Sixth international Conference on competition and ownership in land passenger transport

Author: Paul Truelove

Department of Civil Engineering,

Aston University, Gosta Green, Birmingham B4 7ET, UK.

Tel +44 121 359 3611 ext 5286

Fax +44 121 333 3389

e-mail P.F.Truelove@aston.ac.uk

Topic: Workshop 4: User needs and impacts on public transport systems.
User requirements for a well integrated/seamless multi modal public transport system.

Integration between bus and Light Rapid Transit on Midland metro Line1.

Abstract:

It had been intended, when the proposed paper was submitted, to report on the first attempts at bus/LRT interchange on the new Midland Metro, and on the response of private sector bus operators who could, should the interchange not be perceived as meeting users' needs, take over the provision of through bus services parallel to the new line. Delays in the opening of this new metro meant that evidence was not available at the time of writing, but even so there is other less direct evidence that can shed light on the general issue of integration in a de-regulated environment. The focus of the paper is upon how the users' wishes for a seamless journey can best be reconciled with the requirements of the concessionaire and other operators working in an environment where some degree of competition takes place.

Introduction.

Midland Metro line 1 was planned to open in 1998. Opening was delayed firstly to January 1999 and then to June 1999. It is a Light Rapid Transit line built largely along the alignment of a former railway between Birmingham and Wolverhampton. The 21km route was planned at the height of enthusiasm for light rail during the early 1980s, and runs through a long

established urban area developed mainly during the nineteenth century, where large scale re-development of housing and industry has been taking place for a decade, at a fairly low density.

The operator of the new LRT will be Travel West Midlands, who are the largest single bus operator in the area, but as the institutional context is one of de-regulation, there are also private bus operators who may run such services as they choose. There are at present through bus services run by TWM broadly parallel to the new LRT. To maximise usage of the LRT, it is proposed by TWM to integrate bus and LRT services, and interchange stations have been built at the intermediate points of West Bromwich and Bilston. Because of the relatively low density of the urban area, two mode trips will be important to the success of the LRT.

The term integration, when applied to transport plans, is capable of a very broad definition. The U.K. Government's 1998 Transport White Paper has great ambitions for integration. It declares that its policies include:

Integration within and between different transport types.

Integration with the environment

Integration with land use planning at national, regional and local level, so that planning and transport work together to support more sustainable travel choices and reduce the need to travel.

Integration with policies for education, health and wealth creation.

It is not hard to point out how distant we are from these forms of integration. The planners of shopping centres and hospitals seek out green field sites that increase the travel requirements of users. Where there is a history of fragmented incremental decisions on transport and land use plans, and this must surely apply to almost all cities, certainly those that have grown up under laissez faire conditions, any attempt at even rudimentary forms of integration between different transport modes is going to be very difficult.

The question therefore arises as to the effectiveness or even feasibility of integration under a competitive environment such as that in the U.K under the 1985 Transport Act. Integration between transport and land use as a “natural” result of the working of market forces will at best take place with a substantial time lag. Even the argument that private sector transport operators will provide the interchange components of integration if their passengers demand them is subject to obvious drawbacks, and it would be useful to review the relationship between competition and integration from the differing perspectives of government, the major operator or concessionaire, the land use planning authority, the Public Transport Authority, competing smaller operators, and the users.

Perspective of central government.

The ability of central government to implement integration will inevitably be somewhat more restricted than its stated intentions. Even so, it should not pass without comment that integration is a recurrent theme in government thinking, varying in emphasis according to the political complexion of the administration, and first spelt out in the U.K. in the objectives of the 1968 Transport Act.

