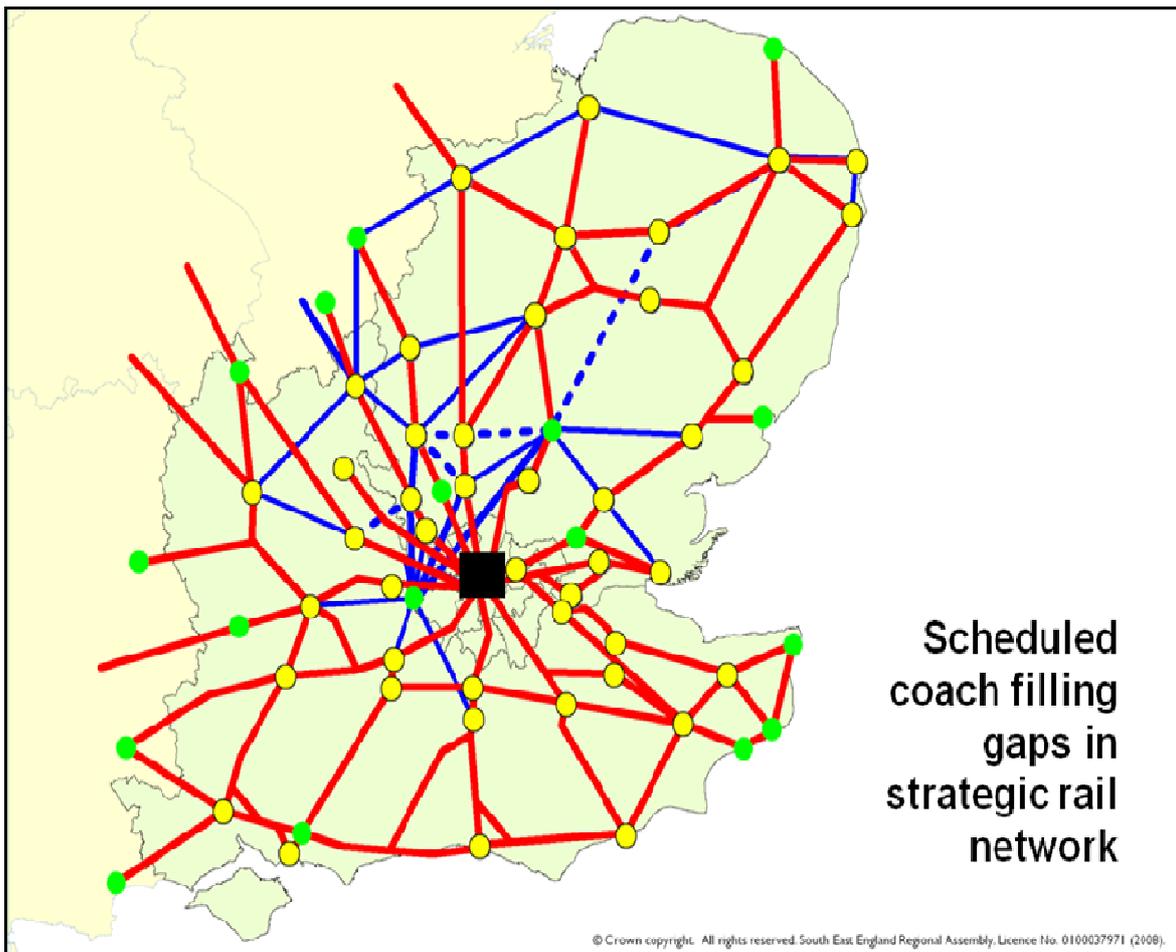


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Developing a strategic bus and coach network for the greater South East

Richard Walker, South East England Partnership Board

Arup

24 March 2010

INTRODUCTION

Mr. Walker began by giving a brief outline of strategic planning arrangements at the regional tier of government. The South East England Regional Assembly (SEERA) had, among other functions, been the Regional Planning body responsible for drafting the South East Plan. It had provided the secretariat to the Regional Transport Board, advising central government on the regional transport programme. However, SEERA was dissolved at the end of March 2009.

Under the Local Democracy & Economic Development (LDED) Act 2009, local councils in South East England and the South East England Development Agency (SEEDA) are jointly responsible for preparing a single Regional Strategy. This merges the functions of the South East Plan and the South East Regional Economic Strategy. The new South East England Partnership Board is the body which draws together the councils and SEEDA in order to fulfil this requirement.

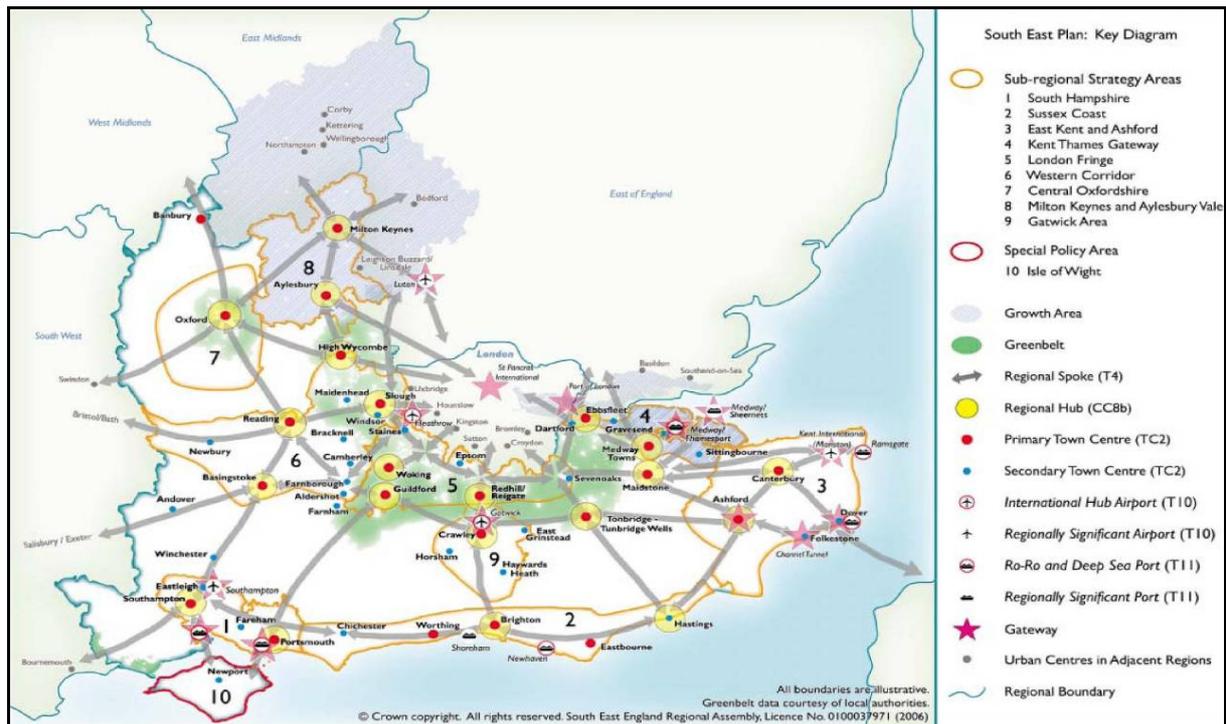
The Regional Transport Board continues as one of three delivery boards. It provides a forum for agreeing on advice to central government on the regional transport programme, as well as monitoring and driving delivery of the programme.

BUS AND COACH POLICY

Policy T8 of the May 2008 South East Plan is about developing regional spokes. To quote paragraph T8(iii) ...

“Develop a complementary and integrated network of rail and express bus/coach services along the ‘regional spokes’ and inter-regional corridors.”

Figure 1: May 2008 South East Plan



The objectives of this aspect of the Regional Transport Strategy are to:

- Improve accessibility by filling gaps in the strategic public transport network
- Achieve mode shift by providing attractive alternatives to using cars, thereby resulting in decongestion, and environmental and quality of life benefits
- Support the spatial strategy based on urban focus

The spatial strategy for South East England includes a policy of encouraging development at regional hubs. Denser development at such hubs is inherently supportive of sustainable transport, and offers buses and coaches a greater role for transport both within and between hubs. However, intervention is necessary, to establish the networks needed to support the policy. In the past there has been development in the region without the necessary transport infrastructure in either public transport or new roads.

The hub and spoke strategy could create a more efficient transport system, allowing economic growth without worsening congestion problems. It could also give public transport a chance to thrive, allowing it to break out of the vicious circle of decline, in which the bus becomes the mode of last resort, into a virtuous circle of growth and improving

services, where bus use is seen as a smarter choice. Such a scenario needs kick-starting, but then can become self-financing.

Not implementing the necessary bus and coach networks risks generating severe congestion in the future. Such networks are more than just “nice to have”, they are crucial to fulfilling the South East Plan.

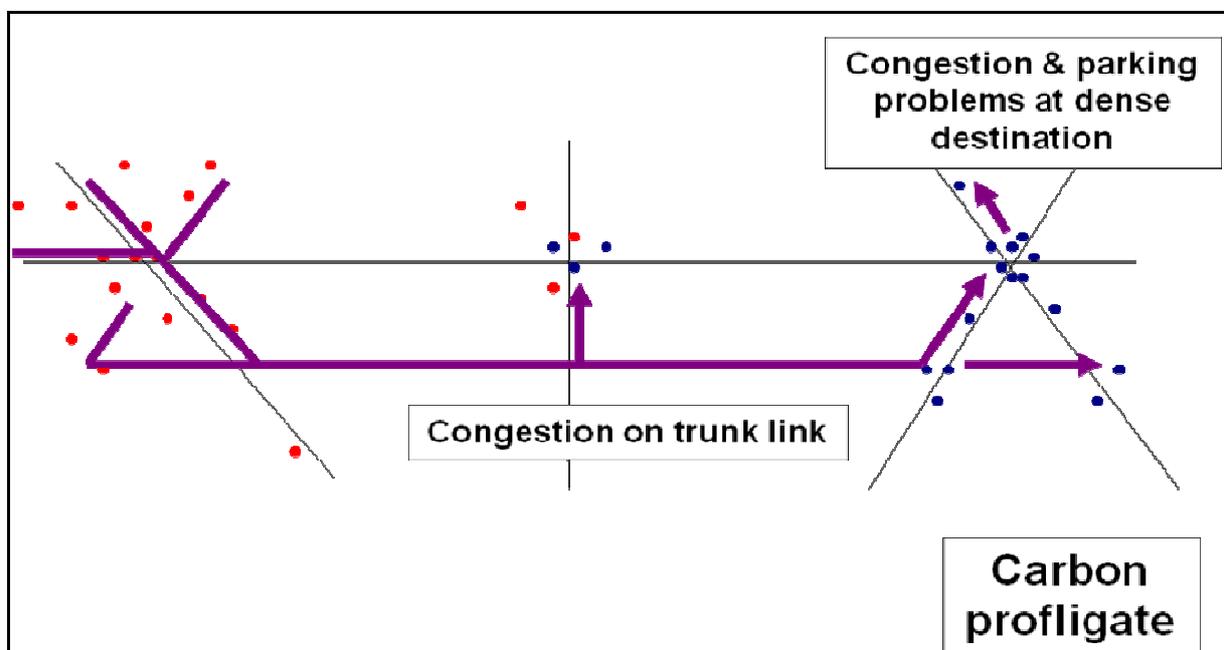
REACHING THE VISION

Reaching this vision of the virtuous circle requires:

