential of 12 major UK office centres outside London based upon their level of transport provision. This report looks at how matters have changed, and what this may mean in terms of how these cities deal with the current recession.

What is clear from the results is that the cities examined have had varying levels of success in improving transport performance over the past five years. The economic slowdown over the next few years may take the pressure off the transport systems, which may provide a window of opportunity for cities to tackle transport deficiencies.

The risk, however, is that the likely reduction in demand on the transport systems may be seen as the apparent 'success' of existing transport provision. This perception needs to be avoided if the economic recovery of the cities is to be assisted rather than hindered by transport provision.

Approach

The relationship between transport, property and land-use is complex, although the importance of transport in the development process is well understood by policy makers, developers, investors and occupiers. Nevertheless, there are a number of factors that are likely to influence this relationship and which have been examined as part of this research.

The factors examined include population characteristics, economic performance, commercial floorspace details, level of transport provision and funding, and proposals for the future. These factors have been condensed into six key measures, representing both the 'supply' and 'demand' aspects of transport and development, as summarised below.

Demand Measures

- Population density – persons per sq km
- Wealth of population – GDP £ per head
- Office stock – sq m per 1,000 head of population

Supply measures

- Road density – km per 10,000 head of population
- Transport budget – local authority transport expenditure per head
- Rail provision – rail frequency levels

These six measures have been assessed in order to judge the relative 'transport performance' of the cities. This includes a comparison between the cities performance in 2003 and their current performance. This therefore shows how the cities perform relative to each other but also, as importantly, how they have changed over time.

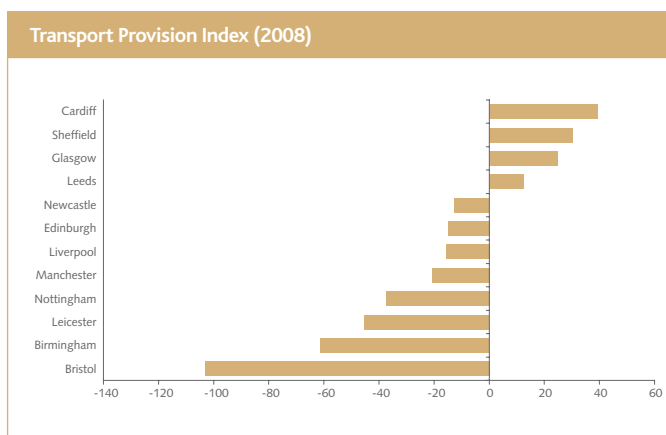
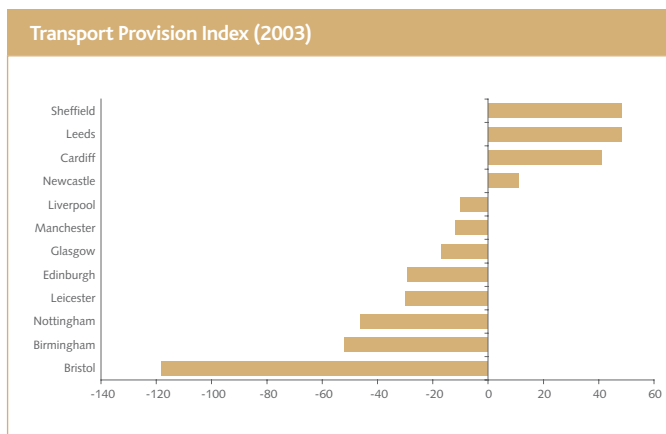
It does need to be recognised that the results are based on an overview assessment of the performance of each city. This strategic analysis, whilst based upon the latest available data as well as our in-house forecast data and market knowledge, can only provide a guide as to the detailed operations of each city. Nevertheless, the results should still provide a useful mechanism by which the opportunities in each city can be identified.

Key Findings

The 'transport provision index' score for each city for 2003 and 2008 is summarised in the two charts below. The 'demand' factors minus the 'supply' factors produce the transport provision index score. It effectively provides an indication of the overall relative performance of each city in terms of how well transport provision matches demand. A negative score therefore indicates that demand is in excess of supply, whilst a positive score indicates that supply is adequate for demand.

In 2003 Sheffield and Leeds came top of the list, mainly due to relatively good overall levels of transport supply. However, both cities have slipped to second and fourth place respectively. This is particularly associated with a relative reduction in transport spend per head.

Bottom of the list in both 2003 and 2008 are Bristol and Birmingham, mainly due to high levels of demand upon the transport systems. However, Bristol's overall performance, whilst still showing a negative score, has improved since 2003. This is primarily associated with a relative reduction in demand levels between 2003 and 2008.



The city at the top of the list in 2008 is Cardiff, which was third in 2003. A key reason behind this is improvements in rail service levels to the city, although a relative reduction in demand from office development has also helped.

Glasgow has seen a noticeable improvement, moving from seventh position to third place. This is mainly due to overall reduced demand pressures, although transport expenditure has increased in relative terms which has helped matters.

Liverpool and Manchester have both seen a slight deterioration in their transport provision index score between 2003 and 2008. In the case of Manchester this may not properly capture the benefits of the Metrolink, although increased road congestion is putting pressure on the city. For Liverpool a relative reduction in transport expenditure appears to be impacting on provision levels.

Nottingham and Leicester have switched positions between 2003 and 2008. However, the transport provision index score for Nottingham does not fully capture the benefits that have arisen from the Nottingham Express Transit (NET) and so may be under-representing the performance of the city.

