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# Global Transport Issues

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# CONTENTS

1. Towards the year 2000 – Transport for our cities <i>D Scott Hellewell</i>	1
2. Traffic Congestion: is there a way out? <i>R. Knowles</i>	19
3. Congestion Pricing and the Future of Transit <i>G.J. Fielding</i>	40
4. Can Strategic Planning Contribute to a Reduction in Car-Based Travel? <i>C.Curtis</i>	52
5. Pricing and Congestion: economic principles relevant to pricing roads <i>D.M.Newbery</i>	72
6. The Case for Road Pricing <i>A. Day</i>	93
7. The Analysis of Central Area Parking Management Policies <i>J. Polak</i>	98
8. Parking Policy and Urban Goals: linking strategy to needs <i>M. Mcshane and M. D. Meyer</i>	110
9. A Short History of Carsharing in the 90's <i>S. Shaheen, D. Sperling, and Conrad Wagner</i>	130
10. Area-Wide Traffic Restraint: A Concept for Better Urban Transport <i>H. Monheim</i>	149
11. Autolatry – A Detumescent Force? <i>J. Roberts</i>	161
12. Are Urban Bus Services Natural Monopolies? <i>A.W. Evans</i>	181
13. Why Should We Worry About The Railways? <i>W.P. Bradshaw</i>	198
14. A Framework for Urban Freight Policy Analysis <i>K.W. Ogden</i>	206
15. Transport impacts of Greater Manchester's Metrolink Light Rail System <i>R.D. Knowles</i>	220
16. The Compact City: An Australian Perspective <i>P. Newman</i>	242
17. Rapid Transit Systems <i>D. Walmsley and K. Perrett</i>	263
18. The Metrocentre and Transport Policy: the dynamics of access to Europe's largest out-of-town retail and recreation centre <i>D.R. Hall</i>	288
19. Non-motorised travel in Third World Cities <i>D.A.C. Maunder and P.R. Fouracre</i>	303
20. Spatial Inequalities in the Provision of Public Transport in Latin American Cities <i>P. Camara and D. Banister</i>	312
21. Planning and Public Transport Issues in Singapore <i>M.G. Gray</i>	334

22.	Planning Options for the Improvement of Rural Accessibility: Use of the Time-Space Approach <i>S.D. Nutley</i>	343
23.	Transport Mobility in Interurban Areas: A Case Study Approach in South Oxfordshire <i>D. Banister</i>	367
24.	Role of Transport in Rural Development in Africa <i>N.R.L. Mwase</i>	384

# 1. TOWARDS THE YEAR 2000 – TRANSPORT FOR OUR CITIES

D Scott Hellewell

## INTRODUCTION

TRANSPORT IS ABOUT THE movement of people and goods. It is the lubricant of commerce. It adds value to goods. This paper is concerned with the movement of people in our cities and looks to the end of the century. The movement of people, personal mobility, is the sign of a developed society. The greater the economic activity, the greater the demand for movement, by all mods. Congestion is a symptom of the failure of investment to keep up with demand. If supply cannot be matched to demand, demand must be matched to supply. The market approach to transport policy, practised increasingly over the last 12 years, has led to an inability to match supply with demand without restriction on existing traffic and/or major expenditure on public transport.<sup>1</sup>

## THE URBAN JOURNEY

For most people an urban journey is not an end in itself. People only travel if they have a reason for so doing. In declining order of importance, journeys are made for work, education, shopping, visiting people, attending sporting events, etc. As people are not travelling for the sake of it, they wish the *overall* journey to be accomplished in the shortest time at a “reasonable” cost. Safety is rarely, if ever, a consideration, because it is assumed.