- Good vehicles with on-road priority
- Decent waiting facilities
- Excellent coach stations
- Clear information and ticketing

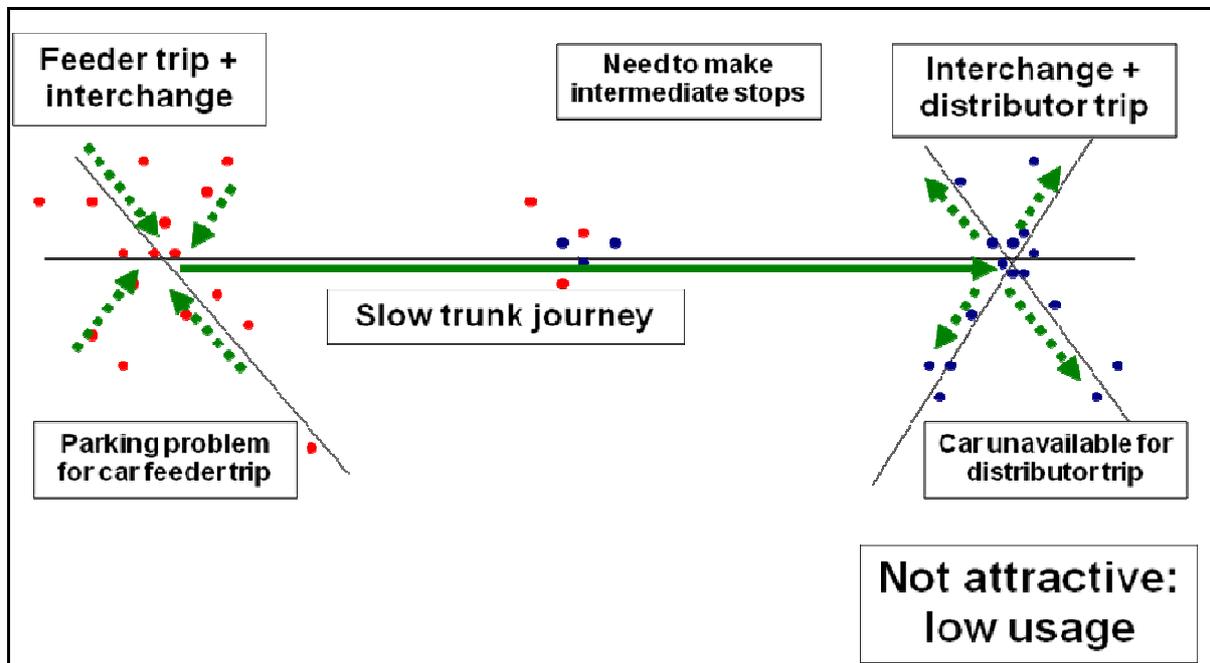
It also has to meet the needs of current travel patterns with their dispersed origins and destinations. The issues with a car-based solution to such travel patterns are illustrated in Figure 2.

Figure 2: Car-based solutions



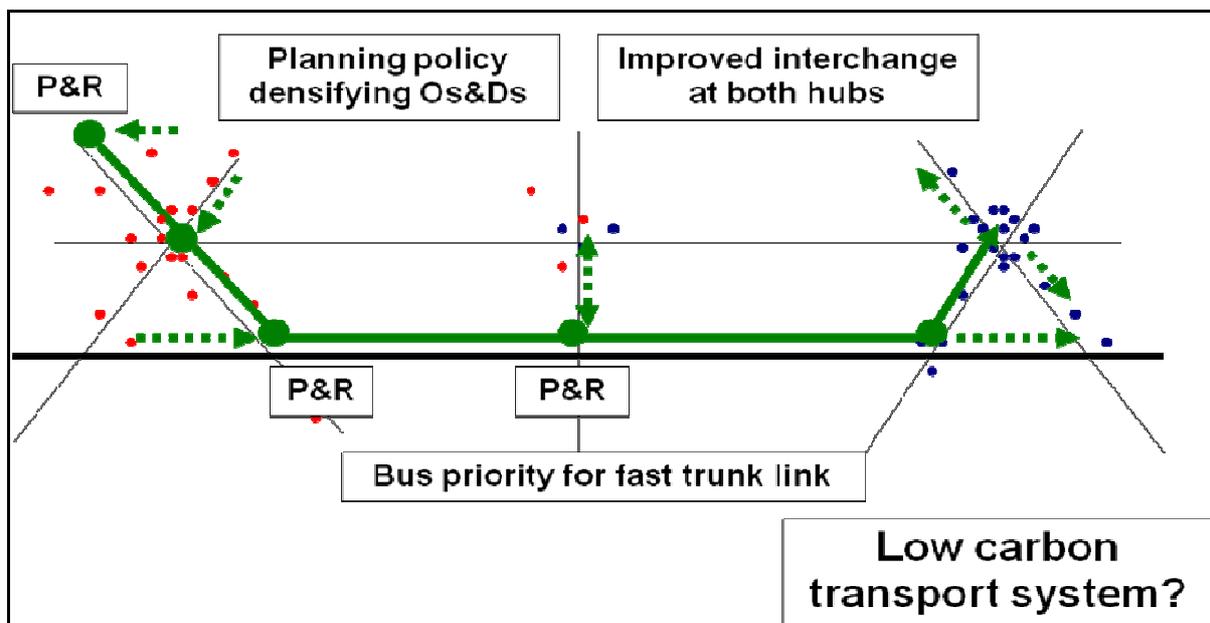
Traditional bus services do not offer a satisfactory solution as shown in Figure 3 below.

Figure 3: Effect on traditional bus services



An integrated sustainable strategic public transport solution would look like this.

Figure 4: Effect on integrated and sustainable solution



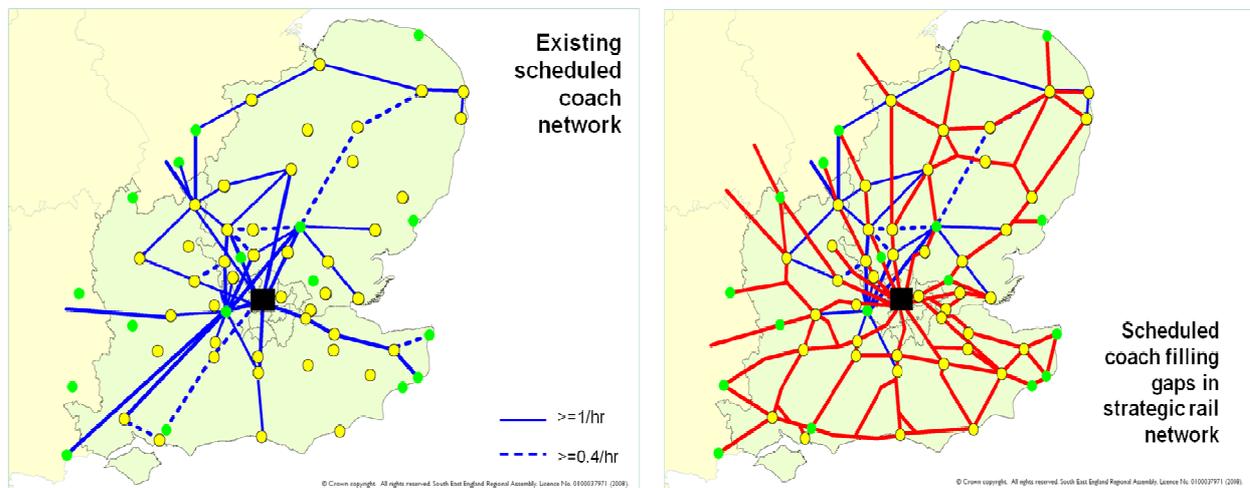
EXAMPLES AND GAPS

A good current example of this type of solution is the coach service between Oxford and London, with frequent departures – up to every 12 minutes in the peak, 15 minutes off-peak and every hour throughout the night – and a range of fares to meet the needs of various markets, such as commuters, frequent travellers and occasional users. Competition between the two operators has also led to significant improvements in other aspects of the service, including better vehicles with improved leg-room and Wi-Fi facilities for laptops.

A framework is required for understanding and developing the network. The graphics in Figure 5 show:

- how the existing scheduled coach network is largely competitive with, rather than complements, existing rail services
- the more limited instances where scheduled coach services fill gaps in the strategic rail network

Figure 5: Integration between coach and rail networks



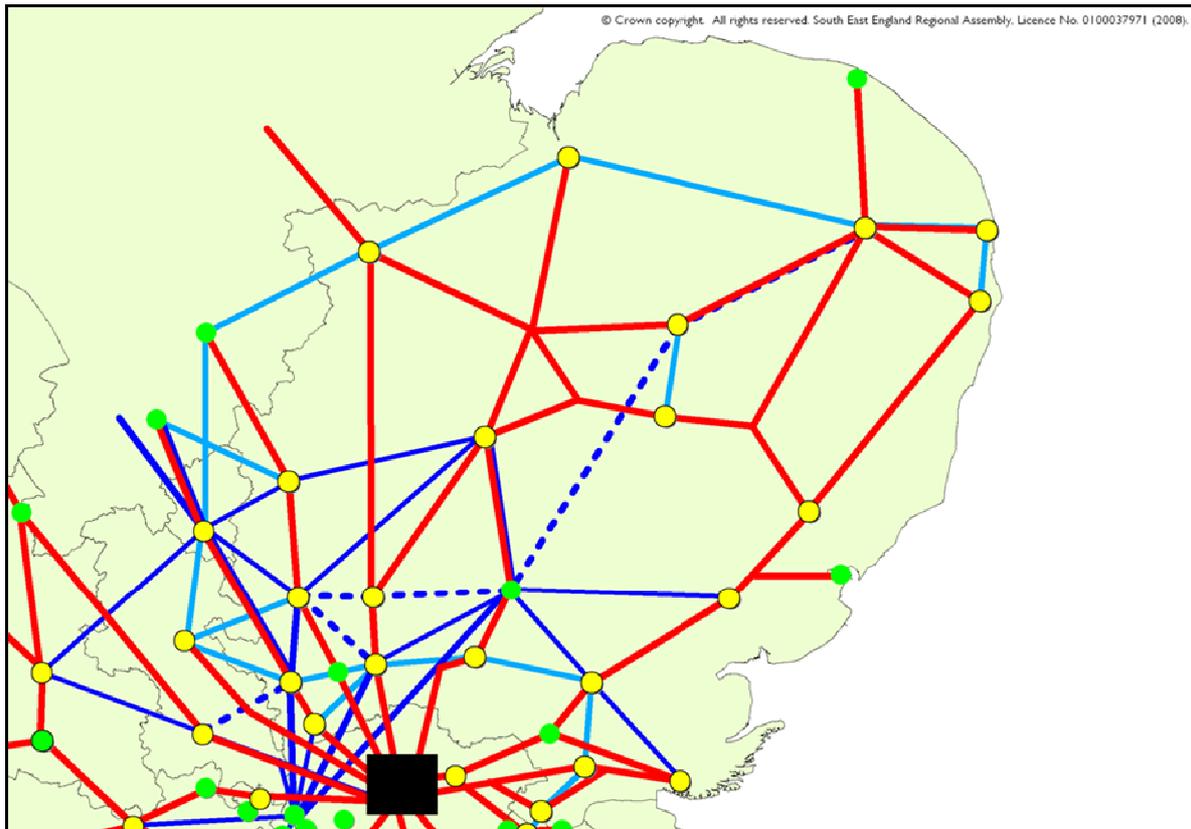
An analysis of the existing hub-to-hub network identifies the network gaps and the opportunities as the examples in Table 1 show.