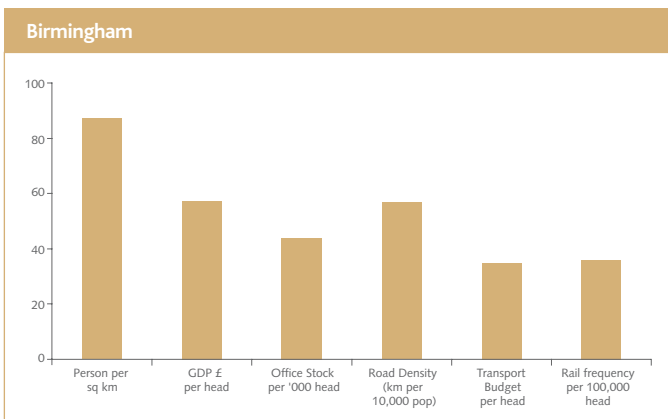
Newcastle has dropped from fourth to fifth place, but more significantly the transport provision index score is now negative. Although rail service levels have improved, relative levels of overall transport expenditure in the city have reduced.

Edinburgh has improved in terms of its overall transport provision index score, which has helped move the city to sixth place. This is mainly associated with improved levels of transport expenditure.

Varying the weight attached to the various transport-related measures does not fundamentally alter the above ranking. The main exceptions are for an improvement in the position of Manchester and Liverpool if the significance of the 'density' measures is altered, whilst Newcastle and Edinburgh have a lower position relative to the main analysis.

Cities which have particularly significant plans for improving transport provision include Birmingham, Bristol, Edinburgh, Liverpool, Manchester and Nottingham. However, many of these plans are still uncertain and could fail to come forward, and a number were expected to be delivered within the last five years. The delivery – or non-delivery – of these schemes is likely to affect the competitiveness of these towns.

Birmingham



- Birmingham is ranked 11th of the 12 cities in terms of its transport demand/supply pattern.
- The city has a transport supply 'deficit' overall compared to current notional demand levels. The transport provision score is -61, which compares with -52 in 2003.
- This imbalance is due, in part, to a relatively low level of road network per head of population, as well as local authority transport expenditure levels towards the lower end of the range of the 12 cities.

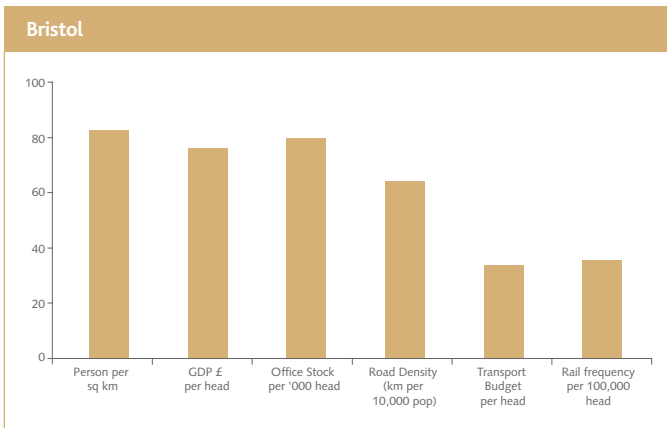
- The table below highlights progress made on various transport proposals for Birmingham since 2003. Transport improvements have been delivered, although they have tended to be more regionally focussed than for the Birmingham city area itself. The more city-focussed improvements are taking longer to achieve but are clearly important for the continued success of the city.

Planned Transport Schemes - Birmingham		
Scheme	2003 Status	2008 Status
Birmingham Northern Relief Road (Midland Expressway)	£700m privately funded toll-road planned to open 2004.	Opened ahead of schedule in 2003.
West Coast Main Line.	Improvements to service levels planned for 2005. Proposals for up-grading of Birmingham New Street undecided.	Improvements delivered, and further improvements in 2008. Birmingham New Street Station re-development given approval in 2008, and funding approved.
Longbridge-Frankley rail line extension	Proposal to extend rail line.	Not progressed.
Midland Metro	Lines 2 (Snow Hill to Edgbaston) and Line 3 (Wednesbury to Brierley Hill) expected to be open 2008.	TWA powers in place. Possible opening past 2012, subject to funding approvals.
Congestion charge	Not developed	Rejected

- In summary, Birmingham continues to have an under-supply of transport relative to demand levels, particularly in relation to the other cities. The various transport proposals for the city region could help improve transport provision levels considerably. However, they do need to be delivered, particularly the New Street station re-development and the Metro extensions.



Bristol



Bristol is ranked 12th of the 12 cities in terms of its transport demand/supply pattern. The current transport provision score is -103. Although this still indicates that the city has a transport supply 'deficit' overall compared to current notional demand levels, matters appear to have improved since 2003 when the transport provision score was -130.

The improvement is mainly due to some of the demand pressures on the city easing in relative terms. However, in overall terms there is still a relatively high level of demand on all three measures. Transport spending and rail service frequency levels, meanwhile, are relatively low.