One consequence of the 1985 Act de-regulating local public transport was that two systems emerged. London was made an exception to the de-regulation that took place throughout the rest of the country. For fear of the possible traffic congestion consequences of on-street bus competition in London, a system was introduced of franchising private operators to have the exclusive right to operate a group of carefully defined services, where possible integrated with local rail and underground services. Outside London, one of the most positive developments has been the idea of quality partnerships, whereby local authorities enter into agreements under which the local authority makes improvements to the public transport infrastructure (e.g. bus lanes, new interchanges) and the operator agrees to invest in new buses, improve the service frequency or improve the service to the public in some other way. This twofold system had the effect of demonstrating the comparative advantages of the contrasting approaches. Under the 1998 White Paper proposals, local authorities outside London would be given similar powers to those in London to grant exclusive operating rights on defined routes or within a defined area. Once a Quality Contract had been let, other bus operators would not be allowed on these routes, or within the defined area, unless they were approved by the local authority. The expected benefits of a contracted bus network include the ability to specify connections with other buses or other modes. However, a degree of caution is evident in government thinking, for under the White Paper daughter document on public transport (1999), central government requires its approval of any proposed Quality Contract, and government puts the onus on local authorities to demonstrate as part of a local transport plan, that the benefits in terms of modal shift or environmental improvement could not be met by other means, and that any extra costs would be offset by extra benefits. The only convincing way of demonstrating this is to be able to point to some disbenefits of a lack of integration.

Perspective of the concessionaire: uncertainties about interchange.

In deciding whether to bid for a franchise, a potential bidder will be concerned about profitability and risk, in any form. Of prime importance will be the traffic volume risk, and the risks of delay and cost overruns associated with construction. The traffic volume risk will depend not just on demand forecasts but also upon the political risks such as a change in the regulatory environment (e.g. Will Quality Contracts be imposed?) and the interchange

traffic risks. Of particular importance is the organisation of feeder services to fixed track facilities. The established pattern in French and German cities is to avoid duplication of parallel fixed track rail and conventional bus services. Indeed, the large scale transport studies that first attempted to model public transport ridership in the late 1960s in the U.K. assumed that all competing bus services would be withdrawn in corridors where upgraded rail was proposed. The alternative of free competition was discounted without discussion. It is interesting to speculate what effects this has had on proposals for suburban rail upgrading or Light Rapid Transit proposals. There is of course no answer to this, but evidence as to the effects of the removal of forced interchange is available from the Tyne and Wear metro. The city centre of Newcastle is separated from its southern catchment area by the river Tyne. When the new metro was opened in the early 1980s, the Passenger Transport Authority attempted to co-ordinate bus services with the new metro, by terminating bus services from south of Newcastle at a metro station at Gateshead, just south of the river Tyne, so that passengers from the south to the city centre were obliged to complete their journey on the new light metro. After 1985, local bus services were de-regulated, so that any operators could operate such services as they believed profitable. The highest figures for passengers boarding the light metro at the Gateshead interchange were in 1985, and since then they have fallen considerably.

Year	Boardings per week
1985	153,000
1990	77,000
1995	50,000

Source : Nexus (Tyne and Wear PTE) Continuous monitoring System, 1995/96

Plainly, for many passengers, the forced interchange was not a benefit.

More recently, a French company that was a potential bidder for the Croydon Tramlink concession withdrew when it learned that London Transport would authorise parallel bus services where it believed there to be a passenger demand unserved by the new system.

While the Manchester Light Rapid Transit was under construction, along a previous suburban rail route, a bus service had to be provided for the former rail passengers. Upon the opening of the LRT line, it was found impossible to withdraw the ‘temporary’ bus service, as it had established its own market, presumably of short distance local travellers.

Interchange traffic risk on Docklands Light Railway.