Table 1: Integration between coach and rail networks

	Kings Lynn- Norwich	Basildon- Chelmsford	Cambridge- Luton Airport	Hatfield- Harlow	Bury St Edmunds- Norwich
Distance (miles)	49.3	18.8	38.4	17.5	43.6
Car journey time (minutes)	79	26	85	30	73
Rail frequency (per hour)	1	2	2	2	1
Rail changes	1	2	2	2	1
Rail journey time (minutes)	137	70	111	60	64
Journey time ratio (rail/car)	1.73	2.59	1.31	2.0	0.88
Bus frequency (per hour)	2	3	2	1	None
Bus changes	0	0	0	0	N/A
Bus journey time (minutes)	94	53	85	66	N/A
Journey time ratio (bus/car)	1.19	1.96	1.0	2.2	N/A

A strategic network for East Anglia would look like Figure 6, with existing rail services shown in red and bus and coach services shown in blue.

Figure 6: Illustrative strategic network for East Anglia



DEVELOPING THE NETWORK - QUALITY BUS CORRIDORS

Development of the trunk network requires support for those commercial services which already exist through provision of coachways, strategic Park & Ride sites, priority lanes, better information and marketing, and introduction of new routes and improved frequencies.

The key issues for development of the hub-to-hub network are bus-rail integration and the concept of interurban Quality Bus Corridors (QBCs). This concept is similar to the existing Quality Bus Partnership Agreements between local authorities and bus operators. These set out the actions required from each party to improve services and encourage patronage. The QBC would operate as a similar partnership between the highway authority and bus operators to review all aspects of the service in order to improve the overall product. Aspects covered might include routeing, overall speed, location of stops, frequency, hours of operation, waiting facilities, on-road priorities, vehicle types and information provision.

A case study for QBCs considered what a Thames Valley Strategic Bus and Coach Package might look like. The study objectives were:

- To envision and cost the strategic network, including developing the vision into a service specification and infrastructure standards, and providing cost and revenue estimates
- To identify quick wins, improvements that could be implemented before 2015

Necessary ingredients for a successful package were seen as:

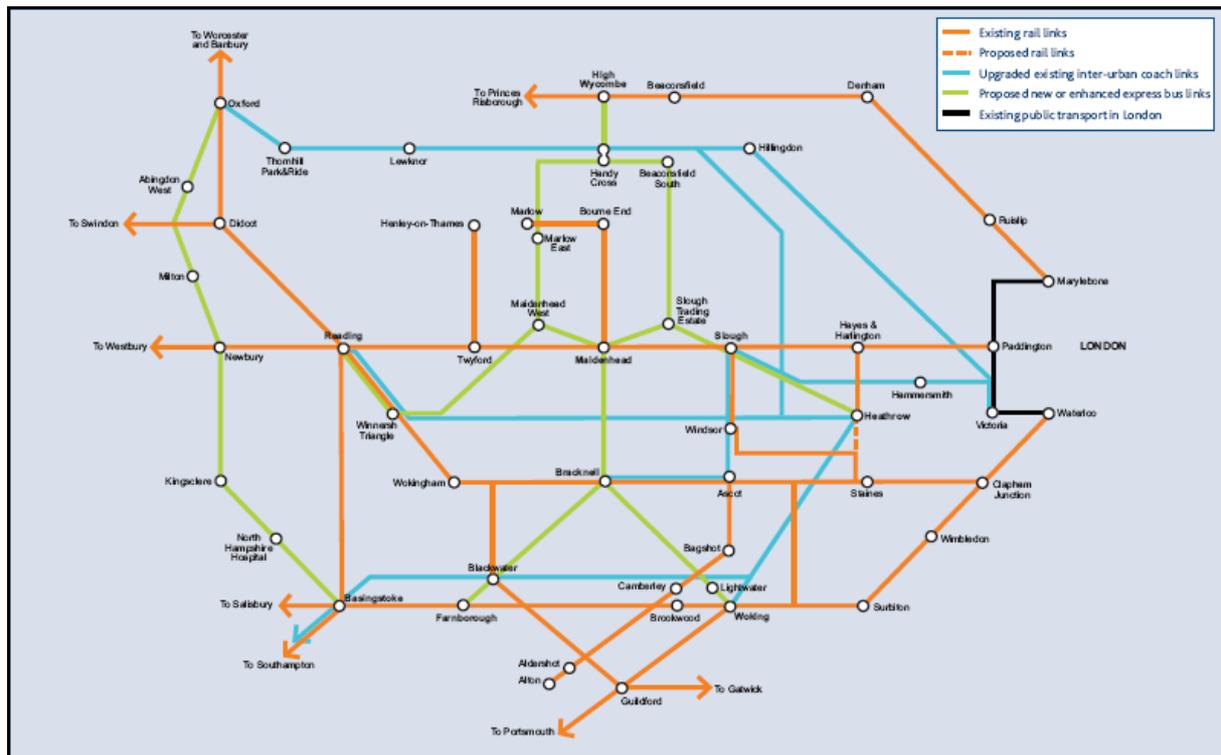
- Fast hub-to-hub journey times
- 20 minute “turn up and go” frequency to attract rail and car users
- Evening and weekend services as standard
- Quality waiting facilities, including real-time information and Kiss-&-Ride facilities
- On-road bus priority to improve punctuality
- Quality vehicles with coach-style seating, Wi-Fi and customer care
- Marketed as a single integrated network with rail

The overall vision for a Thames Valley Strategic Bus and Coach Network is of a single integrated public transport network for the sub-region that provides fast, reliable and attractive services for most passenger journey purposes. This would comprise fast interurban services between hubs provided by a combination of rail and express bus or coach services, together with well-integrated access networks for feeder and distributor trips to/from the sub-regional hubs. Access modes include walking, cycling, local bus, taxi, kiss and ride, and park and ride.

In this vision the express bus and coach links fill gaps in the rail network, providing a fast interurban service with rail-style standards of frequency, hours of operation, waiting facilities, ticketing and network stability. Bus priority would be needed to improve speed and punctuality, the aim being to provide a bus service attractive to those who are accustomed to rail. The study made specific proposals for strengthening the existing network with new routes and improved frequencies, originally a recommendation of the Thames Valley Multi-Modal Study (TVMMS). Further detail was developed by the TVMMS Implementation Group.

A proposed Thames Valley integrated public transport network would look like Figure 7.

Figure 7: Proposed integrated network for the Thames Valley



Envisioning the full network proposed in the study’s findings would require estimated infrastructure costs of £13-15 million and annual operating costs of £11¾ million per year. With revenues estimated at £7½ million per year, the annual revenue support would amount to around £4¼ million per year. This level of support can be compared with that provided to public transport in South Yorkshire, a region with approximately the same population as the Thames Valley. Rail network support alone in South Yorkshire is around £27 million per year and bus network support £13 million per year.

The most promising corridor to pilot a new express coach route is seen as High Wycombe-Slough. Other quick wins include incremental improvements to existing routes on the following corridors:

- Maidenhead-Slough-Heathrow
- Reading-Wokingham-Bracknell
- Newbury-Basingstoke
- Bracknell-Windsor-Slough
- Oxford-Aylesbury

Kick-start funding bids are for :

- Route X74 : Slough-High Wycombe express services co-ordinated
- Route 190 : Bracknell-Wokingham-Reading up to 4 per hour
- Route X32 : Newbury-Oxford new service
- Route 7 Series : Slough-Heathrow 24 hour service
- Route 280 : Aylesbury-Oxford up to 3 per hour, peak expresses

This package formed part of the old South East regional transport programme for 2006-16, with an indicative allocation of £35 million starting in 2015. The current situation is that the package has been split into two elements. The advice submitted by the Region on the 2009-14 programme was for an indicative allocation of £20 million brought forward to 2010/11 and intended for a High Wycombe-M40 Junction 4 Regional Coachway and a Park & Ride facility at Handy Cross.

At present Buckinghamshire is proceeding with the Handy Cross coachway and Slough is implementing its “Heart of Slough” transport schemes. A Bus & Coach Working Group of the unitary authorities in Berkshire has been set up to develop the short to medium term Quality Bus Corridor programme at a cost of £25,000 in 2009/10.

Next steps will be to continue to promote the network package for the 2014-19 programme and to consider how to fund the required revenue support. Consideration will also be given to the wider issue of the sub-regional transport management strategy for Round 3 of the Local Transport Plan (LTP3), including getting support from the business community for some difficult decisions. The package will form an input into the Delivering a Sustainable Transport System (DaSTS) study.

In the wider South East England region, local authorities in the Milton Keynes/South Midlands area are looking at options for inclusion in LTP3 and all ideas will be remitted to sub-regional DaSTS studies. From the speaker’s viewpoint the main issues are:

- Need for a solution for revenue support
- Need for a context of proactive demand management, such as through parking charges or road pricing
- Need to engender business community support for action

One suggestion for tackling these issues is to generate a revenue stream from a workplace parking levy in order to incentivise employers to think about transport options.

PERSONAL REFLECTIONS ON EXPRESS BUS AND COACH

One of the problems in making a business case for an express bus or coach service arises from disrupting the financial model for existing commercial interurban services. For example, take what can happen to an existing interurban service from A to B via an intermediate settlement C if an express service is introduced.

Table 2 assumes that, on the existing route, 40% of revenue is from each of A-C and C-B and 20% on end-to-end A-B journeys, and that the latter is increased by 50% by an express service.

Table 2: Effects of express services on existing services

	Existing Route 1 A-C-B	New Express Route 1X A-B	Route 1 after introducing Route 1X	Total for both routes 1 and 1X together
Revenue	100	30	80	110
Operating costs	90	60	90	150
Operating surplus	10	-30	-10	-40

Here the situation is changed from an existing profitable local route to creating a loss-making express route and a loss-making local route. This is not an attractive prospect either for the market or for a cash-strapped local authority. However, the situation should be viewed as a overall travel market issue.

Suppose the total market A to B is 100 with the car share, say, 90%, leaving the bus with 10%. The generalised cost by mode for the car-available market is:

- Car = 30min + car operating cost + parking charges
- Bus = 60min + feeder/distributor trip + fare

The mode split for the car-available market would be 100% car.