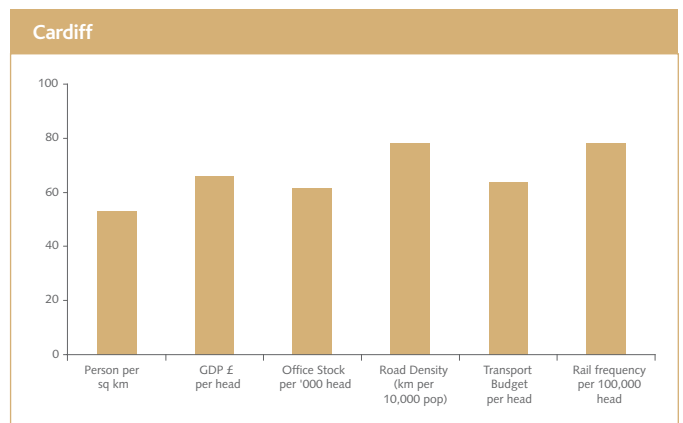
The transport proposals to deal with the situation are therefore particularly important for Bristol. The table opposite illustrates some of the key proposed schemes for the city and how things have changed since 2003. As will be seen, progress has been slow overall and this is hampering the growth of the city.

Despite limited delivery of transport improvements, those that have been made have helped to reduce pressure on the city. If the schemes listed in the table are eventually achieved then it will make an appreciable difference to the prospects for Bristol.



Planned Transport Schemes - Bristol		
Scheme	2003 Status	2008 Status
Callington Link Road	New road extending St Philips Causeway to the Callington Road. Proposal with funding required.	Taken forward into Joint Local Transport Plan. Proposed construction 2012/13 if approved.
Airport Link Road from A38 to A370	New link road to airport. Viability study undertaken but government not supporting.	Now know as South Bristol Link, and airport link identified as priority. Preferred option 2009, with possible construction in 2013 if approved.
Light Rapid Transit	Government approval in 2001 and TWA application expected in 2003.	Original scheme revised and scheme bid to be submitted in 2009. if approved construction could start 2011.
Bus Service Investment	New bus lanes, buses and junction priorities planned.	Work now started on some of these, but Greater Bristol Bus Network (GBBN) seeking funding.

Cardiff

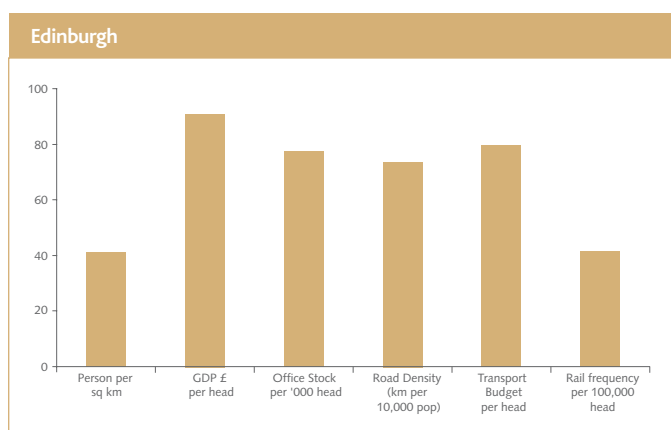


- Cardiff has moved from 3rd to 1st place in terms of its transport demand/supply pattern. The transport provision index score for the city is +39, which compares with +10 in 2003.
- Part of the reason for the success of Cardiff relative to other cities, is that transport demand levels are comparatively low. The exception is office stock per head, which is slightly above average. In addition, the density of the road network and transport expenditure by the local authority is above average.
- The city has also been helped by the delivery of a number of transport improvements since 2003, as illustrated in the table below. This includes motorways improvements and local distributor road improvements. However, the ULTRa (Light Rapid Transit System) scheme has not been taken forward at Cardiff, and is being developed at Heathrow instead. Even so, some of the other rail-related improvements in the city have helped improve the overall transport performance of Cardiff relative to the other cities.

- In summary, Cardiff performs relatively well in terms of transport provision, and has improved – at least in relative terms – compared to 2003 due to the combination of road and rail improvements that have been delivered. A key ingredient to future success is likely to be the Cardiff airport link road improvement.

Planned Transport Schemes -Cardiff		
Scheme	2003 Status	2008 Status
M4 relief road Magor-Castleton	Relief motorway around Newport. Awaiting ministerial decision.	Confirmed by Assembly in 2005 as a priority scheme. If approved may be operational by 2013 and expected to be toll road. Cost estimated at £360m.
M4 J29 to J32 widening	Construction planned for 2006.	Currently under construction and expected completion 2009.
A4050 Culverhouse Cross – Airport	Awaiting approval.	Scheme options being reviewed after public consultation in 2008. Findings to be included in Wales Transport Strategy in Spring 2009. If approved construction could start in 2010
Peripheral Distributor Road (PDR) Improvements	Various road improvements around Cardiff. Funding being sought but not an Assembly priority.	Eastern Bay Link is final element in PDR scheme, but still at design stage and facing cost issues.
ULTRa (Light Rapid Transit System)	Planned link between city centre and Bay. Initial test successful and funding being sought.	Scheme not pursued at Cardiff due to funding issues, but being developed at Heathrow Airport.

Edinburgh



- Edinburgh has moved up from 8th to 6th in terms of its transport demand/supply pattern. Thus, whilst transport demand is still assessed as in excess of supply in Edinburgh, the transport provision index score has improved from -29 to -15.