### Elements

Any journey is made up of four elements: access time, waiting time, in-vehicle time and egress time. For a car, the access time is nil if there is one in the garage or at the front of the house. For public transport, it is the walking time to the bus stop or railway station. Waiting time is, again, nil for the car user. Traditionally, waiting time for public transport is taken as half the frequency. However, it is known that there is a dividing line at about the 10/12 minute mark. Up to that time people do not “aim” at a specific departure and tend to turn up randomly. Above this threshold people aim at a specific departure. In-vehicle time is that spend in the car from home to car park or, for public transport, the time spent

between the boarding and the alighting stop/station. For a car, egress time is that from the car park to the destination. This will be nil if there is a parking space at the office, otherwise it is the walking time from the car park. For a public transport user it is the time for the bus-train stop to the destination.

## **Congestion**

Urban journeys suffer, increasingly, from unreliability for a variety of reasons: traffic congestion, under-funding, staff problems, etc. Traffic congestion affects both the car and the bus and has to be compensated for by allowing longer in-vehicle journey time. Additionally for the public transport user it means increased waiting time. So public transport, already at a disadvantage, suffers two further penalties. It should also be remembered that, traditionally, waiting time has a weighing of two to one compared to in-vehicle time. Furthermore, if the public transport journey requires a change to be made, either bus/bus or bus/rail, there is waiting time to be added at each change and the “reliability” factor comes in twice.

It should also be remembered that the majority of city travel involves the cash purchase of fares at the time of travel, as relatively few people in Britain can be persuaded to buy season tickets. In contrast a car costs little or nothing in “cash” terms, with petrol and oil bought on credit card, insurance paid by standing order, garage bills paid by cheque. Parking is often the only cash element.

Furthermore, the increasingly insular approach to transport exaggerates the interactions between the four elements of a typical urban journey. Rarely do individual bus companies, let alone the railways, realise their interdependence for custom. One feeds another. There is a need for, to quote Mr Wilfred Newton of London Transport (LT), a “seamless approach”. The access mode can affect choice of the line-haul mode. Thus the existence/non existence of a local bus services can affect the decision to use the car for the major part of the journey rather than rail or express bus. If rail passengers cannot reach the station because of road congestion and if they cannot park when they get there, they will make the whole journey by car.<sup>15</sup>

Reference must also be made to reasonable cost. Clearly in a competitive market this must relate to the price of the alternative(s) and/or to the importance of the journey and the value the passenger places upon it. It will also depend on whether a person is paying for one fare or for a family.

## **Inflation**

Bus fares have, over a long period, gone up each year at a rate greater than that of the cost of motoring. Indeed they have often exceeded the retail price index (RPI). Rail fares, particularly in recent years, have gone up well above the RPI, recently at double it. Over the last year, inflation has been 4.1%, the cost of motoring has increased by 5.2%; the cost of fares has gone up by 9.9%! In real terms the cost of petrol has decreased but the proportion of petrol duty and VAT has increased. If passengers perceive that they are getting value-for-money



or if money is not unduly short, they may tolerate bus and train fare increases. However, in recent years neither of these conditions has prevailed. It is doubtful if they ever did for a large proportion of people who have no choice but the bus for movement. The importance of parking charges will also be appreciated in this context.

Economists refer to the mobility of labour. Is this a fiction? The mobility of a single person or of a young married couple may be true and thus applicable to people between the ages of, say, 16 and 30, but is it valid after that, even in times of relatively full employment? Increasingly, wives work and their income is thus equally crucial to that of the husbands. Children go to school and college. Families get involved in community activities. Dependent relatives make increasing calls on children's time. The selling of houses becomes more irksome and expensive, hence the growth in the house-extension market. The preliminary results of the 1991 census show that the population of the UK is stable around 50 million and the UK has the second highest density in Europe (being exceeded only by the Netherlands). Population of the Metropolitan areas is declining. The 16–24 year age group moves at a much higher rate than other groups in the population and it moves to different areas.<sup>2</sup>

### Commuting

To counter this lack of mobility, people are travelling further and longer than they ever did. Daily long-distance commuting is a feature of many people's lives. The development of the motorway network, upon which there has been greater traffic growth than on other roads, has permitted, even encouraged, this. The modernisation of British Rail (BR) services has permitted a reduction in journey times. In spite of the substantially higher fares of the last two years and the actual rising price of petrol, long-distance commuting has continued to increase.