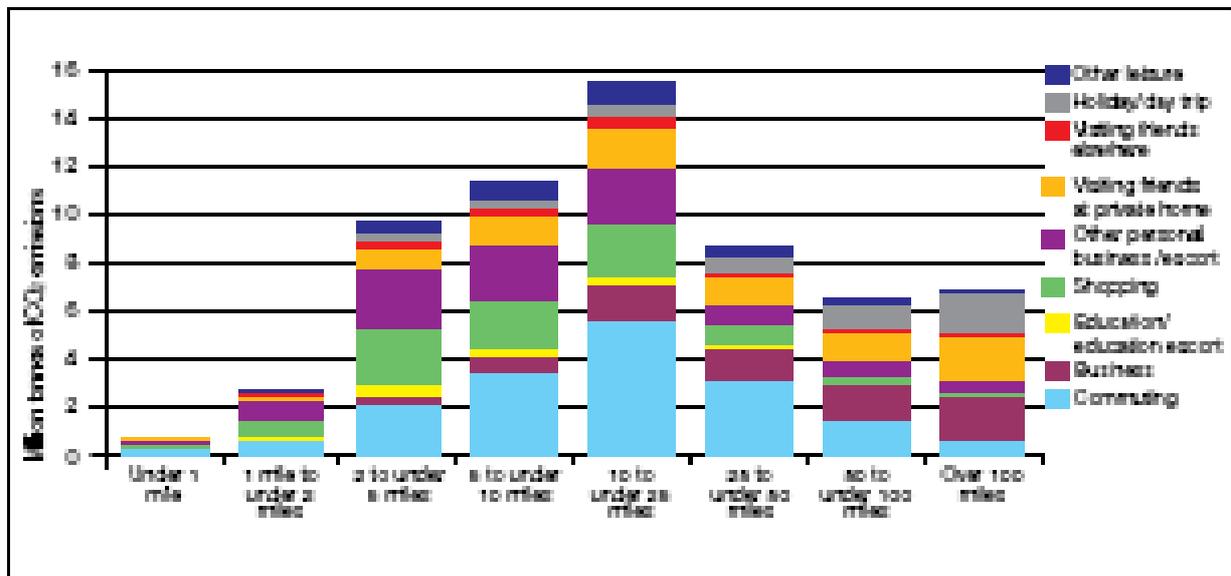
With an express bus services the generalised costs become:

- Car = 30min + car operating cost + parking charges
- Express bus = 35min + feeder/distributor trip + fare

Now the mode split becomes 90% car and 10% express bus. Thus, by capturing 10% of the existing car market, the bus market increases by 90%. A 20% capture of the car market would increase the bus market by 180%. However, existing methodologies predict much lower modal shifts and it is probable that reducing the bus generalised cost alone is never enough to make inroads into the car travel market. Other measures to increase the generalised cost of car travel are likely to be needed.

There is also a carbon reduction rationale for introducing an express bus network. Commuting and business trips generate over one third of car CO₂ emissions. As the following chart shows, the largest generator of emissions are 10-25 mile trips. Hence, reducing the use of car for medium distance trips is one of the ways to reduce emissions.

Figure 8: CO₂ emissions by trip length



The carbon agenda in transport is not at present an explicitly mode shift agenda. Carbon reduction in transport is seen as being high cost. At the same time there is powerful resistance to increasing the generalised cost of car travel and no serious funding for efforts to reduce the generalised cost of bus travel, for example through subsidised fares. This raises the question of whether development of an express bus network is an idea whose time is approaching, but has not yet come.

Given an urgent need for cuts in carbon emissions and the prospect of a crunch in the availability of oil, a low-key incremental approach would be wrong. These issues require ambition on a different scale, with the aim of achieving a very big mode shift, with decongestion benefits and emission reductions now. This could be achieved by introducing a very high frequency express bus network built around easy interchanges (as per Alan Storkey's proposals), with drastic bus priority measures linked to road pricing at the regional level or a parking levy system. Some form of bus re-regulation and franchising would be needed in order to implement such a network.

DISCUSSION

Dr. Ying Jin (University of Cambridge) asked for the speaker's views on why the Oxford to London coach service is so popular. Was it a result of the competition on the route? Richard felt that one reason was the relatively slow rail service, with inconveniently sited stations at both ends. The coach offered centre-to-centre travel via a fast motorway link for a relatively price-sensitive market of students and poorly paid academics. Also, it is one of the few examples where long-term on-road bus or coach competition has actually happened since deregulation. The high-quality Oxford-London coach service was conceived and introduced by one individual, then the existing bus operator responded, and so the market grew.

Peter White (University of Westminster) added to Richard's comments by pointing out that the local transport networks at each end of the route had improved substantially over the years encouraging feeder traffic. The coaches also stopped at convenient Park & Ride sites. Some 25% of cars parked in the Oxford P&R sites represented coach users.

Stephen Bennett (Transport Scotland) wanted to know what was driving the demand for a network transport approach in the scenarios discussed. Richard explained that, according to Central Place Theory, second order locations all looked towards the first order major centre for employment and services. However, the Thames Valley tends to be a polycentric agglomeration lacking a dominant first order centre, so there is considerable demand for transport between the second order locations. There was plenty of demand for transport within the sub-region, but this demand was very dispersed.

Julie Mills (Mills Consultants) wanted to know what type of land use or spatial planning policy would support the approach suggested. Richard

pointed out that the South East Plan must accommodate a considerable increase in housing and jobs in the region. The policy is for this development to be concentrated in regional hubs. To be sustainable, however, the development has to be serviceable by public transport and not so car dependant as it has been in the past.

Andrew Spencer asked why there was direct on-road competition between High Wycombe and Slough by different operators on the X74 route, as cited in the presentation. Richard considered that this did not result from demand, but more from operators protecting their territories. The route had been made a priority for a QBC partnership because of the opportunity for coordination.

John Cartledge (London TravelWatch) raised a number of issues.

First, he felt that people's journey decisions were made on the basis of marginal cost, rather than generalised cost. Many of the costs associated with car usage were sunk costs. Thus the model did not reflect the nature of individual modal choice. One of the benefits of Travelcards had been to reduce the marginal cost of public transport journeys to virtually nil.

Second, many of the orbital links suggested had once been provided by railways closed in the Beeching era. The rail replacement bus services did not survive. Why would it be different now?

Third, the Oxford-London coaches appeared to be an unusual combination of high-specification services aimed at low-specification users. The situation was not the same elsewhere. In general, the bus had a severe image problem.

Taking the points in reverse order, Richard began by denying that users of the Oxford-London coaches were low-specification customers. On John's second point, past policy had viewed public transport as essentially there to get people to and from London, with local journeys being made by car. Because of carbon emissions and congestion, this policy was no longer sustainable. But high costs prevented local rail services from being reintroduced, so the alternative is to provide express bus and coach services. Finally, Richard considered that a generalised cost approach was valid since the bedrock revenue of express bus and coach services tends to be commuters. Interestingly, the introduction of free local bus travel for the over-60s had resulted in some councils being reluctant to improve the bus network because of the extra costs of compensating operators for the additional free travel generated.

Dick Dunmore (Steer Davies Gleave) noted that, within London, public transport enjoyed effective marketing through a common ticketing system for most modes and comprehensive information provision, including network maps. How could this be replicated elsewhere? Richard acknowledged this as a difficulty. Local councils were reluctant to go to the expense of printing maps as the network was so unstable. National Express took a similar view. The bus industry had shown very little enthusiasm for Smartcard technology.

Peter White drew attention to the Stagecoach X5 between Oxford and Cambridge and the TrawsCambria route in Wales as being other examples of successful express services. The experience of TrawsCambria had shown that it was possible to introduce a successful operation through an area of very low population. Richard observed that the Welsh Assembly government had significantly more powers regarding public transport than a typical English region. In hilly areas like Wales even the sparse populations tended to be concentrated along the valleys, thus benefiting public transport. On long routes such as TrawsCambria, real-time information could be of substantial benefit in providing reassurance for users at intermediate places.

Martin Simmons (Regional Planning Consultant) pointed out that there were strong demands for local transport across the boundary between Greater London and the South East Region. The attraction of centres such as Croydon or Kingston-upon-Thames extended well beyond Greater London. A polycentric approach to public transport provision was greatly relevant in these cases. Richard felt that although Transport for London (TfL) had a champion for coach services, the outer London hubs were not getting the investment they warranted. Local authorities beyond the Greater London boundary were reluctant to contribute to the costs of improved cross-boundary public transport because of a perceived loss of local development opportunities.

John Cartledge added that London TravelWatch had previously looked at Greater London/SE Region cross-boundary bus links. TfL had responded positively but neighbouring local authorities had been unwilling to make a financial contribution.

With no time for further questions, Julie Mills thanked Richard Walker for his interesting and stimulating presentation, and closed the meeting.

Report by Gregory Marchant

The Impact of Concessionary Free Travel on the Commercial Bus Market

Dr John Disney, Nottingham Business School

Arup

28 April 2010

Dr Disney said that his talk would cover the background to the concessionary bus scheme introduced by the Labour Government in 2006, its intended and actual effects, and provide some recommendations for improvement.

Unless otherwise stated the study was confined to England outside London, where services are mainly commercial rather than franchised.

Prior to 1986 free concessionary travel was mainly limited to municipal operations such as Liverpool and Nottingham.

OVERVIEW

Between 1986 and 2006, half fare or better concessionary travel was offered to residents only in most areas controlled by local authorities. Some local authorities offered alternatives such as taxi vouchers and television licence stamps for people who were not able or chose not to travel by bus.

In 2006, all English local authorities were required to offer free travel in their area after 0930. This may have been due to the forthcoming election. In 2008, with a snap election possible, this was extended to cover the whole country. Central Government funding was provided for the 2006 and 2008 enhancements following the precedent set in Scotland and Wales.

Concessionary travel now costs around £1 billion per annum in England and is funded by central Government. The entitlement age is being raised, and some tourist and special services are excluded.

A number of arguments and legal challenges have ensued, which were outside the remit of the presentation. Some Local Authorities have done well and ended in surplus. 85% of services are provided commercially, and some tendered services have disappeared in recent years.

There have been three recent academic studies:

- The Role of Soft Measures in Influencing Patronage Growth and Modal Split in the Bus Market in England, Final Report, AECOM for Department for Transport, October 2009
- Impact of Concessionary Fares, Steer Davies Gleave for Department for Transport, April 2007
- Concessionary Fares: Cost and Impact of options for extending the current statutory minimum, WSP for Department for Transport, October 2008, updated by Department for Transport, March 2010

None of these studies have addressed the impact on the commercial bus market.

INTENDED AND ACTUAL EFFECTS

There were a number of intended effects:

- Increased mobility for all senior and disabled citizens
- Social inclusion
- Operators to be “no better, no worse off”
- Increased bus patronage, possibly to meet usage targets
- Filling empty bus seats
- To gain political benefit

The actual effects were in some cases different. Dr Disney considered these in five categories:

Distorted the commercial market

- Death of the fares elasticity model, bearing in mind that most services outside London were provided commercially with up to 50% of all passengers paying nothing.
- Reduced loyalty to the main operator from using return, multi-trip, day and period tickets.
- Increased entry opportunities for low-quality operators to cream off the daytime market.

