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South Yorkshire Supertram

- some myths exploded

Phil Haywood, Director of Planning, South Yorkshire PTE

A talk given to Transport Economists' Group,
University of Westminster
28 April 1999

Phil Haywood's talk was a personal view of the development and progress of the Supertram. Phil started by exploding the first myth, saying that: "it is rare for a project of this complexity to be delivered on time and to budget, something which is often forgotten."

He divided the talk into seven topics:

- History
- Patronage forecasts
- Patronage re-appraisal
- Funding
- Privatisation
- Current operations
- The future

Chronology of events leading to Supertram

In July 1976 the Sheffield and Rotherham Land Use and Transportation Study (SRLUTS) recommended a segregated passenger transport system on six corridors radiating from the centre of Sheffield. South Yorkshire County Council (as Highway Authority) safeguarded the six lines in 1979. During 1982-83 preliminary studies investigated the characteristics of different modes concentrating on a line from Hillsborough to Mosborough and options for Sheffield City Centre.

During 1984-85, technical evaluation reports were produced for the Hillsborough to Mosborough line. At this time there were also two significant Acts of Parliament:

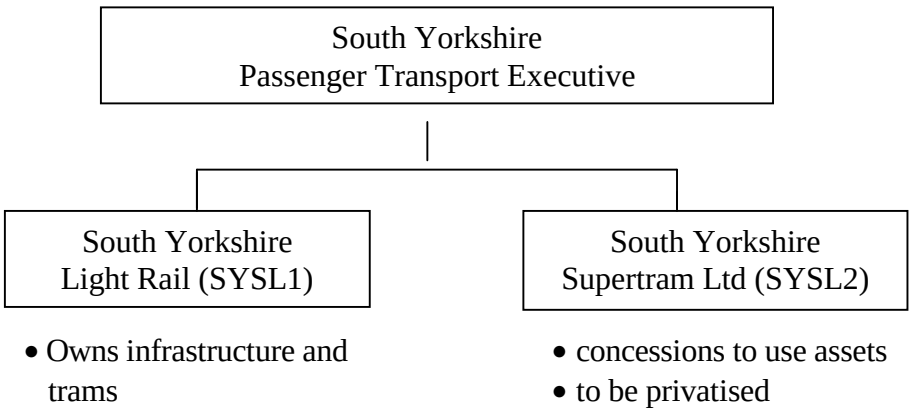
- The Local Government Act abolishing Metropolitan Counties which transferred highway authority powers to the Metropolitan Districts
- Transport Act bringing deregulation and divesting the PTE of direct bus operation.

In November 1985 the PTE deposited a Private Bill in Parliament, seeking powers to develop and operate a light rapid transit system. There was also a re-evaluation of the Supertram economic and financial case as a result of deregulation which commenced in October 1986.

There was considerable consultation with Sheffield City Council, seeking their support for the Bill in Parliament. This resulted in a number of modifications and a number of undertakings, including the promotion of a further Bill for a line into the Lower Don Valley (deposited November 1988) to assist in regeneration. During the period up to Royal Assent in October 1988 much of the modelling work was done leading up to the s56 grant application.

Dialogue continued with the Department of Transport during 1989-90. The project team refined estimates and progressed selection of design and build contractor, and rolling stock supplier. Financial approval for the project was finally given by the Department of Transport in December 1990. The approval from the Department was conditional on a structure as follows:

COMPANY STRUCTURE



This allowed for the operation to be privatised as a concession agreement.

In 1991 contracts were placed with Balfour Beatty for the infrastructure and Seimens for the rolling stock, with construction commencing on the section from Park Square to Meadowhall including the depot. Construction continued from 1992 to 1994 with the first tram delivered to South Yorkshire in late 1993.

The first section of line opened for public service on 21st March 1994 from the edge of the city centre (Fitzalan Square) to Meadowhall. There then followed progressive opening of sections of route with the full system open by October 1995. Completed to budget!

Patronage Forecasts

After one year of operation of the full system (October 1996), passenger levels were well below the original forecasts although marketing initiatives had shown a healthy increase on previous year (+40%).

In the initial phase - Meadowhall to City Centre - patronage was in line with expectations. It was expected that there would be 22m 'boardings' on the full system.

Table 1: Forecast passengers (millions)

	First full year of operation **1996**	**2023**
Line 1 (Halfway-Middlewood)	17.1	19.8
Line 2 (City Centre-Meadowhall)	5.0	7.1
Total	22.1	26.9

Phil was invited to give a talk to the UITP with the title:

South Yorkshire Supertram
- a profitable business

However, this proved to be premature!

Patronage Re-appraisal

The original consultants, MVA, were commissioned to undertake a re-appraisal of the forecasts based on the patronage, seeking an explanation of the differences in May 1996, even before a full year of operation. MVA were to look at four key questions:

- What is the current patronage?
- How does this compare with forecasts made when applying for section 56 grant?
- Why are there differences between forecasts and actual values?

§ What does the review indicate can be done to improve patronage?

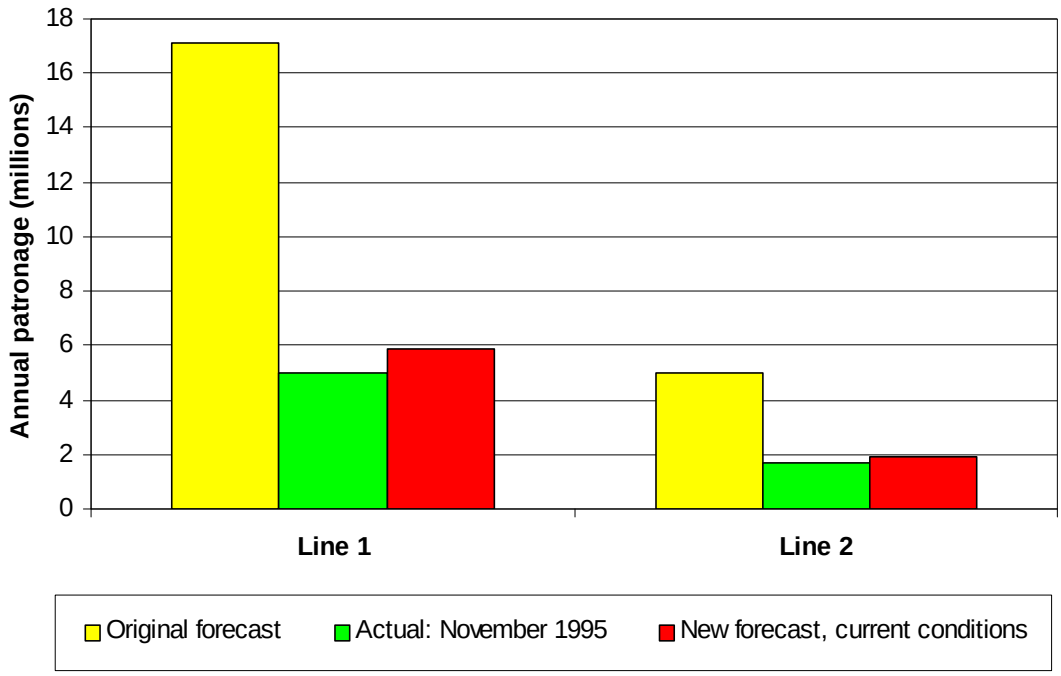
They considered a number of key factors:

§ Changes in public transport patronage in Supertram corridors
§ Supertram frequencies
§ Supertram journey times
§ Supertram fares
§ Competitive or complementary bus operator response
§ Provision of park and ride
§ Completion of new developments

Figure 1 compares the original forecast with the actual patronage in November 1995 at the end of the full system's first month of operation. At the time ticket sales suggested that patronage was 6.6m.

The forecasts were then reduced significantly (see third bar in figure 1) to a little under 8m per annum.