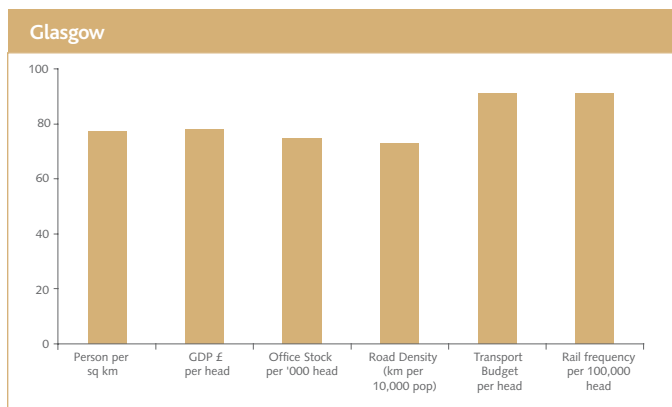
- Demand levels are relatively high, mainly due to above average wealth per head (the highest of any of the cities) and office stock levels. However, transport expenditure levels have improved compared to five years ago, along with improvements in rail transport and new road infrastructure, as illustrated in the table below. This has helped boost the position of Edinburgh.

- However, if the significance of the 'density' measures (persons per sq km and road density) is reduced then Edinburgh slips into 9th place with a transport provision index score of -31. This suggests that increased pressure on the 'wealth' and 'stock' measures could reduce the overall ranking of Edinburgh in the future.
- To counter-balance this it is worth noting that transport provision could improve further as a result of delivery of on-going transport projects. This includes the re-opening of the Waverley Line and the expected opening of the light rapid transit system by 2011 – see table below.

Planned Transport Schemes -Edinburgh		
Scheme	2003 Status	2008 Status
A1 Haddington to Dunbar	Dualling under construction and due 2004.	Opened in 2004.
A8000 improvement. Queensferry – M9 spur	Proposed 2.8km extension to M9 from A90 and dualling of A90. Awaiting finance.	Opened in 2007.
Edinburgh Park South Gyle	New Scotrail station due to complete end 2003.	Opened in 2003.
Gogar North	Proposed new station. Un-programmed and long-term scheme.	Part of Edinburgh Airport Rail Link (EARL) proposal that received Royal Assent in 2007 but was abandoned due to cost.
South Suburban Orbital Route	Creation of stopping services on existing rail line. At concept design stage.	Not taken forward by council following consultants report in 2008.
Borders Route (Waverley Line)	Rail link proposal at planning stage.	Approved in 2006 and construction due 2011 and completion by 2013.
Edinburgh Light Rapid Transit	Funding granted from Scottish Executive for initial development work.	The Leith- city centre-Airport route under-construction and due 2011.

- In summary, whilst Edinburgh still has a notional 'deficit' in terms of transport provision relative to demand, matters appear to have improved. The potential from the current public transport infrastructure projects may help enhance matters further.

Glasgow

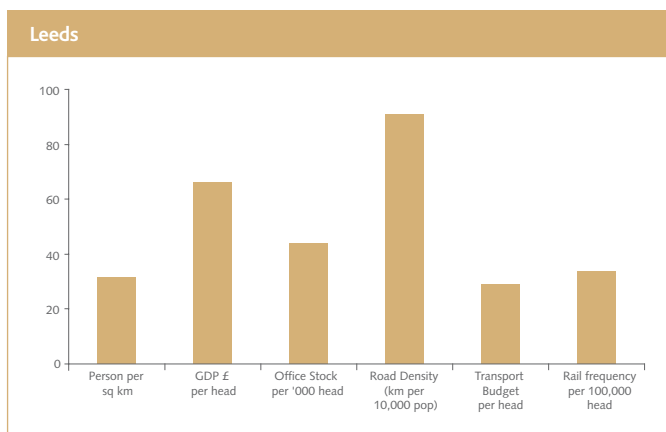


- Glasgow has moved from 7th to 3rd place in terms of its transport demand/supply balance. The transport provision score is now positive (+25) compared with five years ago (-17), indicating that supply is adequate to meet demand in overall terms.
- Although demand levels are relatively high in Glasgow, transport supply levels are also relatively high overall, especially transport spend and rail service provision. In fact, demand pressures appear to have reduced compared with five years ago in relative terms, with office activity, for example, being more subdued relative to other cities.
- A further reason for the improvement in Glasgow is the delivery of a number of transport scheme improvements. Details are summarised in the table below. The Crossrail scheme will improve matters further, subject to the form in which it is delivered.
- In summary, although transport demand is high, so is supply, and provision has been aided by completion of a number of road and public transport improvements over the past five years.



Planned Transport Schemes - Glasgow		
Scheme	2003 Status	2008 Status
Crossrail Gorbals to High Street	Feasibility study produced. Completion planned for 2010/12.	Strategic Transport Project Review rejected scheme in 2008 in favour of new station and tram system, but decision being reviewed by Transport Minister.
Glasgow Airport Rail Link (GARL)	Seeking parliamentary approval. Completion possibly 2008.	Approved in 2006 and due for completion 2011. Linking Glasgow Central Station to Glasgow International Airport.
M74 (northern extension) Fullarton Road – Kingston Bridge	Public inquiry in late 2003. If approved completion expected 2008.	Main works started in 2008, with completion expected 2011.
East End Regeneration Polmadie-Provan. New road link.	Planning application to be submitted in 2003 and funding sought.	Phase 1 completion 2008, with Phase 2 and 3 construction planned for 2009 to 2011.
A77/M77 and Glasgow Southern Orbital. Fenwick-Malletsheugh-East Kilbride	9km motorway and 15km dual carriageway. Completion expected 2005.	Opened 2005.
M8 Baillieston-Newhouse	Upgrading of A8/M8. Construction unlikely before 2007.	Public Inquiry in 2008, with possible completion by 2012/13.
Airdrie-Bathgate rail link project	Upgrade between Bathgate and Edinburgh and Airdrie and Drumgelloch identified as key transport priority.	Under construction and due 2010.