- Unfair competition with commercial coach operations for short distance such as in coastal resorts.
- Less scope/incentive for commercial marketing initiatives such as family tickets, off-peak cheap day returns and cheap off-peak network tickets, as these are taken into account in determining the average adult fare.
- Reimbursement rates encourage operators to fragment the network, to increase the number of trips generated, reducing the opportunities for through trips.
- Operators have lost the ability to use price to deter “short riders” from longer distance/express services.

Conflict over funding

- Between Local Authorities and operators and between Local Authorities and the Department for Transport (DfT).
- DfT-recommended negative exponentially based reimbursement model gives a low percentage reimbursement rate for longer journeys.
- Operators who have diligently recorded journeys made have not received appropriate reimbursement, owing to capping and a flat rate per passenger.
- A full bus with 70% concessionary passenger can still lose money (Peter Shipp of EYMS, LTT March 2010) especially if fare paying passengers are “crowded off”. A bus with an 80% load factor is perceived as full, so this can happen before a bus is actually full.

Overloading and changed travel patterns

- There were new peaks from 0930-1100 and 1400-1500 on weekdays.
- The absence of afternoon peak restriction leads to some conflict with fare-paying passengers.
- Seasonal and fine weather can cause gross overloads on “tourist routes”, crowding off fare-paying passengers including those making essential journeys.

- Shift of spending from local businesses to town and city centres.
- Many routes are unsuitable for larger vehicles, for instance owing to low bridges and narrow roads. The DDA Act has reduced the average seating capacity of buses.
- Businesses and services with an elderly clientele such as doctors surgeries, hairdressers, libraries and cafes, have reported fall in trade before 1000.
- Some undermining of parallel rail services, though trains may gain some fare paying passengers if buses are overcrowded.
- Increased passengers numbers slow buses down, exacerbated bunching on high frequency routes.
- Still many empty seats in evenings (safety concerns) and on Sundays.

Higher fares for paying passengers

- Single fares increasing at faster rate than desired, as this is often the dominant weighting in calculating the “average fare” for reimbursement purposes.
- For similar reasons, returns are more beneficial to operators than similarly priced day network tickets in some interpretations of the reimbursement model.
- Multi-operator schemes are more expensive per passenger to administer, as up to 50% of the potential market now travel free on buses, but fixed costs are static.
- Lack of afternoon peak concessionary restrictions has forced some operators to impose restrictions on off-peak tickets such as child concessions to mitigate overcrowding.

Great benefit for the few, little benefit for the many

- A small proportion of elderly people are gaining huge benefit from the scheme. 70% of users on Newcastle NEXUS DRT routes travel free, with 4,100 active users making 127,000 journeys but 378 users making 50% of journeys and 100 most frequent users obtaining an equivalent annual subsidy of £3,300 each.

- Many eligible users are prevented from benefiting due to ill health, age, infirmity, problems accessing bus stop or their final destination and a lack of suitable services (timing/frequency/route).

RECOMMENDATIONS FOR IMPROVEMENT

- Free fares are incompatible with a commercial free market. How would Tesco react to being told to give free bread to over 60's after 0930 and only get 50% (or less) of their normal retail price, paid in arrears?
- Free fares can result in a lower service quality. Areas with a long history of free or very cheap flat fares were in the past characterised by poor quality bus operations, such as in the Liverpool area. History may well repeat itself!
- Free public services such as public toilets, playgrounds, hospital A&E and free car parking, are notoriously abused.
- A half-fare scheme across the UK, which was valid on all modes for those of state pension age, the disabled, unemployed, under 19's and all students, would increase social inclusion across the full age spectrum but retain competition between operators on price and quality. It would overcome the perception that "buses are for old people" and restore a commercial market.
- Any additional reimbursements should be factored into Bus Service Operators Grant (BSOG) or equivalent and rail franchise agreements, but cost would be much less than extending free travel, which is estimated at over £2 billion per annum.
- Retain the option for Local Authorities to enhance local schemes for local residents, determined democratically through the ballot box.
- A good opportunity to introduce Smartcards.
- The current scheme is unsustainable and will lead to the gradual erosion of the commercial bus market, forcing more marginal services into the subsidised realm.
- Current scheme has a low benefit-cost ratio for the majority of its perceived beneficiaries. Free dental and eye care would benefit many more elderly people, while the less mobile would benefit

more from Community Transport (especially door-to-door with escort), subsidised taxis and free scooter hire.

The speaker expressed his thanks to Dr Roger Sexton for assistance in preparing this presentation.

DISCUSSION

Gregory Marchant (BR/SRA retired) disagreed with most of the things that the speaker had said. He was not that sympathetic to the commercial bus market, and believed that there was a lot of poor management in the industry. He had, however, seen an improvement in the Brighton area, where an annual network ticket could be purchased for £400. He therefore could not understand how it could cost £3,000 to provide a service for a senior citizen. Is it because the bus industry does not wish to get involved in politics? John Disney replied that if everyone paid £400 per annum the bus industry would soon go out of business.

David Starkie (Consultant), in contrast, agreed with most of what the speaker had said and suggested that one possibility would be to means test concessionary bus travel. Alternatively the whole scheme could be abolished and the funds incorporated into old age pensions. After all, many OAPs were not in a position to benefit. The speaker agreed.

Peter White (University of Westminster) said that boarding additional passengers could slow buses down, but that the marginal boarding time could be very low if a smart card, or sampling, could be used. The speaker agreed that a local service card could be used.

Peter also noted that there was evidence in growth in bus usage from the scheme. Many users were well off and would have a car available, so there could well be trip diversion. The speaker said that, while it may have restrained car use, many owners would use it for other purposes, although it was possible that a few second cars had gone. Peter noted that overall car ownership had dropped.

Stephen Plowden (transport planner and advisor) largely sympathised with the speaker. He wondered if it would be practical and politically possible to means test provision of free bus travel. John Disney said that provision could be linked to pension credits and people on the margin. There would be more bureaucracy, so there would be trouble stopping it, and it might not be very practicable. He noted the different value in different areas: £400 in Brighton but up to £1,000 in the East Midlands, where he lived. One possibility would be to limit the pass to local trips.

Robert Barrass (Independent Consultant) said that, when it came to the bus service, he was pleased that he lived in London. There are equity and efficiency arguments but only the former apply in London. He wondered if there were benefits in the extra demand created maintaining a bus service in low density areas. The speaker said that it was not really apparent and that there would only be benefits where there were separate tendering and re-imbusement authorities. The number of passengers carried used to be important. This was now less important.

Will Hawkes (Department for Transport) said that his experience, unlike the speaker's, was that bus operators were not shy in complaining. The operators had low profits in the 1990s but these have increased in recent years. He saw some of the disadvantages cited by the speaker as advantages. For example it would revive city centres, and shops that opened later might stay open later. He also noted that buses had lower costs than adjoining rail routes and, from the National Travel Survey, that bus usage has become flatter during the day.

The speaker agreed that he did see these as disadvantages. For example, there were slumps in demand between 0845 and 0930 which could not be productively used. Gregory Marchant commented that in this case the starting time could be brought forward to 0900 as, for example, was done in Brighton.

David Starkie asked if there would be any advantage into putting the money into a QUANGO for disbursement. The speaker suggested that funding go through County Councils rather than Local Councils. David then asked about a national agency, but the speaker said that this could be dictatorial.

Geoff Dawe (Department for Transport) noted that pricing is sometimes used to achieve Government objectives, for example with free entry to museums and swimming pools. Should we be more wary of using price? The speaker asked what we will achieve using price. The operators would be happy to have a discount of, say, 50%, but there was trouble, however, when we went for a zero fare.

Gregory Marchant said that he didn't believe that the free market in bus provision worked: it only encouraged car use. Time elasticities were very high, and if two operators competed on a route they would reduce frequency compared to a single operator, so increasing average waiting time if there were a user-specific ticket. The speaker said that a move away from this would require a change in policy.

Will Hawkes noted that while it is true that the level of bus subsidy was very high in London, it was much lower in the late 1990s and satisfaction, whilst lower than today's levels, was still higher than that outside London. This suggested that satisfaction could be increased without significantly increasing subsidy.

Dominic Fee (Arup) noted that free bus travel was a social service. The speaker said that if there were a 50% discount there would probably be more revenue for tendered services and hence lower costs. Many bus operators were small and lived on a knife edge with poor cash flow. They needed some money coming in.

At this point Julie Mills, as chair, thanked the speaker for a most interesting and thought provoking meeting.

Report by Peter Gordon

Evaluating Cycling

Lyndsey Williams, Social Research and Evaluation
Department for Transport

Arup

26 May 2010

INTRODUCTION

Tom Worsley introduced the speaker who would present a novel subject to TEG in two ways, first for evaluation and second for being on cycling, both topics not covered very often by the Group. Evaluation is difficult to place in transport modelling, unlike cost-benefit analysis, and why people change their behaviour when offered new opportunities.

OVERVIEW OF TRANSPORT EVALUATION

The talk aimed to cover the role of evaluation in transport decision-making generally, and highlight some of the methodological approaches available for transport evaluation. As there was also an interest for the presentation to cover cycling, it also focused on the challenges and approaches for evaluating behaviour change, and illustrated these with a

discussion of the evaluation approach currently being applied to evaluate investment in cycling.

There are many definitions of evaluation, and one which captures the value of evaluation in building knowledge for the future is from the Department of Communities and Local Government¹.

“[Evaluation is] more than just describing what happened in your project: it is about analysing evidence and critically reflecting upon your project. It is about researching and analysing your project in-depth to assess the ‘value’ of your project and to use this to make improvements in the future.”

Evaluation can offer robust quantitative and qualitative data on the outcomes and impacts of an intervention. It can provide evidence not only for what changes the intervention has produced but also why and how these changes came about. Sound evidence has, in turn, a crucial role to play to improve the evidence base for future decision making especially by feeding evidence into the appraisal process. Evaluation can be particularly valuable by:

- Providing **accountability**: demonstrating the effectiveness of the scheme when delivered in the real world, assessing the value for money, and providing insight into the efficiency of the implementation processes.
- Building **knowledge**: understanding what works (and why) to inform future funding decisions, supporting organisational learning, testing hypotheses and checking assumptions, developing the evidence base to feedback into appraisal assumptions and identifying unanticipated impacts of the intervention.

However, there are specific considerations to take into account when designing evaluations for transport interventions, and these often affect the ability to attribute changes observed in the evaluation to the scheme:

- **Transport interventions can be very complex.** For example, they might be delivered over large geographical areas, requiring involvement from a range of stakeholders, take a number of years

¹ Department for Communities and Local Government (2009) “*Evaluating local PREVENT projects and programmes*”

to deliver, be influenced by other policy agendas, and need to be positioned within the wider transport network.

- **They are embedded in local environments, contexts and needs.** This affects how an intervention is designed, delivered and received on the ground. These circumstances can vary between different geographical areas.
- Unlike some other types of interventions it is **not often possible to control for who receives the intervention** and who does not, often the decision to engage with/use the transport intervention is at the discretion of the members of the target population.
- Once implemented it is **not always possible to change an intervention** following the evaluation.
- This highlights the **need to obtain robust monitoring data** which is planned during the design of the intervention and collected before as well as after implementation.