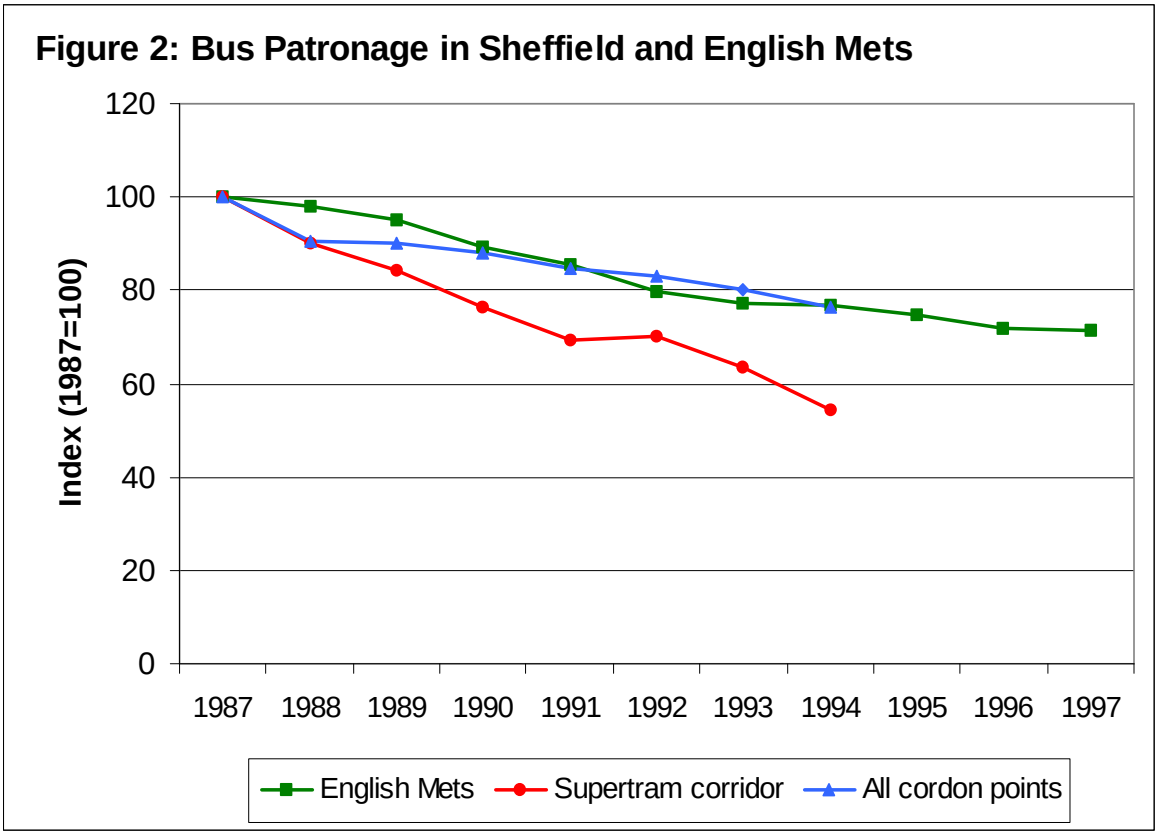
Figure 1: South Yorkshire Supertram



It is interesting to look at what had been happening to bus patronage throughout the period. It would be expected that an element of Supertram patronage would transfer from bus. Figure 2 shows bus patronage in Sheffield overall, in the Supertram corridors and in English Metropolitan areas since 1987. There has

been a decline due to modal shift in part but also due to the Sheffield economy where jobs have decentralised from the City Centre. Some of the areas served by the tram, particularly in the inner city, have seen large changes in population and economic activity.

Figure 2: Bus Patronage in Sheffield and English Mets



Supertram frequencies: figure 3 illustrates the frequency compared to those expected from the tram timetable. These are compared to bus frequencies where they travel along the same route. In particular, bus frequencies are considerably higher than expected.

Supertram journey times: figure 4 gives a comparison of expected and actual tram journey times. Actual journey times up to 30% slower than expected. When the tram was introduced, reliability was poor because of traffic congestion since the highway authority had not introduced all the priority measures.

Supertram fares: when Supertram services commenced premium fares greater than bus fares had been charged, but there was an unwillingness to pay for a service that was not perceived as offering reliability. The original forecast of ridership had assumed an integrated bus and Supertram fare structure.

Figure 3: Supertram and Bus Frequencies

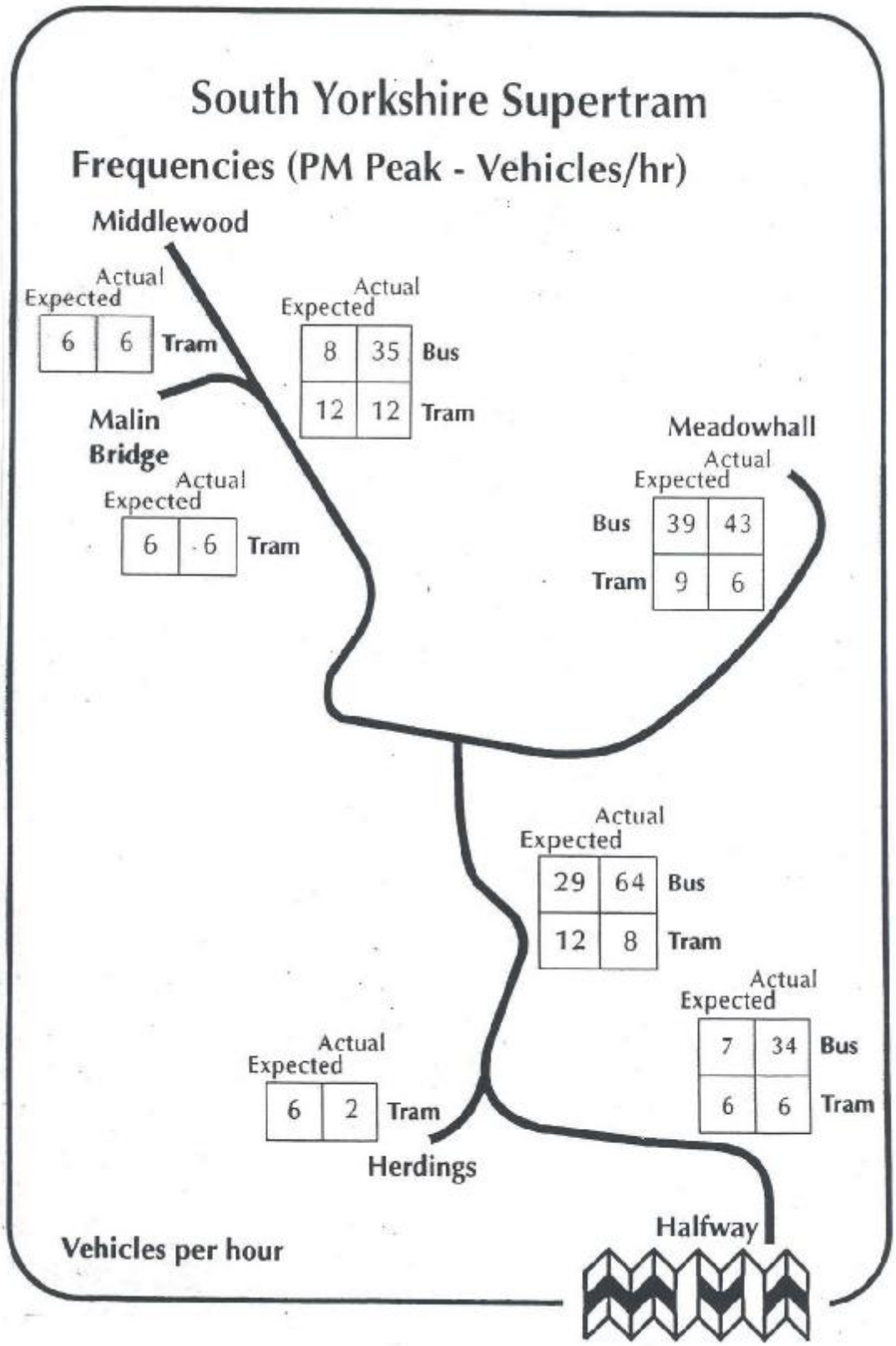
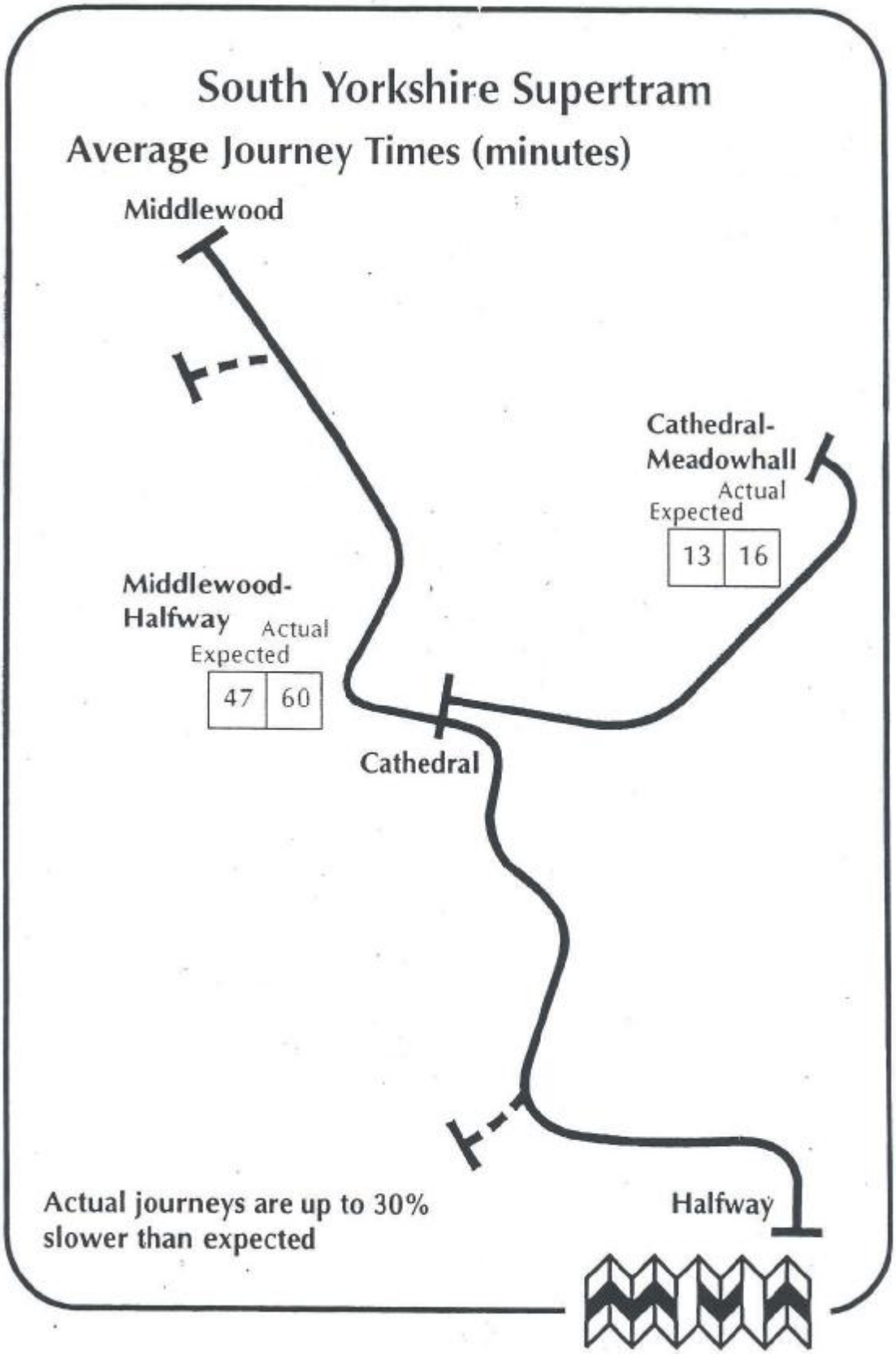