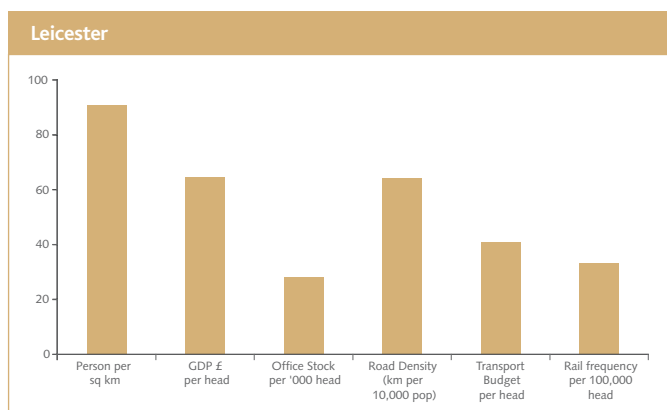
Leeds



- Leeds has dropped from 2nd place to 4th in terms of its transport demand/supply pattern. Overall, there is still an adequate supply to cater for transport demand. However, the transport provision index score has reduced from +48 to +12.
- Although transport demand levels in Leeds are broadly similar to those five years ago compared with the other cities, relative transport expenditure levels have reduced. Whilst there have been improvements to public transport they have not generally been to the same extent as the other cities, with the result that the overall performance of Leeds has slipped.
- Leeds has been able to retain a relatively high ranking through the delivery of various transport infrastructure improvements, as the table below shows. This includes improvements to the A1 as well as the inner ring road. However, the decision not to move ahead with the Supertram scheme may well constrain the growth potential of the city, although the proposed replacement by Superbus may provide an opportunity to cater for this growth.

Planned Transport Schemes - Leeds		
Scheme	2003 Status	2008 Status
A1 improvements	New stretch of A1 between Ferrybridge to Hook Moor dualled to 3 lane. Completion planned for 2006. New stretch of A1 between Wetherby and Walshford dualled to 3 lane. Completion planned for 2005.	Completed. Upgrade of 10km between A64 Bramham Crossroads junction to Wetherby now being upgraded. Construction started 2007 and completion expected 2009.
Inner Ring Road	Several elements being improved, with completion by 2006.	Final section completed 2008 – South Accommodation Road. East Leeds Link Road, opening up Aire Valley Employment Area, also completed 2008.
Supertram	Light Rapid Transit system of 28 km, along three routes and 'city loop' may be operational by 2006.	Abandoned. Bus rapid transit system (FTR) implemented in 2007 as an alternative. Operates between Pudsey, City Centre, Seacroft and Whinmoor

Leicester

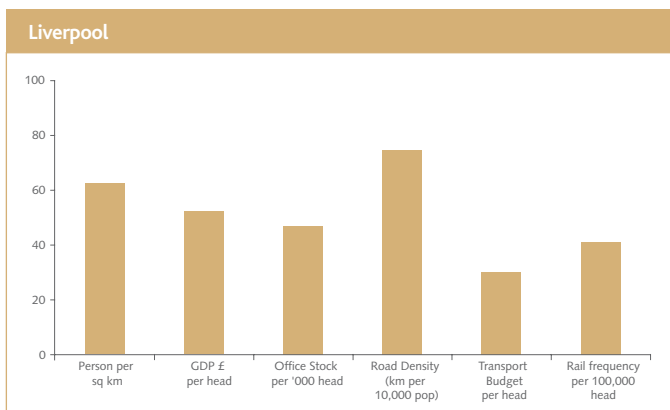


- Leicester is currently ranked 10th of the 12 cities in terms of its transport demand/supply pattern, which compares with 9th position five years ago. Of more relevance, however, is that the degree of transport 'under-provision' has increased, with the transport provision index score moving from -30 to -45 currently.
- In terms of demand, Leicester is above average in terms of population density, although the rate of growth in GDP per head over the last five years has been below the average of the 12 cities. However, apart from road density provision, Leicester is below average on supply measures, with transport expenditure reducing in relative terms. This results in the reduced overall transport provision index score.
- A number of primarily road-based proposals were identified for the city in 2003. Many of these have been delivered which has helped matters for the city, although further improvement is likely to be necessary to ensure Leicester does not slip further down the list.

Planned Transport Schemes - Leicester		
Scheme	2003 Status	2008 Status
M1 J21-J30 widening	Multi-modal study completed 2002. Minister approved widening to 4 lanes, but final approval awaited.	Widening between J25-28 started 2007. Improvements between J21-25 and 28-30 currently being reviewed, with Advanced Traffic Management (ATM) solutions being investigated.
A47 Earl Shilton Bypass	Construction to start 2005 and completion by 2006.	Opened 2008.
A606 Oakham-Langham Bypass	Construction to start 2004 and completion by 2005.	Opened 2007.
A6004 Epinal Way	Under construction and due 2003.	Opened 2004.

- In summary, although commercial floorspace demand in Leicester may be viewed as lower than most other cities, the other demand measures are relatively high. As such, additional transport capacity may be needed to cater for stronger levels of growth on the other side of the recession.