The Tavistock Institute, in consultation with AECOM, has produced guidance for undertaking impact evaluations of transport interventions, which provides a framework for selecting an overarching evaluation approach in light of the considerations previously mentioned. Table 1 summarises three of the main impact evaluation approaches and the circumstances for which they are most suited.

Table 1: Evaluation approaches

Approach	Outcome evaluation (before and after)	Experimental design	Theory-based evaluation
Intervention scope	Developed, with a single goal	Single goal, delivered in isolation and can be targeted	Exploratory, addressing multiple goals
Intervention context	Stable environment	Allows for a suitable control area and stable environment	Dynamic environment
Mode of implementation	Consistently delivered across sites	Consistently delivered across sites and remains unchanged during evaluation	Variable/can change over time
Intervention timescale	Outcomes anticipated 1-3 years ex-post	Outcomes anticipated 6-18 months ex-post	Outcomes anticipated 3 years ex-post
Nature of outcomes	Direct and few alternative explanations	Clear, evidence based hypotheses, direct and few alternative explanations	Uncertain, causal pathways indirect and influenced by local context

Source: Adapted from Tavistock Institute (2010) “*Guidance for transport impact evaluations*” Report for the Department for Transport

A key requirement for using a purely before-and-after outcome evaluation approach is the need to control for the effect of external influences on the change being measured. For transport interventions this is often not possible. One way of achieving this is to apply an experimental design, undertaking a Randomised Control Trial or Quasi Experimental approach. However, for transport interventions the conditions do not always allow for controlling who receives/uses them or identifying matched geographical populations/areas. An alternative

approach is theory-based evaluation, which aims also to understand why outcomes were achieved. It also recognises and seeks to understand the role that contextual factors have in influencing the outcome. This approach is being tested in the cycling evaluation.

CYCLING EVALUATION

Lyndsey introduced this discussion by posing the question “What are the benefits of cycling?”. The 2010 *Active Travel Strategy*² identified the following potential benefits of cycling and walking:

- Improving people’s **health and wellbeing** through active lifestyles
- Maximising **access to jobs and services** without increasing congestion
- Reducing **carbon emissions** from transport and supporting climate change targets
- Reducing harmful emissions and **improve local air quality**
- Making for more **attractive, safer places and communities**, and ensuring **greater access** for everyone to local services
- Promoting enhanced **mobility and independence** for vulnerable groups

However, England has some of the lowest levels of cycling in Europe. Cycling England was established in 2005 by the Department for Transport is to get more people cycling, more safely, more often. In 2005 a programme was established to demonstrate whether “European” levels of investment in cycling, and co-ordinated activity on infrastructure (cycle paths, lanes, parking, 20 mph zones) and “smarter choice” measures (promotion and marketing), could increase levels of cycling and deliver other benefits. This originally took the form of six Cycling Demonstration Towns³ (2005-2008). In 2008 Cycling England announced that the Department for Transport and Department of Health

² Department for Transport and Department of Health (2010) “*Active Travel Strategy*”

³ Aylesbury, Brighton & Hove, Darlington, Derby, Exeter and Lancaster with Morecombe

had allocated funding to continue the programme until March 2011 and include a new Cycling City and 11 Towns⁴ into the programme.

At its heart, increasing levels of cycling is about encouraging behaviour change⁵, so it is important to understand the process of change when trying to measure and evaluate the effects of it. Christmas et al (2009) describe the individual process of decision-making as influenced by a range of factors including values, beliefs, habits and social norms, and these will affect how an individual will respond to the intervention at a particularly point in time. They acknowledge that there is not a single template for achieving behaviour change, and across the target population people will respond to the intervention in different ways.

So what does this imply for evaluating behaviour change interventions?

- There is a need to understand behaviour change from the perspective of the target population, and to build a picture of their current behaviour exploring the factors influencing their behaviour.
- Understanding the context is the key to evaluating behaviour change. Even the best evaluation cannot usually establish definitively that X caused Y in this situation. Even if it can, there is a risk that assuming that because X caused Y in one situation it will mean that X will automatically cause Y in another, as the context within which the intervention is received will be different. The evaluation needs to understand the contextual circumstances for the change to enable any transferable lessons to be drawn.
- Christmas et al promoted the need to draw on a range of evidence sources to build understanding of why behaviour has or has not changed and role played by confounding variables.
- Finally, a central consideration for understanding behaviour change is the extent to which it is sustained over time - has it become habit, or have people reverted back to their original behaviours?

Lyndsey went on to discuss the approach being adopted for evaluating cycling in the light of these considerations. However, she initially

⁴ Blackpool, Bristol, Cambridge, Colchester, Chester, Leighton-Linslade, Shrewsbury, Southend, Southport & Ainsdale, Stoke-on-Trent, Woking and York

⁵ Christmas, S. et al. (2009): *Nine big questions about behaviour change*. Report for the Department for Transport

summarised the existing evidence base drawing on the interim results from the first six towns following the first phase of the programme.

INTERIM RESULTS FROM THE FIRST SIX DEMONSTRATION TOWNS⁶

The towns' strategies for delivering the programme included identifying the target audience, targeting the investment to focus on specific locales/"hubs" (e.g. schools) and combining infrastructure with smarter choice measures.

The interim findings triangulated evidence from a range of sources (automatic and manual cycling counts, before and after telephone surveys of levels of cycling and physical activity, comparative analyses with national data sets (the National Travel Survey and Sport England's Active People Survey) and qualitative research with local officers from the towns). In summary, the high level findings were:

- Using data from the automatic cycle counters, relative to the 2005 baseline cycling levels had on average increased by 27% across the six towns.
- The proportion of adult residents of the Cycling Demonstration Towns doing any cycling in a typical week in the previous year had risen from 24.3% in 2006 to 27.7% in 2009, an increase of approximately 3.4 percentage points or 14%.
- Comparative evidence from the Active People Survey indicates that the increase in cycling behaviour for either occasional or regular cyclists in the Cycling Demonstration Town local authorities was not observed in the matched local authorities.
- The before and after survey indicated that the proportion of adult respondents classed as inactive fell from 26.2% in 2006 to 23.6% in 2009.

⁶ Slowman L, Cavill N, Cope A, Muller L and Kennedy A (2009) "*Analysis and synthesis of evidence on the effects of investment in six cycling demonstration towns*" Report for Department for Transport and Cycling England

BENEFIT COST RATIOS (BCRS) OF CYCLING DEMONSTRATION TOWNS

The interim findings were used to develop a BCR for the investment (summarised in Table 2) and shows the potential use for evaluation evidence. However, the data was not collected specifically for this purpose, so there remain some gaps to test / refine assumptions made in the forecasts. Cavill et al used the World Health Organisation’s HEAT⁷ tool to calculate the “mortality cost-benefit ratio” which showed that, for every £1 invested, the value of decreased mortality is £2.59⁸. The Department for Transport extended the analysis to a wider range of impacts (WebTAG walking and cycling unit⁹).

Table 2: Benefits and Costs of Cycling Demonstration Towns

Impact	Estimated benefits and costs over 10 years (£m, 2007 prices and values)
Reduced mortality	Benefit of £45 million
Decongestion	Benefit of £7 million
Reduced absenteeism	Benefit of £1–£3 million
Amenity	Benefit of £9 million
Accidents	Disbenefit of £0-£15 million
Total benefits	£47-64 million
Costs	£18 million
Benefit-Cost Ratio	2.6-3.5

THE CYCLING CITY AND TOWNS PROGRAMME

In 2008, a cycling city and 11 new towns across England were created, in addition to the six already established, in a three year programme (2008-2011).

⁷ A Guide to the Health Economic Assessment Tool for Cycling can be found at: http://www.euro.who.int/_data/assets/pdf_file/0011/87482/E90948.pdf

⁸ Cavil N, Cope A and Kennedy A (2009) “Valuing increased cycling in the Cycling Demonstration Towns”

⁹ Department for Transport (2010) “Cycling Demonstration Towns Development of Benefit - Cost Ratios”

The cycling evaluation of the new city and towns, on which Lyndsey concentrated the remainder of the presentation, is being conducted by a consortium led by AECOM and including the Tavistock Institute and the Centre for Transport and Society at the University of the West of England. Monitoring of cycling levels is being led by Sustrans.

The programme is being delivered in a dynamic environment and the city and towns have developed delivery strategies which support local needs and contexts, and this defines who is to be targeted and the approaches adopted. The city and towns also vary substantially in geography, topography, population characteristics and the levels of cycling experienced prior to the introduction of the programme. As discussed earlier, this was an important consideration for selecting the evaluation approach.

To the question “why evaluate”, Lyndsey explained that generating evidence about impacts of cycling investment will be used to refine appraisal assumptions to allow comparisons with other types of transport options when making future policy decisions.

It is also to improve understanding about behaviour change. In particular, it can explore questions such as who is, and who is not, changing behaviour and why, what are the enablers to this, what barriers remain, and what is the impact of the change?

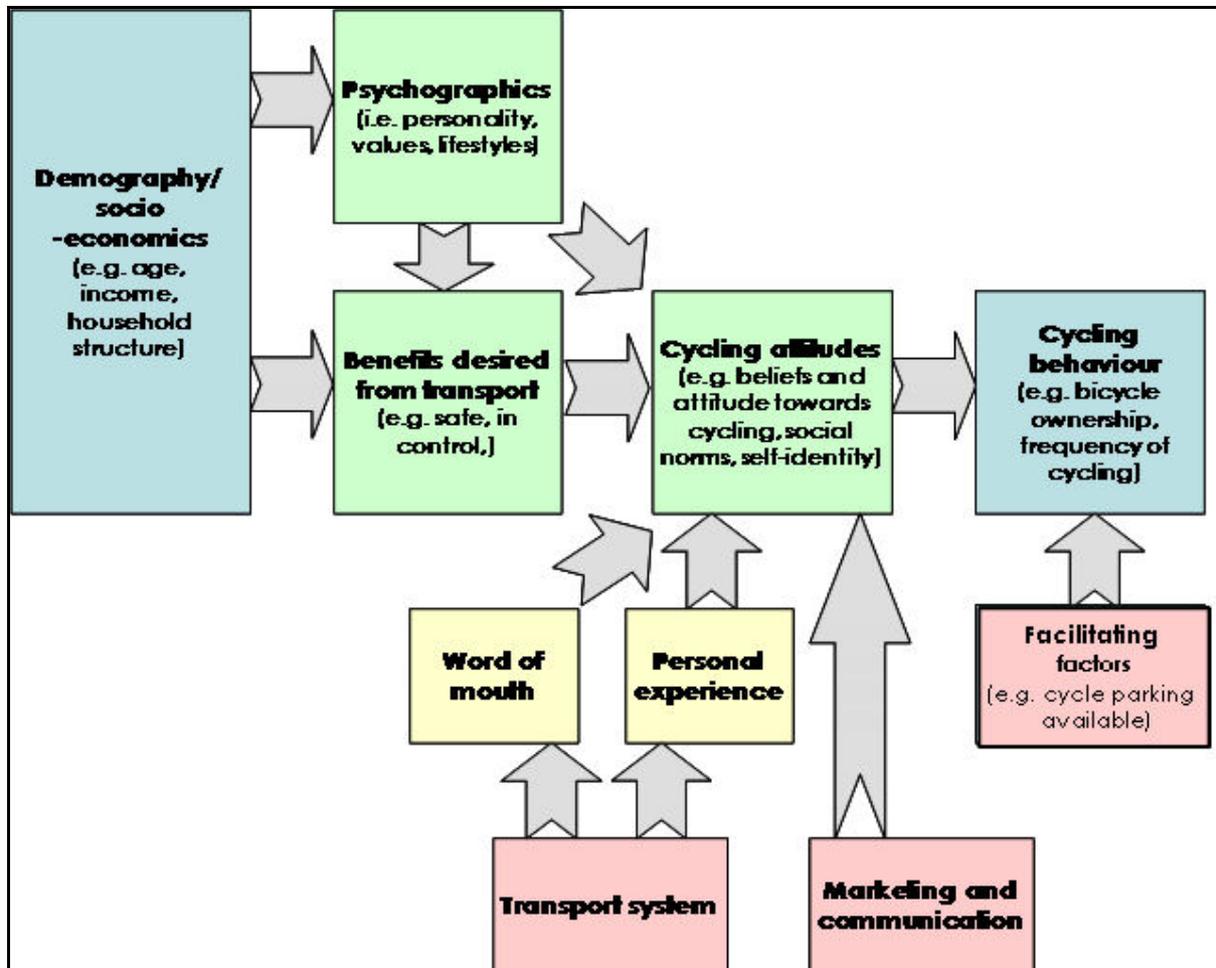
A key part of this is understanding the substitution effects at the individual and household level. For example, DfT wants to understand whether increases in cycling are replacing other types of physical activity or sedentary behaviour or reducing car use. At a household level, does the process of a household member switching from car to bicycle lead to increased car use by other household members as the car becomes more readily available?