The concession that has attracted by far the largest private sector financial commitment has been the Lewisham extension of the Docklands Light Railway. The Docklands Light Railway began service in 1987, as a government funded attempt to promote the regeneration of a run-down area of docklands in the East End of London. Prior to its

construction, a conventional metro had been proposed but was given up on grounds of cost. The Docklands Light Railway reached fruition because it could be built at a much lower cost, making much use of old railway rights of way. The use of new technology meant that the system was compatible with neither the suburban railways nor the underground that provide the network as a whole. Economies in construction meant that some stations, such as the Tower Gateway terminal, were at substantial walking distances from existing stations, and poorly related to essential destinations. Subsequent developments have illustrated the importance of interchange, and links to major destinations. The private sector made a £70 million contribution to the extension of the light railway, largely underground, to Bank in the City of London. This was both a recognition of user needs and a way of enhancing office space rental values in Docklands. This success prompted local authorities located to the south of the river Thames to seek ways of making the new employment centres north of the river accessible to their citizens, and a further extension, including a tunnel under the Thames is in 1999 under construction. New railways under construction are far fewer in number than new railways proposed. The proposed extension has reached the stage of implementation because it has had the backing of private sector companies, and was favoured by the conservative government of the early 1990s as demonstrating the success of their Private Finance Initiative. The government is making a capital contribution, but some of the commercial risks of the project fall on the City Greenwich Lewisham Rail link plc, the company that won the concession to finance, design, construct and maintain the extension, that will be operated by Docklands Railway Management Ltd.

The project has had the backing of the private sector because of the substantial ridership forecasts, based in part on the large number of commuters from Lewisham, Kent and the South East of England who already travel to Docklands, by the only route possible, which is indirect, and via the centre of London. The new extension will have stations located close to existing railway stations at Greenwich and Lewisham, to enable commuters travelling to Docklands to have a more direct journey. Thus the project avoids some of the major investment risks. There is an existing market demand, ill served by the present network. Even if competing buses could operate, there is no duplicate cross river road tunnel. Finally, Lewisham is already a focal point for bus /rail interchange. New feeder bus services are not needed, or proposed (Truelove, 1998).

Interchange traffic risk on Midland Metro Line 1.

A further example of a mixed public/private transport investment project is provided by Midland metro, although the scale of private sector contribution is much more limited. Of a total cost of £144 million, some £11 million come from Altram, a consortium of Ansaldo Trasporti and John Laing. These companies supplied the rolling stock and constructed the line, so cynical observers might suspect that the sum was regarded as a contribution, which

if lost, would subtract from the profits made by supplying the rolling stock and constructing the line, but was essential to gain the building contracts.

The history of the proposal does not suggest that there are substantial profits to be made. The route, chosen after earlier proposals requiring property demolition had produced determined opposition, largely followed the line of a railway that had been closed early in the 1970s because of low demand. As such, the route was indeed feasible politically, but it did not follow a route of heavy commuter traffic flows. The area traversed is the decaying heart of a polycentric industrial conurbation. The line was seen as a contribution towards the regeneration of the area, which had been the subject of substantial government investment through the Black Country Development Corporation. To attract inward investment, new roads had been built, making the travel corridor less congested than elsewhere in the conurbation. As the land use density was fairly low, and there were existing rail services covering longer distances within the conurbation, the market for the new line was for the shorter distance urban journeys, which of course makes the disadvantages of two stage journeys more apparent, but also more necessary if a substantial ridership is to be gained. The operators in the corridor of the light metro are also the major bus operator, Travel West Midlands, who are now partners with Altram. Thus through ticketing will not be a difficulty, and it is proposed that the free travel pass for pensioners should extend to the new metro. This major operator will not be withdrawing its existing bus services in the same corridor, merely diverting them to serve several interchanges along the metro route. It does mark new thinking that the operator's publicity states that routes will be modified to give passengers the opportunity to interchange if they so wish. The reason for this, is of course that if the major operator abandoned its through bus services parallel to the new line, then competing operators could move in.

Perspective of the land-use planning authority.

It is the land-use planning authority that has the only direct interest in allocating land or encouraging high travel demand uses to locate on the route of a new public transport facility, and this can make an important contribution to the raison d'être of the line. Thus the new metro now under construction in Copenhagen will have a certain level of patronage guaranteed by the decision to locate Ørestad new town astride the metro route. Clearly, inter-modal transport integration is more effective where land use planning is regulated. When Midland metro was proposed there was also a proposal for a large new shopping centre astride the mid-point of the route. In fact. Sandwell Mall 2000 was never built because in the meantime another major shopping centre was built a few miles away, with no high capacity road or public transport access at Merry Hill, permitted under the more relaxed regime in the 1980s that authorised without control development in high unemployment

Enterprise Zones (Truelove, 1992).