### Observations

A feature of life over the last 30 years has been the increase in D-I-Y with the consequent scarcity and relatively higher price of tradesmen. The D-I-Y person knows that the quality may not be there but the price is affordable and the job is done when required. Is not the car D-I-Y public transport?

The zenith of the department store coincided with the zenith of public transport, 1955/60. Today many department stores have folded or have become many-shops-within-a-shop. Segmenting the once general market has been a good retail formula. The omnibus, "vehicle for all people", needs to be aimed segmentally at the numerous markets it is attempting to serve. With the arrival of the minibus and articulated bus that now becomes a real possibility.

Another point to consider is the internationalisation of people, places, industry, commerce, leisure, etc. This manifests itself in two ways in the urban transport scene. First, travel broadens the horizon. People see the transport arrangements and public transport systems on the Continent and in North America and realise that, in many cases, they are better than those at home. Secondly, all the larger

and older cities and conurbations of this country desperately need to widen their industrial base. Leeds is no longer just competing with Manchester or Sheffield for new investment, but with Lille, Lyons, Rotterdam, Dusseldorf, etc. Industrialists, particularly from Japan or America, will look more favourably upon these latter cities with their excellent public transport than they will on UK cities.

Finally, it is a major contention of this paper that travel/transport/mobility is, in economic terms, far too cheap at the present time and, in consequence, is distorting the world in which urban transport takes place.

## THE CURRENT BRITISH SCENE

### Background

It is a truism that there is nothing new in public transport. The seeds of the present situation were sown many years ago. Britain has always had an ambivalent view of public transport and railways, even though it pioneered both!

*Historical* The number of bus passengers grew rapidly after the end of the Second World War but Britain scrapped its tram and trolley bus systems. While this was in line with America, it was completely contrary to the European scene (except for France). The bus strike of 1957 arrested the growth in passengers. Subsequently, a number of other factors have ensured declined carryings in a growth market.

The railways, having taken a pounding, emerged from the War in a dreadfully run-down state. With few exceptions, the provincial suburban networks were all steam-operated over manually-signalled lines, all very labour-intensive. The strike of 1955 badly affected people's views of the indispensability of the railways. However, the modernisation plan of the same year proposed to put things right through electrification and dieselisation, so far as urban/suburban traffic was concerned. There is no doubt that these schemes led to spectacular increases in passengers (often abstracted from competing bus services) but the economics of such services were rarely good.

Few British cities were comprehensively rebuilt after the War although interestingly Bradford was the largest non war-damaged city to be so. This was in marked contrast to the scene in continental Europe where they rebuilt on conventional lines, failing to perceive, as did the UK, the growth in the private car. However, they did rebuild their tram systems, often upgrading them later to light rail status. In urban rates, there was no wholesale closure of suburban railway lines. During this period, scant regard was paid in the UK to public transport, in spite of the two major reports: The Beaching Report on the "Future of British Railways" and the Buchanan Report on "Traffic in Towns".

*Political* The political importance of transport can be judged from the fact that there have been 16 secretaries of state for transport in 27 years. Their average stay has been 20 months! In the last 12 years this has reduced to 18 months.<sup>6,7</sup>

However, it is interesting to note that two of the greatest ministers of transport were in office during this period: Ernest Marples and Barbara Castle. Most public transport men were against Marples but, had he continued longer in office, his approach might have paid off. He was determined, for instance, to ascertain the facts and hence his commissioning of the Beeching and Buchanan reports and numerous land-use/transportation studies.