Figure 4: Supertram Average Journey Times



Thus, the consultants explained the reasons for patronage shortfall as set out in table 2:

Table 2: Reasons for patronage shortfall on South Yorkshire Supertram	
Decline in bus use	24%
Competitive buses	12%
Supertram frequencies	8%
Supertram run times	8%
Supertram fares	3%
Park and ride	4%
New developments	4%
Unexplained	6%
Actual patronage	30%

What can be done?

MVA made a number of recommendations on ways of improving Supertram:

- Improve monitoring of ridership and payment of fares.
- Investigate why public transport patronage has dropped sharply in Supertram corridor and feed the information into marketing process.
- Improve journey times and reliability:
  - higher service regularity
  - less bus competition and integrated services.
- Develop a flexible fare structure, maximise revenue, and integrate bus and Supertram fares.
- Develop park and ride sites.
- Improve access between Tinsley stop and Meadowhall.
- Make improvements to marketing.

MVA concluded that if all these items could be implemented, the potential demand would be in the range of 13m to 15m passengers per annum (not the original forecast of 22m).

MVA made a number of detailed suggestions on how to improve journey times and reliability:

- Selected junction design changes and traffic management.
- Reduction of dwell times - a driver/passenger behaviour issue.
- Driver training:
  - eliminate over-cautious driving

- increase emphasis on run times
- improve calling of priority signals
- self-regulation of even headways.

§ Increase maximum speeds.
§ Improve run time monitoring.
§ Implement even headway services.

Funding

The original agreement between the Department of Transport and the PTE was that selling on the concessions to operate Supertram would raise some one third on the capital costs of construction. The South Yorkshire PTE contention was that forecast proceeds were always optimistic, based on the original forecasts. The legal argument with the former Department of Transport related to exchanges of correspondence and whether the Department would make up any shortfall.

The burden of debt was growing which was having an impact on the finances of the PTE and Districts. Eventually, four authorities decided to seek a judicial review in January 1998 - the Department won.

However, in August 1998, the DETR agree to convert trading credits to non-trading credits. This is now reflected in the 1999/2000 settlement, relieving districts of the debt burden.

Privatisation

The process was initiated in 1997 towards the end of the last Conservative Government; privatisation though, is very much on the new Government's agenda. The process was as follows:

§ Full prospectus issued
§ Expressions of interest by potential bidders
§ Preferred bidder status granted
§ Due diligence
§ New operation

A number of consortia expressed interest in operating Supertram, which was reduced to three serious possibilities. Preferred bidder status was assigned to the group who did not require on-going revenue subsidy. Due diligence was entered and the terms were agreed in autumn 1997. This was finalised at the end of November 1997 and the new operator (Stagecoach) began operations from 19th December 1997.

There was a service level agreement with SYPTE, with some management changes. Maintenance was transferred to Porterbrook to reduce costs. The concession agreement left some residual risk for the track in the highway with the PTE.

From May 1998 a revised timetable and fares package was introduced - day rides and weekly mega-rides now make up 50% of the patronage.

Current operations

By 1998/99 patronage had reached 10.3 millions (up 13% on 1997/98) and the budget target had been reached. Staffing had become stabilised, with a pay deal extended to three years and pension scheme improvement under Stagecoach operation staffing levels increased. Service quality and reliability is now high with 23 trams (occasionally 24) utilised from a fleet of 25.

The Future

There is a potential to increase patronage. The system is heading towards becoming a centre of excellence with integrated ticketing and interchanges entering into quality partnerships, and support for extending the system. Further funding could come from Objective 1 status, if match funds can be found.

Conclusion

In conclusion, Phil listed the myths that he had exploded by setting down the achievements of Supertram:

- Supertram provides a quality reliable service used by 10.3 million passengers last year.
- Passenger numbers are increasing before any of the Government's new transport measures are introduced.
- The system operates without any public operating subsidy.
- Attitudes towards the tram are now more positive than at any time since its construction.

Discussion

Stephen Bennett opened the discussion by saying that one of the concerns in heavy rail, once the franchise had been awarded was how and what to monitor.

Phil Haywood said that there are three ways in which the Supertram is monitored:

- Service level agreement where the operator has to notify any timetable changes. There are also automatic monitoring points through the AVL (Automatic Vehicle Location) system – the data are received by the PTE at the same time as the operator. Phil pointed out that the system is not designed to penalise the operator but is there to ensure that the service regularity as perceived by the public is maintained. (Note that there is a penalty if the last tram is not operated.) The system is designed to be cost neutral – i.e. no incentives and no penalties.
- Quality of service – Harris has been contracted to carry out surveys of passengers' views of cleanliness, passenger information provided, etc.
- Asset change procedure to notify in advance, such as traction modification, to ensure that whatever is being done is reasonable.

Peter Gordon asked if there are problems created by the bus operator, and if fares can be co-ordinated. Phil Haywood said that First Group could cause a problem but that the financial offer from Stagecoach was so much better. There is good dialogue with all operators. On the Supertram corridor there can be good arrangements on fares, etc. so that over-capacity does not arise. The operators are becoming maturer, although the PTE can only encourage joint fares. Any integration of fares has to be developed by the operators but any arrangement has to be tested with the Office of Fair Trading. The power to exclude an operator who has not signed up to a quality partnership is not available yet.

Martin Higginson thought that the PTE would have liked a co-ordinated service because it would give a tidy solution. He wondered whether high frequencies of bus had led to higher public transport patronage.

Phil Haywood: yes! At the end of the day it is up to operators whether they want a tidy solution. Phil went on to describe the environmental problem in the city centre – the air quality standard is not met on bus-only streets which will mean that bus operators will have to invest in better buses and, maybe, joint ticketing arrangements to arrive at a solution.

John Cartledge recalled his enjoyable experience of using Supertram, which was enhanced by the south-east leg going into the dales and the fact that he had a free ticket. His reservations about the system was that (1) tender loving care has not been lavished on the waiting facilities since they are not subject to effective or assiduous maintenance unlike the vehicles, and (2) the competition's practices. There are long sections where there are only a few stops, and the buses are stopping so impeding the tram.

On (2), Phil responded that he had also observed that happening from time to time. On (1), Phil agreed that they are fairly basic although they are better

maintained now. Vandalism is very localised, it varying from one stop to the next. The PTE prefers to maintain glass panels but in extreme circumstances will use solid panels or polycarbonate. The PTE is looking into use of real time systems and CCTV for passenger security.

Roger Mackie: if designing from scratch now, what would you do differently?

Phil Haywood:

- The original study identified six alignments but because of political bias it does not serve high-income areas.
- The degree of segregation would be higher than provided by Supertram – the highway engineers have now changed their minds over sharing the highway.
- Try to improve stops and pedestrian routes to them.
- More attention to integration/interchange between, e.g., bus and tram stops.
- No change to design of the tram because it needs to cope with steep gradients.
- Possibly more park and ride.

If there are extensions some could potentially use old railway lines, and there will be more integration between transport and land use.

Ian Souter was unimpressed by the long gestation period for such schemes. The Integrated Transport White Paper does not say much about light rail but, if the Government is serious, it has to look seriously at fixed track systems as well as buses. There will have to be more money to fund schemes in urban areas. He is very cautious about the proposed new sources of revenue to fund transport. Ian thought that a lot of the solutions should be devolved to PTEs and local authorities.

Phil replied by saying that if there is a will to do something, the gestation period could be quite short – but realistically from concept to being on the street will still be ten years.

Report by Laurie Baker

Postscript

Phil reports that patronage continues to increase, currently to a rate of some 11 million annually, and also recent surveys (September 1999) show the ability of Supertram to bring about modal shift with nearly one quarter of users being previous car users.