Perspective of the Passenger Transport Authority.

The history of proposals to integrate the various transport services that have developed over a long period of time, as cities have developed from the nineteenth century onwards is a history that has focussed upon the most obvious form of integration, that of interchange. In general this has been a history of local public/private sector co-operation. Thus the transport unions or Verkehrsverbund of German cities such as Hamburg were established specifically to remove the fares barriers to interchange. With the development of U-bahn and S-bahn infrastructure from the 1960s onwards, interchange facilities have formed an essential part of public sector projects, and the tariff unions have become the means of distributing any public transport subsidies, working in a co-operative rather than a competitive environment.

In the U.K., the Passenger Transport Authorities created for the conurbations under the 1968 Transport Act had similar aims, even though the resources for public transport capital projects were never available on the same scale as in other West European countries, and from 1985 the PTAs lost most of their co-ordination role. Their subsequent focus upon Light Rapid Transit promotion may have resulted in part from their loss of most other powers: no bureaucracy would like to declare itself redundant. Their planning role for LRT remained, but much of the promotion work was in securing financial backing for projects, via Section 56 grants under the 1968 Act from central government, European Union grants, generally from the Regional Development Fund, and from the private sector. The perspective of the PTAs has therefore had to move towards that of the private concessionaire. Only recently are problems from this shift coming to light. The inspector reporting on the inquiry under the Transport and Works Act into a proposed guided trolleybus scheme for Merseyside recommended rejection. The reason was, in part, that the park-and-ride site was chosen primarily as a device for boosting revenue and improving the financial case for the private-sector project, rather than as the best site for the park-and-ride component of a transport strategy (Local Transport Today, 1999).

Perspective of other operators.

Policies of small bus companies towards the provision of services feeding, or not feeding, interchange stations on new fixed track facilities will be essentially opportunistic, working to give the most direct response possible to their perception of user needs. The problem for small operators is that any introduction of Quality Contracts in, say, an LRT

corridor, could result in their being frozen out under the contract terms, yet too small to be able to bid for all the contracted services. In the absence of Quality Contracts, the main role of small operators may be simply to prevent complacency by the major operator.

Perspective of users.

Good interchange depends upon a number of factors. A report by consultants Colin Buchanan and Partners (1998) for the U.K. Department of the Environment, transport and the Regions established the key ingredients of good interchange as:

Reliable and punctual high frequency services
Short walking distances
Availability of free or low cost parking
Through ticketing facilities.

To any transport planner, these are virtually motherhood statements, with which no-one could disagree. However, the proportion of trips that entail interchange varies greatly with trip mode and location. One of the great attractions of car travel is that through journeys are possible. According to the National Travel Survey of 1994-5, 99.5% of all car journeys had only one stage as did 96.8% of all bus journeys, whereas 65% of all rail journeys had more than one stage. Plainly, the most usual place of interchange is a station. Even these crude figures have implications. To divert all urban bus services to pass railway stations would in most cases disadvantage more travellers, whose journeys are extended, than it would benefit.

Railway lines cannot easily be diverted to better serve as a town centre interchange, but this drawback is of lesser importance for LRT. Indeed it may be that the most likely role for LRT may be in situations where the majority of the route can be located inexpensively along old railway rights of way, with small scale diversions on a new alignment or sharing streets in order to give users the opportunity of interchange with short walking distance. This strategy worked at Karlsruhe in Germany and it is proposed for Greater Manchester to serve Rochdale with a short length of new track from the long established railway. Likewise there are proposals for short extensions of the Midland metro at each terminus, to better serve the city centres of Birmingham and Wolverhampton.