Furthermore, it is to Barbara Castle and the Labour Government of 1964 that we have to look to the first fundamental post-war re-think of urban transport. The paper "Transport Policy" of 1964 was followed by a series of more specific white papers in 1966/67, culminating in the Transport Act of 1968. The quality of thinking during this period was outstanding and was emphasised by the events of 1984/85.

### Continental Comparisons

*Investment* Investment has failed to keep up with demand because of government fiscal policy, the stringent rate-of-return criteria applied to public transport schemes and their ever tightening effects on local government expenditure.<sup>1,13</sup> As a percentage of gross domestic product (GDP) over the four years 1982–85, Britain spent 0.4% on roads compared to Germany's 0.79%, Belgium's 0.67%, France's 0.65% and Italy's 0.62%. A similar, but worse, situation exists with regard to rail investment. Britain spent 0.09% of GDP whereas Belgium spent 0.29%, Italy and Spain 0.27%, Germany 0.26%.<sup>4</sup> "Sainsbury's and Tesco each shell out more on capital investment than BR. That says as much about the ambitious expansion plans of four premier grocers as it does about the neglect of our railways".<sup>5</sup> However, there seems belated acknowledgement by the Government through the Chancellor's Autumn Statement with a 13% increase in transport expenditure. The expenditure figures in real terms (1990/91 prices) announced were:

Year	Estimated out-turn (£ billion)
1989/90	3.8
1990/91	4.7
1991/92	5.3
1992/93	6.2
1993/94	5.7
1994/95	5.1

However, virtually all this increase is going to London and the South East.

*Britain's Unique Policies* Uniquely in the developed world, Britain pursues a *laissez-faire* transport policy related entirely to the market economy. Britain depends upon diesel engined buses and coaches for all its road public transport needs. The last trams operated in 1962 and the last trolley bus in 1972. The majority of passenger services on the railways are powered by diesel traction, locomotives or railcars. Only two of Britain's main lines are electrified and, while electric suburban networks exist around Birmingham, Glasgow, Greater Manchester and Merseyside, large parts of these systems are still diesel operated.

The only completely electrified networks are the London underground system, Network SouthEast and the Tyne and Wear Metro.

This scene is in complete contrast to Europe where there are extensive metro, U-bahn, tram and trolley bus networks, all electrified. On the railways, the Europeans have electrified all their main lines. Suburban services around most of their main cities are electrified. Public transport users on the Continent are not, therefore, dependent upon one energy source nor one that is internationally politically unstable. By adopting electric traction, the Europeans have also got an environmentally-friendly system.

*A Fundamental Difference in Approach* Public transport in the rest of the European Community (EC) is considered a public service; in Britain, it is considered a commercial activity. Public transport on the Continent is regulated; in Britain it is deregulated, except of course in London. In continental Europe, public transport is integrated. This is either on a national basis, as in Holland and Switzerland, where cross-country journeys can be made and regional basis, as in Germany with the *Verkehrsverbunds*, typified by Frankfurt, Hamburg, Munich, and now Switzerland has copied the arrangement for the Zurich area. In Britain, there is competition between different modes of public transport and within the bus mode. The Europeans have realised that the only way to combat congestion caused by cars is to organise public transport so that, collectively in all its forms, marketed properly with through-fares, it can offer some alternative to many private car journeys.

These physical and political differences of approach are also reflected in the UK's attitude to financing public transport. On the Continent, public subsidies are directed to cover deficits. With higher car ownership figures than in the UK, the continental passenger movement market is increasing with public transport at least holding its share. Furthermore, investment in public transport is being maintained while investment in roads is declining.

In Britain, 80% of bus mileage receives no subsidy. BR's InterCity services are profitable. Its public service obligation (PSO) grant has been cut successively over the last few years. Consequently fare levels are far higher on buses and trains in Britain than they are elsewhere in the EC. Britain does, however, accept the need for capital grants for infrastructure but the financial and economic rules are much tighter here than they are abroad. Furthermore, of course, in the UK road schemes and public transport schemes are not evaluated on the same basis.