Evaluation of Railway Rolling Stock

Mark Wardman, Institute of Transport Studies, University of Leeds

Talk given to Transport Studies Group
University of Westminster
23 June 1999

Mark started his talk by referring to the work done by the Institute on rolling stock evaluation for OPRAF. A working paper was prepared as a result of this research and has been used as a basis for this evening's talk.

The work done for OPRAF was in two parts - first, a review of the existing literature, which was quite voluminous, and secondly new research adopting a somewhat different approach to that usually used in previous work.

To OPRAF such research was of significant value as it was relevant to the future negotiation of franchises and, in particular, to commitments to renew rolling stock during the currency of such franchises. OPRAF had aimed at 20% renewal and 40% refurbishment of rolling stock during the initial franchises, amounting to expenditure of £2bn. These were large sums of money, with considerable risk attached due to the long-life of railway rolling stock and the comparatively short-life of the franchises. Moreover, factors were built into the original leasing charges to reflect the expected disadvantage of old rolling stock compared with new. Many organisations were involved in the process of justifying funding and building new rolling stock, which resulted in a tendency towards premium pricing. The issues involved were complex, but it was improvement in quality which needed to be measured in this particular piece of research. To illustrate the significance of this work on rolling stock improvements: the speaker remarked that 21 TOCs (out of 25) were investing in improved stock. In fifteen cases new trains were being provided and eleven TOCs were refurbishing existing trains.

The objectives of the study were first, to conduct a review of existing British evidence on the subject, and secondly to estimate the value to passengers of a range of improvements to rolling stock.

First, why was further research required?

Mark claimed there was no comprehensive review of the research already available and this justified the first part of the work to be carried out by the Institute. The evidence of the effect of quality improvements in rolling stock was dated, and not easily transferable to future comparisons of old versus new.

There was a belief that there was too much reliance on stated preference (SP), as the results from existing research indicated suspiciously large gains from quality improvements. Moreover, there were many instances of inconsistency between theoretical valuations of gain from such improvements and the actual demand impact. The case for new research taking a somewhat different approach from the old appeared justified.

Summarising the previous evidence, Mark said there had been 20 studies to review, 18 of which produced an overall value of improvement, one compared one kind of study with another, and there was a study which compared one package of results with another. There were eight impact studies which were designed to measure the direct impact on earnings and numbers of passengers. The existing valuation studies employed disaggregated Stated Preference (SP) Choice Models

Review of the Old Studies

Mark presented a series of tables to summarise the findings of previous research.

Table 1 exposes the effect of journey purpose and class of business on 'valuation' of a range of rolling stock improvements, for 18 studies. 'Valuations' are expressed as a percentage of the fare, or, in three cases a percentage of the value of time (VoT). The specification of each study included a description of the 'improvement' being researched, a note on the correspondence of the description with existing stock types, and the media used to present the comparisons to the respondents (i.e. written description, photographs, artists' impressions).

A distinction needed to be made between 'extra journeys' and 'longer journeys'. When interviewing passengers the purpose of the study had to be clear - the respondent might, in practice, fail to distinguish the effect of new rolling stock from other changes in journey ambience. Respondents also had a limited knowledge of the alternatives available. Presentation was important.

A regression model of the studies was prepared. Forty-five values were identified which gave $R^2 = 0.54$. Table 2 presents the regression analysis of the effects on stock valuations for six variables. Replacing the 'perceived purpose' (i.e. stock valuation, forecasting mode choice, service quality improvements, pricing or stock and station valuations) with the 'choice context' (i.e. 'abstract' choice, rail-car, rail-coach mode choice, ticket/operator choice or route/operator choice)) gave $R^2 = 0.23$

Table 1: Valuations of rolling stock

	Flows	Perceived study purpose	Improvements	Familiarity	Valuation
1	London suburban	Stock valuation	New sliding door stock replacing 20-30 year old slam door stock	Both stock types	8% of fare
2	London inter-urban	Stock valuation	Refurbishment of Mark III stock involving seating, new carpeting, new colour scheme, improved toilets and entrances	Refurbished & unrefurbished Mark III stock	5% of fare
3	London inter-urban	Stock valuation	Mark IIa v. refurbished Mark IIIa (i) Mark IIIa v. Mark IIIb (ii) Mark IIIa v. Mark IV (iii)	All but Mark IV stock	(i) 6% of fare (ii) 12% of fare (iii) 1st class: 11% of fare 2nd class: 14% of fare
4	London inter-urban	Stock valuation	Mark III v. Mark IV (225)	Existing Mark III, Mark IV on other routes	1st Class 12% of fare Std business: 14% of fare Std leisure: 5% of fare
5	Non-London inter-urban	Forecasting mode choice	Pacer-Sprinter Pacer-Electric Sprinter	Existing Pacer and diesel Sprinter	Car-Rail: Electric Sprinter v. Pacer 4% of fare Car-Rail: Sprinter v. Pacer 0% of fare Coach-Rail: Electric Sprinter v. Pacer 7% of fare Coach-Rail: Sprinter v. Pacer 0% of fare
6	London and non-London inter-urban	Stock valuation	Trolley v. buffet, Trolley & restaurant Opening windows v. air conditioning Improvements in décor 3+2 seats limited legroom v. 2+2 seats & reasonable legroom Improvements in ride quality	No exact correspondence with existing Stock types	<50 miles: VoT -24% 50-140 miles VoT -18% 140+ miles: VoT -15% Seasons VoT - 9% Mean VoT 11p/min
7	London inter-urban	Stock valuation	Mark III v. Mark IV (225)	Both stock types	1st class: 14% of fare Std. Business 12% of fare Std. Leisure 9% of fare

Table 1: Valuations of rolling stock

	Flows	Perceived study purpose	Improvements	Familiarity	Valuation
8	London inter-urban	Stock valuation	Refurbishment of Mark III interiors. Provision of information system, audio entertainment, toilet and vestibule improvements, relocation of conductor's office	Existing Mark III stock	1st class: 17% of fare Std. Business 24% of fare Std. Leisure 11% of fare Std. Commuters: 15% of fare
9	Non-London inter-urban	Stock valuation	Refurbishment of Mark III interiors. Provision of information system, audio entertainment, toilet and vestibule improvements, relocation of conductor's office	Existing Mark III stock	1st class: 22% of fare Std. Business 25% of fare Std. Leisure 18% of fare Std. Commuters: 24% of fare
10	London inter-urban	Stock valuation	Refurbishment of Mark III interiors. Provision of information system, audio entertainment, toilet and vestibule improvements, relocation of conductor's office	Existing Mark III stock	1st class: 21% of fare Std. Business 30% of fare Std. Leisure 17% of fare Std. Commuters: 19% of fare
11	London inter-urban	Stock valuation	Package of improved and reclining seats, conference facilities, video screens, cabin crew service and complimentary meal	Existing Mark III stock	1st class: 18% of fare Std. Business 18-24% of fare Std. Leisure 10-14% of fare
12	Non-London inter-urban	Service quality improvements	Existing diesel sprinters v. new air-conditioned electric stock	Existing Sprinter stock	VoT -10%
13	London outer suburban	Pricing	1950s diesel stock v. modern 'Network Turbos'	Existing diesel stock	4% of fare
14	London outer suburban	Stock valuation	Improved décor and trm, provision of drop down tables, improved seats, telephone, trolley catering	Existing stock	1st class: VoT -13% Std. Business VoT -19% Std. Leisure VoT -22% Std. Commuters: VoT -14%
15	London suburban	Stock and station valuation	i) Current - all trains refurbished ii) Current - all trains new iii) Current - all trains 'new plus'	Existing stock	i) 23 pence ii) 35 pence iii) 45 pence

Table 1: Valuations of rolling stock

	Flows	Perceived study purpose	Improvements	Familiarity	Valuation
16	London and non-London inter-urban	Pricing	Mark III v. Mark IV (225) Mark III/Class 158 v. Mark IV (225) Mark III/Class 158 v. Mark IV (225)	With all stock	1.5% of fare -3.8% of fare -1.0% of fare
17	London inter-urban	Stock valuation	Mark I v. Mark III	Both stock	10% of fare
18	London suburban	Stock valuation	i) Dirty, old, poor ventilation → dirty refurbished, forced air conditioning, gangways ii) Dirty, old, poor ventilation → clean, brand new, air conditioning, gangways iii) Very noisy, bumpy, minimum information → fairly noisy, fairly smooth, indicators iv) Very noisy, bumpy, minimum information → fairly quiet, very smooth, indicators	Existing stock	i) 8% of fare ii) 31% of fare iii) 18% of fare iv) 23% of fare

Note: + denotes values in early 1993 prices; * denotes that the rolling stock coefficients were not significant at the usual 5% level; VoT denotes value of time.

Table 2: Regression model of rolling stock values		
Variable	**Coefficient (t)**	**Percent effect**
Constant	1.846 (9.16)	Base = 6.33% of fare
S-Val	1.106 (5.53)	+202%
Familiar	-0.576 (3.44)	-44%
Leisure	-0.267 (1.69)	-23%
Mark IV	-0.310 (1.81)	-27%
London suburban	-0.439 (2.71)	-36%
Adjusted R^2	0.54	

Specific attributes connected with improvements were evaluated in ten studies and these are presented in Table 3. The 'improvements' tested compared an existing indifferent situation with a potentially improved situation for existing stock, or compared two existing stock types. The 'valuations' were expressed as a percentage of fare or percentage of value of time.