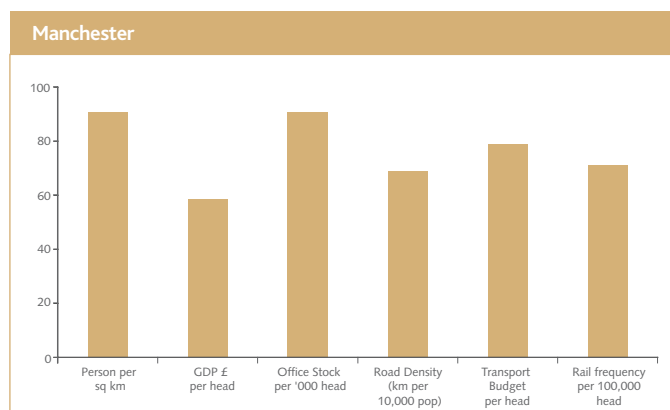
Liverpool



- Liverpool has moved from 5th position to 7th position in terms of its transport demand/supply pattern. The city has moved from a slight transport supply 'deficiency' score of -10 in 2003 to -16 in 2008.
- A key reason for the change is the relatively low level of transport expenditure, which contrasts with the relatively good performance on this measure by the city in 2003. However, this has been partially counter-acted by reduced population density changes relative to the other cities which has reduced relative demand upon the transport system. In fact, if greater significance is attached to the 'density' measure, then Liverpool could move to 4th position.
- There has been limited major improvement in transport provision in the city over the past five years, as illustrated in the table below. This partially explains the drop in rank of the city in terms of transport provision. However, the proposed Mersey Crossing, if delivered, could be a major boost for the city, as could a revised Merseytram scheme if implemented.

Planned Transport Schemes - Liverpool		
Scheme	2003 Status	2008 Status
Merseytram	Three lines proposed as part of £255m scheme. Start expected on Line 1 in 2005 and completion by 2007.	Approved after Public Inquiry, but postponed due to funding gap. Plans to revive in 2009.
Birkenhead Dock Railway	Re-opening of freight railway between port and mainline freight route.	Not progressed.
New Mersey Crossing	Long-term scheme for new river crossing between Speke and Runcorn. If approved construction by 2007/8.	Planning application submitted March 2008. Cost £390m with construction possible by 2011.
Allerton Interchange	New rail station replacing Garston and Allerton stations. Completion expected 2005/6.	Completed 2006.

Manchester



- Manchester has moved from 6th position to 8th in terms of its transport demand/supply pattern. The transport provision index score is now -21, indicating that there is a relative transport supply 'deficiency' compared to current notional demand levels. This compares to a transport provision score of -12 in 2003.
- Although the demand measure profile has not, in relative terms, seen a major change between 2003 and 2008, the supply measures have. Thus, whilst transport expenditure has improved in relative terms, road and rail service levels have reduced relative to the other cities.
- The transport pressures faced by the city have been recognised by decision-makers, which resulted in the major city and sub-regional transport improvements summarised in the table below in 2003. Although there have been some delays in delivering on these schemes, they have probably helped ensure that Manchester has not dropped further down the rankings.
- In summary, the Metrolink extension will be an important platform for catering for future growth in the city. The 'No' decision on the congestion charge means that Manchester will need to carefully re-assess how best to deal with the growth aspirations of the city region beyond the current recession, such as through the proposed South East Manchester relief road.

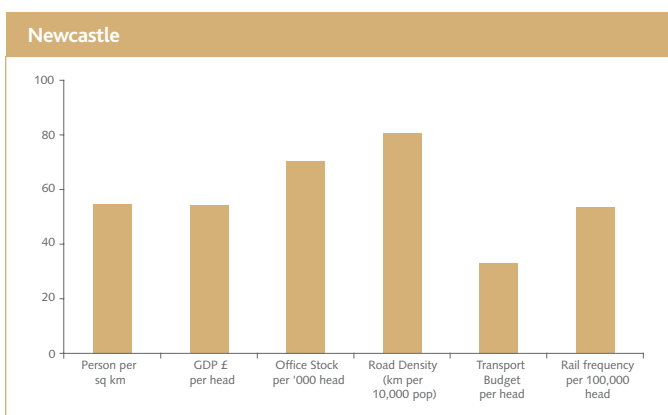


Planned Transport Schemes - Manchester		
Scheme	2003 Status	2008 Status
M60 (J5-8 & 12-18)	Junction 5 to 8 improvements: 2003 & expected finished-end 2005. Will improve links to Manchester Airport & Trafford Park. Junction 12-18 improvements are proposals at this stage.	J5-8 completed May 2006. J12-18 subject to Route Management Strategy review.
Manchester & Salford Inner Relief Road	Phase 1 & 2 completed & Phase 3 to start 2003. Completion expected 2004.	Completed in 2004.
Manchester Airport transport interchange	New transport hub, due for completion 2003.	Completed in 2003.
Metrolink	Funding approval for three extensions in 2003, but Government cancelled in 2005.	Revised scheme approved, work started in 2008. First extension operational 2011.
West Coast Main Line	Major improvements to track & train stock under way.	Interim improvement delivered 2005, further improvements completed in Dec 2008.
Manchester Quality Bus Scheme, Leigh-Manchester	Guided bus route from Leigh to Manchester, running on old rail line.	TWA powers approved in 2005 - scheme funding & design being developed.