From this totally different approach, it is little wonder that, throughout continental Europe, public transport in cities, particularly those cities where the population exceeds half a million, is far better than in the UK. By better, we mean more frequent services, more modern vehicles, improved passenger facilities and information, better reliability, consistency of service against a stable financial background, and bus-bus/bus-train interchanges facilitated by through-ticketing and park-and-ride facilities.

### **Likely Future Growth**

Congestion is already nearing crisis proportions in the UK. Yet forecasts of overall traffic increases ranging from 83–142% over the next 30 years have been made

by the Transport and Road Research Laboratory. To put this in a local context, an increase of 50% to half a million journeys per day is predicted for Leeds in the year 2000. A 34% increase in car volumes is expected to bring a 160% increase in road traffic delays. Sheffield is also expecting a 50% increase in the number of cars entering its city every day. By the turn of the century Manchester expects a continuous peak throughout the day, unless current policies change.

The author's recent case study<sup>8</sup> of San Diego included the following interesting trends:

- Population, housing and jobs are increasing.
- Freeway travel has increased by 50% over the years 1980–88.
- This growth is outpacing new highway construction.
- Job growth has outpaced population growth, hence an unprecedented increase in the number of women working.
- There is an average of 1.3 vehicles per household.
- The number of households without a car is 5.2%.
- Some 63% of households have two or more cars.
- This has led to a 25% increase in vehicle trips per household and 12% decline in vehicle occupancy.
- Vehicle mileage has been increasing at a much higher rate than either employment or population.
- There are now more motor vehicles than licensed drivers; a three-car household is standard.
- The diversity of specialised vehicles has expanded the role of the car.

Bearing in mind how closely we seem to follow Trans-Atlantic trends, is this what we can expect here? Today only 15% of households do not have a car; 21% have two or more. We already know that while traffic on motorways and trunk roads grew 30% between 1979 and 1989, motorway traffic alone increased 46% from 1982–86. Britain already has more vehicles per kilometre of motorway (6,763) and per kilometre of trunk road (1,545) than any other country in Europe.<sup>1</sup> Almost the whole of the motorway network is operating above its design standard of 85,000 vehicles per day. Some parts are carrying as many as 130,000 vehicles per day. Demand for road space has fast outpaced the provision of capacity. Buchanan warned in the 1960s of the implications of unfettered growth of the car. Certainly, the Dutch have taken note of the San Diego scenario and are now putting £20 billion over the next 20 years into manufacture for rail (38%) and local public transport (14%) networks. This is expected to curtail car growth to 30% rather than reaching the 72% increase forecast for an unrestrained situation. The first transport plan had the effect of increasing rail usage by 25% over its four years and halving the projected car usage.

## Research and Development

Not only are employment and sociological moves all favouring private transport, investment and technology are also progressing the fuel-efficiency and cost-effectiveness of the car. Certainly in Britain investment, let alone research and development, is virtually non-existent in public transport, both bus and train.

Consequently, the passenger appeal of British public transport products lags behind that of British cars, let alone any overseas competition. Coaches and, increasingly, buses and now light rail vehicles are being imported or built under licence. The organisational and legislative upheavals of the last 10 years have distracted managements from running their businesses, while political interference, direct or implied, has been harmful to enterprise and the ability to take a long-term view.

### Omissions from Present Policies

A market based approach to public transport leaves out two essential features: the value of land (space) and the social dimension. Land, particularly in urban areas, is scarce and expensive; road space, for movement or parking, is at a premium and yet no account is taken of this in the present transport scene. A market-based approach and work *if* road pricing is introduced, otherwise the presently distorted situation will continue.