Mark then proceeded to an examination of the effects of 'packaging' attributes. First, the value of a 'package' is different (less than) to the sum of individual items. The packaging ratios varied between 0.3 and 0.9 Points to watch-for in this process were: double counting of items in a particular package; complementarity of improvements; 'halo' effects; artificial Stated Preferences (SPs). The packaging problem arises when trying to value individual attributes that collectively contribute to one aspect of the journey, such as the vehicle or station environment. Thus the values derived for an improvement in the level of each attribute in a cluster of attributes sum to an amount considerably different to the value which the same respondent ascribes to the package of improvements as a whole. Interactions between individual attributes, budget constraints and 'halo' effects are possible causes of the packaging effect. 'Packaging ratios' (i.e. Package as a whole/sum of individual values) varied from 0.3 to 0.9.

Table 3: Valuations of specific attributes

	Improvements	Familiarity	Valuation
3	i) Heating and ventilation: Adequate but unreliable → good with individual control ii) Seating Quality: Uncomfortable and limited legroom → comfortable & ample legroom iii) Information: Routine announcements → TV screen information iv) Ride quality: Rough ride → very smooth v) Appearance: Drab and dirty → bright and clean vi) Facilities: Buffet, toilets not always clean → restaurant, buffet and trolley service, clean toilets	Some attribute levels related to existing stock	i) 1st: 4% of fare; Std: 4% of fare ii) 1st: 4% of fare; Std: 4% of fare iii) 1st: 5% of fare; Std: 6% of fare iv) 1st 8% of fare; Std: 7% of fare v) 1st: 4% of fare; Std: 4% of fare vi) 1st: 7% of fare; Std: 7% of fare
7	i) Appearance/cleanliness: Mark III → Mark IV ii) Ride comfort and noise: Mark III → Mark IV iii) Sea comfort and layout: Mark III → Mark IV iv) Cleanliness, design & size of toilets: Mark III → Mark IV	Both levels	i) 1st: 4% of fare; Std EB: 5% of fare; Std Leis: 3% of fare ii) 1st: 0% of fare; Std EB: 4% of fare; Std Leis: 4% of fare iii) 1st: 7% of fare; Std EB: 4% of fare; Std Leis: 1% of fare iv) 1st: 2% of fare; Std EB: 3% of fare; Std Leis: 2% of fare

Table 3: Valuations of specific attributes			
	Improvements	**Familiarity**	**Valuation**
8	i) Improved décor ii) Visual information system iii) Audio entertainment iv) Improved toilets v) Improved vestibule	Existing stock	i) 1st: 6% of fare; Std EB: 10% of fare; Std Leis: 3% of fare ii) 1st: 3% of fare; Std EB: 5% of fare; Std Leis: 3% of fare iii) 1st: 2% of fare; Std EB: 2% of fare; Std Leis: 2% of fare iv) 1st: 4% of fare; Std EB: 4% of fare; Std Leis: 3% of fare v) 1st: 1% of fare; Std EB: 1% of fare; Std Leis: 0% of fare
9	i) Improved décor ii) Visual information system iii) Audio entertainment iv) Improved toilets v) Improved vestibule	Existing stock	i) 1st: 9% of fare; Std EB: 10% of fare; Std Leis: 6% of fare ii) 1st: 3% of fare; Std EB: 4% of fare; Std Leis: 3% of fare iii) 1st: 2% of fare; Std EB: 3% of fare; Std Leis: 2% of fare iv) 1st: 5% of fare; Std EB: 5% of fare; Std Leis: 4% of fare v) 1st: 1% of fare; Std EB: 1% of fare; Std Leis: 1% of fare

Table 3: Valuations of specific attributes			
	Improvements	**Familiarity**	**Valuation**
10	i) Improved décor ii) Visual information system iii) Audio entertainment iv) Improved toilets v) Improved vestibule	Existing stock	i) 1st: 8% of fare; Std EB: 11% of fare; Std Leis: 6% of fare ii) 1st: 3% of fare; Std EB: 4% of fare; Std Leis: 3% of fare iii) 1st: 2% of fare; Std EB: 2% of fare; Std Leis: 2% of fare iv) 1st: 5% of fare; Std EB: 6% of fare; Std Leis: 4% of fare v) 1st: 1% of fare; Std EB: 3% of fare; Std Leis: 1% of fare
14	i) Improved décor ii) Improved décor, seats and tables	Existing stock	i) 1st: VoT -5%; Std EB: VoT -14%; Std Leis: VoT -10%; Std Comm VoT -7% ii) 1st: VoT -5%; Std EB: VoT -25%; Std Leis: VoT -26%; Std Comm VoT -15%
15	i) Unpleasant air quality → very pleasant air quality ii) Noisy train, difficult to converse → very quiet train, talk very easily iii) Dirty/few damaged seats → seats in good condition iv) Lots of train movement and wobbling → very smooth	Existing stock	i) 4.9 pence + ii) 1.8 pence + iii) 3.0 pence + iv) 2.2 pence +

Table 3: Valuations of specific attributes

	Improvements	Familiarity	Valuation
18	i) Old train → refurbished train ii) Old train → brand new train iii) Very noisy train → fairly noisy train iv) Very noisy train → fairly quiet train v) Bumpy train → fairly smooth train vi) Bumpy train → very smooth train vii) Poor ventilation → forced air ventilation viii) Poor ventilation → air conditioning	Existing stock	i) 0% ii) 3% iii) 4% iv) 27% v) 6% vi) 26% vii) 8% viii) 31%
19	i) Dirty vandalised → dirty ii) Dirty vandalised → clean iii) Old → Refurbished iv) Old → Brand new v) Poorly ventilated → forced air ventilation vi) Poorly ventilated → air conditioning vii) No gangways → gangways viii) No gangways → gangways and driver communication	Existing stock	i) 38 pence + ii) 60 pence + iii) 12 pence + iv) 29 pence + v) 18 pence + vi) 42 pence + vii) 19 pence + viii) 27 pence +
20	i) Well ventilated carriage ii) Smooth ride iii) Comfortable seats iv) Well regulated heating	Existing stock	i) 12% ii) 9% iii) 9% iv) 10%

Note: + denotes values in early 1993 prices. The numbers of the studies correspond to those in table 1. 'EB' denotes employer's business, 'Comm' denotes commuting and 'Leis' denotes leisure. Studies 19 and 20 are related to London suburban flows.

The next stage was a study on demand impact. An econometric analysis of ticket sales data was devised (eight studies were involved) and the results presented in table 4. (One of the studies had three parts which in effect means ten 'examples' rather than eight) Half of these examples showed 'no significant effect' and the others ranged from +3% to +8% with 95% confidence intervals as large as the demand effect in three cases out of the five. Small sample sizes and unreliable ticket sales data handicapped some of the (earlier) studies. The results were generally disappointing as a significant pointer to the extent of demand impact.

Table 4: Evidence of effects of new rolling stock on rail demand

	Context	**Stock type**	**Demand effect**
1	London Inter-urban	Mark II → Mark III	No significant effect
2	London Outer Suburban	Old slam door diesel multiple units → new sliding door electric stock	No significant effect
3	London Outer Suburban	Old slam door diesel multiple units → new sliding door electric stock	No significant effect
4	Non-London Inter-urban	Locomotive hauled stock → new sprinter units	No significant effect
5	Non-London Inter-urban	Old slam door diesel multiple units → new sprinter units	+5% (±5%)
6	i) London Outer Suburban and Inter-urban ii) Non London Inter-urban iii) Non London Inter-urban	i) Old slam door electric units → new sliding door electric stock ii) Old slam door diesel units → new sprinter units iii) Mark II locomotive hauled stock → new sprinter units	i) +8% (±8%) ii) +6% (±6%) iii) No significant effect
7	London Inter-urban	Mark III → Mark IV	To London +4% (±2%) From London +3% (±2%)
8	Inter-urban	Improved stock	+5%

Note: 95% confidence intervals are given in brackets where available.

The conclusions from the literature review were summarised by the speaker as:

(1) Stated Preference values were too large.

(2) There was an incentive to bias.

(3) There was considerable unfamiliarity with the purpose of the study.

(4) The econometric analyses imply low values and some inconsistency.

Nevertheless, it appeared that the most important specific attributes were ride quality, ventilation, seating comfort and layout, and noise levels.

Mark believed that the way forward was Revealed Preference (RP), an avoidance of incentives to bias and maximum familiarity with the purpose of the research.

The New Study

The new empirical study for OPRAF had three principle features:

(1) Revealed Preference based on a practical choice of train i.e. actual behaviour

(2) Stated Preference, also based on train choice

(3) Stated Preference based on specific attributes

The last two demanded more data and incorporated more variation (e.g. cost factors) than hitherto.

The RP approach focussed on routes where different types of train operated. The trade-offs were between train type, journey time, access time, egress time, headway, cost, reliability and crowding. Special note was taken of the 'catch first to arrive' response

The SP approach (the first, overall values, variant) was equivalent in principle to the RP exercise. There were nine pairwise comparisons and three attributes tested, including two familiar rolling stock types and journey time. The study was 'customised' to the actual situation examined and the same variables were used for each of the alternatives tested.