It is only short walking distance of these four prime ingredients of good interchange that is a function of the design of a new facility. In a developed urban context, parking provision is dependent of the density of land uses around stations. The provision of frequent services may depend upon the possibility of providing stations at locations that are major attractors of traffic in their own right. There is a problem here, in that if the interchange is at an important destination, land use densities and land values may limit the availability of land

for car parking.

Through ticketing is dependent upon co-operation among operators. In the case of the U.K. rail privatisation, co-operation between train operators on through ticketing was built into the legislation. Until Quality Contracts are applied, there is no such legislation relating to buses feeding or competing with rail or new Light Rapid Transit services. Patronage of the Sheffield Light Rapid Transit failed to meet expectations, as bus operators operated parallel competing services at lower fares.

Conclusions re regulation and integration.

Outside the major cities, where integration between the carrot and stick aspects of transport strategy will increasingly be used to control congestion, integration in the form of timetable co-ordination will increase in importance. In the long term service frequencies will reduce in response to the smaller number of public transport dependent travellers. Thus connections can be conveniently be made only by timetable co-ordination. This is quite within the power of unregulated private operators. There are already examples where private coach operators focus arrivals and departures on a few limited times each day. Within major cities, the position is inevitably more complex.

Greater private sector capital investment likely where traffic risks low, i.e. in a regulated environment of some sort: applies to LRT and also to Bus Quality Contracts. The only exception to this is where the political climate is uncertain, in which case operators may prefer to work in an unregulated environment, for then the companies know exactly where they stand in relation to their competitors.