The social dimension covers a much wider spectrum. Fundamentally, it is acknowledged everywhere else in the world that transport/movement is an integral part of daily life, the lubricant of commerce. Unless this approach is understood and adopted here, there is little hope of achieving a rational balance between public and private transport and the allocation of investment to bring about the essential improvements. Furthermore, in any (civilised, responsible?) society there will always be a need to take children to school and related activities and to provide transport for elderly people (ambulant or otherwise) as well as for those who choose not to or cannot have their own transport. Regard must be paid to the needs of these groups and transport must be provided. This calls for professional expertise of a high order. There are several funding alternatives which must be considered and, as Sir Christopher Foster has said recently "a revolutionary change is needed in the financial regime".<sup>15</sup>

### Car Makers' Inadequate Returns

This paper has shown that the car and its use are main culprits in the present urban transport problem. However, it is interesting to note that no car maker anywhere in the world (with the possible exception of Mercedes-Benz) is making an adequate return on its investment. In Europe the Peugeot Group is making a 9% return, General Motors 8%, Volkswagen Group 5.5%, Fiat 3.5%, Ford 1.5% and Renault 1.0% and they owe the banks £3 billion. For the first half of 1991, both General Motors and Ford in the USA each report losses around £600 million. Volvo's profits fell 43%; Rover made a £45 million loss.<sup>9,10,11</sup>

It is generally acknowledged that it takes around five years and £400 million to introduce a new family-class car. Government safety and pollution requirements are continually rising. It could be concluded, not unreasonably, that cars are being sold too cheaply. Following market forces, if cars were priced so as to give their makers a proper return, having regard to their future investment levels, etc., there would be an even greater decline in the sales of cars. With the exception

of Germany, the European car market is expected to fall 8% this year, with the luxury car market falling up to 70%. The January–September 1991 registrations in the UK are down 21.6% to 1.33 million, of which 44% were home-produced. In 1989 2.3 million were produced. Commercial vehicles are down 29.5%.<sup>12</sup> Are we seeing a new trend with the present serious loss of sales in the UK, or is it just because of the recession in the home economy? If cars were “properly” priced and if there was road pricing, private and public transport would, at least in these terms, be competing more realistically.

Clearly the convenience of the car (often over-stated in current city centre conditions) and its social status, particularly among the young, would still condition many people’s decisions. Likewise there is a great need to improve the general quality and performance of public transport. In this respect “image” is all-important. Image may be equated to “perception”. While much effort and money have been spent on improving the image of public transport, people’s perception of it still lags a long way behind and is often simply based on the last time they travelled. Also we should not forget that there are whole generations who have not travelled on a bus or a train. “A new generation has new expectations – more footloose than their predecessors”.<sup>15</sup> The car has become omnipotent.

In concluding this section, it is clear that the car has a distorting effect not only on land use/transport issues but also on the social, economic and financial viability of our cities. If these distortions could be corrected or at least allowed for in investment decisions, we would be at the start of assessing alternative scenarios for urban transport.

## ALTERNATIVE FUTURE SCENARIOS

As the car is the culprit of the modern urban transport problem should we just “follow the trend”, give up the unequal struggle and go for an all-car solution? Conversely, accepting the distorting effect of the car, should we banish the car and go for an all-public transport solution?

### All Car

The San Diego scenario shows car ownership and usage increasing at a greater rate than population and employment with multi-car families. In the UK it is unlikely that either the population or employment will grow significantly, although it might be expected that an increasing number of women may work whole or part-time. A substantial road and motorway building programme would have to be implemented. This would be funded either by an increasing call on central government funds or by a toll-road system. Many railway lines would close and, where possible, be converted to multi-lane highways. Alternate rows of terraced or semi detached houses would have to be demolished to allow for multi-car families. In the city centre alternate blocks would have to be converted to multi-storey car parks.

Is such a scenario feasible? Is it affordable? Would the environmental implications be acceptable? What would happen to the people still without cars:

free taxis on the rates? Would any political party be prepared to go to the country on such an issue? If so, would it be elected?