The specific attributes variant of the SP approach concentrated on rolling stock attributes. It must be recognised that rolling stock attributes are both difficult to describe and difficult to measure. Categorical scales were designed (e.g. for noise levels) which were meaningful and were easy to interpret and apply. It was found that categorical scales were more meaningful to respondents than metric scales and there are no natural units (units of dimension) for some attributes (e.g. ride quality). This exercise presented only two levels for each specific attribute, and was based around two train types.

A rating system of 1 to 10 was used. Two SP exercises were run for specific values i.e. (1) time, layout, ride, ventilation, and crowding; and (2) time, noise, ambience, and seat comfort. The advantage of this approach was that familiarity with the usual attributes of rolling stock was tested. But there were drawbacks,

largely connected with trade-offs between the attributes.

Mark then moved on to the data collection process. There were separate RP and SP surveys. The RP approach needed a large sample and the SP interviews had to be 'computerised'. The surveys took place in January and February 1997 and were conducted at 35 stations for the RP surveys and on eight routes for the SP surveys.

There were 2,348 respondents to the RP studies - summarised in Table 5. The RP analysis used a 'dummy variable' for rolling stock types. The types of rolling stock 'tested' are listed and identified in Table 9, following. The time value of headway was 0.25 and of egress 0.71 Cost, access and reliability produced low 't' ratios. One conclusion from this part of the study was that the ratings model was preferable to dummy variables, because the results were more easily transferable, and were statistically a better fit. High correlations were discovered amongst some of the dummy variables.

Table 5: Revealed preference results		
Time	-0.1266 (20.7)	-0.1276 (21.6)
Egress	-0.0828 (8.7)	-0.0909 (9.3)
Headway	-0.0274 (9.3)	-0.0338 (11.7)
Crowding	0.1553 (8.5)	0.1148 (6.5)
S2	0.0037 (0.3)	n/a
S3	0.0082 (2.7)	n/a
S4	0.0083 (2.7)	n/a
S6	0.0066 (0.3)	n/a
S7	0.0147 (3.0)	n/a
S8	0.0112 (2.8)	n/a
Stock	n/a	0.0032 (7.6)
ρ^2	0.340	0.348

The SP overall valuations were then considered and the results summarised in Table 6. There were 7,047 observations supplied by 783 individuals. As with the RP studies the valuations produced were made dependent on journey time. For a unit change in rating the SP model (commuting) indicated 1% of journey time, whereas the RP model (90% commuting) indicated 2.5% of journey time. It appeared that the unusually low valuations of some individuals affected the overall response.

Table 6: Stated preference results		
Time	-0.1889 (35.8)	-0.1934 (36.9)
Cost	-0.0295 (35.1)	-0.0297 (35.5)
S1	-0.0037 (1.6)	n/a
S2	0.0018 (0.6)	n/a
S3	0.0032 (2.7)	n/a
S4	0.0004 (0.3)	n/a
S6	0.0102 (1.7)	n/a
S7	0.0001 (0.1)	n/a
S8	0.0025 (2.4)	n/a
Stock	n/a	0.0010 (6.9)
ρ^2	0.296	0.298

A joint RP-SP model was also constructed using all 9,395 observations, and segmented by journey purpose, class, area and income (Table 7). This indicated a fall in cost sensitivity with income, and rolling stock ratings and time coefficients varying with journey purpose.

Table 7: Joint Revealed Preference and Stated Preference Model	
Time - C&L	-0.1205 (21.0)
Time B	-0.2089 (14.6)
Egress	-0.0897 (9.2)
Headway	-0.0322 (11.3)
Crowding	0.1348 (7.9)
Stock-C	0.00143 (6.6)
Stock-B	0.00043 (1.9)
Stock-L	0.00079 (5.2)
Cost	-0.0247 (11.7)
Cost-Inc2	0.0035 (1.9)
Cost-Inc3	0.0078 (3.7)
Cost-Inc4	0.0129 (5.6)
Cost-IncX	0.0041 (2.1)
θ	1.4440 (17.8)

ρ^2	0.320

Values of time were extracted from the new study (and from the review - in brackets).

They were:

Business	£13.7 (16.5)
Commuting	£8.1 (6.9)
Leisure	£6.5 (5.9)

Values of time for business travel ranged from £8.5 (for incomes <£10k) to £17.7 (for incomes £40k +). For commuting and leisure travel the range, for the same income brackets, was from £4.9 to £10.3. The corresponding rolling stock 'valuation' was from 0.7 to 1.5 for business travel, from 2.3 to 4.8 for commuting and from 1.3 to 2.7 for leisure travel.

The data from the two SP exercises (amounting to 5,080 observations) was merged to give the Stated Preference Specific Attributes analysis (Table 8). Based on rating scales the analysis showed that comfort, ride and ambience were the most significant: layout, ventilation and noise less so.

Table 8: Stated Preference model of specific attributes

		Time values
Time	-0.27350 (35.0)	
Comfort	0.00430 (15.2)	0.63 (1.6%)
Layout	0.00066 (1.6)	0.10 (0.3%)
Ride	0.00284 (6.7)	0.42 (1.1%)
Noise	0.00092 (3.1)	0.13 (0.3%)
Ventilation	0.0079 (1.7)	0.11 (0.3%)
Ambience	0.00273 (9.3)	0.40 (1.0%)
Crowding	0.00093 (2.2)	
ρ^2	0.412	$\sum$ = 1.79 (4.6%)

Note: The crowding coefficient reported here is not compatible with those in tables 5 and 7 since only the former interacts with journey time.

To investigate the packaging effects it was decided to regress individual 'overall valuations' on the sum of specific valuations. This gave a packaging ratio of 0.18 (+ or - 3%), from 3098 observations with R^2 = 0.64. This is a lower ratio than that produced by previous studies.

Finally, in Table 9, overall valuations were produced to indicate preferences between pairs of rolling stock types (12 pairs with sample size varying from 11 to 1,288 - average 243). The analysis showed a high degree of transitivity but much lower values than previous studies. The results are in line with those of demand impact studies but individual preference can be quite mixed within a particular pair.

Table 9: Overall valuations

Stock types (preferred first)		Sample	Money value	Time value
S2 v S1	Express Sprinter v Sprinter	11	0.9% (1.0%)	1.9% (2.0%)
S5 v S1	Networker v Sprinter	20	0.7% (0.8%)	0.8% (0.9%)
S2 v S3	Express Sprinter v SE Slam Door	54	1.5% (1.5%)	3.0% (3.0%)
S4 v S3	SE Sliding Door v SE Slam Door	1,288	0.6% (1.6%)	0.9% (2.2%)
S5 v S3	Networker v SE Slam Door	521	1.0% (1.9%)	1.1% (2.3%)
S6 v S3	Wessex Electric v SE Slam Door	25	1.2% (1.6%)	2.8% (3.5%)
S8 v S3	Mark 2 v SE Slam Door	100	1.4% (1.7%)	2.2% (2.5%)
S7 v S4	Mark 3 v SE Sliding Door	165	1.5% (1.7%)	2.0% (2.3%)
S8 v S4	Mark 2 v SE Sliding Door	530	0.7% (0.9%)	1.0% (1.4%)
S7 v S5	Mark 3 v Networker	54	0.6% (1.2%)	1.1% (2.2%)
S8 v S5	Mark 2 v Networker	130	0.6% (1.0%)	1.3% (2.1%)
S7 v S8	Mark 3 v Mark 2	15	0.1% (0.6%)	0.2% (1.0%)

Conclusions

Mark then drew a number of conclusions from the literature review and from the empirical study by comparison.

The novel approach lay in the use of RP, linking SP to actual stock, and the use of rating scales.

Clearly, the empirical study gave much lower results than previous studies. It was apparent that values varied with journey purpose and income and that there was a strong packaging effect, most likely caused by a response bias. The results are considered to be transferable.

The recommendations were:

(1) that previously recommended values be amended in the light of the new research;

(2) there be further research into packaging effects;

(3) more econometric modelling with large data sets at both constant prices and premium pricing was needed;

(4) a set of rules for choice and use of values for rolling stock, alongside fare or time elasticities, be established;

(5) that not so much reliance be placed on SP, for example, the 'response' to overcrowding.

Discussion

A series of questions and comments from the floor were then taken:

David Starkie: My behaviour is different - my trade-off is that I arrange business arrangements to fit preferred rolling stock

Mark: Yes. The models do not allow for people making positive external arrangements to avoid what they don't like!

Jeremy Drew: What does all this mean for OPRAF and the TOCs - does it make investment in new rolling stock more difficult to justify?

Mark: It may be justification for fare increases.

Jeremy Drew: Will it effect the type of rolling stock favoured in the future?

Mark: As it is not a complete evaluation of all the factors which must be considered when deciding which type of rolling stock to use it is difficult to say.

Peter Gordon: Were people asked to detail differences?

Mark: No.

Peter Gordon: Was there a variation in approach to test the reaction to presentation?

Mark: No. It may be valuable to try variations in approach, but not too much.