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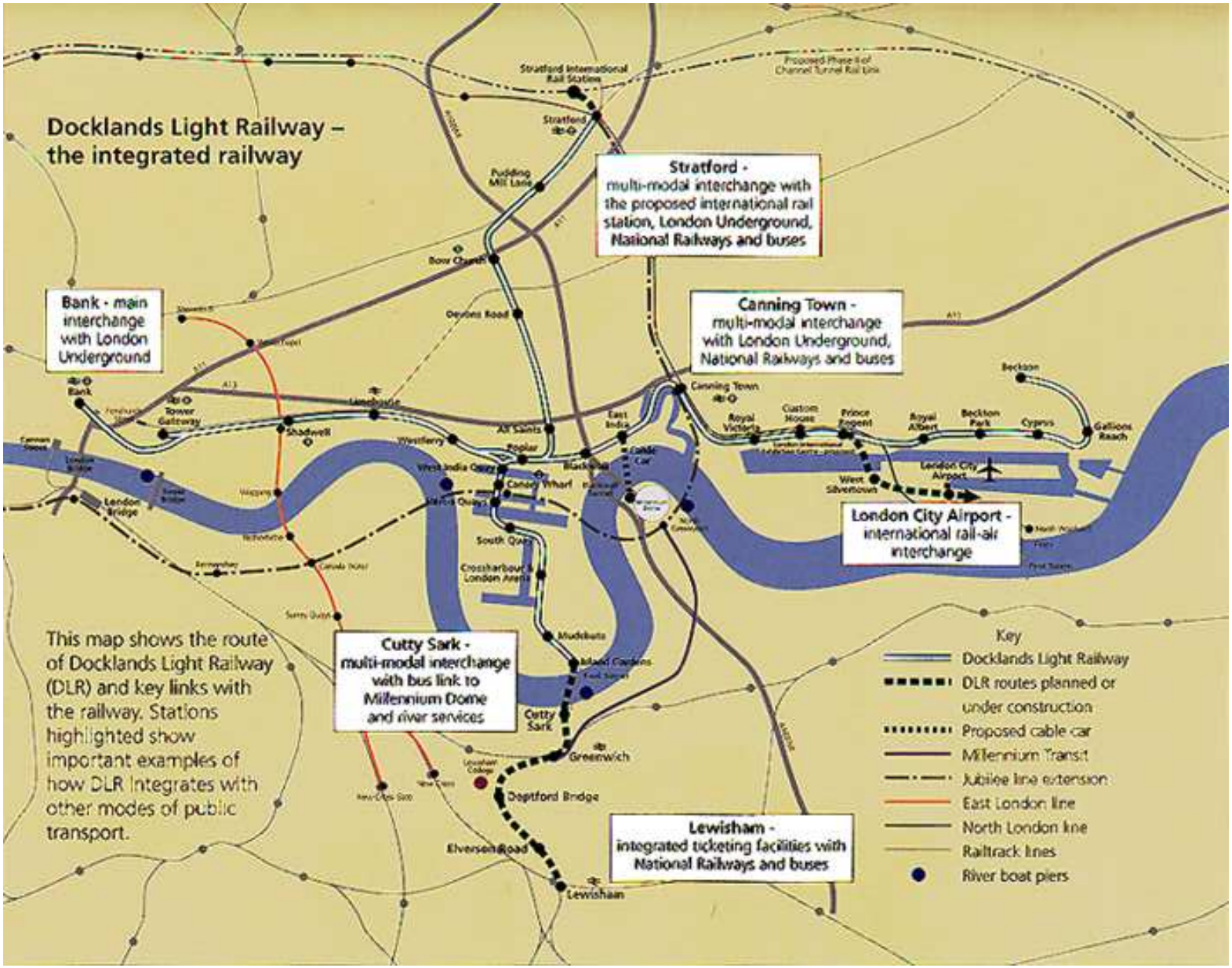
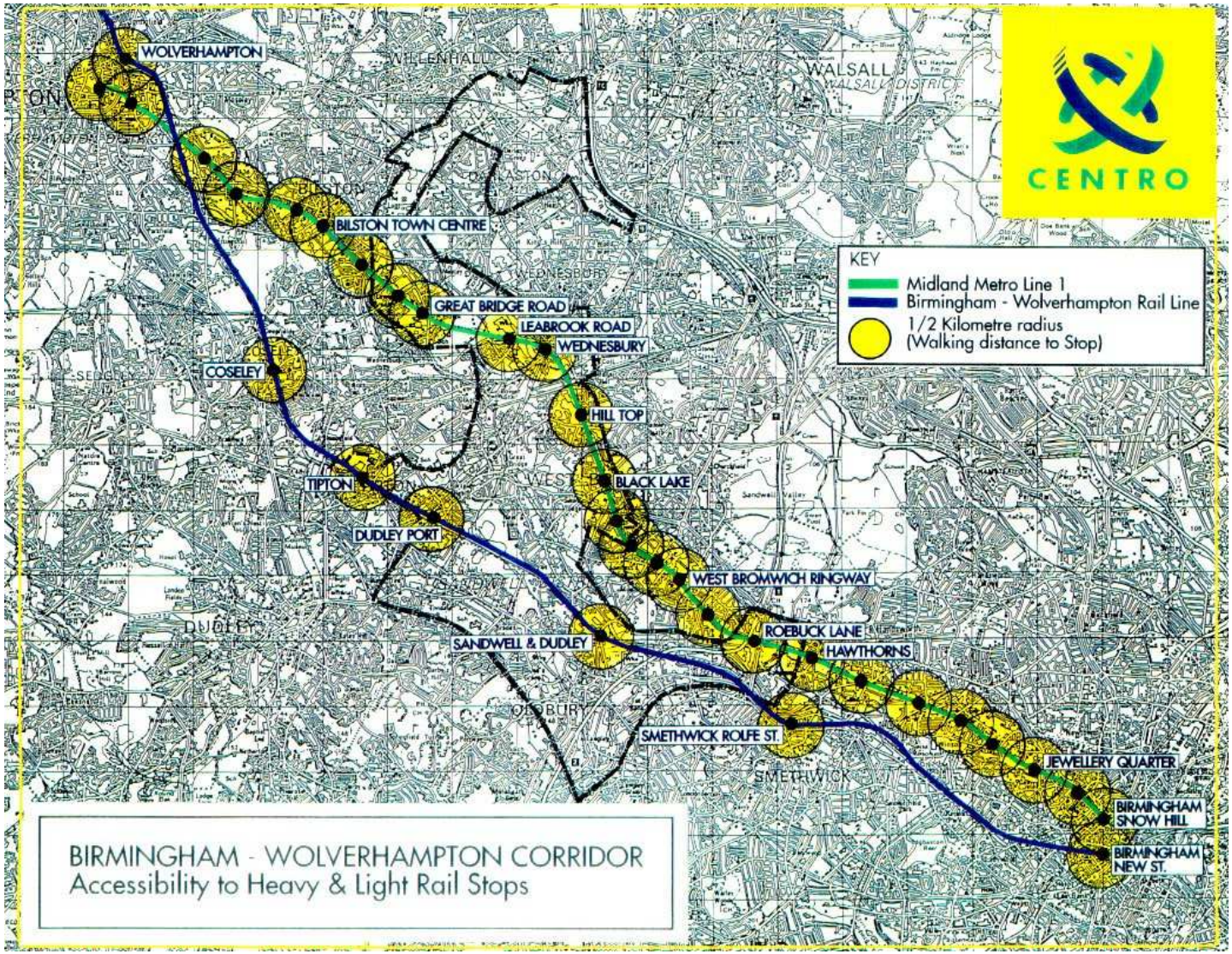
Author: Paul Truelove
Department of Civil Engineering,
Aston University, Gosta Green, Birmingham B4 7ET, UK.