Evaluation also informs the design and delivery of future investment in cycling and allows DfT to learn lessons about how to develop and implement cycling strategies.

Moving on to thinking about how to approach the evaluation of changes in cycling behaviour, Lyndsey presented a model of attitudes and behaviour developed by AECOM et al, shown in Figure 1. This shows the links between attitudinal factors and behaviour change. An evaluation might routinely measure the outcome (behaviour change) and the inputs to achieving this change, but for a full understanding of the impact of an intervention, should also include analyses of subjective

assessments, such as what people think and feel towards cycling and other travel options, as these are some of the factors which can determine how an individual might respond to the programme.

Figure 1: Attitudinal factors and behaviour change



Source: AECOM, Tavistock Institute and UWE (2009)

EVALUATION APPROACH

The overarching evaluation questions are:

- What are the effects of town-wide investment in cycling on:
 - Cycling and travel behaviour change?
 - Physical activity?
 - Attitudes and perceptions?
- What are the wider (intended and unintended) impacts?

- What are the different implementation and delivery strategies, and how do they affect outcomes?
 - What transferable lessons can be drawn?

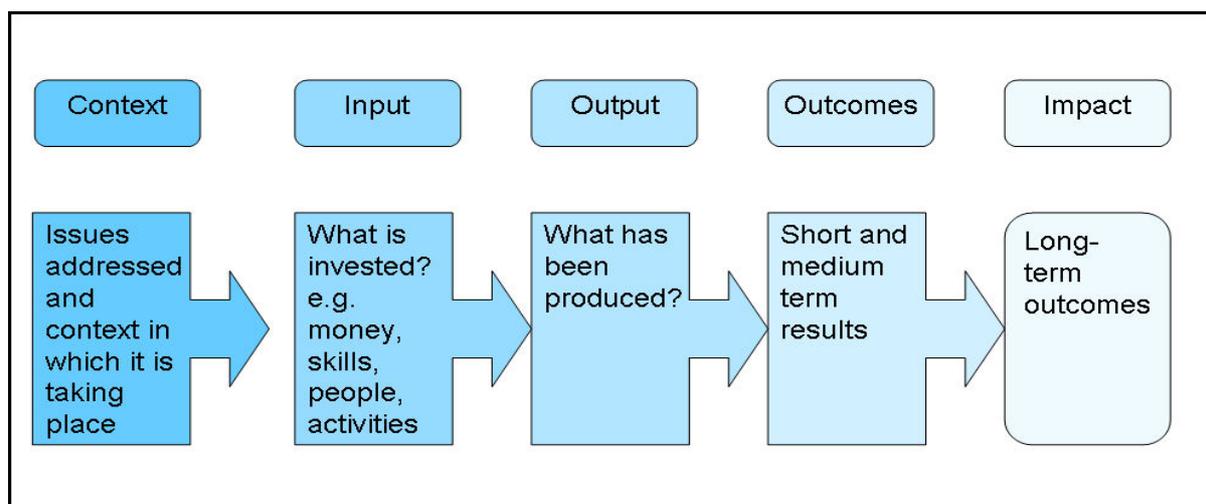
A number of key points were considered during the design of the evaluation:

- How to measure the outcomes and understand why they have occurred, for which groups and, importantly, which groups of population have not changed behaviour and why?
- How can change in cycling, travel behaviour, physical activity and attitudes to cycling be assessed and attributed to the investment?
- How will wider and unintended impacts be captured?
- How will the context be understood and what effect will this have on the outcomes?

A Theory of Change evaluation approach has been selected to provide a framework for the evaluation. Conceptually, this theory-based approach has been developed for the evaluation of complex social programmes delivered in dynamic environments. It seeks systematically to articulate, test and refine the hypotheses which underpin the causal relationships between the programme and its outcomes. The approach acknowledges that the programmes are embedded in specific contexts (e.g. political, social and economic circumstances) and seeks to understand *whether the programme has worked, why and under what conditions*. The holistic nature of the approach, the appreciation of the importance of programme context and the focus on the underlying theory makes it suitable for evaluating behaviour change interventions.

Figure 2 provides an overview of how the logic behind the programme is deconstructed and mapped to provide a clear line of sight between the stages of the programme.

Figure 2: Mapping the intervention logic



Source: Tavistock Institute (2010) “Guidance for transport impact evaluation” Report for the Department for Transport

The inputs are the resources and activities that are required in order to achieve the programme objectives. The outputs are, for example, the target groups engaged, cycling lanes built and products developed. The outcomes are short and medium-term results, such as changes in the number of cyclists and modal shift. The impacts are long-term results, such as better quality of life, improved health, and wider environmental benefits.

The logic map follows a chain of “If...then” reasoning and this is summarised in Table 3 below.

Table 3: “If ... then” reasoning

A Initial issue/ context	B Rationale	C Inputs and actions taken	D Short-term outputs	E Interim outcomes	F Long-term impacts
If ... What is the context/ situation locally?	Then ... Why have you decided to take this particular action?	Then ... What do you plan to do and with what resources?	Then ... What activities will take place, who will be involved?	Then ... What changes do you expect as a result?	Then ... How will these contribute to your overall objectives?

Source: Tavistock Institute (2010)

Lyndsey discussed some of the strengths and limitations of the Theory of Change approach, which are summarised below:

Strengths	Limitations
<ul style="list-style-type: none"> • Seeks to understand how and why an intervention has been successful (or not) and assesses unintended outcomes • Suitable for evaluating innovative interventions where little prior knowledge about causality exists or where the causal logic is not straightforward • Allows inferences to be made about a programme's long-term outcomes/impacts • Seeks to understand the effect of contextual variations on the programme • Encourages triangulation of research methods • Ability to feed back formative findings to assist programme delivery and update theory 	<ul style="list-style-type: none"> • Does not necessarily involve the construction of a counterfactual • Articulating the causal theory can be challenging and resource intensive • Less objective than experimental approaches • Complex evaluation approach which can have implications for interpreting findings and drawing conclusions about the programme

The overarching Theory of Change evaluation framework and logic maps inform the hypotheses being tested and subsequently the data being collected. As a range of research methods can be used to build the evidence base, the Theory of Change evaluation (including an evaluation of the delivery process and supporting qualitative research) is also informed by before and after monitoring data and quasi-experimental analyses, such as comparisons with national datasets.

DEVELOPING A CAUSAL THEORY

The overarching theory of why the intervention will change perceptions, attitudes and behaviours towards cycling is that the programme will:

- Allay fears of safety and risk that are perceived or actual
- Change social norms and the social acceptability of cycling
- Improve the environment (infrastructure), such as by introducing cycle routes
- Enhance self efficacy and skills

This will be achieved through activities (such as information provision, training, developing/enhancing/promoting cycle routes and facilities such as parking) which will achieve the following types of outcomes:

Short-term	Intermediate / long-term
<ul style="list-style-type: none"> • Increased knowledge of routes and facilities • Increased awareness of benefits • Increased skills and confidence • Participation in promotional events 	<ul style="list-style-type: none"> • Increased cycling for travel/leisure • Increased physical activity • Increased enjoyment of cycling • Cycling seen as social norm

The development of the key evaluation indicators have been informed by the logic mapping and these are:

- Change in proportion of cyclists
- Change in the proportion of people of different cyclist status
- Change in the proportion of people with different levels of physical activity
- Increase in cycling trips
- Change in perceptions of and attitudes towards cycling

METHODOLOGICAL APPROACH

A number of different methodologies and data sources are being used the evaluation. These include:

- Before and after randomly sampled surveys of households: face-to-face interviews with all household members, a 7-day travel diary for a sub-sample of households and a self-completion postal questionnaire of adults which will be repeated with the same respondents where possible
- Qualitative research with a sub-sample of baseline survey respondents
- Continuous cycle count monitoring using automatic and manual counts
- Analysis of the delivery processes and outcomes of specific strands of programme investment (such as investment in workplaces, stations, schools and young people)
- Semi-structured interviews with the Local Authority programme managers (and wider stakeholders) and documentary analyses to capture evidence about programme delivery

A number of methodological considerations for the baseline survey had to be taken into account in the design. For example, detailed information about travel behaviour of cyclists and non-cyclists (adults and children) was required, and the data collection tools had to balance the need for capturing this while minimising respondent burden. Other considerations included how to measure physical activity for adults and children, how to ensure the survey would collect data which will enable comparisons with the National Travel Survey, the timing of the baseline and ensuring a robust sampling approach.

As already highlighted, changes in attitudes and perceptions are being measured as well as behaviours, because they can influence behaviour change and can help to identify the barriers and motivators for cycling. Behaviours change over time, and it is possible that a change in attitudes might indicate potential for future behaviour change, drawing on the “stages of change” model¹⁰. Including attitudinal evidence also allows provides the potential to conduct segmentation analyses of the population according to attitudes to cycling, and exploring how different segments respond to the intervention.

Finally, coming back to the dynamic environment, it is important understand the role of confounding variables and testing alternative explanations for outcomes. Therefore the evaluation will also draw on comparative and contextual data including the National Travel Survey, Active People Survey, School Census and national and local socio-economic indicators, in order to assess the extent to which the change can be attributed to the programme.

DISCUSSION

Clare Sheffield (Transport for London) opened the discussion by stating an interest in the mapping and asking how flexibly it allows for measuring unintended consequences.