Peter White: 'Packaging' may *exceed* the sum of separate attributes because it represents a major ascertainable change in the character of the service.

Mark: Yes. But, some people may attach disproportionate and unrepresentative importance to one aspect of improvement on its own.

John Cartwright: On the general point of ‘packaging’, it appears that total route modernisation makes a bigger impact than the sum of individual piece-meal improvements.

The meeting closed with those present acknowledging the speaker’s valuable and detailed presentation in the usual way.

Report by Don Box

8 August 1999

Railway Regulation: The first five years

- Some personal reflections

Chris Bolt, Regulation Director, Transco
Former Rail Regulator 1998-99

Paper presented to the Transport Economists' Group
University of Westminster
27 October 1999

Biographical Note

Chris Bolt was Rail Regulator from December 1998 to July 1999, and had been Director of Economic regulation for the Office of the Rail Regulator (ORR) for four years before that. He came to railways from OFWAT where he had managed the economic regulation of the water industry. His early career had been in the civil service at the Treasury, Home Office and Environment. He is now working in the private sector for Transco (BG plc) and is also an advisor to the Parliamentary Transport Select Committee.

The talk set out some personal reflections on the first five years of railway regulation in the UK. The comments are grouped under three main headings:

- Industry structure on privatisation,
- Regulation and
- Performance

Finally, the paper considers how far the provisions of the Railways Bill will address weaknesses in the current regulatory framework.

Industry Structure on Privatisation

The restructuring and privatisation of the railway industry in Great Britain followed a long line of utility privatisations, and drew on experience from them. Vertical separation was, for example, a feature of the earlier electricity privatisation, although restructuring went further in the case of railways to split out service providers such as the infrastructure maintenance companies and rolling stock companies.

In advance of the Railways Act 1993, there was considerable debate about the appropriate structure of privatised industry. Some advocated vertically

integrated regional companies - the model adopted in the water industry. Others sought to draw analogies between a railway network and air service in terms of a possible market for train paths. While some of these analogies are relevant, the circumstances of different industries generally mean that there is no one solution which is generally applicable. Thus, while EU Directive 91/440 requires separation between network operation and train operation, and this approach has been recommended by the World Bank for developing countries, some countries have privatised railways on a vertically integrated basis.

The key issue is not necessarily the form of restructuring, but the contractual arrangements and incentives which go with it. It would therefore be inappropriate to attribute the perceived failings of the privatised railway industry to the form of restructuring.

Three examples can be used to illustrate this conclusion:

First, there is a clear perception that there have been inadequate incentives on the privatised industry to invest. This can in part be attributed to the short length of many of the initial franchises, which reflected a Treasury view that relatively frequent retendering would maximise the benefits of competition for the market. But at the same time, the Treasury resisted proposals for OPRAF to provide guarantees for investment, and preferred that it offered longer franchises where investment was needed. With the establishment of the Strategic Railway Authority, there is now a presumption that most franchises will be for a sufficiently long period that the train operators will themselves be able to promote investment.

Secondly, freight. Much time and effort was spent in breaking up British Rail 's freight activities into six separate companies, five of which were then sold to the same company. With insight, it is perhaps easy to see that the scope for separate train load freight companies to operate viably was low, given the high level of competition from road freight. An approach which recognised this at the outset, but sought to protect dependant rail users, might have been preferable.

Thirdly, the Railways Act made no provision for the regulation of the rolling stock companies. This has been the source of much criticism, particularly in view of the profits made by the initial purchases on resale. However, competition for new rolling stock leases has been effective, with leasing rates among the lowest in the world. Following a review by ORR of the rolling stock market at the request of the Deputy Prime Minister, he has accepted that the new Competition Act - which comes into force on 1 March 2000 - together with

the Voluntary Code of Practice which has been negotiated with the rolling stock companies provides adequate protection. It is, nevertheless, surprising that the definition of "railways services" in the 1993 Act should exclude rolling stock leases.

Regulation

There is general agreement that the division of responsibilities between ORR and OPRAF is hard to understand. The original theory was that the Rail Regulator - independent of Government - should not take decisions which impacted on Government subsidy. Hence matters such as minimum service standards and maximum fares were reserved to the Franchising Director. But the theory breaks down in that decisions by the Rail Regulator on Railtrack's access charges have a direct impact on subsidy. Indeed, it was explicitly recognised that the decision to rebase access charges in 1995, which reduced charges over the first six years by £1.5 billion, could promote the use of the railway network by reducing long term subsidy requirements, albeit at the expense of lower flotation proceeds for Railtrack.

In practice, ORR and OPRAF have worked closely together - for example by establishing a Consumer Benefits Unit - to ensure that policies are consistent and that, within the constraints of the current statutory provisions, passengers are given a "one stop shop". Nevertheless, there are contradictions inherent in the role of OPRAF between being a party to a commercial contract, ensuring delivery of that contract, and having a broader public interest role as a regulator. This was illustrated by OPRAF's changing attitude to changes of ownership of train operators. Initially, OPRAF seemed to be concerned merely with continued delivery of contractual obligations; but it quickly shifted to seeking a "passenger dividend" from such changes of control, reflecting the approach for example of Ian Byatt in the water industry.

In respect of ORR, a key early question was the adequacy of arrangements for regulating Railtrack, particularly in respect of investment. The original licence, granted by the Secretary of State, required Railtrack to publish an annual Network Management Statement, but only gave the Regulator power to agree the form and period. Content and delivery were not covered.

The modification to condition 7 agreed in 1997 - which might well have finished up with a reference to the Monopolies and Mergers Commission if Railtrack had not agreed - goes much further. First, it requires Railtrack to consult with train operators and funders, and to reflect their reasonable requirements in it plans. Secondly, there is a requirement then to deliver on

those plans and to report on this delivery. It is on the basis of this new condition that the current Rail Regulator has established formal targets for Railtrack's performance in respect of train delays, with the threat of enforcement action (including fines) if it fails to deliver. Given the power of this new licence condition, which reflects similar provisions in licences or statute for other regulated utilities, it is perhaps unfortunate that the initial licence provision was so limited.

In respect of train operators, the Regulator's role is generally restricted to network benefit issues and prevention of anti-competitive behaviour. Although the licences contain what, at first sight, appear quite powerful provisions to prevent action which distorts competition, the procedures set out in the licence are extremely cumbersome. For the future, there is an obvious question whether the Regulator will prefer to rely on the powers contained in the new Competition Act.

Customer representation in the railway industry has a long pedigree. On privatisation, the Rail Users Consultative Committees came under the wing of the Rail Regulator, following the model in water and electricity. The Committees have developed their role over the first five years, including, for example, playing a leading role in the first National Rail Summit earlier this year.

Under the terms of the Railways Bill, the Committees will move from ORR to SRA sponsorship. This contrasts with the approach being taken in other utilities, where customer committees will become independent (on the lines of the Gas Consumers Council). There are clearly questions for the future about whether the committees will be able to act independently, when they get their resources from the body which specifies the framework for passenger services which they may wish to criticise. Certainly, under ORR sponsorship, the committees have in practice been able to range widely in their deliberations and have been able to express views different from those of the Rail Regulator himself.

Performance

Performance - in terms of safety, train delays, cancellations, train cleanliness, provision of information etc - has been a major focus of attention over the first five years. In terms of numbers of services, and passenger numbers and freight volumes, the picture is clear: the rail network is now carrying more traffic than at any time in the past 40 years. But while privatisation may have facilitated

this growth in traffic, it has not succeeded in addressing other concerns about service quality. Nor have the safety arrangements gained public confidence.

This outcome reflects a number of inter-related factors:

First, the initial "regulatory contract" was in a number of cases inadequately specified. For reasons which were understandable at the time, reflecting among other things the immaturity of Railtrack's planning systems, the regulatory contract for infrastructure was expressed in terms of "timely renewal of the network in modern equivalent form", a term whose interpretation has generated much debate and subsequent analysis. Similarly, the contracts for train operators focused more on preventing a reduction in services than on performance measures where services increased.

Underlying this, are some fundamental questions about the trade off between, for example, the number of services and punctuality. With rising passenger numbers - a reflection of the performance of the economy generally as well as increasing relative attractiveness of rail compared with other modes - train operators have needed to trade off a reduction in overcrowding, through running more trains, with the additional delays that this causes where there are capacity constraints on the rail network. Together with the weak incentives on Railtrack to provide additional capacity, this has lead to a number of well-publicised service difficulties.

These issues highlight, with hindsight, what is perhaps the biggest weakness of the framework put in place at the time of privatisation - namely that the incentives and contractual arrangements for dealing with growth were inadequately addressed. It is this issue which, among other things, the Strategic Rail Authority is expected to address.

The Railways Bill

The Railways Bill introduced in the summer seeks to address the perceived lack of strategic direction in a disaggregated rail industry by developing the role of OPRAF into a new Strategic Rail Authority. But the SRA will reflect many of the contradictions inherent in the current framework. Not only will it continue to combine the roles of service purchaser and regulator - with the latter role enhanced through the transfer of ORR's customer protection and network benefits responsibilities - but it will have a strategic planning role added in addition. Its ability to balance these three roles will be a key test.