## No Cars

What about an all-public transport solution so far as towns and cities are concerned? Under this scenario the car would be banned from all towns and cities. The area of the ban would vary from place-to-place according to its size. For London it might be the area inside the North and South Circular Roads. For Leeds and Bradford it might be the area inside their respective ring roads. Large car parks would be provided on these circumferential roads and all movement within the car-free areas would be by public transport: bus, light rapid transit (LRT), rail, "people-movers", etc.

Under this scenario, car use would be confined to suburban movement and inter urban/national travel. Again there would have to be a high level of investment but this time it would be into public transport facilities in the car-free areas and in the peripheral car parks. The cityspace could be greatly improved and the cities would generally become "greener" and more pleasant.

Is this scenario feasible? Is it affordable? While there would be those who would accept, even welcome, such a scenario, it is unlikely that any political party would be prepared to go to the country on such an issue. The strength of the motoring/road lobby must not be forgotten. Many people are employed directly in the motor business and many more in motor-related trades. Their livelihoods and those of numerous companies would be seriously threatened.

In truth neither of these extremes is likely to be acceptable. Yet we have already come to the conclusion that we cannot continue as we are.

## What Public Transport has to Offer

Today public transport has a wider range of technical solutions to the urban transport problem than ever before. Technically speaking, it should, at least in theory, be possible to satisfy most if not all market demands. The economic and fundamental viability may be a different case, to which we shall return. Public transport solutions include:

- |                                |                                                                                                                                                                                              |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bus-based:</b>              | Mini, midi, standard and articulated buses and coaches<br>Standard and jumbo double deckers<br>Normally driven or guided buses<br>Diesel-engined, straight electric (trolley) or dual-mode   |
| <b>Rail based:</b>             | Light: Trams, LRT<br>Heavy: One, two, three and four-car diesel or electric multiple units (DMUs or EMUs) with trains from 1–12 cars<br>Push-and-pull trains with diesel or electric haulage |
| <b>Unconventional systems:</b> | Travolators<br>People-movers                                                                                                                                                                 |



Personal guided rapid transit  
Group guided rapid transit

There is no shortage of technical solutions, although it is unlikely that any one type would be able to serve all the market demands. As a mode, the bus could do this in all its forms from mini to articulated, possibly using guidance over common sections of route to avoid congestion. However, under current legislation in Britain such services would be provided by a multitude of competing operators. This would dilute marketing effort unless all operators worked together somehow (the Office of Fair Trading notwithstanding). The justification of investment would be difficult under present rules because predictions of future use would be largely speculative. Neither the Department of Transport nor the merchant banks would like that.

In any event, public transport does appear to offer a wide range of alternatives.

### **Towards a Balanced Solution**

Any solution to the urban transport problem must serve this multi-faceted market properly. Without attracting people, it will not succeed, irrespective of how it is financed. The market may be divided up: type of journey, reason for it being made, time of travel, sensitivity to journey time, geographical areas in which or between which the journey takes place, etc. Earlier, we identified reasons for travelling. In any large city, like Leeds or Manchester, there are journeys:

- within the city centre;
- between city centre and the suburbs;
- within any one suburb;
- between suburbs – cross-city or circumferential;
- from and to other cities.

All such journeys have to be created for but it is fortunate that many types of journey can combine by area, route or time.

It follows that several different types of transport will be needed and, in the UK, several different operators will be involved. However, it is necessary to market the public transport network as a whole as the car plus the highway network is “seamless” to the car driver and passenger. Marketing the network also involves the ability to have one ticket for a through journey irrespective of mode or operator.

Although the cost of both purchasing and operating a car is artificially low (i.e. car makers are making inadequate returns) it is unlikely that the situation will change quickly. If this assumption is right, there is a need to allow for its correction in subsequent calculations, otherwise the equations are immediately loaded in favour of the private car.

A balanced solution requires provision of an adequate level of public transport to meet the market demands. The costs of operation of a given public transport service can be estimated and hence the level of fares can be determined for profitability. In turn this can be evaluated in a model making the same journey