Lyndsey commented that there are a set of assumptions that set out the contextual issues which will be measured within the evaluation. Logic maps are also being developed at different levels of the programme and these will allow the theory to be explored in detail and measured through the range of methods including qualitative research.

¹⁰ Prochaska JO, Velicer WF *The transtheoretical model of health behavior change*. American Journal of Health Promotion, 1997 Sep-Oct;12(1):38-48.

David Spurling (Learning Through Cooperation) offered three points:

First, quite a lot of people prefer to use the car because allowances are greater, whereas cycle allowances are low or non-existent.

Second, there is a lack of facilities at the destination such as parking and changing/showers at workplaces.

Third, other countries have greater cycle use and greater accommodation for long-distance travel, such as coaches in Sweden, which is much less or non-existent here.

Lyndsey commented that there are activities within the programme which are targeted at workplaces and will be explored in the evaluation.

Kieron Tyler (Southwark Council) asked what the most effective activities were from the first six towns were.

Lyndsey explained that lessons from the delivery of the first phase of the programme for the first six towns had been explored in a retrospective qualitative study which captured the reflections and experiences of the local officers and other stakeholders involved in delivery. The study concluded that a mixture of infrastructure and smarter choice measures are necessary. The report entitled "*Making a Cycling Town*" is published on the Cycling England pages of the DfT website¹¹.

Within the evaluation of the new cycling city and towns it is very difficult to determine the relative effectiveness of different types of measures. Therefore, the evaluation will be investigating the contextual differences between the local strategies and measures adopted, to understand how these contributed to their success.

Jill Beardwood was intrigued by "mortality benefits" and how they are defined. Tom Worsley (DfT) explained that this is based on the life expectations of people in different states of health, and how life is extended by being more active through cycling.

Dick Dunmore (Steer Davies Gleave) was concerned about the difficulty of collecting data comparable with other modes – no fuel consumption, registration, insurance. He asked whether there was a case for cordon counts.

¹¹ http://www.dft.gov.uk/cyclingengland/site/wp-content/uploads/2010/05/making_a_cycling_town_qualitative_report1.pdf

Lyndsey explained that large scale monitoring is taking place, including automatic and manual cycle counts, which is supplementing the household surveys to understand changes in behaviour. This monitoring is being led by Sustrans' Research and Monitoring Unit who have been working with the Local Authorities to monitor cycle levels across key routes and cordons.

Richard Tusting (Arup) asked if there are other established systems on the continent and whether they analyse in a similar way. Lyndsey said that DfT and Cycling England do draw on international experience (such as from the Netherlands) and make use of the lessons these provide. However, there are important context-specific issues which need to be understood before making generalisations back to England.

Tom Worsley (DfT) said that looking back, cycling in London has been very successfully developed by the effective groups lobbying the GLC, boroughs and now TfL. Did Lyndsey consider that promoting lobby groups to own initiatives could be a real way of getting local changes? Lyndsey explained that within the evaluation the role of wider stakeholders (which might include cycling lobby groups) in the development and delivery of the local cycling strategies will be explored.

Pete Knight (Bedford Borough Council) asked if school travel plans were being used for evaluating schemes. Lyndsey said that, as part of the contextual evidence base, the evaluation will seek to understand whether the sampled schools have a travel plan or not. Because Cycling England's programme of investment in cycling for schools is not limited to the local authorities within this demonstration programme, the evaluation is also exploring the feasibility of comparing the change in numbers cycling to school for pupils in schools within the cycling programme with schools in "non programme" areas. This will draw on data provided from the School Census.

Pete Knight asked how accurate data from the school travel census data are. Lyndsey recognised that there are some methodological limitations to the data and that these will need to be considered as part of the feasibility assessment.

Peter Gordon (The Transport Economist) asked whether data were collected on a one-off basis or provide a time series, with a particular interest in whether the evaluation would demonstrate whether the effects of the measures aimed at children continue to influence their travel behaviour as adults.

Lyndsey replied that currently it is anticipated that the evaluation will collect baseline and one year ex-post evidence from the household surveys – ideally using a panel sample as far as possible – alongside the monitoring data which is collecting time series data over the life of the programme. However, there is an interest in assessing the longer-term effects of measures targeted at children, and one option being explored is whether national cohort/panel studies can provide this evidence.

Gregory Marchant (TEG) was very interested in the soft measures. Small amounts of money on social intervention can make a very big difference.

Tom Worsley thought that flatness, lack of rain and large numbers of students gave higher use but that is now changing. There are big socio-economic effects and the effect of interest groups on behaviour.

Richard Tusting pointed out that the tax break had had a very large influence on cycling to work. Lyndsey added that investing in cycling facilities might also increase cycle use.

Tom Worsley opined that most Ministers think cycling is a good thing, but very few car drivers think cycling is a good thing. Did Lyndsey ask what their attitudes would be to providing more cycling measures that hold back cars?

Lyndsey said that attitudes to cycling measures were asked, that this included the views of non-cyclists, and that the data potentially could be used to develop a segmentation model of cycling attitudes and behaviour.

Tom Worsley thanked Lyndsey for a very interesting talk that generated a stimulating discussion.

Report by Laurie Baker

Information on promoting and evaluating cycling by DfT and Cycling England is at <http://www.dft.gov.uk/cyclingengland/>

Review

The views expressed are those of the reviewer and should not be attributed to the Transport Economists' Group

Transport Economics 3rd Edition: Kenneth Button, Edward Elgar Publishing, ISBN 978 1 84064 191 2

The book gives a good overview of transport economics. It is a little technical in a few places but will be understood by a student without an advanced knowledge of economics.

A wide range of areas are covered in fourteen chapters, starting with an overview and discussing areas such as demand, cost structures, pricing, strategies for congestion, investment criteria, planning and regulation. Even at 500 pages the book can only provide an overview, but it does this well, and each chapter ends with suggestions for further reading.

An author must necessarily be a little subjective in the subject areas he covers. For example while a whole chapter is given to containing environmental costs, global warming is not discussed in much detail. It could, of course, be argued that it is discussed ad nauseam elsewhere, and that other externalities such as noise and pollution, while currently less in vogue, are of more direct concern to those concerned. Your reviewer was struck by the long discussion given to security, particularly in shopping centres, in the chapter about logistics, and rather hopes that the author is not prescient in identifying a major issue of the future.

This is the third edition of the book, which was first published in 1982. Some of the statistics are a few years out of date and there are a lot of references to pieces of work published in the 1980s – which is not to say that they are not still the most relevant – but the book is not as contemporary in some areas as a wholly new publication might be.

The book is recommended as a good general introductory text to transport economics for a student starting off in the area.

Reviewed by Peter Gordon

David J Spurling - Introduction to Transport Economics, Boca Raton, Universal-Publishers, 2010

This book starts promisingly, by informing readers that they will “learn how to apply economic principles to transport”, but regrettably does not fully live up to this laudable aim, especially so far as relationships between economic theory and its practical application are concerned. Some of the introductions to concepts and methodologies are well-presented. They will indeed inform those new to the subject in clear, in simple language about some of the basic principles, such as differences between private and social costs, what is meant by elasticity of demand, and on alternative forms of investment appraisal.

It is in respect of specific applications that the book goes sadly astray. Instead of applying the principles to individual situations, the author presents a miscellany of examples, many of them anecdotal, and often misplaced within the narrative. The chapter on cost structures, for example, firstly introduces the concepts of fixed, variable, marginal and other categories of cost. But then, following a paragraph on wages, it ranges in a seemingly unstructured sequence through descriptions such as those on ports and casual labour, drivers’ hours regulations and bonus schemes. It is the chapters on individual modes that are the least satisfactory, that on road passenger transport starting with a paragraph headed “Why did one-man operation come in?” and continuing via a lengthy series of paragraphs on alternative service types, technologies and operational matters. Inexplicably, the economic fundamentals of mainstream local bus services are not described, although coach operations are, and bizarrely one of the longest sub-sections is that on open-top buses. There is no introduction to the application of economic principles to road passenger transport. The chapters on The Way and on maritime transport are similarly unstructured.

Regrettably, this book is a missed opportunity. There may be demand for a new introduction to transport economics, aimed at persons needing an appreciation of economic principles and their applications across the elements and modes of transport, but it would need to take a more structured approach than the present text. Comprehensive and rigorous review, editing and revision should have been carried out before publication, to ensure adherence to the work’s stated aims.

Review by Martin Higginson, Visiting Researcher, Transport Operations Research Group, Newcastle University & Associate, Institute of Railway Studies & Transport History, York University/National Railway Museum

Airline Operations and Delay management: Cheng-Lung Wu, Ashgate Publishing, ISBN 978-1-7546-7293-7

The book examines airline timetabling and scheduling, the reasons for delays and what steps can be taken to mitigate them.

Each chapter gives an overview of the issues involved written in plain language, followed by some quite detailed discussion about operational research techniques. The latter requires a good understanding of mathematics, but it is written in such a way that the less advanced reader will still be able to understand the former and make sense of the book.

The text covers a wide range of issues and looks at the interrelations between them. To understand some of the issues discussed, such as the difference between hub-based and point-to-point carriers, it is necessary already to have a basic understanding of the aviation industry and its economics. While there are a number of examples and short case studies, it may have benefited from some longer case studies examining examples of things that went wrong and (hopefully) how they were ameliorated. These could include more financial details. It is always useful to have spare resources, but they cost money, and an operational controller in one airline claimed that reliability actually increased when a spare aircraft was removed. A worked financial example using simple mathematics could be useful.

The book is written for senior undergraduate and postgraduate students of air transport, who will find it a very useful technical text on scheduling and delay management, particularly if they have an operational research background. Readers with a general interest in the subject may also find the volume interesting but might wish to skip the more difficult sections. But be warned, this is a specialised volume.

Reviewed by Peter Gordon

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The Transport Economists' Group, formed in 1973, provides a forum for people involved in transport economics to meet regularly and discuss matters of mutual interest. Membership is open to economists working in transport and others whose work is connected with transport economics.

The aim of the Group is to improve the quality of transport management, planning and decision making by promoting lectures, discussions and publications related to the economics of transport and of the environment within which the industry functions.

Meetings are held every month from September to June (except December) at Arup's Central London HQ at 13 Fitzroy Street. The meetings consist of short papers presented by speakers, drawn from both within the Group's membership and elsewhere, followed by discussion.

The Group's Journal, "The Transport Economist", is published three times a year reporting on meetings and other activities of the Group. It reviews recent publications of interest and contains papers or short articles from members. The Editor welcomes contributions for inclusion in the journal, and can be contacted at petersgordon@blueyonder.co.uk.

The current membership of over 150 covers a wide range of transport modes and types of organisation. Members are drawn from transport operators, consultants, universities, local and central government and manufacturing industry. All members are provided with a full membership list, updated annually, which serves as a useful source of contacts within the profession. Applications from people in all sectors are welcome.

Applications for membership should be made on a form obtainable from the Membership Secretary at gregorymarchant.teg@btinternet.com.

Alternatively, an application form can be downloaded from the Group's website: www.transecongroup.org.

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Details of meetings are provided on our website at

<http://www.transecongroup.org/meetings.htm>