Alternative approaches would clearly have been possible. For example, recognising that decisions by the Regulator do in practice have an inevitable

impact on subsidy, the customer protection functions could have been transferred from OPRAF to ORR rather than vice versa. This would have put ORR in the same position in respect of rail passengers and freight users that other independent regulators are in respect of final customers.

A major uncertainty about the operation of the new arrangements concerns the ability of the SRA to request the Regulator to direct Railtrack to provide additional capacity. Arguably, such a power is unnecessary given the provisions of condition 7 or Railtrack's licence. Moreover, it highlights the question about the respective roles of Government and the privatised companies in specifying and promoting investment schemes.

This issue was highlighted in the third document in the series dealing with Railtrack's periodic review, published in December 1998. That document set out a challenge for Railtrack:

- Did it want to operate merely as a contractor, delivering capital schemes specified by Government, essentially on a low risk, low return basis, or

- Could it deliver better value for rail users and taxpayers by developing an "equity partner" approach in which it and train operators took greater commercial risk in providing additional capacity, earning higher returns if those schemes were commercially successful, but bearing the risk if they did not.

The key question here is whether sharing a commercial success of an investment would give Railtrack and train operators better incentives to plan investment to meet the best assessment of future demands, and then work actively to secure that additional traffic. The record of a "centrally planned" railway network is littered with examples of investment which did not bring the expected benefits - with the abortive expenditure on the Night Star and regional Eurostar rolling stock as one example. Putting the question in specific terms, would Thameslink 2000 have been developed on time - rather than 7 or 8 years late - if Railtrack and the train operator had been able to enter into a commercial deal at the time of privatisation, rather than Railtrack simply acting as the contractor to an OPRAF designed scheme?

Looking Forward

Clearly not all railway investment will be commercially viable, unless, for example, the Government was to change radically the basis of road taxation. While there are likely to be moves in that direction, such moves are unlikely to be fast or general. So ultimately the ability of the railway industry to deliver

significant improvements in capacity and services will depend on the availability of higher subsidy. In that respect, the establishment of the SRA may achieve greater clarity about what needs to be done, but not provide the resources for achieving it. In moving forward to the second five years of the privatised railway industry, money will continue to be a critical issue.

Discussion

John Cartledge suggested that there were some fundamental issues yet to be resolved in relation to the functions and powers of rail user consultative committees. He asked the speaker if he thought train operator incumbents, who had initially been drawn into rail by the prospects of substantial subsidy, might now need an incentive to stay. He then asked if the new London authority would be effective in overseeing transport policy, given that the Shadow Strategic Rail Authority appeared to be in the initiative for rail services and the Government were pressing ahead with plans for the underground.

Chris Bolt agreed that there was potential for conflict in London and the major conurbations. He suggested that there was a real difference between a genuine strategic overview that might be taken by the SSRA and Central Government and detailed local requirements, which might be the role of the new authorities in London and Scotland and the existing PTEs. Conflict might arise if the boundary between the two different roles was not clear. Chris Bolt was less concerned about the commitment of train operators; the important point being that profits were acceptable if the actual delivery of service quality was as promised.

Derek Done suggested that there were some quite close similarities between rail and air transport. He asked if this might not lead to the conclusion that Railtrack ought to have stayed in the public sector.

Chris Bolt explained that there had been some studies prior to privatisation looking at issue such as the allocation of capacity where there were thought to be some similarities. However, it was soon realised that the availability of train paths within a large rail network had significant special features that demanded a different approach.

Chris Bolt said that, although it was possible that if Railtrack was in the public sector it might benefit from a lower cost of capital and might buy-in private sector managerial skills, the problem in the past had been the financial constraints of Government which had deprived the railway of much needed investment. Railtrack in the private sector had the advantage of being able to avoid that constraint. This is not to say that another arrangement might not

work, particularly if the Treasury were to take a long-term view and to allow independence in decision making as has been demonstrated with the management of interest rates.

John Crawford suggested that with an expanding demand for rail services the equity and contractor arrangements with Railtrack would ultimately lead to a need for significant extra public funding from the Strategic Rail Authority. This would in turn return the industry to the original problem of the availability of public sector finance and Treasury constraints.

Chris Bolt agreed that this was likely to be the case, particularly for an industry where fare-box revenue alone was often inadequate to justify investment on purely commercial grounds.

Nigel Harris opined that a sensible sequence for privatisation might have been to start with the smallest organisations and conclude with the largest, rather than the way it was done. He suggested that two key areas where service provision by operators had been under-specified were: train service levels in the middle of the day outside the morning and evening peaks, and fares restrictions rather than the fares themselves.

Chris Bolt reminded the meeting that the original plan had been to privatise train operations first and that the Conservative Government had brought forward the privatisation of Railtrack at a later date. The National Audit Office published their report on the matter late last year and noted that a higher sale price might have been obtained if the sale had been delayed or staged over a longer period. Chris Bolt went on to say that in retrospect it was possible to see if that some aspects of the service provision might have been better specified, but this needed to be balanced with the need for some flexibility so that operators could innovate, which might be in the public interest.

Mervyn Jones observed that the Shadow Strategic Rail Authority are now offering the prospect of franchises with a much longer tenure than the original seven years and asked the speaker if this was the best way forward.

Chris Bolt noted that it was very difficult to predict twenty years ahead. It was important, therefore, to have some mechanism for periodic review by both parties at intermediate points during such a long contract.

Don Box noted that an advantage of the separation of infrastructure from operation in a fragmented industry was the increased transparency it afforded. He suggested that this might be a useful stepping stone in the gradual

development of an integrated transport strategy. Don Box asked if the current structure of track access charges provided the right incentives to the industry.

Chris Bolt considered that it was important to include appropriate incentives in access charges and he was glad that the work he had begun to revise the structure so that less than ninety percent of charges were fixed was progressing to a conclusion. He went on to say that in the future operators will be approaching Railtrack for enhancements to the network with two pots of money behind them: that from their own fare-box and that from external funding agencies. It is possible that the Strategic Rail Authority might wish to consider placing incentive within the franchise agreements so that there is another source of funding which could feed through to Railtrack.

Stephen Bennett thanked Chris Bolt for being the complete transport economist: a member of the *Transport Economists Group*, an economist regulator, a railwayman and now a transport professional. The chairman and the whole meeting thanked Chris for his stimulating talk.

Report of discussion by Stephen Bennett

NEW PUBLICATIONS

The following have been published recently:

PAN-EUROPEAN TRANSPORT

A 2nd Edition of the Financial Times report with the sub-title "Market trends and opportunities" by Derek Done has been published. The new edition is a timely revision of the report first published in 1995. A wide range of subjects is covered, including transport's role in the European economy, transport markets, policy and regulation in Europe, infrastructure, relationships with environment and technology, and freight and passenger services.

Derek Done is a member of TEG, and further details can be obtained from him at 13 Harwood Road, Marlow, Bucks, SL7 2AR. Telephone: +44 (0) 1628 485946

PPG13: PLANNING POLICY GUIDANCE ON TRANSPORT (draft for consultation)

PPG13 was last revised in March 1994 (see the report of Matthew Quinn's talk in *The Transport Economist*, Volume 22, No. 2, summer 1995). At that time it was the first major change in direction for transport planning policy, following the Earth Summit of June 1992 in Rio de Janeiro. This consultation draft of PPG13 issued in October, revises guidance on transport to local planning authorities following the July 1998 White Paper (*A New Deal for Transport: Better for Everyone*) which introduced major changes to national transport policy. There are four main areas covered: planning policies, managing travel demand, implementation, and planning for transport.

ROCOL (REVIEW OF CHARGING OPTIONS FOR LONDON)

The Executive Summary has recently been published by Government Office for London. It can be accessed through the website:

http://www.open.gov.uk/glondon/

The report by a group of independent transport professionals, chaired by GOL, describes how new road user charging and workplace parking levy powers in the Greater London Authority Act could be put into practice. Members may find this paper useful as an introduction to the joint meeting with ICE London Branch in January.

TEG NEWS

IN MEMORIAM

The Transport Economists' Group was saddened to hear of the death of Ian G Harder, a director of Maxwell Stamp plc. He died on 29th July 1999, and a memorial service was held at All Hallows by the Tower on 4th November. He had been a member of the TEG for many years and will be missed by members of the Group. The Group extends its condolences to the family and friends of Ian.

MEETINGS 2000

Meetings will be held at 5.30 for 6pm in room 205 of the Transport Studies Group at the University of Westminster, located at 35 Marylebone Road, London NW1 5LS. The building is on the south side of Marylebone Road, close to Baker Street Underground Station and is passed by numerous buses.

January 26	Road User Charging Options for London Reg Evans, Technical Director, Halcrow Fox A joint meeting with the London Branch of the Institution of Civil Engineers (*held at the University of Westminster*)
February 23	**The Transport Bill and Buses** Speaker to be confirmed
March 22	**Annual General Meeting at 17:00** **The potential for reducing the number of short car journeys** Roger Mackett, Centre for Transport Studies, University of London
April 26	to be confirmed
May 24	**Green Transport Plans** A speaker from Oscar Faber
June 22	to be confirmed

TEG COMMITTEE, 1999:

CHAIRMAN: **Peter White**

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TREASURER AND MEMBERSHIP SECRETARY: **Don Box**

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