- A key factor in the reduced performance of the city is a relative reduction in transport expenditure compared with the other cities, although rail provision has improved slightly. In addition, GDP growth per head and office development have seen above average rates of growth over the last five years, putting increasing pressure on the transport system.
- The reduction in relative performance of the city comes despite a range of transport improvements that have been delivered over the past five years, as illustrated in the table below. However, the effect of the Metro is not fully captured in the transport provision assessment, and so the overall performance of Newcastle may be higher than recorded.

Planned Transport Schemes - Newcastle		
Scheme	2003 Status	2008 Status
A189 West Central Route	Redheugh Bridge – North West radial. Completion expected 2003.	Completed 2003.
A695 Scotswood Road Improvements	Redheugh Bridge to Scotswood Bridge, dualling and widening. Completion expected 2006.	Completed 2006.
A1 Gateshead and Newcastle Western Bypass.	Congestion improvement measures. Completion due 2006.	Options still being considered by Highways Agency, and still at planning stage.
A1056 Northern Gateway, Gosforth Park, North Tyneside.	Highway improvements, including new link road to development sites. Start expected 2004/5.	The 1.8km dual carriageway is still a priority but funding issues to be determined.
New Tyne Crossing	East Howden to Jarrow. Additional two lanes through tunnel. Public Inquiry in 2003.	Construction started 2008.
Extension of Metro to Sunderland	Completed. New link and stations on the outskirts of Sunderland.	DfT approved further plans to revitalise Tyne and Wear Metro, including new crossing over the Rive Wear.

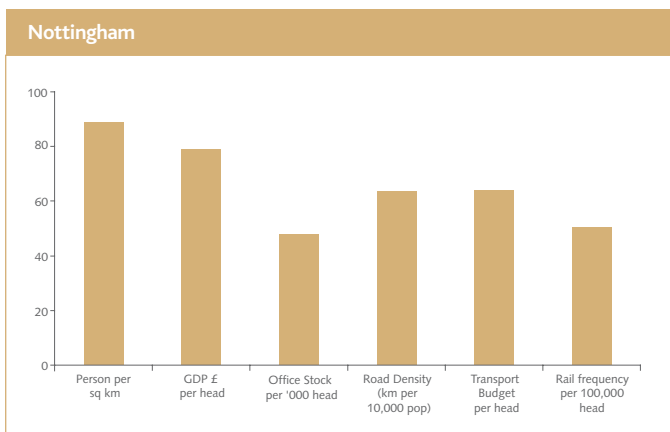
Newcastle



- Newcastle has dropped from 4th to 5th place in terms of its transport demand/supply pattern for the 12 cities. The city has moved from a notional adequacy of supply to cater for demand in 2003 (transport provision index score of +11) to a potential under-supply of transport to match demand in 2008 (transport provision index score of -13).

- In summary, Newcastle has seen a number of improvements to the transport system that have helped the city to deal with the economic growth it has seen until now. However, these improvements have not been enough to maintain the overall performance of the city in transport provision terms. Delivery of existing commitments and current proposals will therefore be of particular importance.

Nottingham

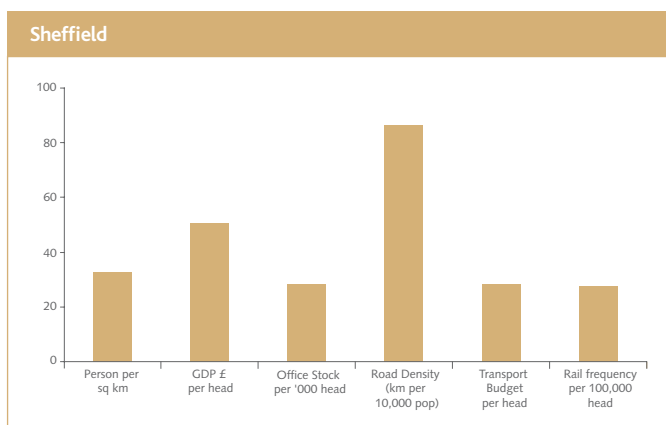


- Nottingham has improved its rank from 10th in 2003 to 9th currently. Although transport supply in Nottingham is still short of identified demand levels, the level of this imbalance has reduced. In 2003 the transport provision index score was -46, whilst in 2008 this had reduced to -38.
- Demand measures have not increased to the same extent as in the other cities, particularly GDP per head levels and office activity, although average GDP per head in Nottingham is the second highest of all the cities.
- However, transport expenditure levels have shown a relative decline, which has negatively impacted on the city, and has off-set the improvement in rail provision seen since 2003. This is particularly important as this city had the higher transport expenditure levels per head of all the cities in 2003.
- A number of road based proposals were planned for Nottingham and surrounding areas as at 2003, although there has only been a partial implementation of these schemes. However, the Nottingham Express Transit (NET) was opened in 2003, and extensions are being progressed. These will be important contributions to assisting the city in dealing with the aftermath of current economic conditions.
- What will be equally important to assess, in terms of transport provision consequences, will be the impact of the proposed Workplace Parking Levy. This could help improve the overall transport supply measures in Nottingham, although there are also risks in terms of business re-locations.