Tel +44 121 359 3611 ext 5286
Fax +44 121 333 3389
e-mail P.F.Truelove@aston.ac.uk

C.V.

Paul Truelove lectures on the principles, history and methods of transport planning at Aston University. His early professional experience was on the SELNEC transportation study for Greater Manchester, one of the first studies to attempt to model bus and rail transport (including feeder buses) in conjunction with road transport. His particular interests are in the politics of transport planning, and he is the author of Decision-making in Transport Planning (Longman). He has written extensively on the politics of road pricing, and on private sector investment in new light rail systems. His most recent publication has been a chapter on the last fifty years of transport planning in British Planning, 50 years of Urban and Regional Policy, edited by J.B. Cullingworth and published by Athlone in May 1999.


Docklands Light Railway – the integrated railway
Stratford - multi-modal interchange with the proposed international rail station, London Underground, National Railways and buses
Bank - main interchange with London Underground
Canning Town - multi-modal interchange with London Underground, National Railways and buses
London City Airport - international rail-air interchange
Cutty Sark - multi-modal interchange with bus link to Millennium Dome and river services
Lewisham - integrated ticketing facilities with National Railways and buses
This map shows the route of Docklands Light Railway (DLR) and key links with the railway. Stations highlighted show important examples of how DLR integrates with other modes of public transport.
Key
Docklands Light Railway
DLR routes planned or under construction
Proposed cable car
Millennium Transit
Jubilee line extension
East London line
North London line
Railtrack lines
River boat piers


CENTRO
KEY
Midland Metro Line 1
Birmingham - Wolverhampton Rail Line
1/2 Kilometre radius
(Walking distance to Stop)
WOLVERHAMPTON
BILSTON TOWN CENTRE
GREAT BRIDGE ROAD
LEABROOK ROAD
WEDNESBURY
COSELEY
HILL TOP
TIPTON
BLACK LAKE
DUDLEY PORT
WEST BROMWICH RINGWAY
ROEBUCK LANE
HAWTHORNS
SANDWELL & DUDLEY
SMETHWICK ROLFE ST.
JEWELLERY QUARTER
BIRMINGHAM SNOW HILL
BIRMINGHAM NEW ST.
WALSALL
WILLENHALL
SMETHWICK
BIRMINGHAM - WOLVERHAMPTON CORRIDOR
Accessibility to Heavy & Light Rail Stops