Planned Transport Schemes - Nottingham		
Scheme	2003 Status	2008 Status
M1 widening (J21-30)	Multi-modal study completed 2002. Minister approved widening to 4 lanes, but final approval awaited.	Widening between J25-28 started 2007. Improvements between J21-25 and 28-30 currently being reviewed, with Advanced Traffic Management (ATM) solutions being investigated.
A42/M42 corridor	Multi-modal study completed 2003. proposals outlined for tackling congestion on M69 and A38.	The Route Management Strategy developed as part of the multi-modal study has been put on hold. Some minor scheme improvements to tackle congestion have been completed on this corridor.
A453/M1 J24	Multi-modal study completed 2002. Proposal for part dualling and widening of A453.	Public Inquiry to decide on scheme, with construction possible by 2010.
A52 (Clifton - A46 Bingham)	Multi-modal study.	Approval for 28km dual carriageway from A606 to just south of Newark. Construction planned for 2012/13.
Nottingham Express Transit (Lines 1, 2 & 3)	Line 1 completion end 2003. Lines 2 and 3 current proposals, with construction planned for 2006 to 2008.	Line 1 completed Public Inquiry to be held to examine Phase 2 extensions.

Sheffield



- Sheffield was the top ranked city in 2003, but has subsequently fallen to 2nd place. The city has seen the transport provision index reduce from +48 to +30. This still indicates that the city has an adequate transport supply to meet notional demand levels.

- Demand levels in Sheffield show a similar profile in both 2003 and 2008, although GDP per head growth rates have not risen as fast as the average of the 12 cities. Transport expenditure in relative terms has reduced compared with the 2003 situation, as has the rail frequency score.
- The extent of the road network is, notionally at least, the key reason for the adequacy of transport supply in the city. In fact, if the significance of the 'density' measures are increased then Sheffield would still be the number one city in transport provision terms.
- Transport scheme improvements since 2003 have been fairly limited, although there have been changes to service arrangements and operations, as opposed to new infrastructure.
- If the growth aspirations of the city are to be achieved, then it is possible that the existing transport provision levels will be able to cater for this to a greater extent than other cities would under the same circumstances. However, over the long-term further improvements are going to be needed to ensure such growth is sustainable.

Planned Transport Schemes - Sheffield		
Scheme	2003 Status	2008 Status
Sheffield Inner Ring Road (A61)	Phase 2 of improvements, providing new route to north of Sheffield. Public Inquiry 2003, and possible start date of mid-2004.	Completed end 2007.
A631 West Bawtry Road	Dualling of last remaining section of single carriageway on A631. Construction expected 2005.	Completed 2007.
Sheffield Midland Station	Station refurbishment. Completion expected 2005.	Completed 2006, including re-modelling of Sheaf Square outside the station.
Supertram	Two extensions of route, both through city centre. Construction could start 2008.	Extensions turned down by Government - 2006.

Methodology Notes

The supply measures are taken to have a reasonably direct relationship with the demand measures. This is summarised below.

Populat Density

ion Density & Road Population density and road density will have a correlation with potential congestion levels. In broad terms, the greater the population density of an area, the greater the likely level of traffic movements. Therefore, the greater the density of the road network, the greater the potential for ameliorating this congestion.

GDP per head and Transport Budget

Similarly, the 'wealth' of the population (as measured in GDP per head) should relate to the amount spent on transport by local authorities in the area. Again, in simplistic terms, higher GDP per head levels are likely to lead to greater levels of demand on the transport system. The higher the levels of transport expenditure per head by local authorities, the greater the potential to accommodate this demand.

Office Stock and Rail Provision

The 'efficiency' of offices, in terms of accessibility by employees and visitors, will be influenced by the level of public transport provision. This is particularly so given policy encouragement by government to reduce the use of car-based travel. Thus, in general, the higher the level of office stock per head the greater the level of travel demand into the area by employees. Therefore, the higher the level of public transport provision (here taken as train service levels in the peak hour), the greater the potential for reducing road congestion.

The actual results for each measure have been translated into an index value (0 to 100), representing a notional transport provision score. The sum of the demand and supply index values has been used to identify the current potential or notional imbalance between demand for transport and the supply of transport

support. This is illustrated in chart form under the discussion of each city.

The sum of the three demand measures is compared with the sum of the three supply measures for each city. This allows a comparison between the potential demand for transport and the transport supply in the city to be carried out, and thus identify any imbalance. In addition, the resulting net 'index score' allows a broad comparison of each city to be made.

It has to be recognised, however, that the scores are not precise measures. The purpose of the scoring is to allow a comparison of development potential in each city, as influenced by transport provision. Thus, all things being equal, a higher overall transport supply score compared with the transport demand score, indicates a city that is more likely to support sustained development.

Naturally, things are not always equal. There can be local geographical or system circumstances that can create bottlenecks or other transport constraints. We have tried to account for this as part of the more qualitative assessments that have been carried out, and summarised under the discussion of each city.

This is complemented by a set of sensitivity analysis that was carried out on the transport provision index scores. This involved varying the significance of each of the measures to see how this might alter the results. In the base case these measures were weighted equally. Six variations to this position were carried out. Three of the changes involved halving the importance of one of the key measures on both the supply and demand side. Thus, the population density and road density measures were weighted half that of the other four measures.

The other three sensitivity analysis checks involved increasing the significance of each set of measures relative to the other measures. This followed the same pattern as explained above.

In addition to the sensitivity analysis on the current data, the base data itself was modified to reflect what might happen in the future. This involved 5%, 10% and 20% increases or decreases in the various measures. The results were then examined to see how they impacted upon each city.

